

# Compressed Gas / CO2 External Wastegate Instructions

Updated a month ago



Product Name: Compressed Gas Wastegate

Product Description: GenV Compressed Gas Wastegate

[TS-0552-1242](#)

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## Important Notes on Your New Compressed Gas External Wastegate

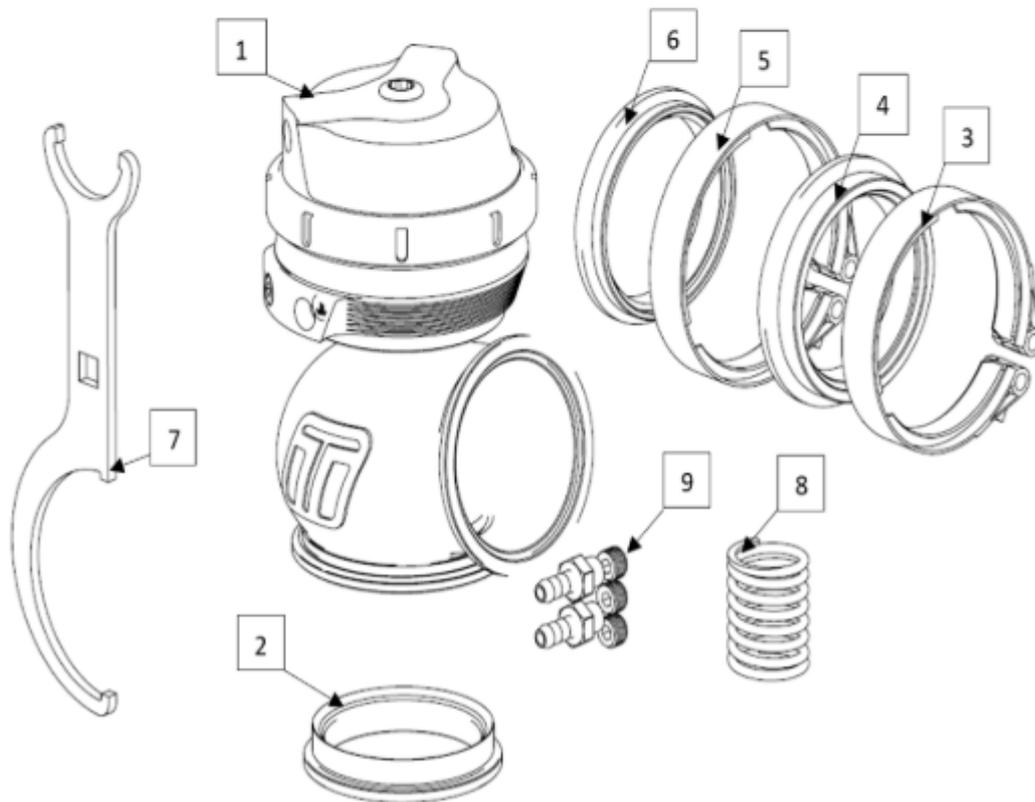
- Turbosmart accepts no responsibility whatsoever for incorrect installation of this product which is potentially hazardous and can cause serious engine damage or personal injury
- The GenV external wastegate is designed for use with a turbocharger that does not have an internal wastegate.
- Consult your local specialist before setting your desired boost pressure, setting boost beyond your engines capability may result in engine damage.
- Use only high-quality fittings ensuring maximum sealing reliability. Optional Turbosmart fitting kit available.

## Recommendations

- Allow for adequate cool airflow around the top diaphragm housing
- DO NOT Mount the wastegate so that the top diaphragm housing is less than 100mm from a heat source
- DO NOT wrap the body of the wastegate with exhaust wrap
- Fitting your GenV wastegate may require fabrication or modification to your exhaust manifold. Turbosmart recommends that your wastegate is fitted by an appropriately qualified technician.
- Turbosmart recommends that the engines Air/Fuel ratio is checked while setting the desired boost pressure, as any increase in boost pressure can cause the engine to run "LEAN", resulting in possible engine damage.
- Turbosmart recommends that boost pressure is set using a dynamometer and not on public roads.
- Turbosmart recommends that a boost gauge be permanently fitted to the vehicle.

# Kit Contents

Part	Description	Use
1	Turbosmart GenV Wastegate	Main Unit
2	Valve Seat	Valve Seat
3	Inlet V-Band Clamp	Inlet V-Band clamp
4	Inlet Weld Flange	Inlet V-Band weld flange
5	Outlet V-Band Clamp	Outlet V-Band Clamp
6	Outlet Weld Flange	Outlet V-Band Weld Flange
7	Collar Tool	Adjusting actuator and changing springs
8	Spring Kit	4 x Springs **(1x Spring pre installed)**
9	Fitting Kit	2x 1/8" NPT Nipple, 1/8" NPT blanking plugs **(1x pre-installed)
10	Turbosmart Sticker	Turbosmart Sticker



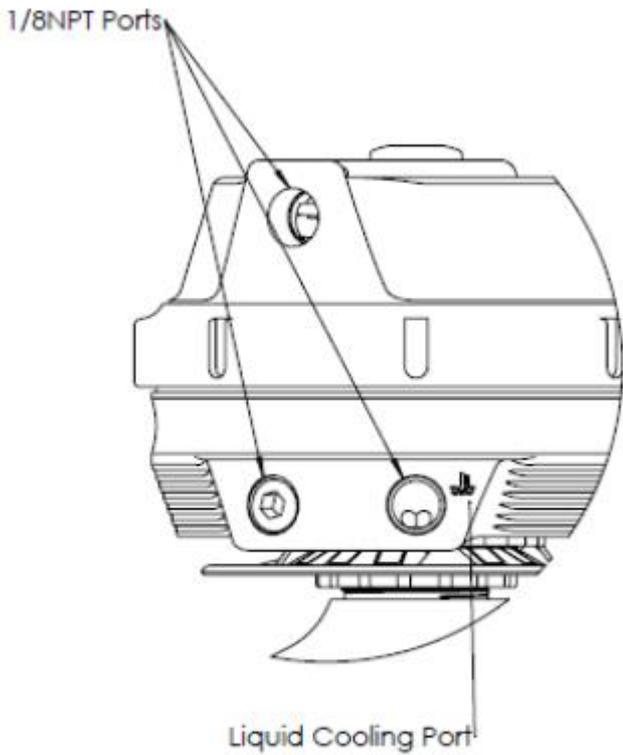
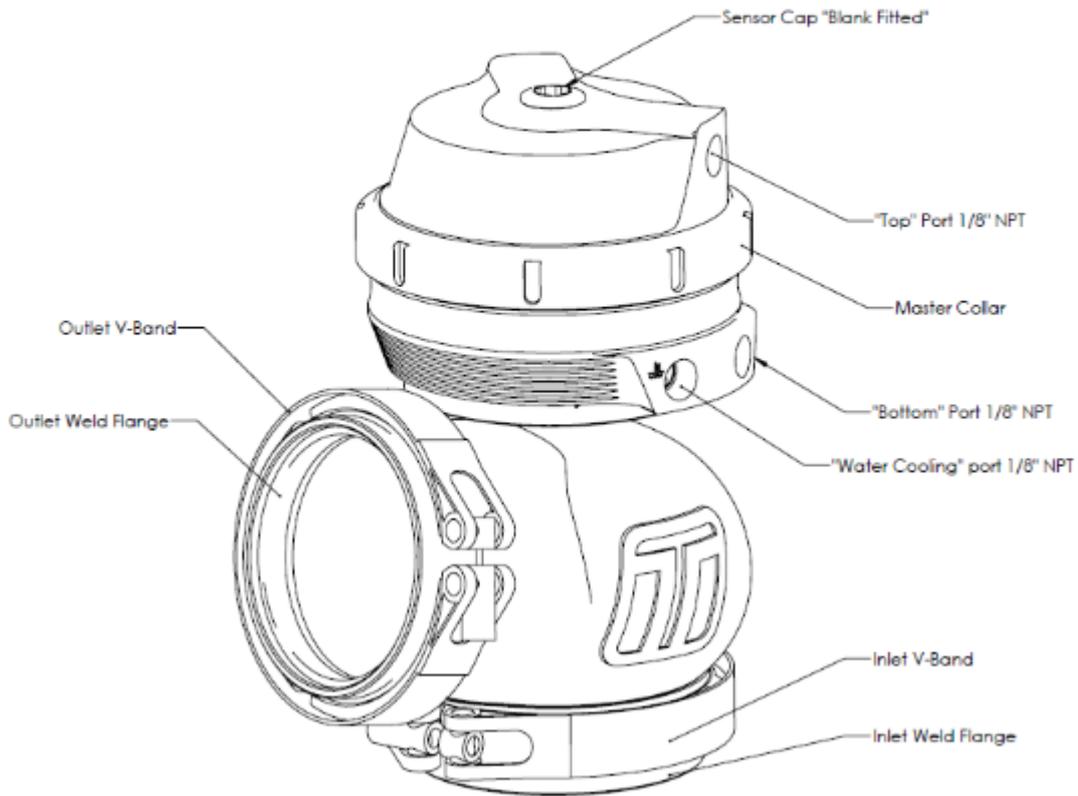
## Tools Required

- 3/8" square drive deep socket
- Square drive ratchet wrench
- Torque wrench (3/8" drive)
- Non-marking spanners to tighten fittings
- 3/16" hex key
- Supplied collar tool
- 14mm 12-point (double hex) socket
- Flat blade screwdriver
- Small hammer

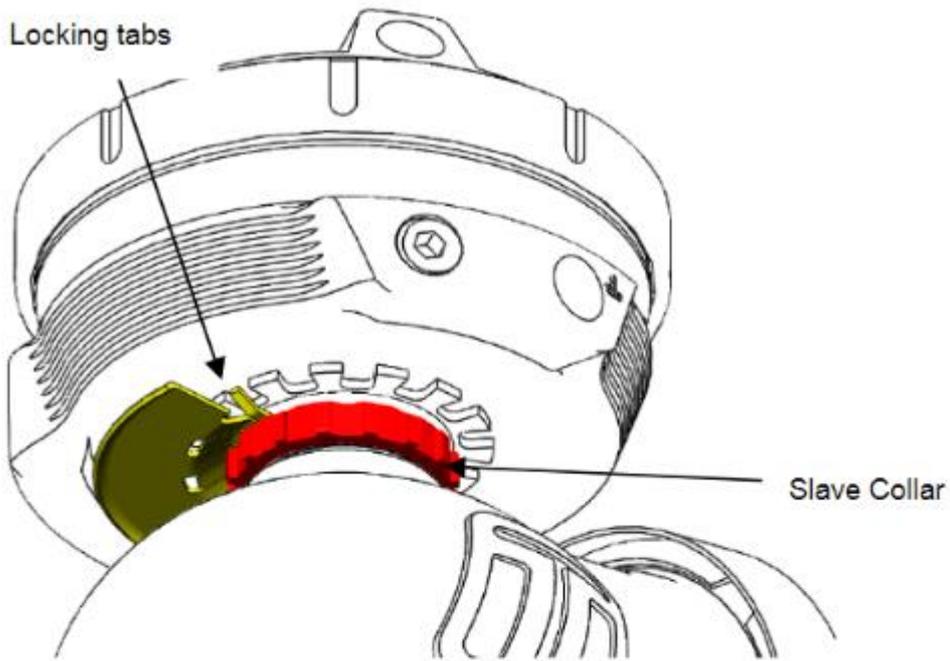
## SUGGESTED LUBRICANTS AND SEALANTS

- Loctite 243 Thread locker
- Loctite 567 Thread Sealant
- Resbond 907TS Red
- Penetrating oil

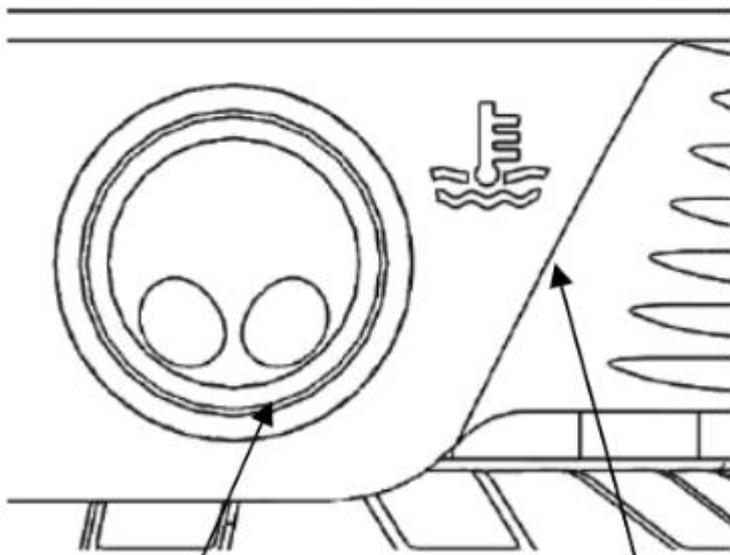
# Compressed Gas Wastegate Overview



Locking tabs



Slave Collar



2 holes on water port

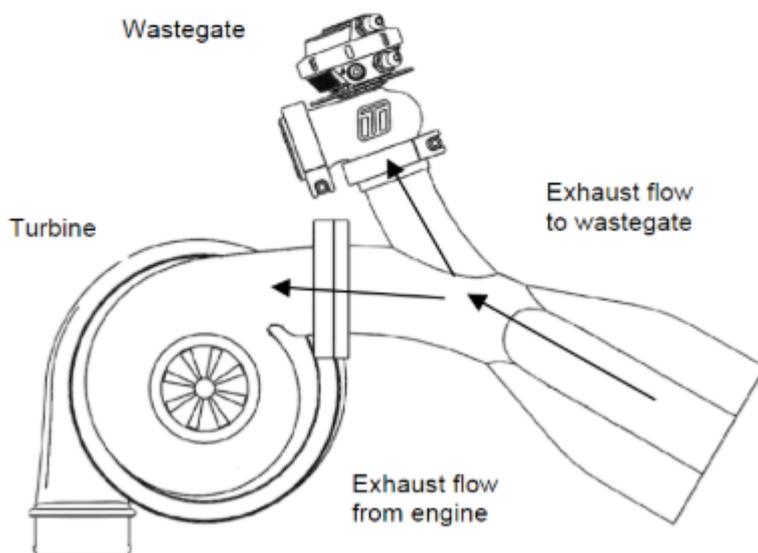
Water cooling symbol

## Fitting Your GENV Wastegate

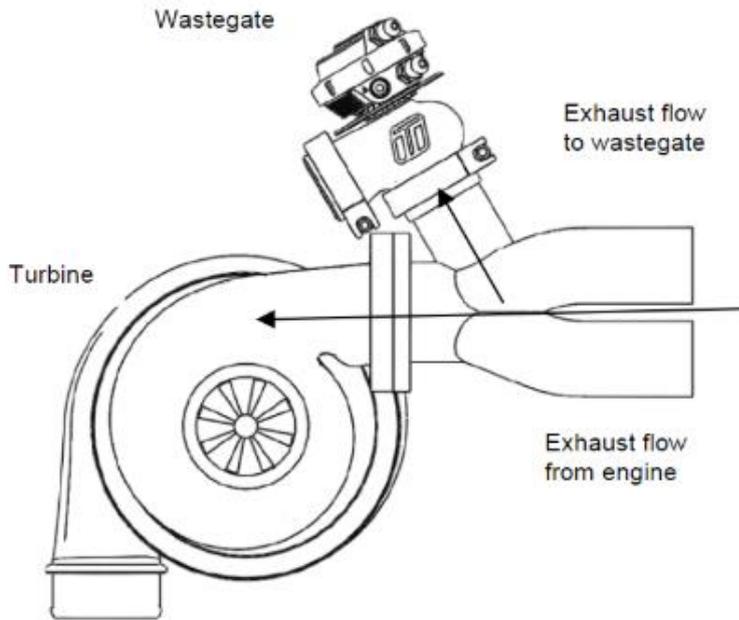
### Mounting your new Turbosmart Wastegate

The GenV series of wastegate is a direct fit replacement for the 4th Gen wastegate range and no modification is necessary provided packaging space is sufficient. The weld flanges should be welded to your exhaust system. The weld flanges are compatible with Stainless Steel and Mild steel welding rod material. For best results an attempt should be made, if space allows, to mount the GenV Wastegate at an angle to the exhaust flow to allow for better flow than a 90 degree mounting. See the schematic diagrams below for examples of mounting positions.

