

TURBODRIVEN

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BorgWarner Genuine Products vs. Counterfeit

The industry relies on original turbocharging systems from BorgWarner. Our turbochargers are developed and tested to the strictest, globally-recognized quality standards. This is true for both our OEM products as well as our original replacement parts and remanufactured turbochargers.

This is not true of non-original BorgWarner turbochargers that have been appearing in the spare parts market.

These fakes are masquerading as BorgWarner products—with our trademark, part and serial numbers and even BorgWarner-looking packaging. However, make no mistake—they are counterfeit. And these copies are not only lesser quality, they are hazardous to the health of your vehicle and may potentially cause engine damage or failure.

Three Drawbacks to Counterfeit Turbos

The counterfeit turbochargers may seem attractive because of their lower price, but they end up costing you much more in the end. There are three key drawbacks:

1) Imbalance: The sub-par materials used in counterfeits often result in incorrect or insufficient balancing of high-speed rotating components, such as the turbine wheel. Balancing is critically important in a rotating assembly, especially for durability and reliability.

2) Insufficient temperature capability: BorgWarner turbo components are designed to endure high exhaust gas temperatures (typically 1050°C in modern gasoline engines), and the materials used in the counterfeit turbochargers typically do not meet these same requirements. Ultimately, this compromises durability and performance.

Examples of Counterfeit Parts



3) Improper adjustment: The fake turbos have been found to have improper adjustment of actuators for VTG or wastegates. This impacts engine performance and emissions.

Bottom line: The lower price of the counterfeits is costly: design flaws, poor performance, excessive emissions, component failure, and potential engine damage or failure.

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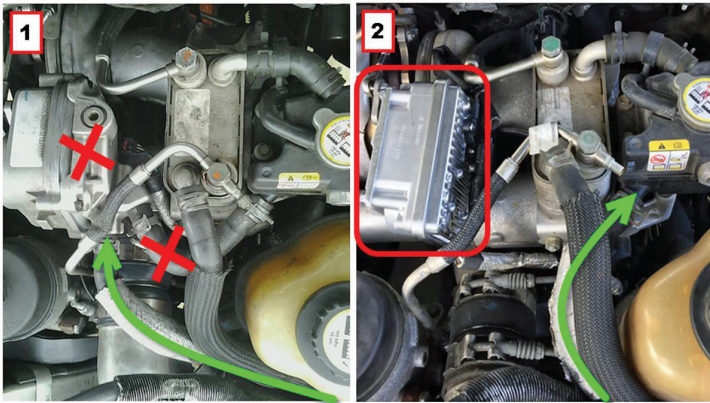
Tech Tip: Replacing the Actuator for Ford 6.4L Powerstroke V2S and HP Turbos

The original SRA (Smart Remote Actuator) assembly for the Ford 6.4L Powerstroke VS2 turbo assembly is no longer available. If you need to replace your original 2-stage turbo (V2S), HP turbo or SRA, it is now replaced by the new BorgWarner CBA (Compact Brushless Actuator) design. It offers the same performance and packaging as the original SRA, but with many other advantages. This tech tip explains the difference between SRAs and CBAs as well as the steps you need to take to install the CBA.

Step 1: Remove Coolant Pipe Routing

The new CBA retrofit does not require water cooling as the original SRA did. The existing coolant lines can be rerouted to bypass the actuator and complete the cooling circuit without modification.

- **Action Step:** Remove the actuator coolant block and the short hose that went from the old actuator coolant block to the reservoir.



This photo shows the original actuator and coolant line arrangement.

This photo shows the new actuator with the coolant line rerouted directly to the coolant reservoir. The coolant block is attached to the original SRA and the short hose that connects the coolant block to the reservoir (no longer being used). The shielded hose (marked with the green arrow) moves from the coolant block connection to the reservoir connection.

■ **BorgWarner Turbo with CBA:** Part number 479514

■ **CBA Kit:** Part number 59001107387

Step 2: Check Oil System

It is common for solid contaminants to build up in the 6.4 liter bearing systems—not only in the turbo, but in the oil cooler, oil lines and fittings supplying oil to the turbos. These solid contaminants are carried to the turbo bearing system and deposited there, causing premature bearing and turbo failure.

- **Action Step:** Check the oil system to be sure it is free of solid contaminants before installing a new turbo system. Conducting this check prior to connecting the oil lines to the turbo helps protect your investment.

