TS-0225-1202 - F150 EM Series Diverter Valve

Product Name:	F150 EM Series Diverter Valve
Product Description:	EM Series Diverter Valve F150
Product Number:	TS-0225-1202

Important Notes On Your New Diverter Valve

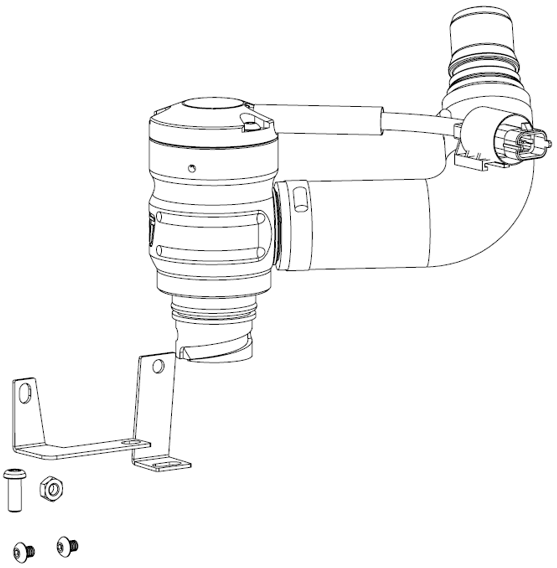
- Turbosmart accepts no responsibility whatsoever for incorrect installation of this product which is potentially hazardous and can cause serious engine damage or personal injury
- The EM series diverter valve is designed for use as a factory replacement for a turbocharged vehicle that utilises an electronic diverter valve, this valve can be used on other applications so long as there is a control signal to actuate the diverter valve.
- Ensure the engine is cold prior to installation.

Recommendations

- Turbosmart recommends that your Diverter valve is fitted by an appropriately qualified technician.

Kit Contents

Part	Description	Use
1	Turbosmart EM Series diverter valve	Main unit
2	Mounting Brackets	Mounting diverter valve to intercooler x 2 Model dependent
3	Turbosmart Sticker	Turbosmart sticker



Tools Required

- Allen key set metric

- Screwdriver
- Basic socket set
- Torx bits

About Your EM Series Diverter Valve

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.

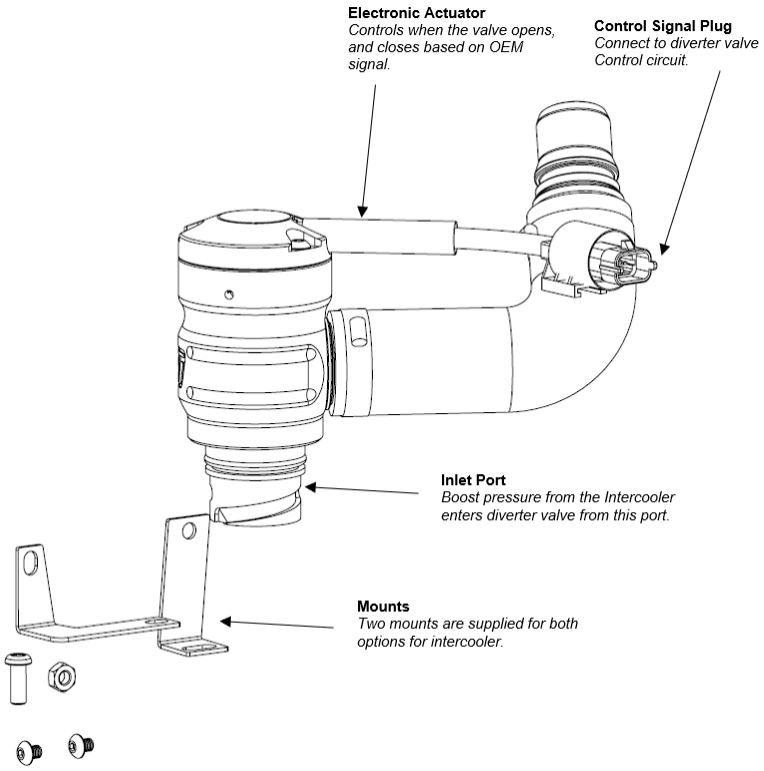
As the valve is completely controlled by the factory engine control unit, the factory diverter valve is almost silent, due to our construction, it is possible that your EM series will be much more audible. By being able to hear the unit actuate, occasionally the valve may be opening for a few seconds 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 diverter valve to be considered “very active” as it is protecting your turbocharger from surge events or bypassing air for torque management purposes.

Fitting your EM Series Diverter Valve

Identify diverter valve location

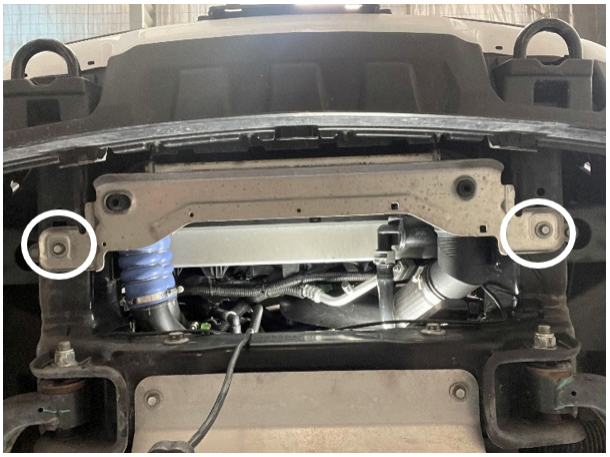
On the 13th Generation Ford F Series Truck (P552) the diverter valve is located on the intercooler on the twin turbo model. This is located at the front of the car in the lower grill portion. It is accessible from the bottom of the car.