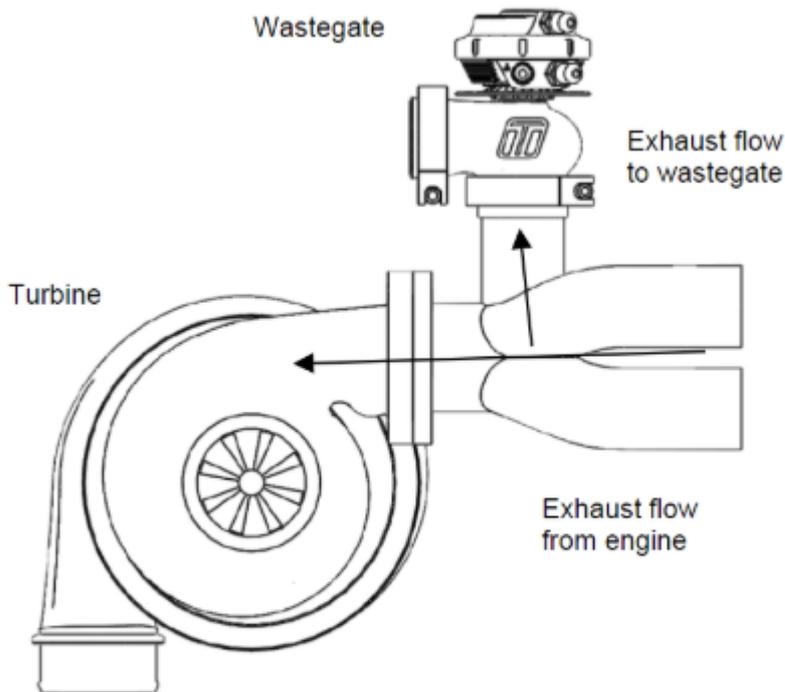
**CAUTION!** Do not place the actuator cap near a significant heat source as this could shorten the life of the diaphragm.



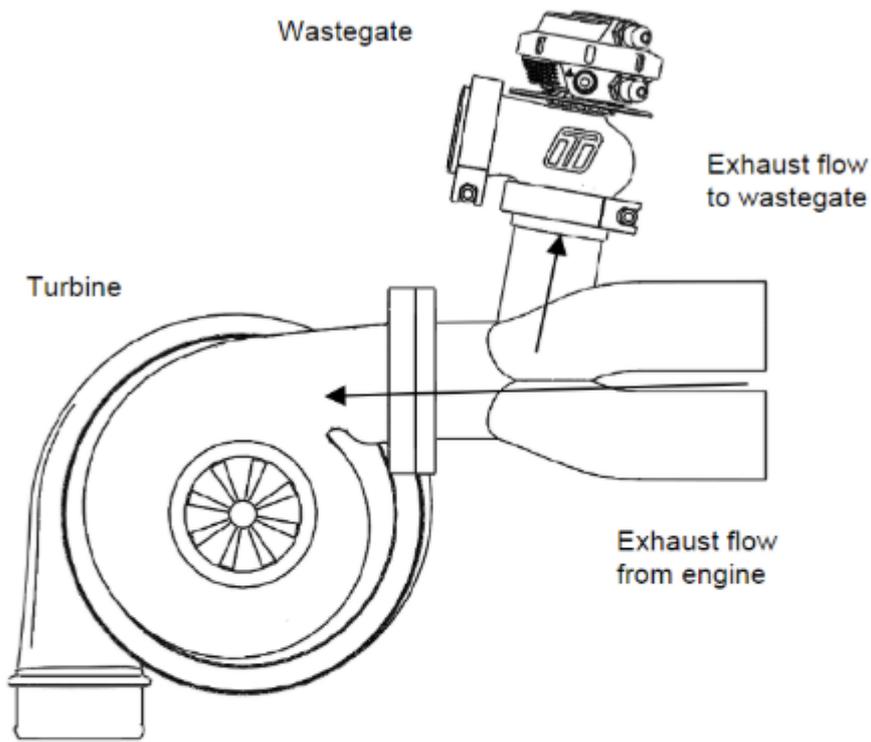
**(Best Flow) Symmetric mounting allows an excellent flow of exhaust to the Straight Gate**



**(Good Flow) Angle mounting allows a good flow of exhaust flow to the Straight Gate.**



**(Poor Flow) 90 Degree mounting gives poor exhaust flow to the Straight Gate and in some circumstances may contribute to over boosting.**

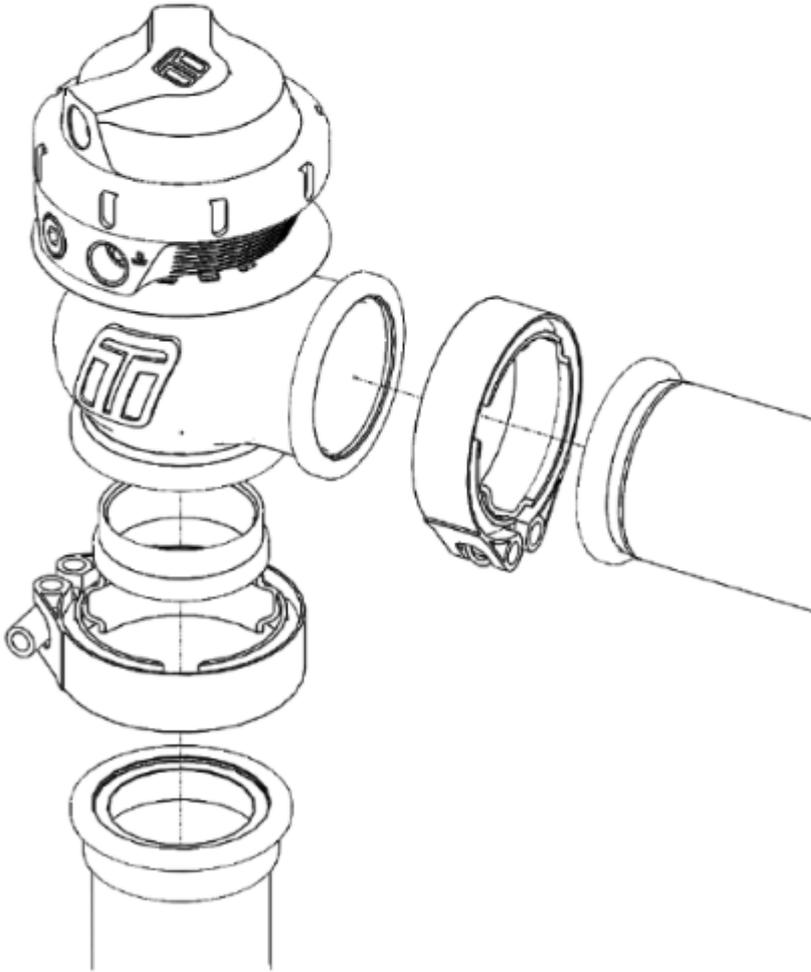
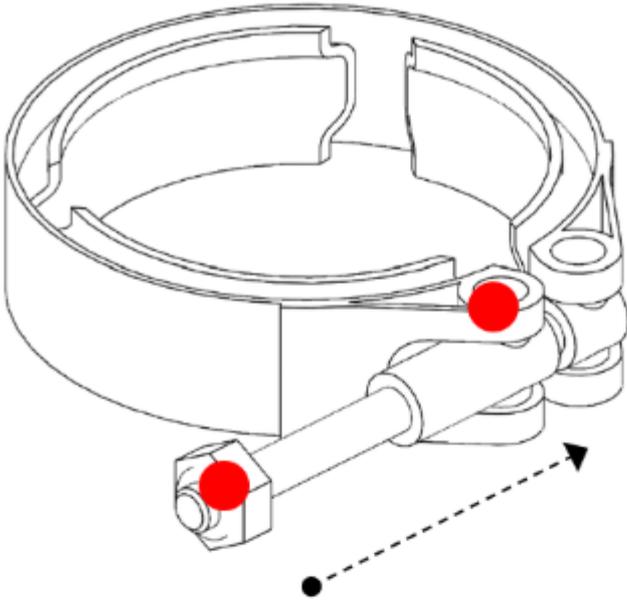


Not Recommended - Less than 90 Degree Mounting. An angle mounting as shown in not recommended and gives extremely poor exhaust flow to the Straight Gate which can contribute to poor boost control and over boosting.

## Fitting the GenV Wastegate

Prior to mounting the Straight Gate, place v-band over weld on flange by unscrewing the nut on the v-band as far out as possible and then squeezing the bolt in a syringe motion to expand the v-band (squeeze the dots together below). Once the v-band is in its fully expanded position, slide the v-band over the flange to allow for the wastegate to be installed.

Using the 3/8" deep socket and a torque wrench Tighten the V-Band to 7N.m (5 ft/lbs). Ensure the wastegate is home correctly while torquing the nut to not have a false torque as this will likely contribute to exhaust leaks.



## Fit Actuator Port Fittings

Fit lower chamber port fittings prior to mounting the wastegate, install 1/8" NPT blank with 3/16" hex key and signal nipple into lower chamber ports. Port order or orientation is not important, select which suits your packaging requirements. Apply thread lubricant and screw in clockwise until finger tight, then tighten further 1-2 turns for seal. Congratulations, your GenV wastegate is installed and ready for use. Double check all fittings, lines and mountings then proceed to start engine and check for leaks.

**NOTE!** If you are unsure which port to install fittings into, please refer to 'Boost Control Hookup' section, refer to table of contents for page number.

**CAUTION!** Do NOT insert fittings and blank into Top Ports unless advanced boost control methods are to be used as this can affect the performance of the product. See 'Boost Control Hookup'

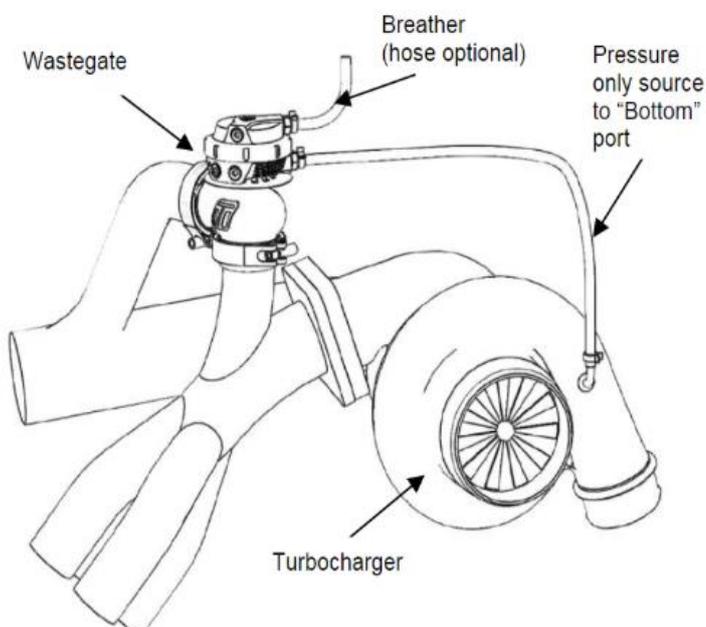
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## Basic Wastegate Hook-Up

### Basic Setup

If no boost controller is being used connect the boost pressure source to the "bottom" port as shown. The boost only pressure source should be sourced from as close to the compressor side of the turbo as possible. The "top" ports of the wastegate should be left open, It is possible in harsh environments to blank one port and connect a hose to the other port that can be ran to a area less likely to allow contamination into the actuator.

**CAUTION!** Do NOT source signal from the intake manifold as this is subject to vacuum and pressure losses across the system and could over-speed the turbocharger.



**Start Engine and check for leaks.**

Congratulations, your GenV wastegate is installed and ready for use. Double check all fittings, lines and mountings then proceed to start engine and check for leaks.

## Compressed Gas Wastegate Hook-Up

### Compressed Gas Setup

A boost controller system is required for CO2 Boost Control. The "bottom" port is hooked up to the pressure reference from the turbocharger.