Step 3: Install CBA

Installation of the CBA retrofit actuator assembly to the turbo requires removal of the original SRA assembly.

- **Action Step:** As you install the CBA, be sure to remove the orange plastic card as well as the two bolts left in the high pressure (HP) and low pressure (LP) turbine connection.

Step 4: Calibrate CBA

There is no external calibration procedure required for the new retrofit CBA. The new actuator automatically calibrates the first time it is powered up.

- **Action Step:** Turn the vehicle on to power up the actuator and rev the engine to a safe position at 20% of full travel. At this position, it will wait for the ECU to provide information that allows the actuator to execute a full span sweep to learn its limits.

(continued on page 4)

Turbochargers for Every Application

You are likely familiar with BorgWarner turbochargers for passenger car and on-highway trucks, but you may not know that we have a large portfolio of turbochargers for a variety of off-highway applications, including:

- Construction
- Forestry
- Power Generation
- Agriculture
- Marine

	Turbocharger Model	Features
	<p>Model S310CG Turbocharger for Construction Applications</p>	<ul style="list-style-type: none"> ■ Fits 9.0L diesel engines ■ Features a wastegated turbine housing and “Gen 2” compressor wheel
	<p>Model S510C Turbocharger for Mining and Heavy Hauling Applications</p>	<ul style="list-style-type: none"> ■ Fits 70.0L, 16-cylinder engines ■ Four model S510C turbochargers utilized ■ Features a cast iron compressor cover and a forged milled titanium compressor wheel
	<p>Models S200W, S300W, S410W and S4DW Turbochargers for Marine Applications</p>	<ul style="list-style-type: none"> ■ Single and twin turbos fit a variety of 6.8L – 27.0L marine diesel engines ■ Features water-cooled turbine housings specific to each application 

Contact your Regional Sales Manager today for more details!

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BorgWarner Genuine Products vs. Counterfeit (continued from page 1)

We examined two different units in our research laboratory—a BorgWarner original and a counterfeit one—and tested them to our strict standards. The results have serious implications: turbine housings, compressor wheels and other critical components showed serious defects in material quality, finishing and design.

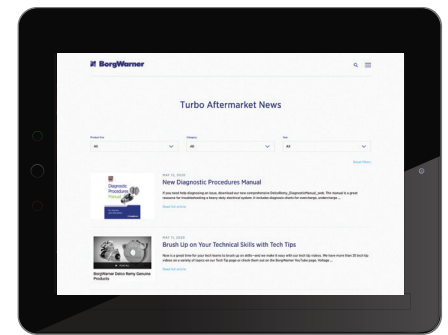
Test Area	Genuine	Counterfeit
Balancing	Compressor wheel balanced in a complex procedure at the end of the manufacturing process	Compressor wheel balanced with improvised boreholes and lead fillings
Load capacity	Designed for up to 180,000 revolutions per minute	Tests cut short at 83,360 and 100,000 revolutions per minute due to bearing damage
Turbine housing material	Turbine housing made from high-grade material with high consistency	Inconsistent microstructure limits the durability and resilience of the turbine housing
Turbine shaft and wheel, friction weld	Efficient heat restriction in the form of a cavity between the turbine wheel and the shaft	No heat restriction, resulting in overheating of the welding zone

Avoid Counterfeit Turbochargers

The best way to avoid counterfeit turbochargers is to buy from an authorized BorgWarner distributor or one of their dealer representatives. If there is any question about the authenticity of a particular turbocharger, check with your distributor to ensure you are getting a genuine BorgWarner service replacement unit.

Visit Us Online

One of the best ways to stay updated on BorgWarner product news and tech tips is through the **Turbo News** section on the **BorgWarner Turbo website**.



Tech Tip

(continued from page 2)

SRA vs. CBA Style Actuators

The original SRA has been discontinued and is no longer available for the Ford 6.4L Powerstroke V2S turbo systems sold between 2008 and 2010. The BorgWarner CBA assembly is a retrofit actuator consisting of a BorgWarner CBA with linkage, a new actuator bracket, thermal spacer and mounting hardware.

In addition to the same performance and packaging, the CBA offers many benefits:

- Newer design
- More compact design
- Higher torque capability
- No water cooling requirement
- Higher temperature capability

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