GFB WGA

Part #7303

For Mitsubishi EVO X

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 ensure the most appropriate spring combination is installed in your WGA.

The WGA part #7303 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 a good starting point for most EVO applications.

Also note that you can use the turnbuckle adjustment on the WGA to further adjust the gate pressure, which effectively allows you to bridge the gap between spring combinations.

GFB recommends selecting a spring combination that sits between 50-90% of your target boost. e.g. for a target boost of 26psi, your spring combination should be between 13-23psi. In this example, the supplied 17psi spring combination is perfectly acceptable, although a small advantage in spool up and boost holding can be achieved by using the 22psi combination.

Where multiple boost settings are required, select the spring combination that achieves your lowest intended boost pressure, then use the boost control system to achieve the higher boost settings.
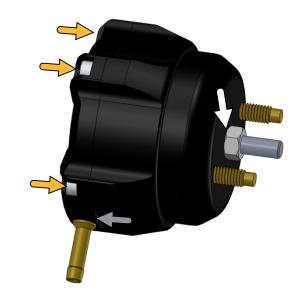
If you require a different gate pressure, use the table opposite to determine the most appropriate spring combination.

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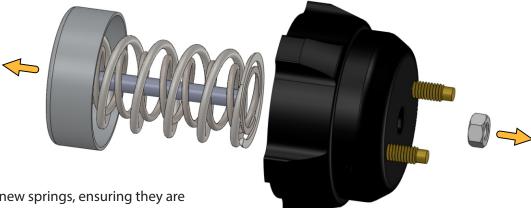
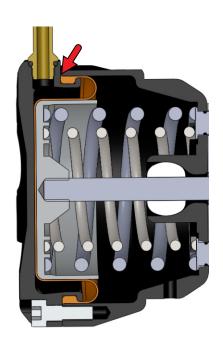| Gate Pressure (psi)	5psi Inner	7psi Middle	10psi Outer
5	●		
7		●	
10			●
12	●	●	
15	●		●
17 (pre-installed)		●	●
22	●	●	●

1.   The spring force must be restrained before attempting to remove the cap. To do this, spin the locknut as close as possible to the body - this will prevent the spring from extending as you remove the cap ⇨

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 ⇨
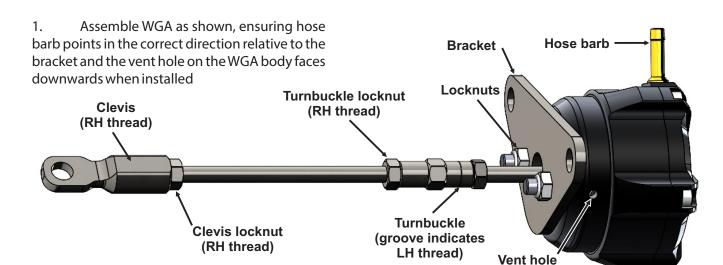
4.   Once the cap and diaphragm are removed, unscrew the locknut completely to remove the piston, rod, and springs.
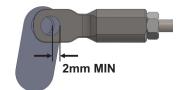
5.   Install the new springs, ensuring they are correctly seated in the grooves at the bottom of the body, and on the underside of the piston

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 or spray lubricant 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 relative to the bracket and the vent hole on the WGA body faces downwards when installed

Bracket

Hose barb

Locknuts

Clevis (RH thread)

Turnbuckle locknut (RH thread)

Clevis locknut (RH thread)

Turnbuckle (groove indicates LH thread)

Vent hole

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.

2mm MIN

4.   At this setting, it is likely that the "gate" boost pressure may be slightly under the rated spring pressure. Typically, a pre-load of 4-6mm achieves the rated spring pressure. You can adjust spring pre-load via the turnbuckle without removing the clevis from the wastegate flap - each full turn adjusts the pre-load by 2mm. Once you have set the adjustment, tighten both locknuts (remembering that the locknut closest to the WGA body is a left hand thread).

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 if you run out of adjustment with the turnbuckle).

Warranty