The Plumbing is as follows

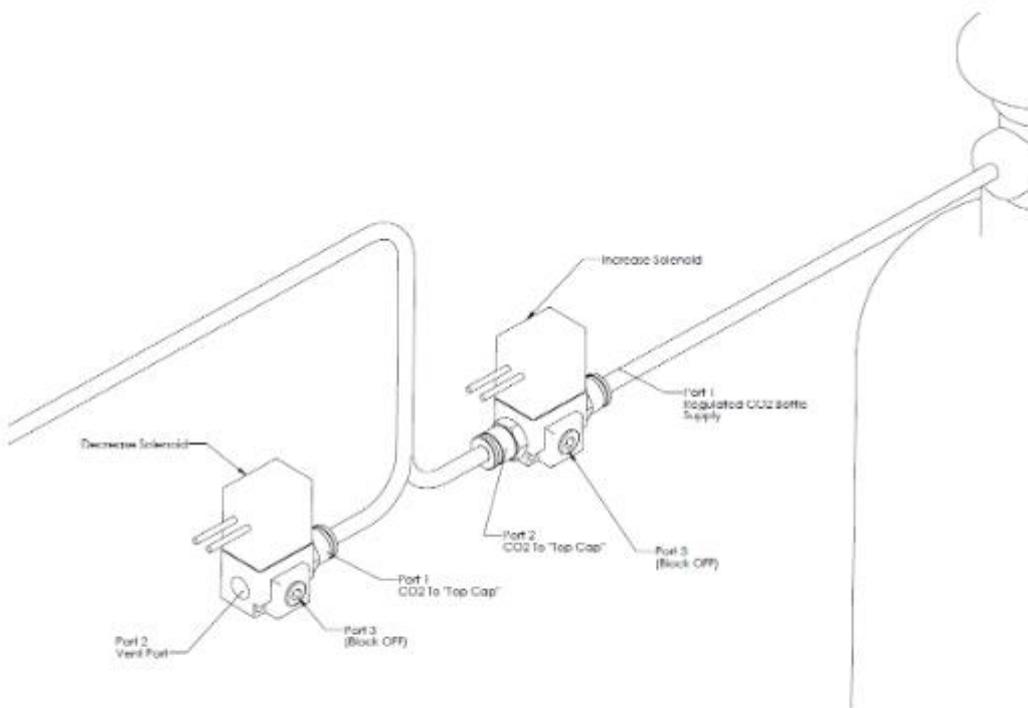
#### Increase Solenoid

1. Port 1 (Regulated CO2 Supply)
2. Port 2 (CO2 "Top Cap")
3. Port 3 (Blocked)

#### Decrease Solenoid

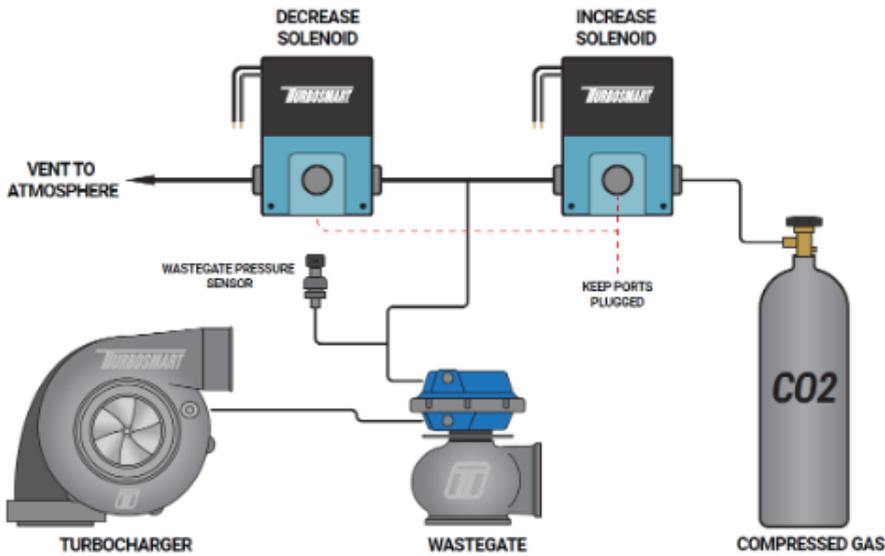
1. Port 1 (CO2 "Top Cap")
2. Port 2 (Vent to Atmosphere)
3. Port 3 (Blocked)

Although orientation isn't important. The Top Cap requires a Dome Pressure sensor to control the pressure in the "Top Cap".



**CAUTION!** Do NOT source signal from the intake manifold as this is subject to vacuum and pressure losses across the system and could over-speed the turbocharger.

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## Integrated Solenoid Gas Setup

An Integrated Solenoid Cap is available as a CO2 option. Ports A and B are interchangeable, provided the port and its corresponding solenoid remain paired. For example, Port A must always be used with Solenoid A, and the same applies to Port B and Solenoid B.

### Increase Solenoid

1. Port A (Regulated CO2 Supply)
2. Solenoid A

### Decrease Solenoid

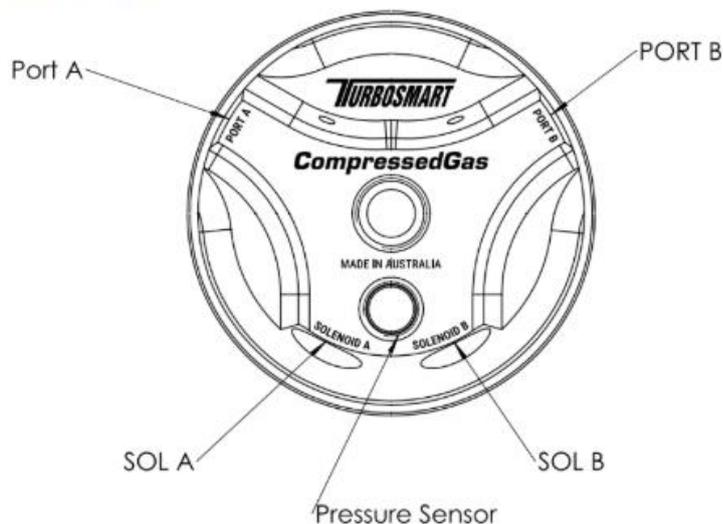
1. Port B (Vent to Atmosphere)
2. Solenoid B

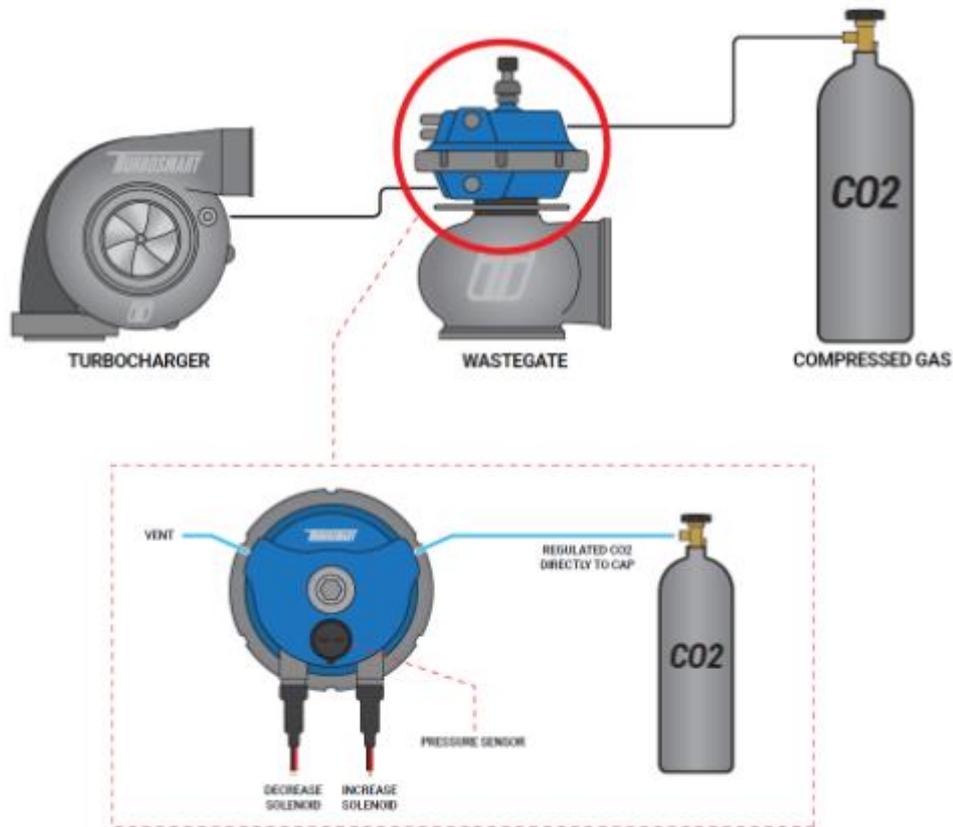
### Top CAP

- Regulated supply in

### Bottom CAP

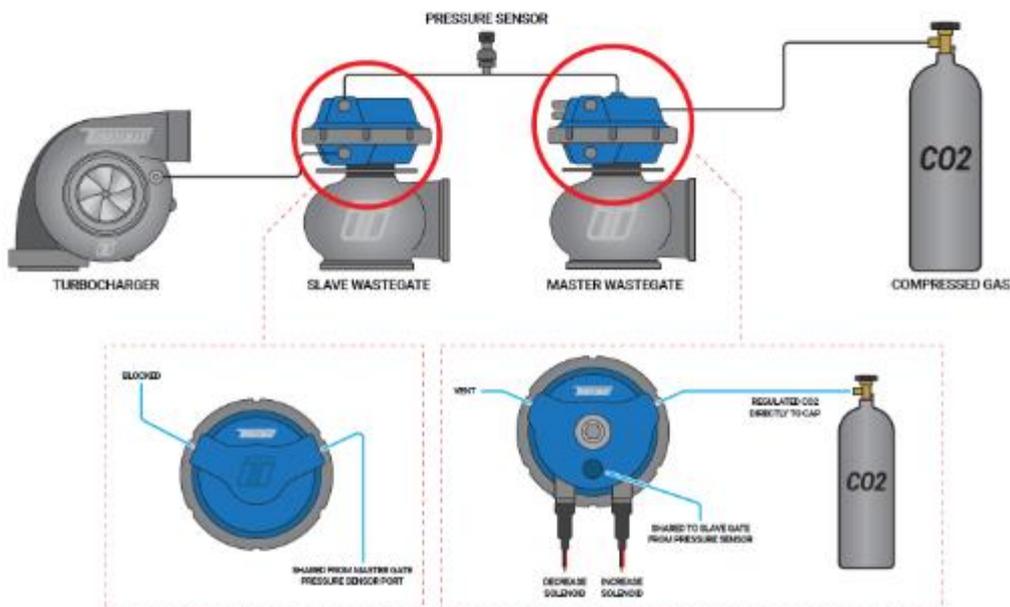
- Boost Pressure Input





V-Bank - Master and Slave CO2 Configuration using a control in cap.

When running control in cap a secondary CO2 wastegate can be plumbed up to use as a secondary wastegate for the opposing bank. The Pressure sensor port in the master must be shared to the slave wastegate.



## Wiring Hookup

The solenoids require a 12V Supply as well as two digitally pulsed outputs from your ECU or Boost Controller. The 12V can be common and can be fused if required. The digitally pulsed output must be run two separate inputs in the ECU, ensuring that they are correctly labeled as the correct output before running. Polarity isn't important on the solenoid.

## Start Engine and check for leaks.

Congratulations, your CO2 Straight Gate is installed and ready for use. Double check all fittings, lines and mountings then proceed to start engine and check for leaks.

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## HOW TO CHANGE YOUR GENV WASTEGATE SPRING

The GenV wastegate has a variety of springs to suit different boost levels. Turbosmart provides the GenV wastegate pre-installed with your choice of either 7psi or 14psi springs depending on the part number. With your wastegate four springs will be provided, 3psi inner, 5psi inner, 7psi middle and 14psi outer. Different spring combinations may be required to suit different boost requirements and tuning.

### Remove Wastegate from Manifold

Remove boost pressure source hose from the wastegate as well as the breather hose is fitted. Unscrew outlet V-band nut in an anti-clockwise direction to the very end of the thread, squeeze the nut against the V-band in a syringe like motion to expand the V-band over the flange. Repeat for inlet V-band. Remove GenV wastegate being careful not to drop or lose the valve seat.

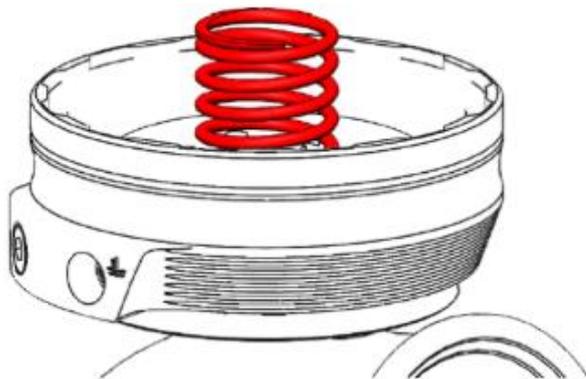
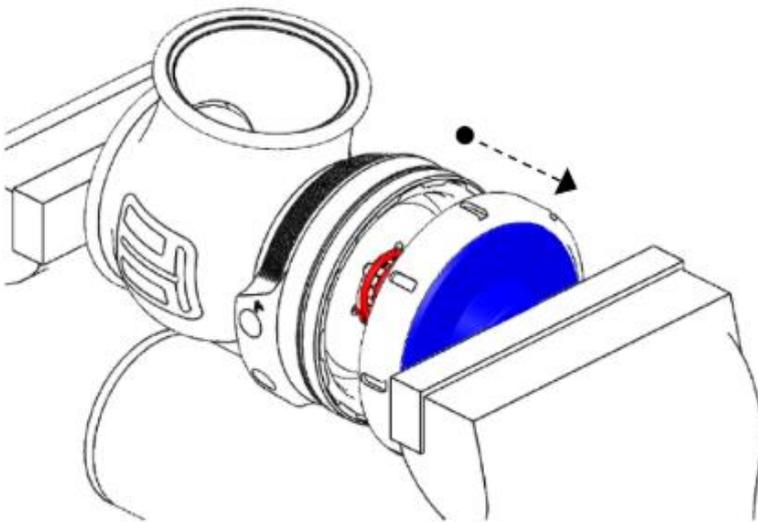
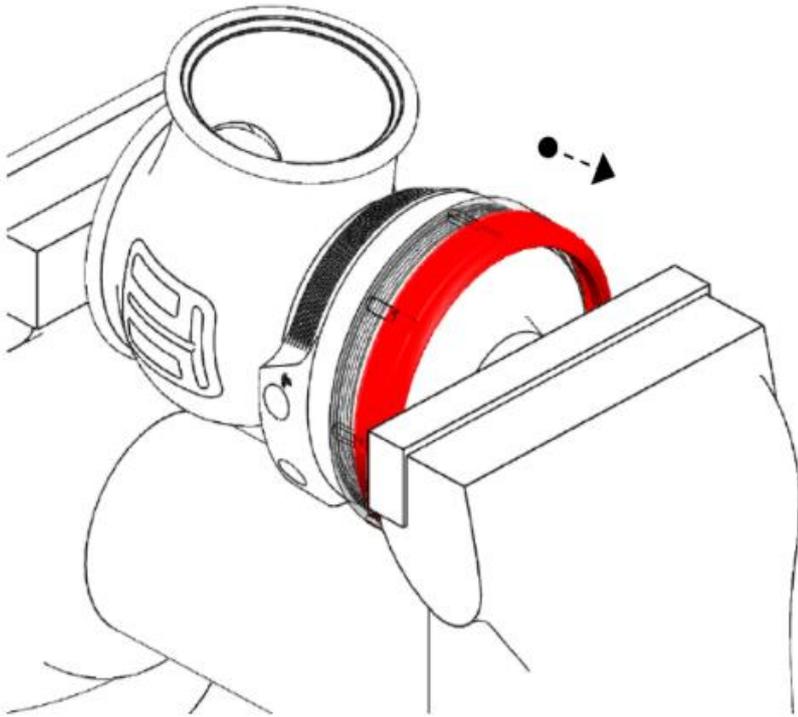
**CAUTION!** Allow engine to cool down before removing your GenV wastegate.

