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Screamer Turbocharger

1045850	2020-2022 Ford F250/F350 6.7L
	2023 Ford F250/F350 6.7L
1045851	2023 Ford F250/F350 6.7L H/O
	2024 Ford F-250/F350 6.7L
This product is still in development stage and is not available for purchase	

Note: In 2023 there was a high output (H/O) and low output version of the engine released. This can be identified via VIN comparison or visual inspection of the compressor cover.

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

Introduction

The BD Screamer turbo series is now available for the 2020-2022 Ford 6.7L Powerstroke. The Screamer turbo is designed to be a drop-in stock-appearing performance turbocharger that increases the total airflow without affecting low-end drivability.

BD's Ford screamer line-up utilizes a custom mixed flow turbine (MFT) wheel with a large 65mm exducer. At high flow operation, the increased efficiency of the MFT wheel allows the variable nozzle technology to open up and act like a larger turbine housing, which reduces drive pressure and lowers the required exhaust gas temperatures. During turbocharger spool up, the vanes close, creating high velocity "jets" used to spool the turbocharger. The geometry of the MFT more efficiently harnesses these high velocity jets, allowing the use of a larger compressor wheel without compromising on drivability.

Pre-Installation Inspection

When replacing a turbocharger BD recommends the following precautions are taken:

- Replace or clean the air filter.
- Change the engine oil and filter.
- Inspect Intake and CAC passages for debris, and clean if necessary.



In the case of a previous failure also include the following steps:




- Inspect CAC for debris and cleanout if necessary.
- Inspect engine oil for debris. Flush system if debris was present.

Ensuring that these steps are followed will prolong the life of your new turbocharger.

Kit Contents

Please make sure that you have all the parts listed in this kit **before** you start!

BC3Z-6587-A	
	
Turbocharger Qty: 1	Description Qty: 1

BC3Z-5A231-B	BC3Z-6N640-A	BC3Z-9E464-F
		
Clamp; Downpipe Gasket Qty: 1	Description Qty: 1	Description Qty: 2

1045851 ONLY - AC3Z-8527-A

O-ring; Coolant line Qty: 2

Installation

Disconnect both vehicle batteries before installation for safety.



Drain the engine cooling system.

Note: The radiator petcock is located on the driver side, accessible from the front fender well.

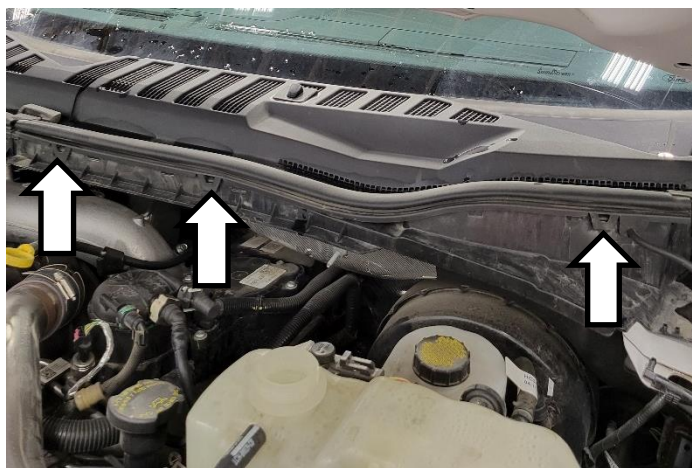


Removal of the cowl panel is needed for clearance when removing the turbo.

Start by unthreading the antenna and removing the wiper arms.



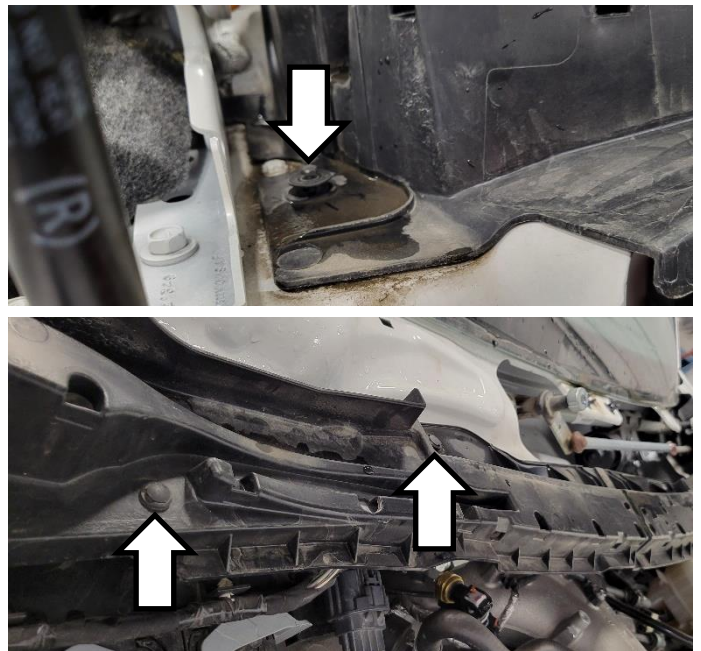
Remove the upper cowl panel by gently prying the mounting tabs and lift off the mounting clips.