NOTE! Allow for the engine to cool down.



Removing the Undertray

Remove the under-tray of the vehicle by removing all the plastic clips holding the tray in place. Once the under-tray is removed, the intercooler assembly can be accessed.
Undo the bolts securing the intercooler cross member to remove the intercooler from the vehicle. The Intercooler undertray is held on with 2 x 15mm bolts.

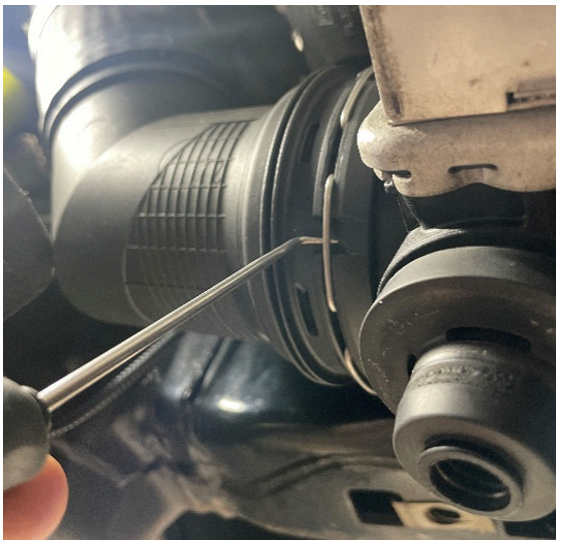


NOTE! It may be required to remove auxiliary components to access the diverter valve, ensure you consult your local specialist or a service manual for correct disassembly procedures.

The recirculation hose below needs the grey collar to be rotated in the direction of the arrow. Once rotated the tabs will move up and the part can be separated by pulling apart.

Remove Intercooler Piping

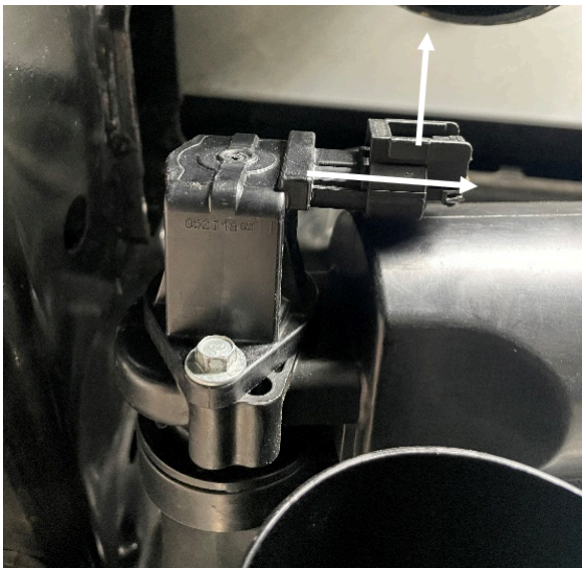
The intercooler piping is held on with a quick release clip. As well as a 7mm hose clamp, once these are removed the pipe can be wiggled free.



The Turbo feed charge pipe also need to be removed. These are also held on with 7mm hose clamps.

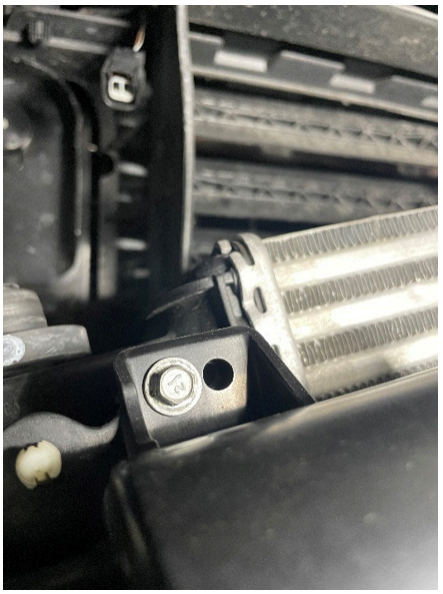
Remove Diverter Valve Plug

Removing the plug is done by simply pushing down waiting for the click and removing the plug by pulling backwards.