### Remove Top Cap

Prior to removing the GenV wastegate cap, remove all fittings from the 1/8"NPT ports. Press down with light to medium load on the cap in a press or vice. Unscrew locking collar with the large end of the provided collar tool in an anti-clockwise direction until completely disengaged and slowly remove tension from the press or vice allowing the spring to expand, finally remove cap when the spring has stopped expanding.

**CAUTION!** Use soft jaws to prevent cosmetic damage

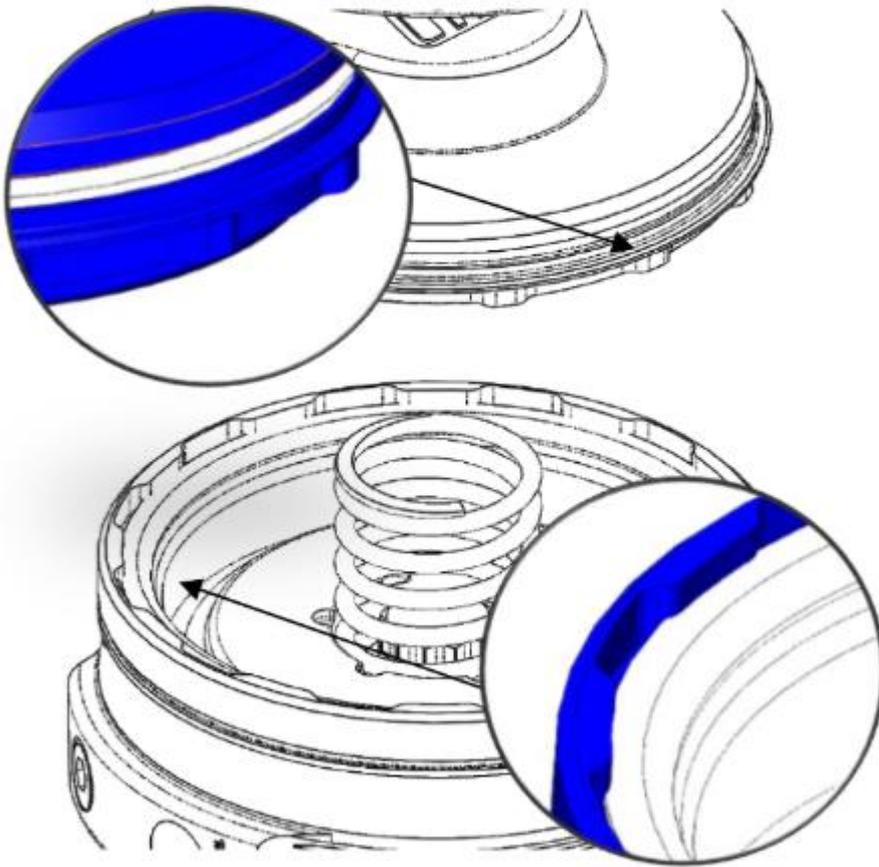
Configure wastegate with preferred spring combination of inner, middle and outer springs



## Familiarise Yourself with Cap and Body Notches

Locate cap and body notches and grooves which dictate the alignment of the cap. These notches are used to locate the cap onto the body and must be aligned prior to compression of the cap onto the body.

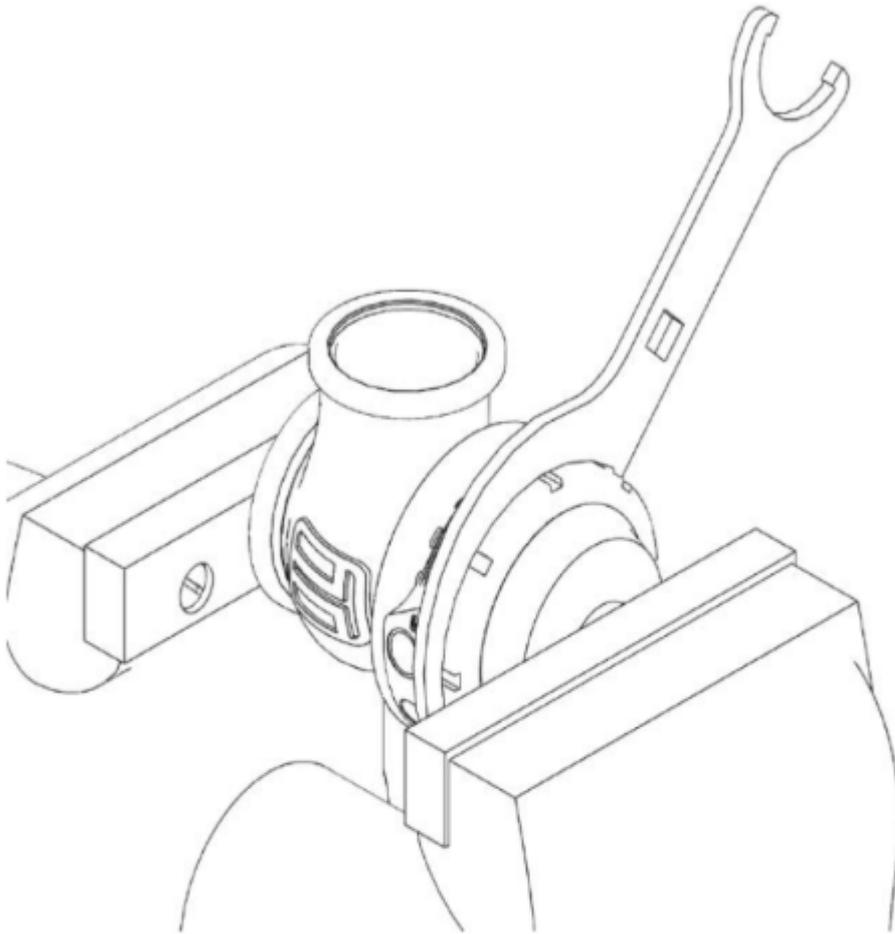
**CAUTION!** Ensure notches are aligned and seated home correctly prior to exerting force to tighten collar, permanent damage will occur if these are not aligned correctly.



## Press Cap onto Body

Using a press or vice, comp the notches are remaining aligned. Once the cap has seated home onto the body, screw the collar down by hand in a clockwise direction. While still in the press or vice, Tighten the collar further with the collar tool until the collar will not turn.

**CAUTION!** Maintain downward pressure on cap while tightening collar or non-repairable thread damage will occur.



Reinstall fittings to the cap of the wastegate using fresh Loctite 567 thread sealant.

### **Reinstall GenV Wastegate**

Place V-band over weld on flange by unscrewing the nut on the V-band as far out as possible and then squeezing the bolt in a syringe motion to expand the V-band. Once the V-band is in its fully expanded position, slide the v-band over the flange to allow for the wastegate to be installed.

Do not forget to put the valve seat into the body before mounting the unit on the exhaust manifold. Using the 3/8" deep socket and a torque wrench tighten the V-Band to **7N.m (5 ft/lbs)**.

## Achieving Your Target Boost Pressure

There are various factors involved in achieving your target boost pressure including.

- The size of the spring fitted in your wastegate i.e. the boost pressure achieved by the wastegate spring only.
- The desired level of boost pressure and the difference between this and your wastegate spring pressure.
- The size of your turbocharger and wastegate and the resulting exhaust manifold back pressure in your system.

Turbosmart recommends the ideal setup for achieving your target boost pressure is to use the GenV Wastegate in conjunction with a Turbosmart e-Boost controller.

### IMPORTANT NOTES ON SETTING THE WASTEGATE SPRING PRESSURE

A stiffer spring should only be used when necessary. The GenV Wastegate allows for different combinations of spring pressures. All springs that are adaptable with the GenV Wastegate are shown in the table below. The tuner can use combinations of up to 3 springs to achieve the following base boost pressures. To aid in the identification of these springs they are supplied colour coded. If this colour coding is not clear please use the dimensions in the following table to identify the wastegate spring. Please see the following detailed instructions on setting your GenV Wastegate's spring pressure. The springs chosen should be rated to the lowest boost level desired.

Product Family	Spring Pressure			
	3psi	5psi	7psi	14psi
WG38/40	Black	Grey	Pink	Red
WG45/50	Orange	Yellow	Green	Sky Blue
WG60	Raw	Purple	White	Brown

Boost Pressure	Location	Inner	Inner	Middle	Outer
	Pressure	3psi	5psi	7psi	14psi
3psi		•			
5psi			•		
7psi				•	
10psi		•		•	
12psi			•	•	
14psi					•
17psi		•			•
19psi			•		•
21psi				•	•
24psi		•		•	•
26psi			•	•	•

## How to Change Your GENV Wastegate Diaphragm

- 74mm (WG38, WG40): [TS-0550-3059](#)
- 84mm (WG45, WG50): [TS-0550-3060](#)
- 98mm (WG60): [TS-0550-3061](#)

CAUTION! Ensure diaphragm is contained within the groove prior to cap re-assembly.

Pay attention not to rotate diaphragm.

### Remove Wastegate from Manifold

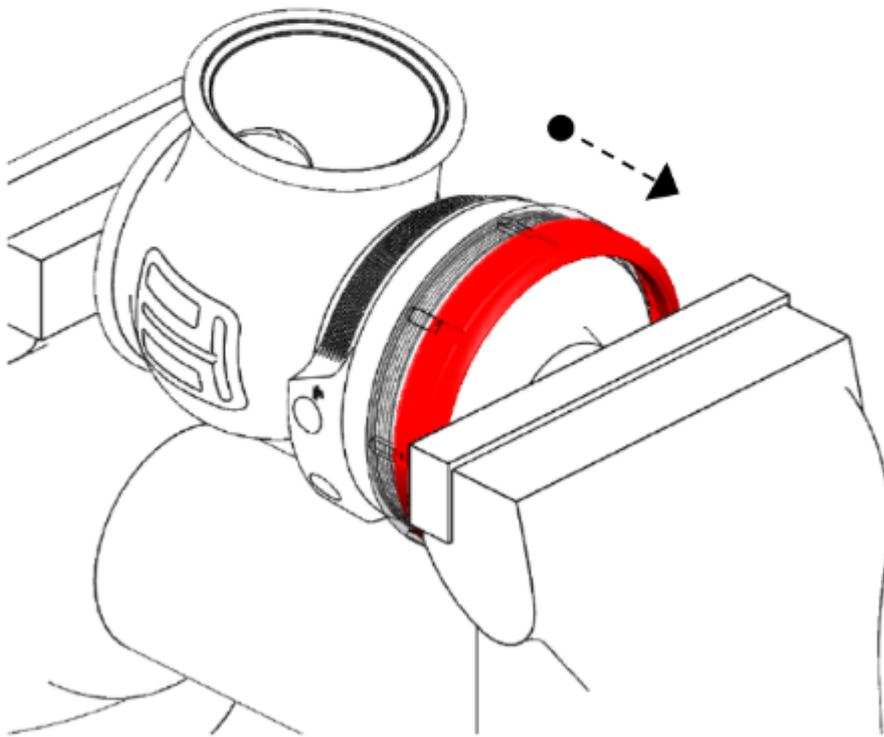
Remove boost pressure source hose from the wastegate as well as the breather hose is fitted. Unscrew outlet V-Band nut in a anti-clockwise direction to the very end of the thread, Squeeze the nut against the V-Band in a syringe like motion to expand the V-band over the flange. Repeat for inlet V-Band. Remove GenV wastegate being careful not to lose the valve seat. Mark the orientation of the valve to the body with tape or a paint pen.

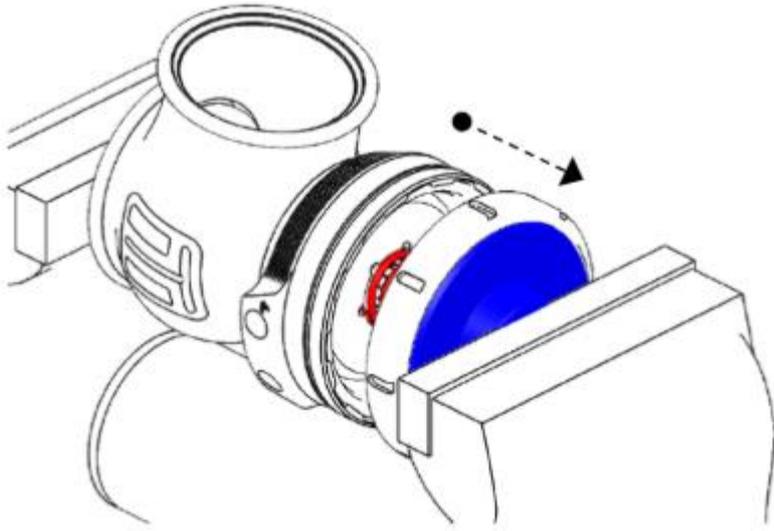
CAUTION! Allow engine to cool down before removing your GenV wastegate.

## Remove Top Cap

Prior to removing the GenV wastegate cap, remove all fittings from the 1/8"NPT ports. Press down on the cap in a press or vice. Unscrew locking collar with the large end of the provided collar tool in an anti-clockwise direction until completely disengaged and slowly remove tension from the press or vice allowing the spring to expand, finally remove cap when the spring has stopped expanding.

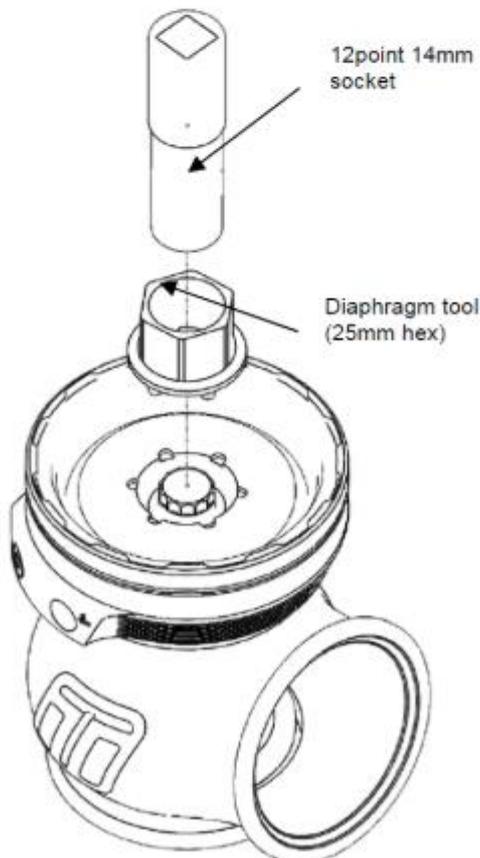
CAUTION! Use soft jaws to prevent damage.



