

Product Name: **BOV Kompact EM Series**
 Product Description: BOV Kompact EM Series
 Product Number: TS-0223-1XXX
 Document Version: V1.00 Rev C



IMPORTANT NOTES ON YOUR BOV

- 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 EM series BOV is designed for use as a factory replacement for a turbocharger that utilises an electronic diverter valve, this valve can be used on other applications as long as there is a control signal to actuate the BOV.
- Ensure the engine is cold prior to installation.
- For Standalone ECU configuration, ensure valve is not energised for indefinite periods of time as this can cause significant life detriment to the actuation solenoid.

RECOMMENDATIONS

- **Turbosmart recommends that your Blow off valve (BOV) is fitted by an appropriately qualified technician**

KIT CONTENTS

Please check that the following items have been provided in your EM Series BOV packaging

Part	Description	Use
1	Turbosmart EM Series BOV	Main unit
2	M6 Flange Bolts	Mount BOV to turbocharger compressor cover
3	Turbosmart Sticker	Turbosmart sticker

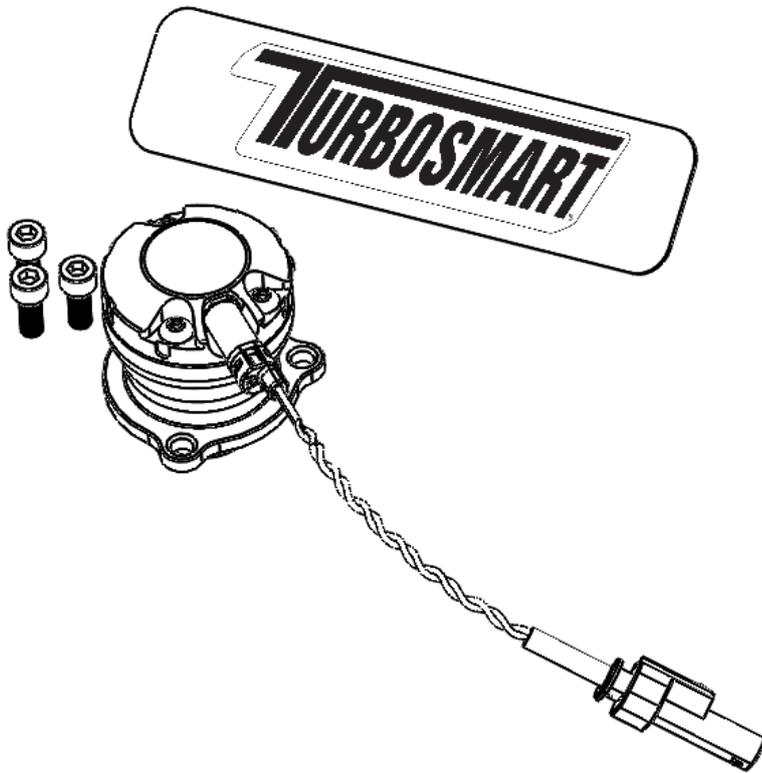


Figure 1 - Kit Contents

TOOLS REQUIRED

- 5mm hex key

ABOUT YOUR EM SERIES BOV

Turbosmart has developed a unique “plug and play” diverter valve (or bypass valve) upgrade for your vehicle that is currently equipped with an electronic diverter valve. While we have developed this unit to be as simple as possible for you to install, we have not compromised on performance. This unit will not leak under elevated boost pressures and will still provide you with rapid response ensuring that all the OEM calibration strategies are not interfered with, providing you with maximum boost performance while the advanced strategies of the OEM's are retained.

The EM series BOV is available in two configurations, Dual Port and Plumb Back. The functionality of the BOV is still the same, there is no performance difference between the two units, it is a personal preference if the user wishes to utilise a classic vent to atmosphere sound or revert all bypass gasses back into the inlet tract of the turbocharger.

