



**GFB**  
GO FAST BITS

# GFB MACH 2 TMS TR9120

## INSTRUCTION MANUAL



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## MACH 2 INSTALLATION

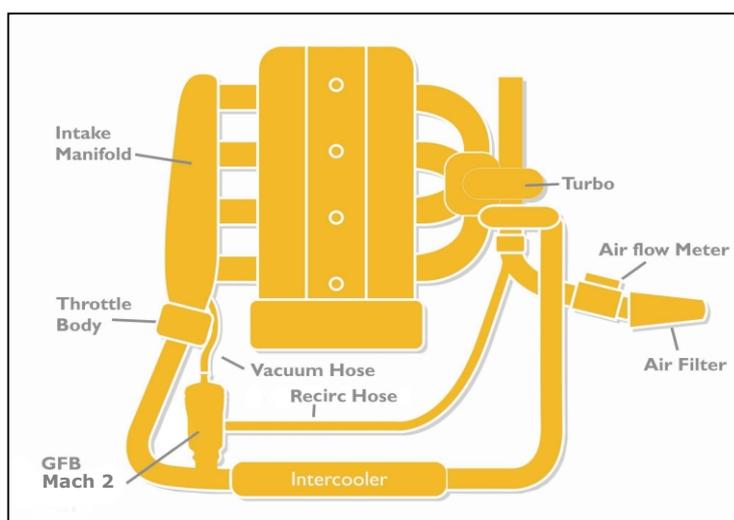
The standard inlet and outlet of the GFB Mach 2 T9120 are 20mm in diameter, which is a suitable size for fitting into  $\frac{3}{4}$ " (19mm) I.D. hose. For different mounting options, a list of the adaptors available is found at the end of these instructions, but if in doubt, check out the adaptors page on our website [www.gfb.com.au](http://www.gfb.com.au), or consult your local dealer.

T9120 is suitable for custom hose-mounted installations, and is also a suitable replacement for factory valves on the following vehicles (some applications may require the factory hoses to be extended or modified):

- Subaru WRX/STi MY94-96
- Subaru Legacy RS Turbo MY89-93
- Ford Laser TX3 KC-KH
- Mazdaspeed Miata SE
- Mazda RX7 Series 4-6
- Toyota Supra JZA80

For custom installations or cars without a factory fitted valve, a location for the Mach 2 must be found on the piping between the turbo outlet and the throttle body, and a suitable adaptor must be welded in that location to which a  $\frac{3}{4}$ " hose can be connected.

A hose to connect the Mach 2 recirc outlet must also be fitted to the piping before the turbo (after the airflow meter if one is installed).



NOTE: GFB recommends mounting the valve closer to the throttle body rather than the turbo, since some factory turbo piping can cause pressure drops which may affect the performance of the valve. If an intercooler is used, it is preferable to mount the valve after the intercooler, before the throttle.

- 1) Push the inlet of the Mach 2 into the boost pressure source hose (i.e. from between the turbo and throttle body), and secure with a hose clamp.
- 2) Connect the recirc outlet on the side of the Mach 2 to the recirc hose that leads back to the turbo intake and secure with another hose clamp.
- 3) Connect the vacuum nipple on the top of the Mach 2 to a suitable manifold vacuum source (after the throttle body), using rubber or silicone vacuum hose of at least 4mm I.D. Try to avoid attaching any other hoses and t-pieces to the vacuum hose and keep it as short as possible, as this will ensure rapid response from your GFB valve. **DO NOT CONNECT THE VACUUM HOSE TO BOOST CONTROL, FUEL PRESSURE REGULATOR OR BRAKE BOOSTER HOSES.**
- 4) If necessary, the cap can be rotated so the vacuum nipple points in a different direction. Simply unscrew the 4 cap screws and rotate the cap to a new position (there are screw holes every 45 degrees) and reinstall the screws.

# ADJUSTING THE SPRING PRELOAD

## PLEASE NOTE!

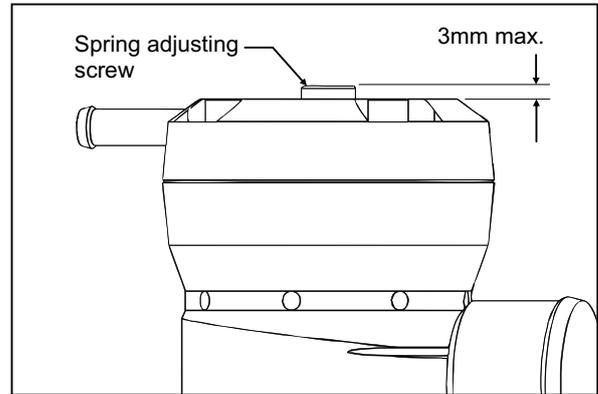
Contrary to popular belief, the spring pre-load **DOES NOT need to be adjusted for different boost pressures**. The Mach 2 will stay shut under full throttle conditions *regardless of boost pressure* or spring pre-load.

Rather, the spring pre-load affects how easily the valve opens when you lift the throttle, and how long it stays open when it vents.

The screw in the centre of the head is the spring adjustment. Use the supplied 5mm hex key to make adjustments.

The softest spring setting is achieved when the adjustment screw is 3mm above the head of the valve as shown to the right. Do not set the screw more than 3mm above the head.

Unlike an atmosphere-venting BOV, the spring pre-load on a fully recirculated valve does not need to be adjusted to prevent stalling or backfiring, since all of the vented air is recirculated.



It is possible to use the Mach 2 straight out of the box without any spring pre-load adjustments, however you can use the adjustment to fine-tune throttle response. Generally speaking, the hardest spring pre-load you can run without causing compressor surge (fluttering sound when lifting off the throttle) is ideal.

To set the spring pre-load for maximum throttle response:

- Set the spring to the hardest setting (adjust the screw all the way down).
- Start the car and drive it until it is warm, and make sure the A/C is off.
- Accelerate moderately in a high gear to about 3000RPM and then ease off the accelerator, keeping the clutch engaged - these are the conditions most likely to cause compressor surge. If you hear a fluttering sound as you lift off, turn the adjustment screw in the “-“ direction one turn at a time until the noise disappears. This is now the ideal setting for best throttle response.

Note that all cars have a different threshold for compressor surge, so it is possible that you may be able to leave the valve in the hardest setting without hearing surge.

Don't be afraid to experiment with the spring pre-load adjustment, you can't cause any damage by doing so, and getting the setting right to suit your car can help to optimise throttle response.

## ALTERNATIVE ADAPTORS AVAILABLE

### Base (inlet) adaptors:

5325 – 25mm hose base  
5330 – 30mm hose base  
5333 – 33mm hose base  
5335 – 35mm hose/1" pipe mount base  
5338 – 38mm (1.5") pipe mount base  
5350 – HKS style mounting flange

### Recirc (outlet) adaptors:

5225 – 25mm  
5230 – 30mm  
5233 – 33mm  
5238 – 38mm

## CONVERTING TO ATMO VENTING

If you want to change your Mach 2 to 100% atmosphere venting for a blow-off sound, simply purchase and fit GFB's atmo conversion kit part # 5920.

You may also need to re-orient the valve on the mounting flange slightly so the trumpet does not point straight at the plugged recirc hose.

Atmo conversion kit part # 5920 includes a trumpet to replace the recirc outlet, a firmer spring that is suitable for venting to atmosphere (keeps the piston closed at idle), and a 20mm hose plug to block off the recirc hose.

## 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.**