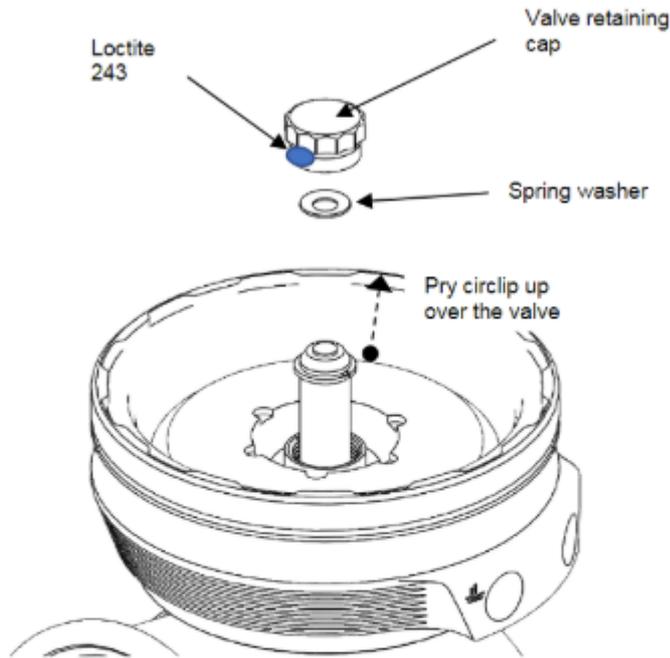


### Diaphragm Replacement

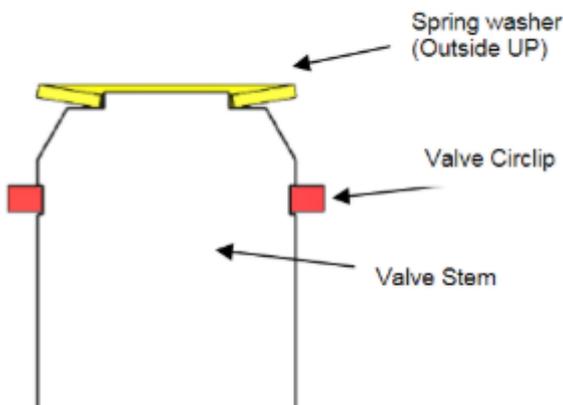
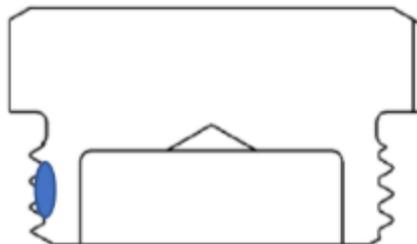
Use the supplied tool in the diaphragm replacement kit, engage the diaphragm aligning the splines and grooves. Use a 25mm spanner on the tool to prevent the diaphragm from spinning. Use a 12 point 14mm socket through the centre of this tool onto the valve retaining cap. Undo the valve retaining cap by rotating anti clockwise.



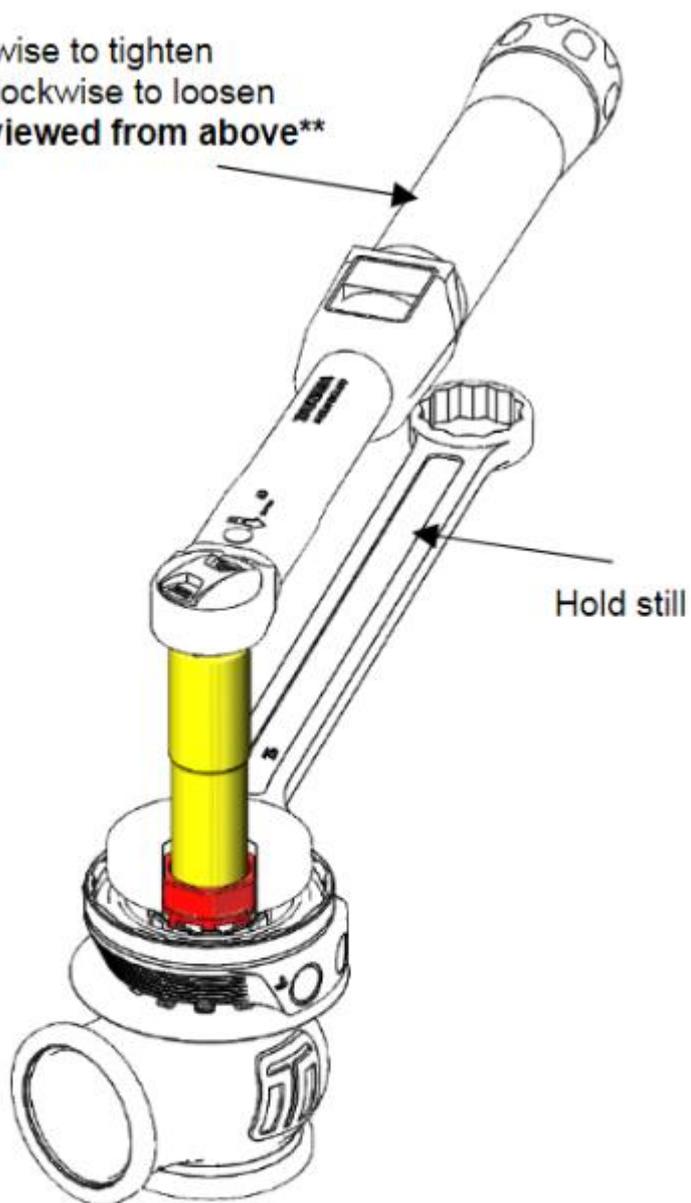
Remove the valve retaining cap and spring washer, Sit the wastegate on down so that the valve is elevated and supported. Using a small flat blade screwdriver to pry one edge of the split in the valve circlip out and up, work your way around the circlip until it is removed. Take note of the orientation of the diaphragm, lift the old diaphragm over the valve and discard. Use this opportunity to thoroughly clean the wastegate removing any dirt from the actuator, ensure the diaphragm groove is free of debris and fit your replacement diaphragm over the valve.



Sit the new valve circlip on top of the valve ensuring it is concentric, Use the valve retaining cap on top of the circlip to lightly press the new circlip over the valve into place, Confirm the circlip is located correctly in the circlip groove of the valve, adjust if necessary. Let the valve drop down into the diaphragm, sit the new spring washer onto the nipple of the valve with the outside of the cone away from the valve. Apply a dab of blue 243 Loctite to the lower threads of the valve retaining cap and screw into the diaphragm. Support the diaphragm with the supplied tool and tighten the valve retaining cap to 20N.m (15ft/lbs)



Clockwise to tighten  
Anti-clockwise to loosen  
**\*\*As viewed from above\*\***



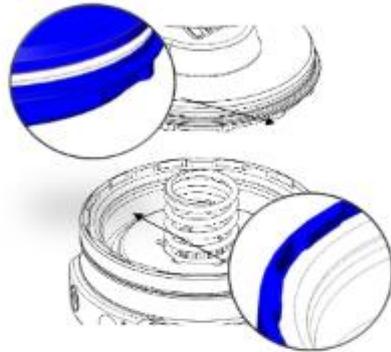
Align the valve orientation marks and confirm the diaphragm bead is seated in the groove of the actuator. Install desired spring combination. Configure Wastegate with preferred spring combination of inner, middle and outer springs

#### **Familiarise Yourself with Cap and Body Notches**

Locate cap and body notches and grooves which dictate the alignment of the cap. These notches are used to locate the cap onto the body and must be aligned prior to compression of the cap onto the body.

**CAUTION!**

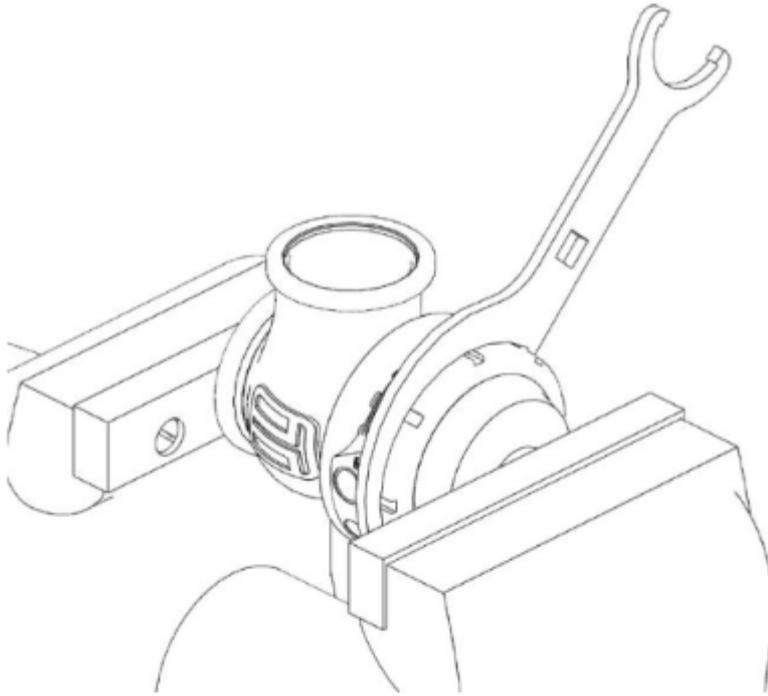
Ensure notches are aligned and seated home correctly prior to exerting force to tighten collar, permanent damage will occur if these are not aligned correctly.



**Press cap onto body**

Using a press or vice, compress the cap onto the body ensuring the notches are remaining aligned. Once the cap has seated home onto the bod, screw the collar down by hand in a clockwise direction. While still in the press or vice, Tighten the collar further with the collar tool until the collar will not turn.

**CAUTION!** Maintain downward pressure on cap while tightening collar or non-repairable thread damage will occur.



Reinstall fittings to the cap of the wastegate using fresh sealant.

#### Reinstall GenV wastegate

Place v-band over weld on flange by unscrewing the nut on the v-band as far out as possible and then squeezing the bolt in a syringe motion to expand the v-band (squeeze the dots together below). Once the v-band is in its fully expanded position, slide the v-band over the flange to allow for the wastegate to be installed. Do not forget to put the valve seat into the body before mounting the unit on the exhaust manifold. Using the 3/8" deep socket and a torque wrench Tighten the V-Band to 7N.m (5 ft/lbs).

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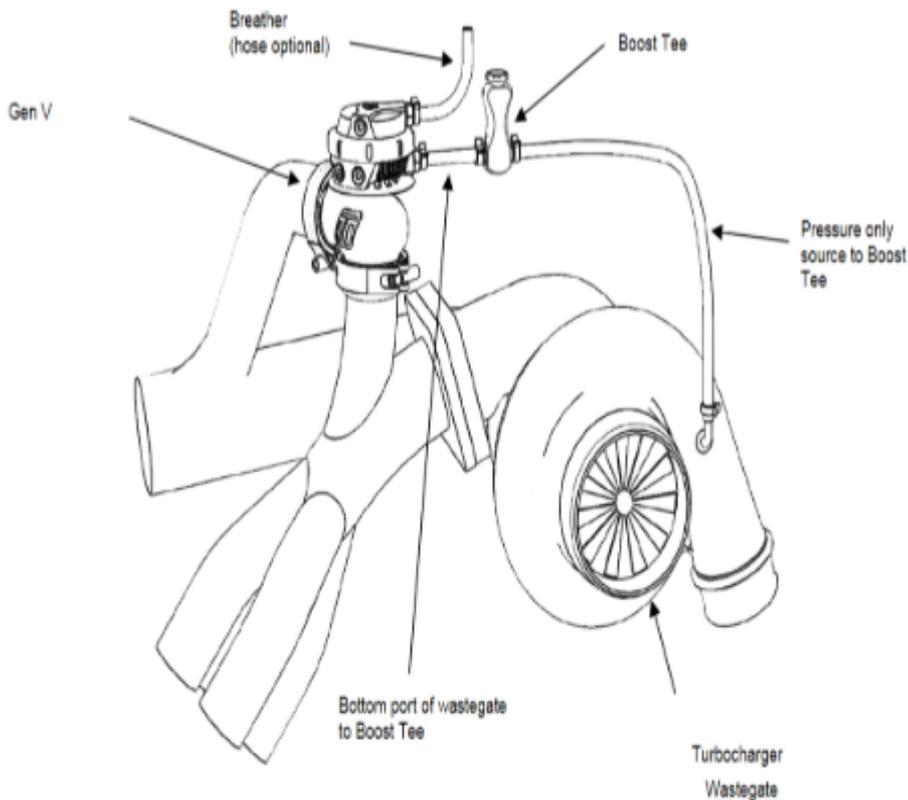
## Boost Control Hookup on the GENV Wastegate

**WARNING!** Changing your connection method can cause a higher than expected increase in boost pressure. Turbosmart recommends adjusting your boost controller back to its minimum setting and measuring the new minimum boost pressure achieved by the new setup before increasing your boost again.

**IMPORTANT!** Refer to your boost controller instructions for most suitable connection method to an external wastegate.

#### Boost Tee Setup

When using your GenV wastegate in conjunction with a Turbosmart Boost Tee, fit the controller between the boost pressure source and "bottom" port as shown. Ensure the arrow on the Boost Tee is pointing towards the wastegate. The "top" ports of the wastegate should be left open, it is possible in harsh environments to blank one port and connect a hose to the other port that can be run into a area less likely to allow contamination into the actuator. Refer to the instructions supplied with your Boost Tee for further detail if necessary.

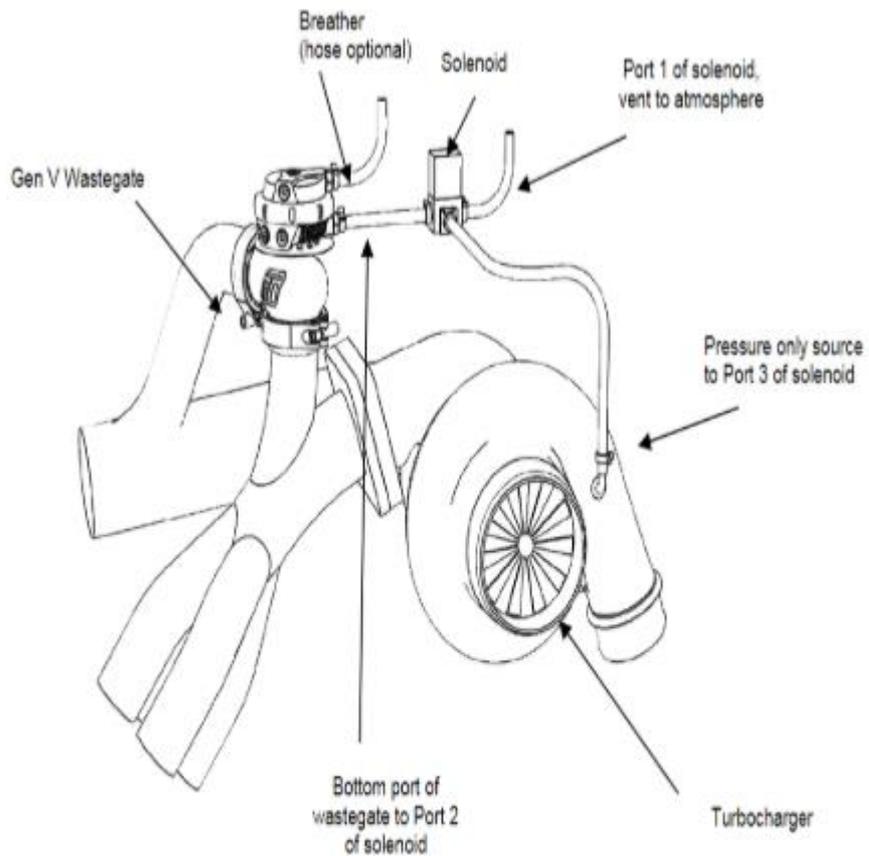


### e-Boost 2 Connection Methods

Turbosmart recommends using the GenV Wastegate in conjunction with the Turbosmart e-Boost. The first method of installation is a one port connection. If the desired boost level is not achieved i.e. boost level is too low, or not controllable, it is recommended that the wastegate spring be changed to a spring which is closer to the desired boost pressure or to trial a 2 port connection method. There are 3 different 2 port connection methods that can be trialed to achieve different results. The 2 port method (1) can be used if there is high exhaust manifold back pressure forcing the valve open. The 2 port method (2) allows the user to achieve the maximum boost pressure their turbo system is capable of. If a wide range of boost pressures is desired i.e. 5 – 40 PSI, a 2 port connection with a 4 port solenoid (sold separately – TS-0301-2003) might be needed. All unused ports and vents must have the pressure nipple installed and a piece of silicon connected and routed to an area which is shielded from dust and water.