As the valve is completely controlled by the factory engine control unit, the factory diverter valve is almost silent, due to our construction, it is possible that your EM series will be much more audible. By being able to hear the unit actuate, occasionally the valve may be opening for a few seconds under the following events such as traction control, cruise control management, rapid gearchanges and varying throttle position changes, these are all coded as part of the torque management software in the OEM engine control unit, there is no adjustment available over these functions via our product. By hearing these events, it is not abnormal, it is completely normal for the EM series BOV to be considered “very active” as it is protecting your turbocharger from surge events or bypassing air for torque management purposes.

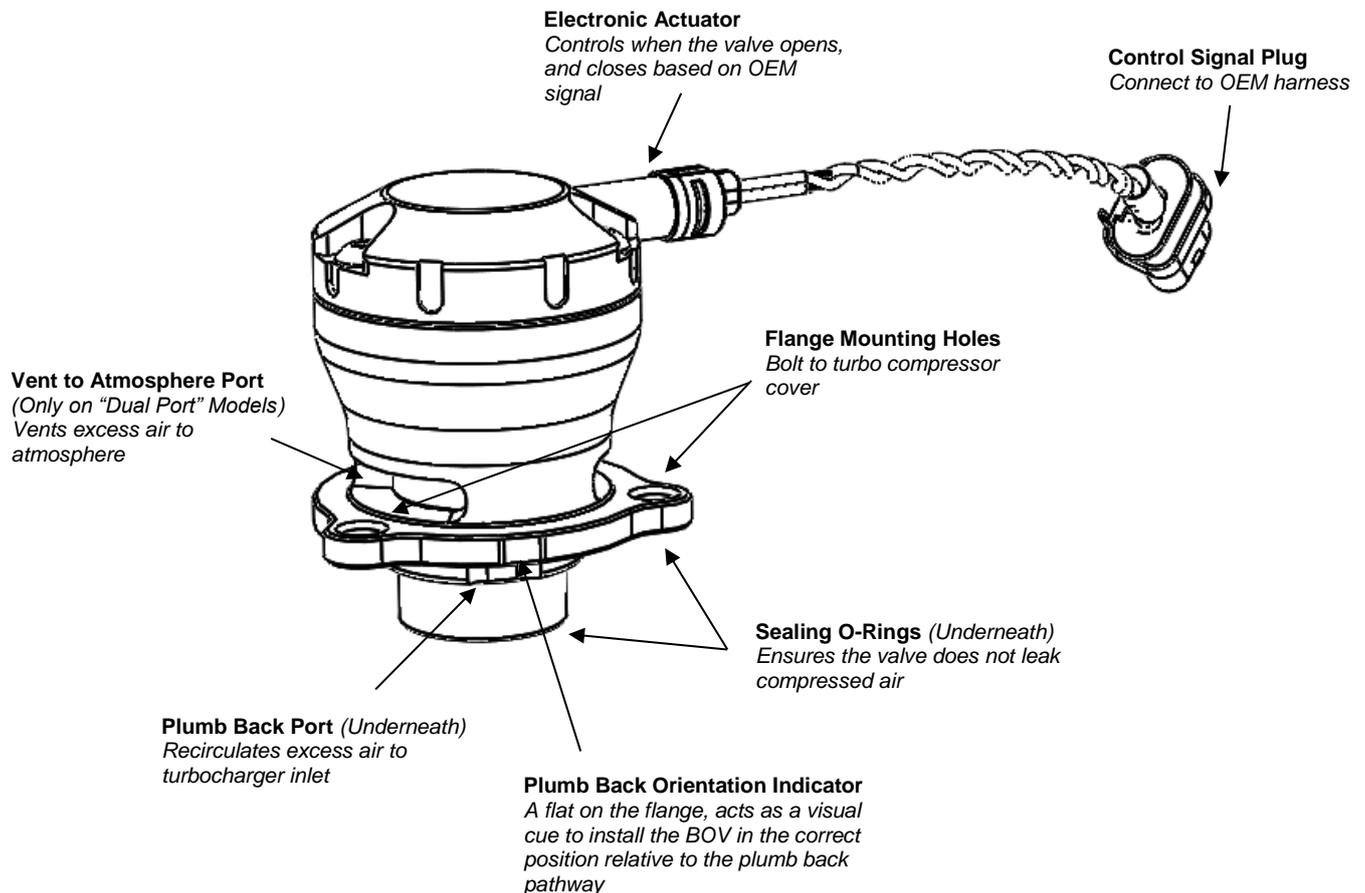


Figure 2 - EM Series BOV Overview

FITTING YOUR EM SERIES BOV

1 Identify turbocharger location

Identify the location of the turbocharger assembly, this is usually located close to the exhaust side of the engine for a typical in-line engine, for a v configuration engine, following the path of the exhaust immediately out of the head can assist you in locating the turbocharger assembly.