Flip the upper cowl panel, and disconnect the washer fluid lines.

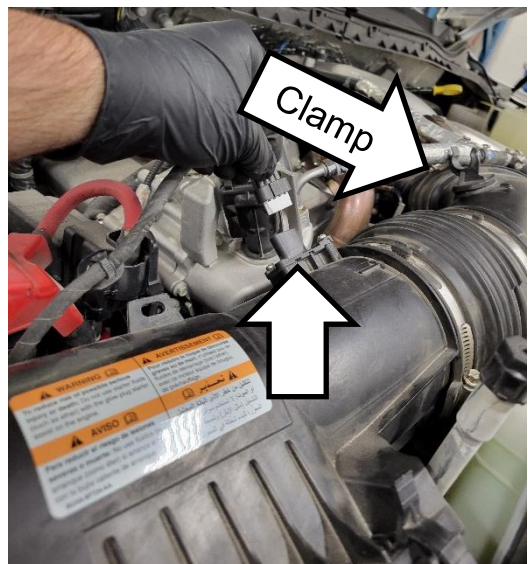


Remove the 3x fasteners holding the lower cowl panel and remove the loose panels.



Remove the air intake pipe.

Note: Disconnect the MAF sensor from the intake tube.





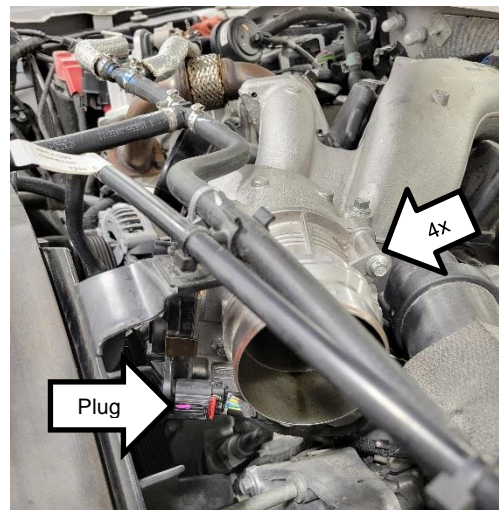
Remove the Outlet CAC pipe.



Remove the Inlet CAC pipe.



Disconnect the throttle valve connector and remove the throttle valve.



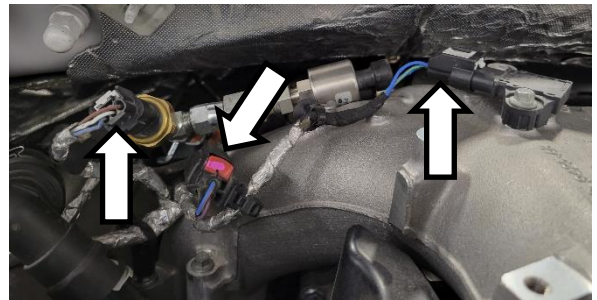
Disconnect the EGR temp sensor connector located below the upper intake manifold.



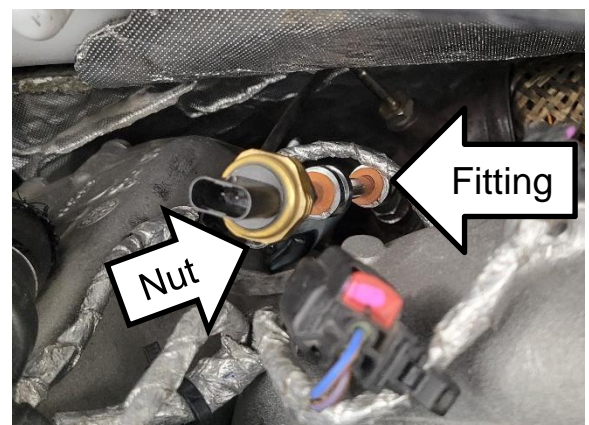
Remove the intake manifold support.



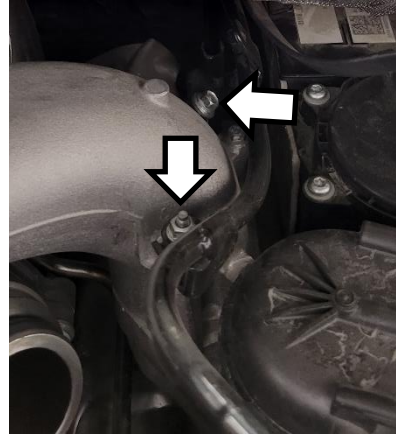
Disconnect the coolant hose retainer, MAP sensor, Exhaust Pressure sensor, EGR Temp sensor connectors.