#### Single Port Connection

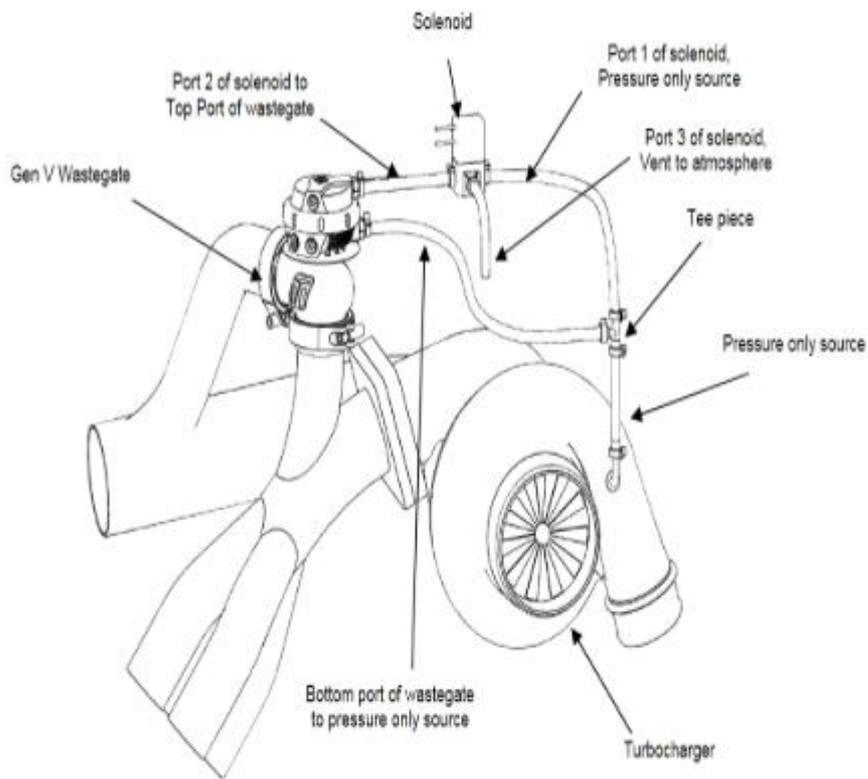
- Port 1 of solenoid vent to atmosphere
- Port 2 of solenoid to bottom port of wastegate
- Port 3 of solenoid to Pressure only source



#### Two Port Connection method (1)

(For controlling boost on a turbo system with high back pressure)

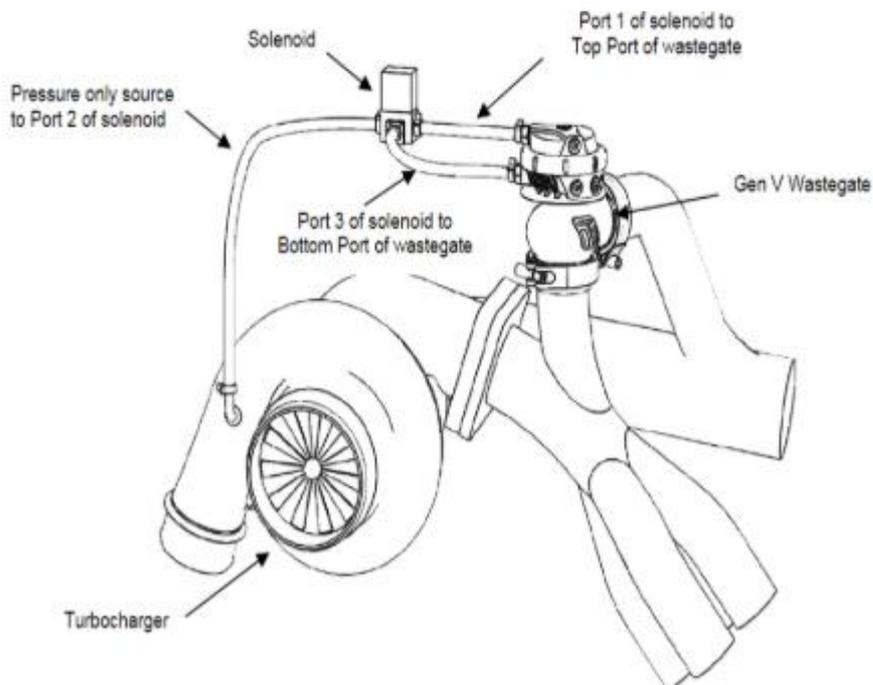
- Connect the bottom port of the wastegate and Port 1 of the solenoid to a Pressure only source
- Port 2 of the solenoid to the top port of the wastegate
- Port 3 of solenoid vent to atmosphere



### Two Port Connection method (2)

(For obtaining maximum boost pressure on your turbo system)

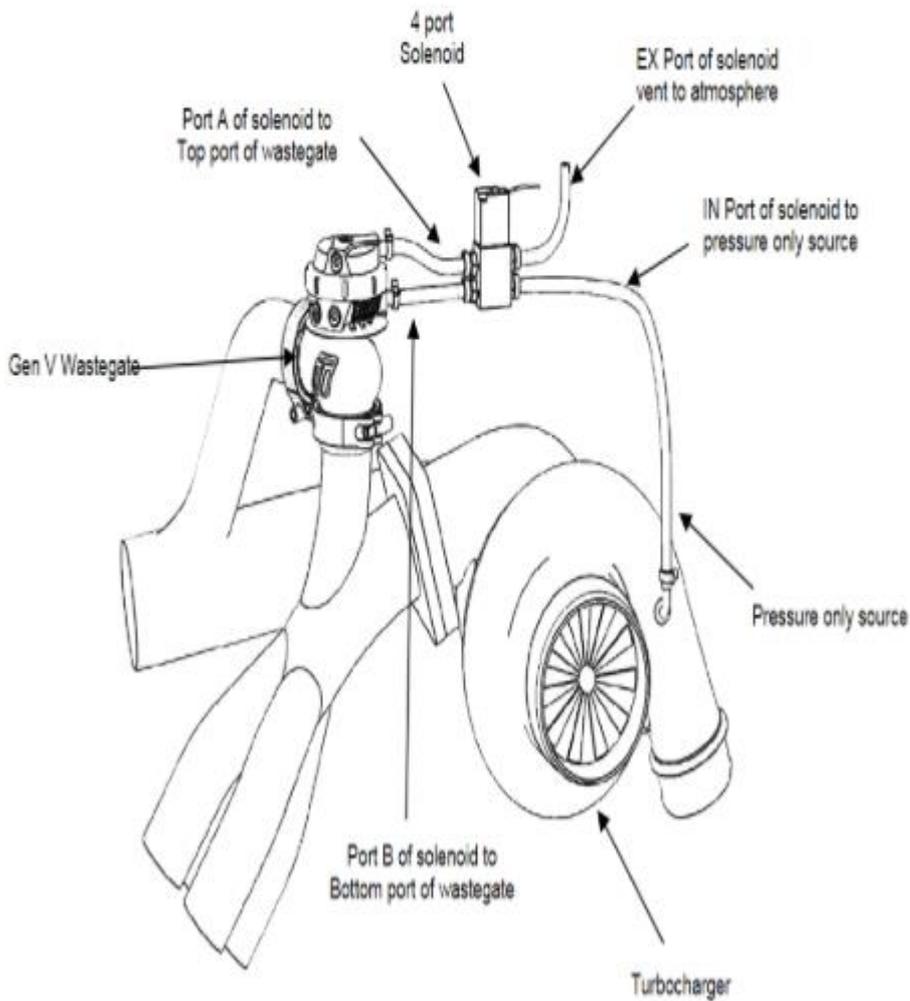
- Port 1 of solenoid to Top port of wastegate
- Port 2 of solenoid to Pressure only source
- Port 3 of solenoid to Bottom port of wastegate



### Two Port Connection method (3)

For obtaining a wide range of boost pressures e.g. 5 – 40 PSI, note that this method of boost control may not provide a smooth boost curve)

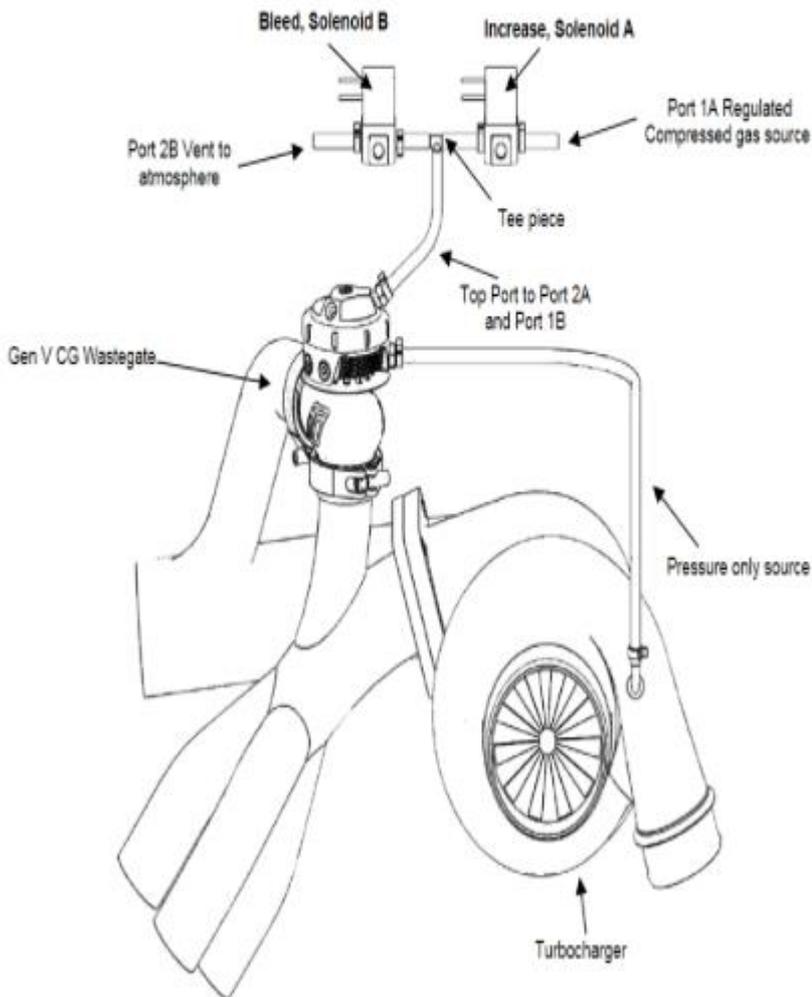
- Port A of solenoid to Top port of wastegate
- Port B of solenoid to Bottom port of wastegate
- EX port of solenoid vent to atmosphere
- IN port of solenoid to Pressure only source



## Compressed Gas Connection Methods

For obtaining a wide range of boost pressures with an external high-pressure source for maximum boost.

- Port 1 of Increase solenoid A to regulated compressed gas source
- Port 2 of Increase solenoid A to Top port of Wastegate and Port 1 of Bleed Solenoid B
- Port 2 of Bleed solenoid B vent to atmosphere
- Port 3 of both solenoids plugged.
- Bottom Port of wastegate to Boost pressure only source.



## Advanced Features on the GENV Wastegate

### Orientation of the Actuator

Turbosmart provide the GenV wastegate with the actuator ports symmetrical to the centreline of the body, in some applications it may be advantages to clock the actuator to allow clearance for fittings and hoses.

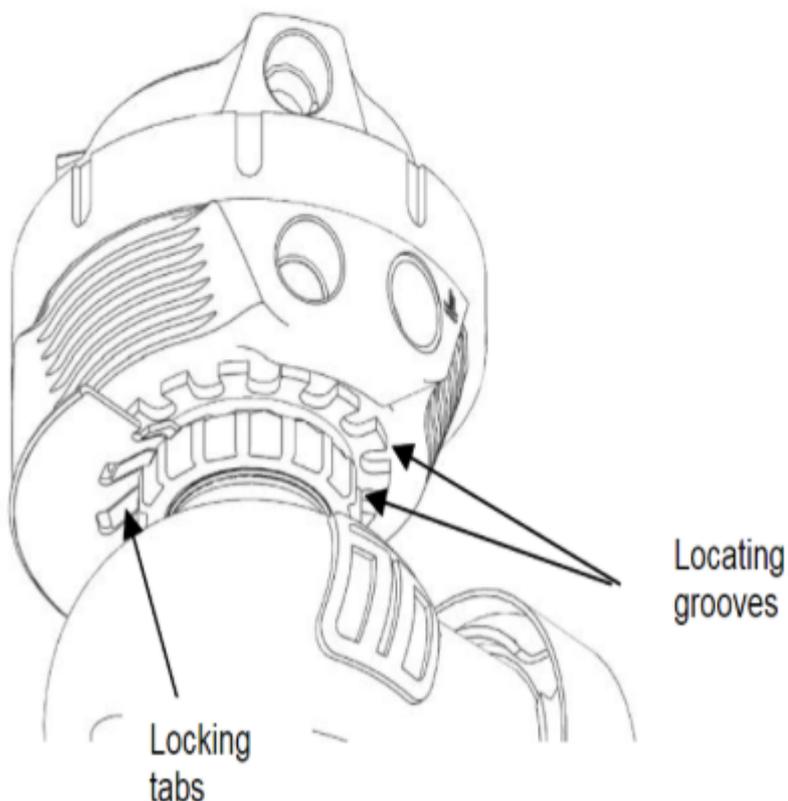
Locate the slave collar between the actuator and the body underneath the heat shield, A tab on the heat shield will be folded down into a groove on this collar. Using a flat blade screwdriver, pry this tab out of the groove allowing the collar to be loosened.