If the turbocharger cannot be located, seek assistance from your local specialist.

NOTE!

Cosmetic engine covers may be required to be removed prior to the turbocharger assembly being visible.

CAUTION!

The turbocharger assembly may require the vehicle to be raised on a hoist or jacked up and secured using vehicle jack stands, ensure your safety is not compromised.

2 Identify OEM diverter valve location

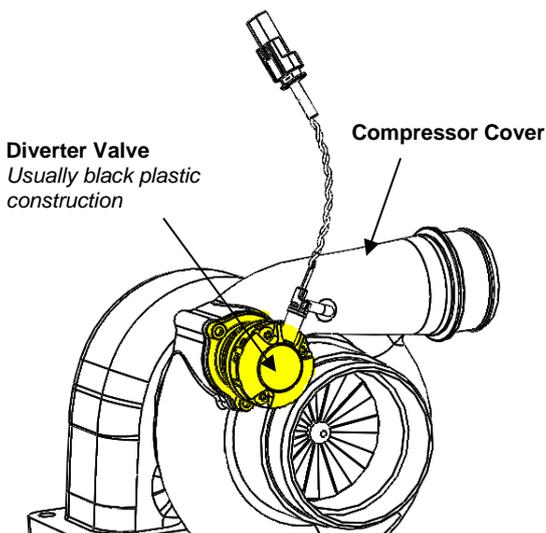
The OEM electronic diverter valve is usually located on the compressor cover of the turbocharger, the diverter valve generally is mounted with 3 or 2 bolts.

On some vehicle applications, this diverter valve is mounted on the intercooler, or the charge pipe between the turbocharger compressor outlet and the engine throttle body.

If the diverter valve cannot be located, seek assistance from your local specialist.

NOTE!

It may be required to remove auxiliary components to access the diverter valve, ensure you consult your local specialist or a service manual for correct disassembly procedures.

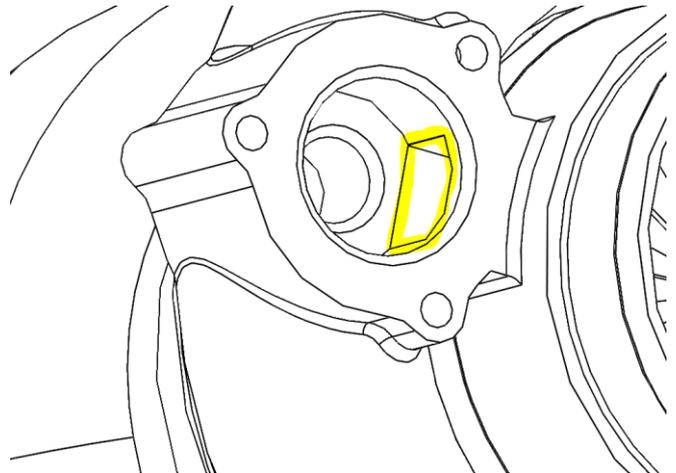
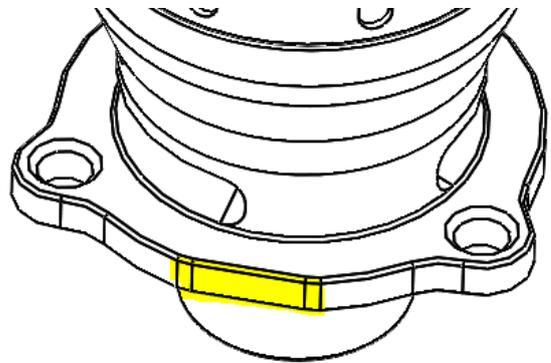