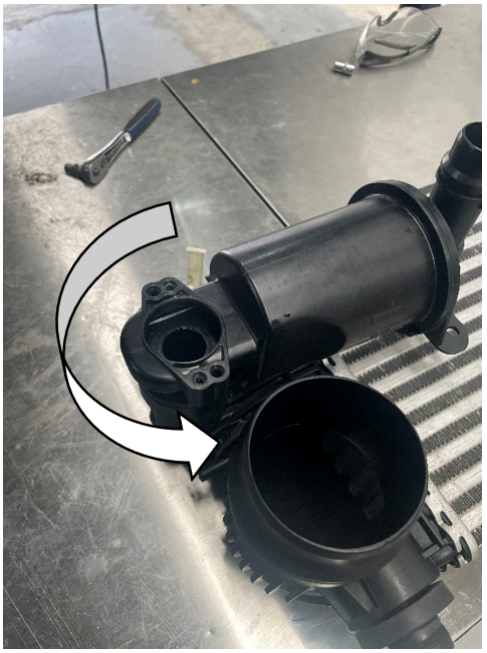


Remove Diverter Valve Chamber

The chamber is held on at the top of the intercooler with 1 x 8mm self-taping screw. Once removed the chamber is free to be removed.



The chamber pictured below can be removed, the chamber is simply rotated anticlockwise and it will uncouple from the intercooler.



Mounting Turbosmart Diverter Valve

Now we can install the Turbosmart diverter valve now the intercooler is removed from the car. The diverter valve is supplied with a recirculation silicone hose. The longer end of the silicone hose is fitted to the diverter valve and the recirculation hose connector is pre fitted to the shorter end. Use the supplied hose clamps on the silicone hose. It is advised to leave the clamps loose while installing to ensure everything is correctly aligned.

The alignment of the diverter valve is important. The diverter valve can screw in with two directions. The recirculation port must face towards the intercooler as pictured above.

The mount that holds the valve comes in two options. The most suitable one needs to be used. The Smaller right angled one pictured is for the small version intercooler. We must use a M3 Allen key to attach to the diverter valve.

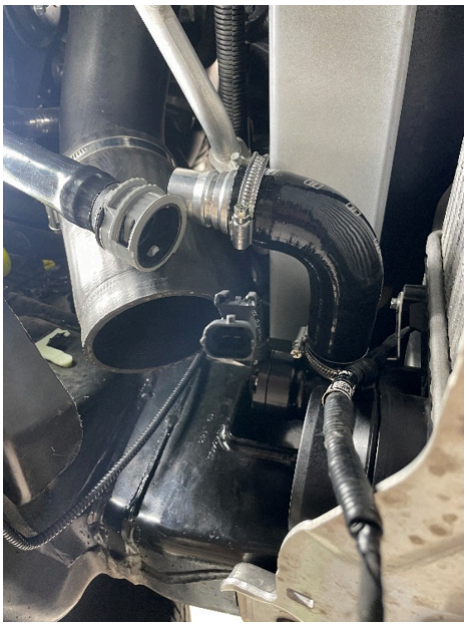
Refitting Diverter Valve/Intercooler to Car

With everything fitted back to the intercooler we can fit the intercooler back into the car. It’s helpful to use the intercooler bracket to assist with the intercooler to remain in place.

The turbo feed pipes as well as charge pipe to the throttle body must be refitted, the charge pipe needs an audible click to sound from the retention clip.

The two 7mm hose clamps must be correctly clamped.

The recirculation pipe must be fitted ensuring the connector clips and locks into place, at this point we should tighten up any loose hose clamp to ensure that we have correct orientation of the recirculation pipe.

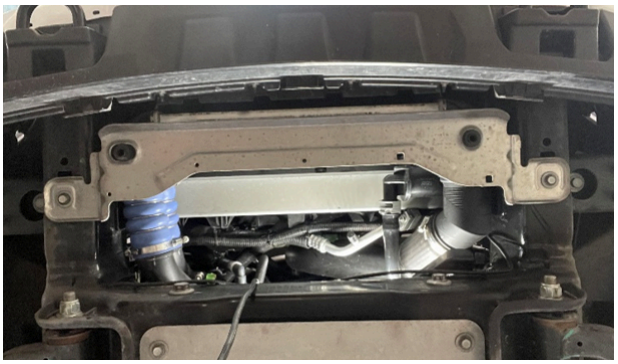


Refitting Electrical Connector

Plug in Connector ensuring that a positive and audible click is heard with the connector to ensure that it is locked in place.

Refitting Undertray

Refit Undertray with the 2 x 15mm bolts that were moved to originally gain access to the Diverter valve area.



Finalising your Install

It is important to check for leaks and correct operation as well as listening for compressor surge. This noise is the sound of the boost pressure air running back into the turbo causing cavitation.

Now the car can be taken for a test drive in a safe environment and listen for the correct operation and that no turbo charger surge occurs

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Troubleshooting

- Diverter valve 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.
- As the factory engine control unit controls the valve, the diverter valve is almost silent.

Notes On EM Series Diverter Valve Operation

- Due to its construction, your EM series may be much more audible than the OEM valve
- During normal operation you may now be able to hear the valve open for a few seconds under the following events: traction control, cruise control management, rapid gear changes and varying throttle position changes. This is standard operation of your diverter valve and is coded as part of the torque management software in the OEM engine control unit; there is no adjustment available over these functions on the Turbosmart EM valve directly. It is normal for a diverter valve to be “very active” as it protects your turbocharger from surge events as well as bypassing air for torque management purposes.