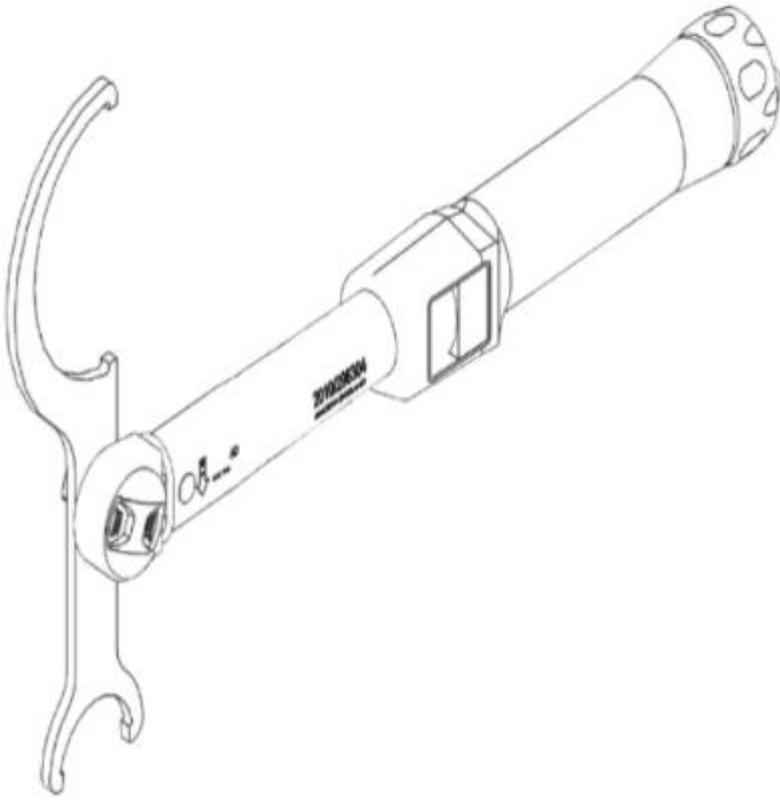
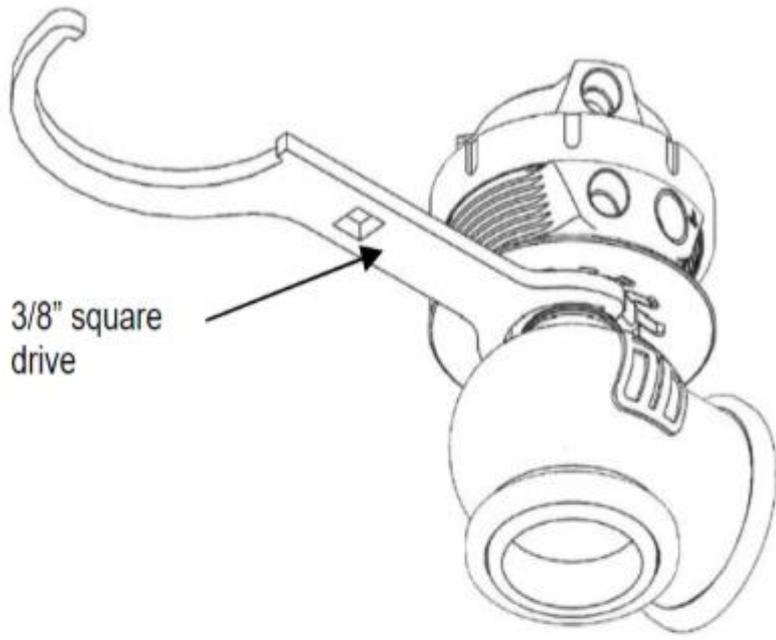
Using the small end of the supplied collar tool undo the slave collar 1 complete revolution (anti-clockwise as viewed from the bottom). One tab on the heatshield at the back of the wastegate is folded up to locate on the actuator, rotate the actuator to desired location ensuring the folded tab aligns with a groove in the bottom of the actuator. It is possible to fold down this tab and use another if the actuator cannot be positioned correctly on the original tab.

#### CAUTION!

- Turbosmart does NOT recommend altering to position of the actuator once the wastegate has been used.
- It is recommended that the actuator be clocked without a valve seat installed to prevent twisting the diaphragm.

Tighten the collar using a torque wrench on the 3/8" square drive provided in the collar tool perpendicular to the length of the tool to **25N.m (18ft/lbs)**. Fold down a tab onto the slave collar to prevent the collar from coming loose during use.

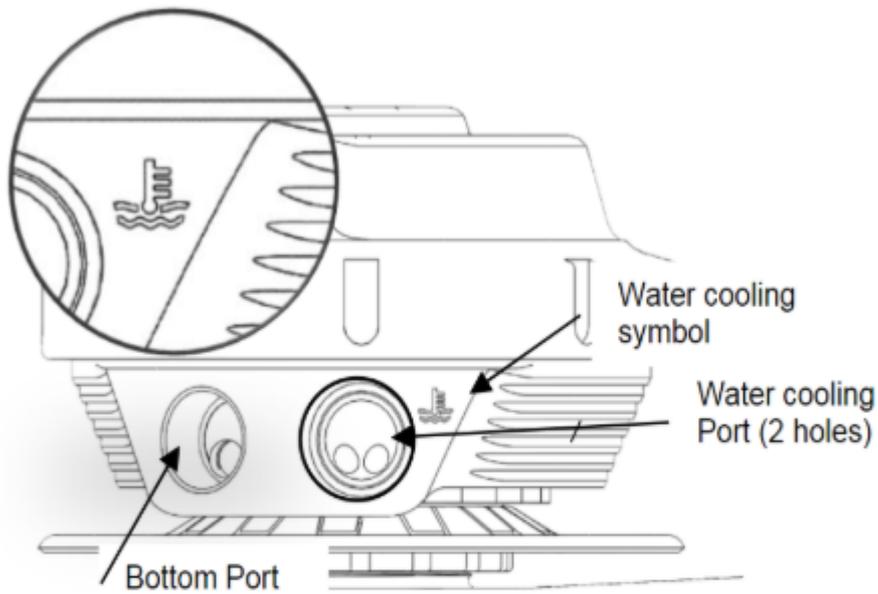




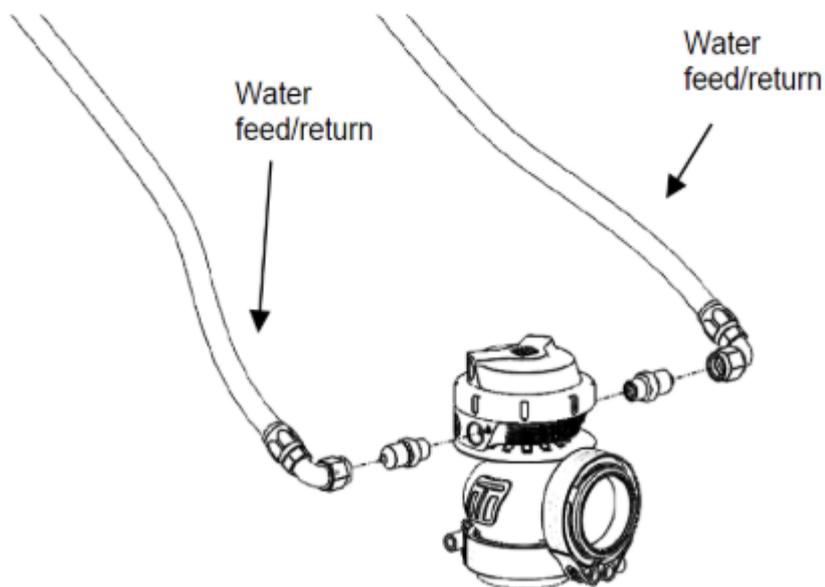
## Water Cooling

Turbosmart's GenV wastegate is equipped with water cooling ports to keep the wastegate cool in the most extreme conditions and keep consistent actuator temperature.

Identify the water cooling ports on the bottom of the actuator adjacent to the water cooling symbol engraved in the actuator. Port order is not important and may be reversed.



Fit water cooling port fittings Prior to mounting the wastegate, install 1/8" NPT fittings into the water ports, apply thread lubricant and screw in clockwise until finger tight, then tighten further 1-2 turns for seal. Choose feed and drain source for the water and connect to the wastegate. Turbosmart recommends -4 SAE fittings and hose compatible with coolant.



**CAUTION!** Confirm water is only used on the water ports of the wastegate, damage to your engine may result in failure to correctly connect water cooling.

## HOW TO INSTALL A SENSOR CAP TO YOUR GENV WASTEGATE

### CAUTION!

- Ensure diaphragm is contained within the groove prior to cap re-assembly.
- Pay attention not to rotate diaphragm.
- Cool air flow is required around the actuator to keep the sensor in its operating window.

### Remove Wastegate from Manifold

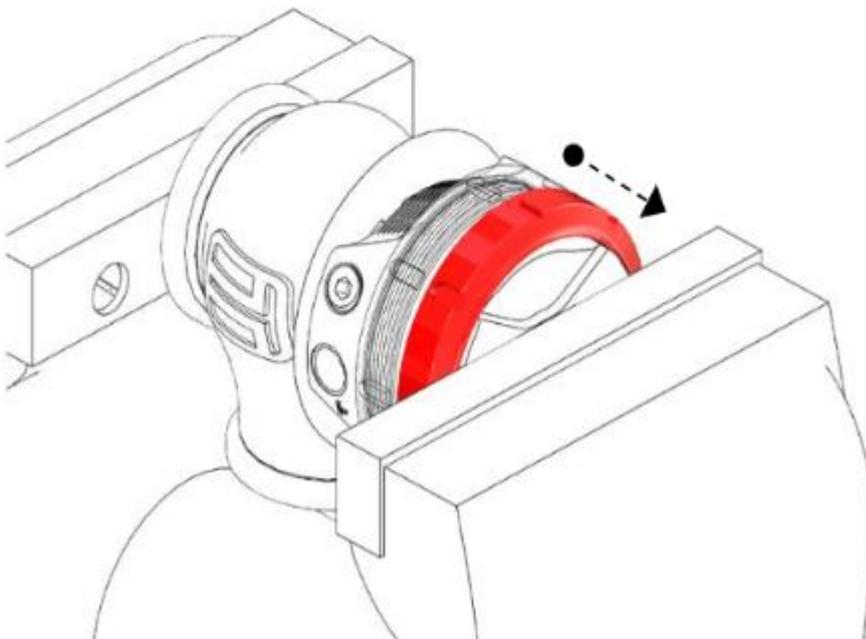
Remove boost pressure source hose from the wastegate as well as the breather hose is fitted. Unscrew outlet V-Band nut in a anti-clockwise direction to the very end of the thread, Squeeze the nut against the V-Band in a syringe like motion to expand the V-band over the flange. Repeat for inlet V-Band. Remove GenV wastegate being careful not to lose the valve seat. Mark the orientation of the valve to the body with tape or a paint pen.

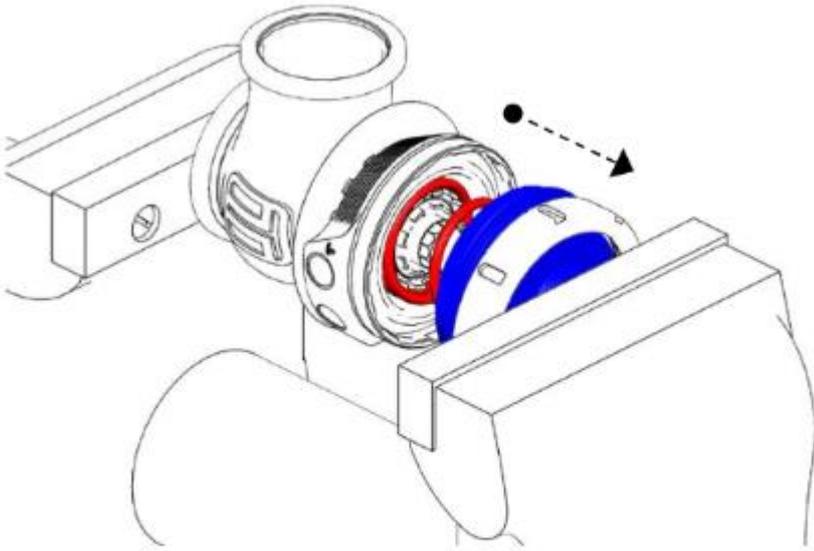
CAUTION! Allow engine to cool down before removing your GenV wastegate

### Remove Top Cap

Prior to removing the GenV wastegate cap, remove all fittings from the 1/8"NPT ports. Press down on the cap in a press or vice. Unscrew locking collar with the large end of the provided collar tool in an anti-clockwise direction until completely disengaged and slowly remove tension from the press or vice allowing the spring to expand, finally remove cap when the spring has stopped expanding.

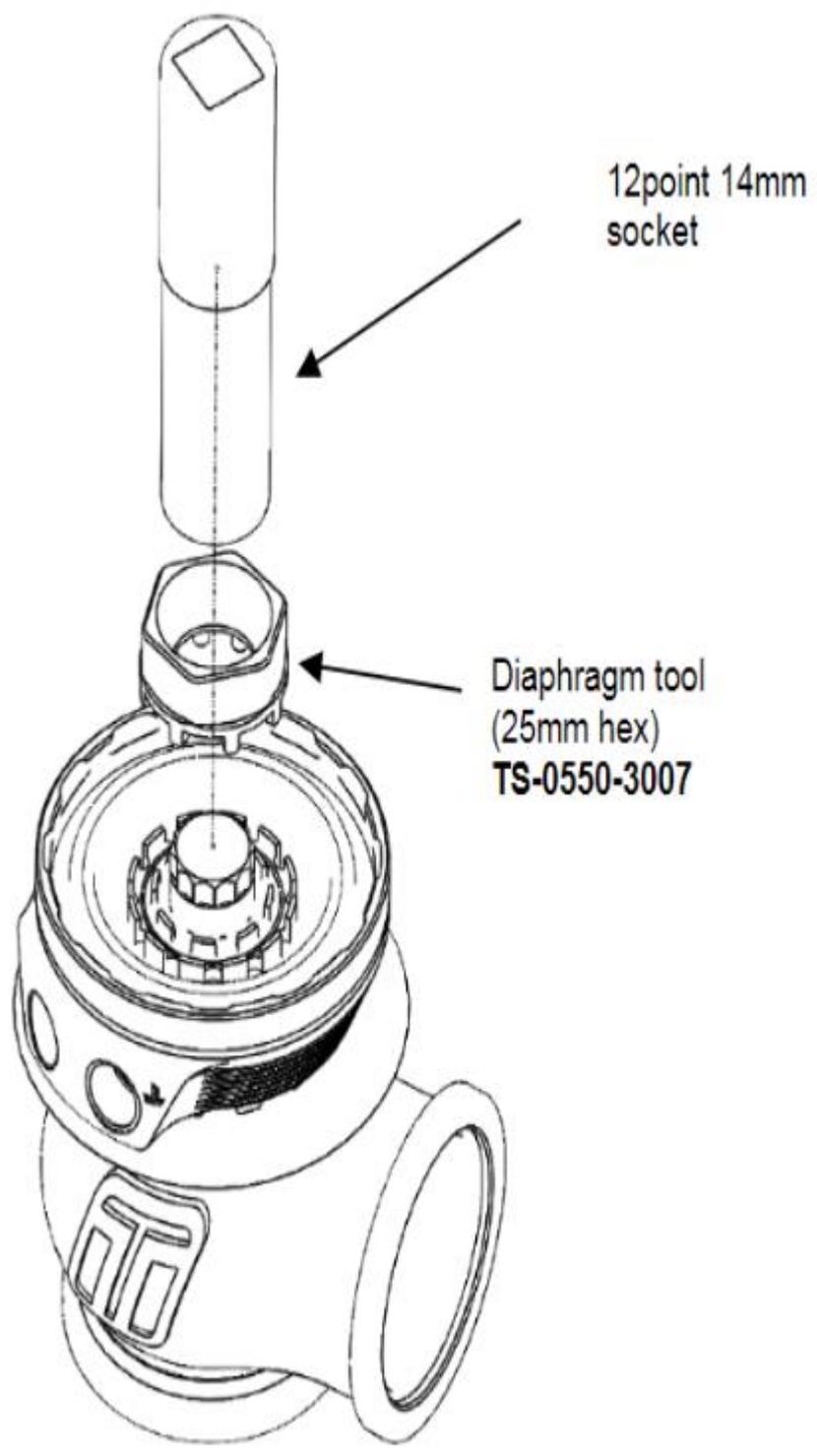
CAUTION! Use soft jaws to prevent damage.