3 Remove the OEM diverter valve

Remove the electronic plug from the OEM diverter valve and unscrew the three screws in an anti-clockwise direction, completely remove and safely store the original mounting screws. The valve will likely want to fall off the mounting flange as you unscrew the last screw, ensure you do not drop the OEM valve as permanent damage may occur to the plastic.

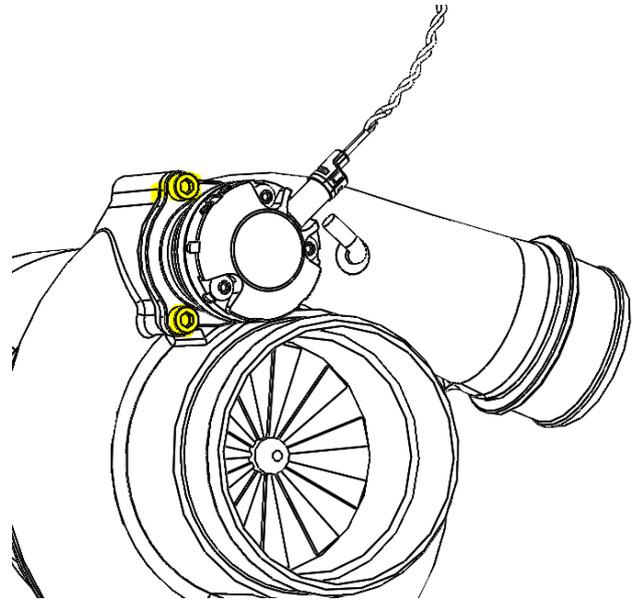
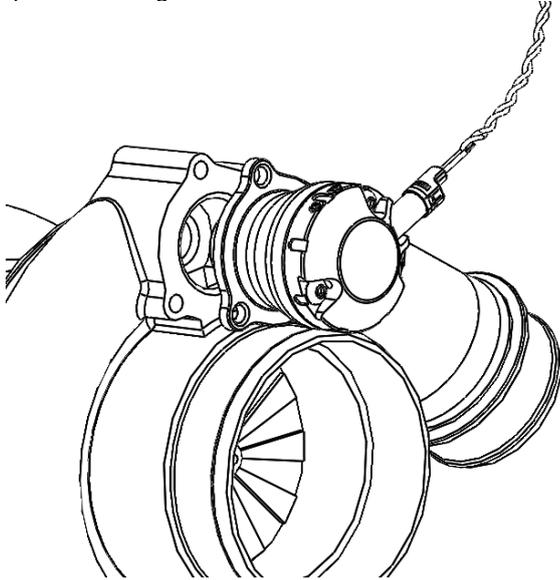
4 Observe factory plumb back recirculation path (required if your valve has a flat)

If your BOV has a flat featured on the flange (indicated in yellow below), this flat is to indicate the orientation of the plumb back ports relative to the factory plumb back recirculation path. This is to ensure maximum recirculation performance.



5 Mount your EM Series BOV

Slide the EM Series BOV into the mounting flange ensuring that the sealing O-rings are still in place on their respective grooves. Once the unit is inserted into the mounting flange, the valve can be rotated to line up the mounting flange bolt pattern against the OEM mounting flange pattern, finally, screw the mounting screws into place securing the BOV.