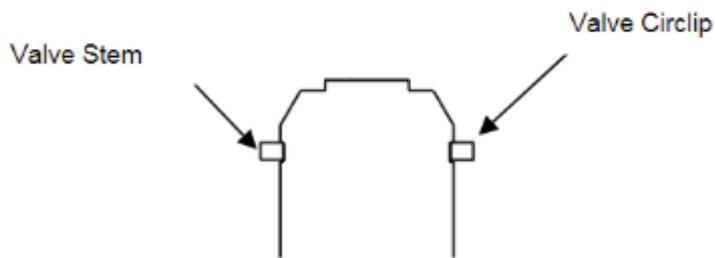
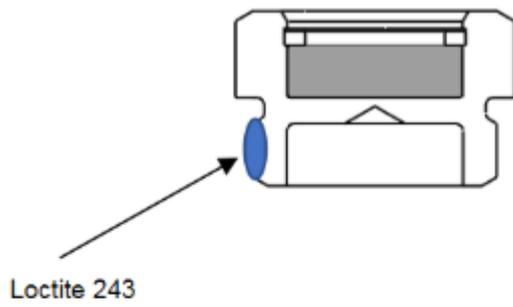


### **Diaphragm Replacement**

Use the supplied tool in the diaphragm replacement kit, engage the diaphragm aligning the splines and grooves. Use a 25mm spanner on the tool to prevent the diaphragm from spinning. Use a 12point 14mm socket through the centre of this tool onto the valve retaining cap. Undo the valve retaining nut.

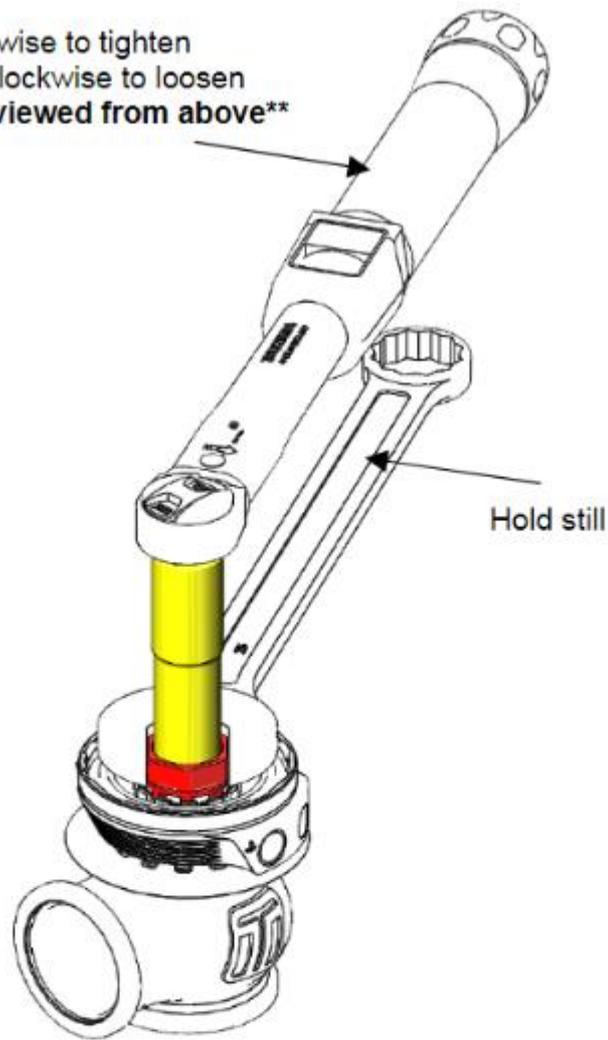


Clear any Loctite and debris from the thread in the diaphragm support, Note careful not to get chemicals onto the diaphragm as this may damage the diaphragm.



Sit the new spring washer into the valve retaining cap with the centre of the washer pointing out of the cap. Apply a dab of blue 243 Loctite to the lower threads of the valve retaining cap and screw into the diaphragm. Support the diaphragm with the supplied tool and tighten the valve retaining cap to 20N.m (15ft/lbs)

Clockwise to tighten  
Anti-clockwise to loosen  
**\*\*As viewed from above\*\***

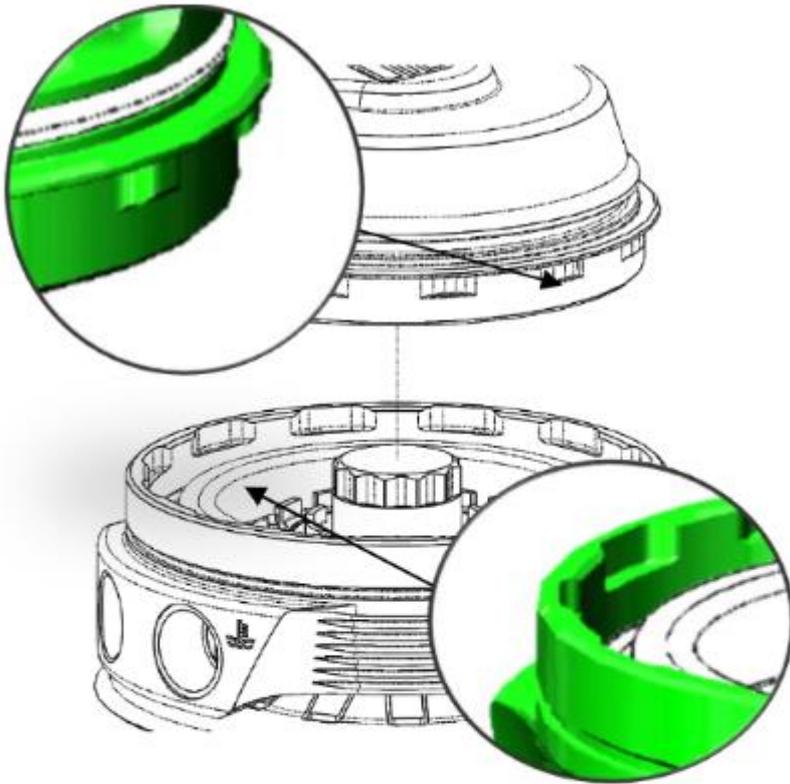


Align the valve orientation marks and confirm the diaphragm bead is seated in the groove of the actuator. Install desired spring combination. Configure Wastegate with preferred spring combination of inner, middle and outer springs.

#### **Familiarise Yourself with Cap and Body Notches**

Locate cap and body notches and grooves which dictate the alignment of the cap. These notches are used to locate the cap onto the body and must be aligned prior to compression of the cap onto the body.

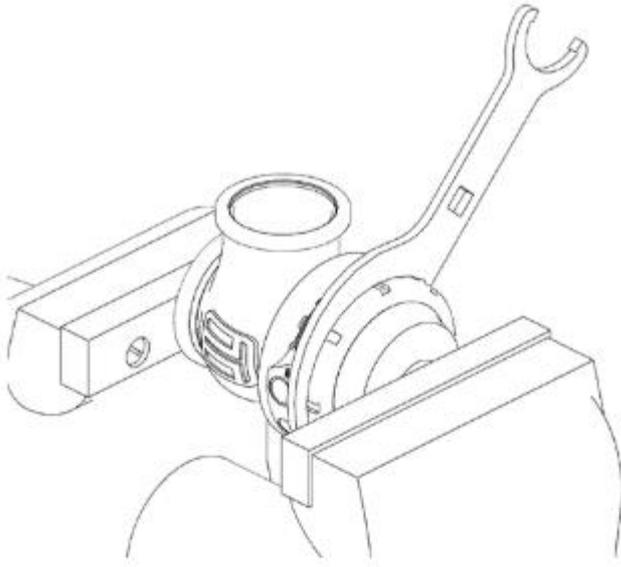
**CAUTION!** Ensure notches are aligned and seated home correctly prior to exerting force to tighten collar, permanent damage will occur if these are not aligned correctly.



#### **Press cap onto body**

Once the cap has seated home onto the body, screw the collar down by hand in a clockwise direction. While still in the press or vice, Tighten the collar further with the collar tool until the collar will not turn.

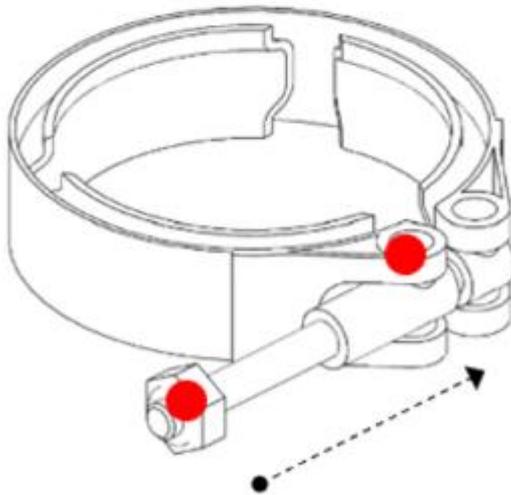
**CAUTION!** Maintain downward pressure on cap while tightening collar or non-repairable thread damage will occur.



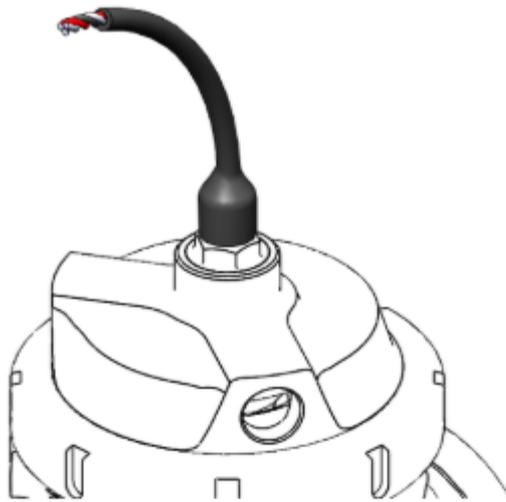
Reinstall fittings to the cap of the wastegate using fresh Loctite 567 thread sealant.

### Reinstall GenV Wastegate

Place V-band over weld on flange by unscrewing the nut on the V-band as far out as possible and then squeezing the bolt in a syringe motion to expand the V-band. Once the V-band is in its fully expanded position, slide the v-band over the flange to allow for the wastegate to be installed.



**CAUTION!** Do not forget to put the valve seat into the body before mounting the unit on the exhaust manifold. Using the 3/8" deep socket and a torque wrench tighten the V-Band to 7N.m (5 ft/lbs).



Wire	Note	Rating
Red	Sensor Supply ( $V_{sup}$ )	4.5-5.5 Vdc
Black	Sensor Ground ( $V_0$ )	0V
White	Sensor Output ( $V_{out}$ )	0- $V_{supply}$

Connect the wires to your data logger accordingly. Use a high-quality connection to reduce noise and calibration fluctuation.

**CAUTION!** Ensure that the wiring is properly shielded from external heat sources.

To ensure longevity from the sensor, ensure adequate airflow is supplied directly to the sensor to avoid overheating or sensor failure.

Turbosmart HE sensor has an operation temperature window of -40C up to 170°C (340°F) junction temperature, for temperatures outside of this window the VOUT will revert to less than 2.5V

Temperature exposure above 260°C (500°F) can cause permanent damage to the sensor.

#### Calibration\*

Insert the relevant calibration curve into your data logger for the product family you have

WG38/40 (all configurations)

Valve Lift (mm)	V <sub>OUT</sub>
-0.75	2.221
0.5	2.138
1.75	2.03
3	1.88
4.25	1.692
5.5	1.454
6.75	1.126
8	0.683
9.25	0.118
10	0.003

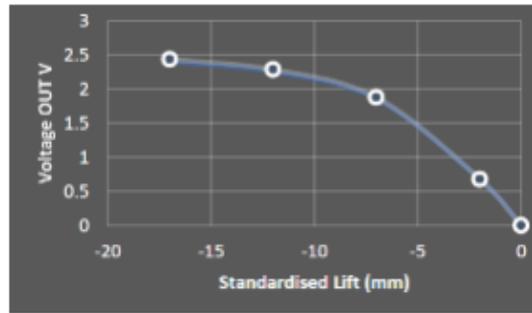
WG45/50 (all configurations)

Valve Lift (mm)	V <sub>OUT</sub>
-0.25	2.344
1	2.288
2.25	2.221
3.5	2.138
4.75	2.03
6	1.88
7.25	1.692
8.5	1.454
9.75	1.126
11	0.683
12.25	0.118
13	0.003

WG60

Valve Lift (mm)	V <sub>OUT</sub>
-0.75	2.423
0.5	2.387
1.75	2.344
3	2.288
4.25	2.221
5.5	2.138
6.75	2.03
8	1.88
9.25	1.692
10.5	1.454
11.75	1.126
13	0.683
14.25	0.118
15	0.003

 **\*NOTE!** For best results, each wastegate should be calibrated to your setup.



## <sup>i</sup>Troubleshooting

- Wastegate not actuating - Confirm signal hose is plumbed to a pressure only source, confirm preload on valve seat during installation
- Poor wastegate actuation - Ensure signal hose is not shared and is sourced as close to the compressor as possible, check seal on fittings
- Poor wastegate actuation - Confirm Top ports are not blocked and free from debris
- Boost creeping at high rpm - Wastegate flow path is poor, wastegate is too small for the application
- Failing the above, submit a [Technical Request Form](#) with information about your engine, oil type and photos of the installation and one of our expert technicians will respond as soon as possible.