CAUTION!

Ensure the plumb back port is located correctly if there is a flat on your mounting flange facing the plumb back port on the turbocharger or diverter valve mounting assembly, this is to allow for effective flow from the plumb back port back into the recirculation path, failing to do this can cause compressor surge due to insufficient flow.

Once the valve has been mounted and the screws tightened, connect the electrical plug into the OEM factory plug and secure the wiring safely away from a heat source.

Congratulations, your EM Series BOV is installed and ready for use. Double check all electrical connections and mounting screws.

CHANGING THE ELECTRONIC ACTUATOR

1 Remove Your EM series BOV

Remove the electronic plug from the EM series BOV and unscrew the flange screws in an anti-clockwise direction, completely remove and safely store the mounting screws. The valve will likely want to fall off the mounting flange as you unscrew the last screw, ensure you do not drop the valve as permanent damage may occur. Ensure O-Rings are kept with the valve for reinstallation.

NOTE!

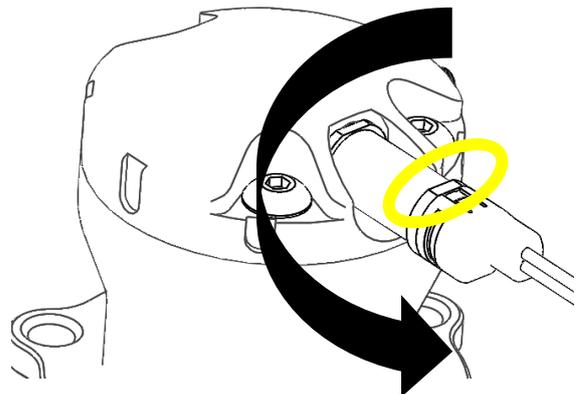
Cosmetic engine covers may be required to be removed prior to the assembly being visible.

CAUTION!

The turbocharger assembly may require the vehicle to be raised on a hoist or jacked up and secured using vehicle jack stands, ensure your safety is not compromised.

2 Remove Electronic Actuator from your EM series BOV

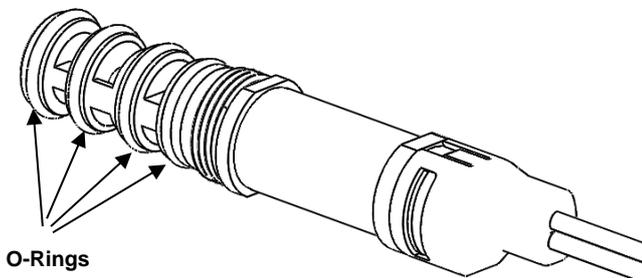
Using a 11mm open end wrench in the flat sides of the solenoid, undo the actuator in an anti-clockwise direction when viewed from the end. Ensure the wrench is placed on the metallic portion of the flats and not on the plastic cover.



Ensure the cavity is free from debris using avoiding shifting dirt into the passages.

3 Install New Electronic Actuator into your EM series BOV

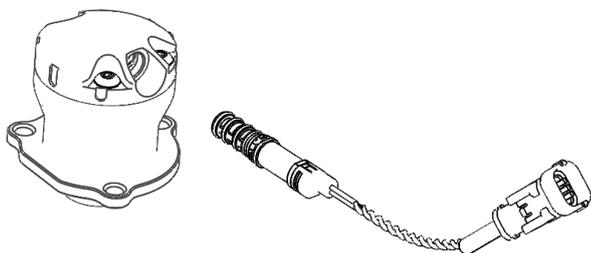
Ensure the O-rings on your new actuator are correctly seated in the grooves before installation



CAUTION!

Failure to ensure O-rings are seated correctly may lead to cutting of an O-Ring and unexpected results from the EM series BOV

Slowly insert the new actuator while turning in a clockwise direction to avoid tearing the O-rings



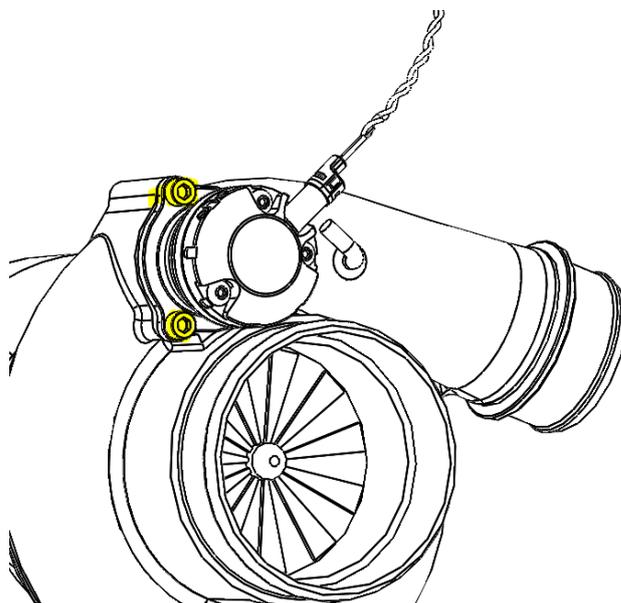
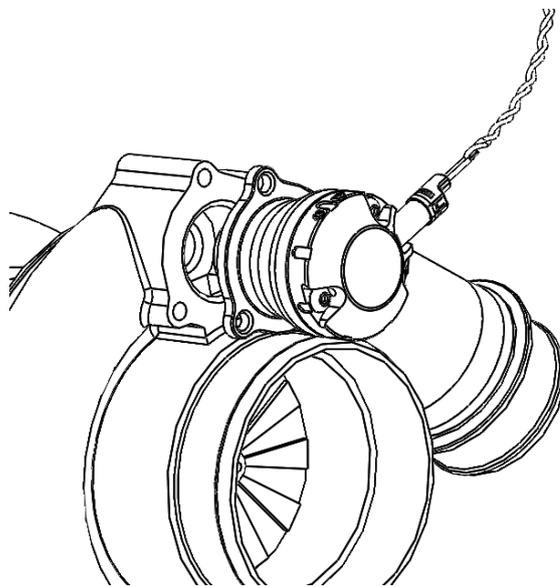
Tighten the new solenoid into the EM series BOV ensuring the wrench is on the metallic portion of the solenoid.

NOTE!

Tightening the solenoid on the plastic cover may result in unreparable damage to the solenoid.

4 Mount your EM Series BOV

Slide the EM Series BOV into the mounting flange ensuring that the sealing O-rings are still in place on their respective grooves. Once the unit is inserted into the mounting flange, the valve can be rotated to line up the mounting flange bolt pattern against the OEM mounting flange pattern, finally, screw the mounting screws into place securing the BOV.



CAUTION!

Ensure the plumb back port is located correctly if there is a flat on your mounting flange facing the plumb back port on the turbocharger or diverter valve mounting assembly, this is to allow for effective flow from the plumb back port back into the recirculation path, failing to do this can cause compressor surge due to insufficient flow.

Once the valve has been mounted and the screws tightened, connect the electrical plug into the OEM factory plug and secure the wiring safely away from a heat source.

Congratulations, your EM Series BOV is installed and ready for use. Double check all electrical connections and mounting screws.

TROUBLE SHOOTING

- BOV not actuating - Confirm electrical signal plug is connected appropriately, as the plugs are new, some force may be required to click the plug into place.
 - Valve is staying open – Confirm the valve has O-rings as they may have been dropped or lost during installation
 - Boost pressure loss or lower than before - Confirm the valve has O-rings as they may have been dropped or lost during installation
 - Failing the above, submit a technical request to tech@turbosmart.com.au with information of your engine configuration and photos of installation
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