Remove the EBP sensor tube.



Remove the nut and bolt holding the Oil dipstick tube into position and position the tube out of the way.

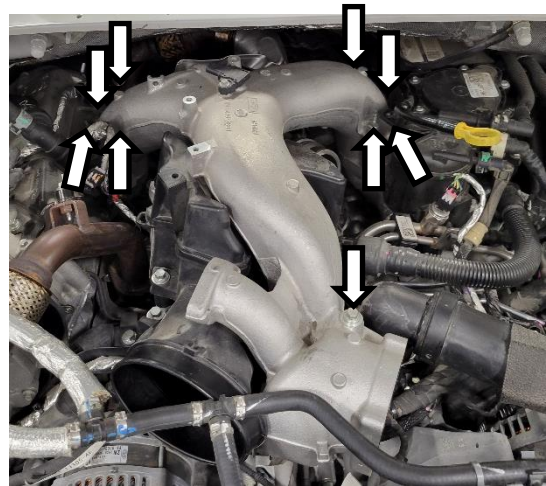


Remove the EGR cooler outlet tube.

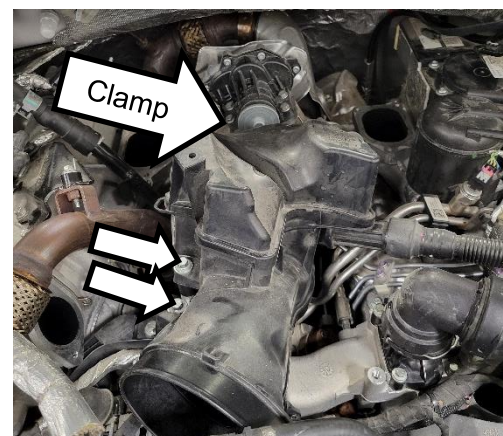


Remove the 9 fasteners holding the upper intake manifold and remove the manifold.

Note: Once the manifold is removed, cover the openings in the valve covers.



Remove the 2 bolts holding the lower intake manifold and the intake manifold to turbo clamp. Once loose, position out of the way.



Remove the 3x bolts and turbocharger heat shield.



Loosen the v-band clamp and 3 nuts from manifold flange then remove the up-pipe.



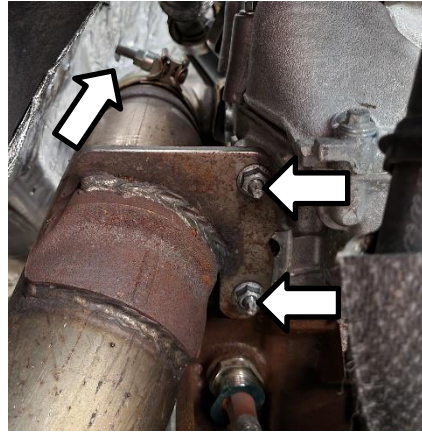
To gain access to the exhaust side of the turbo, remove the passenger side wheel and fender well.



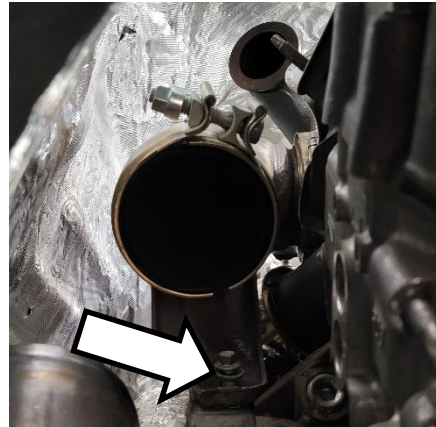
Remove the exhaust downpipe collector bolts and pull back the exhaust to allow the downpipe to be removed.



Remove the 2 nuts holding the downpipe to the cylinder head and loosen the midpipe clamp.



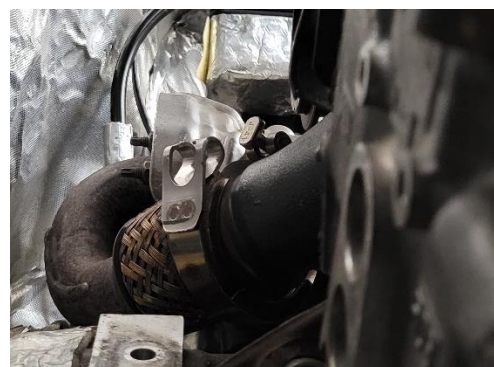
Remove the upper downpipe mounting bolt.



Loosen the V-band clamp attaching the upper downpipe to the turbo and remove the upper downpipe.



Loosen the driver side up-pipe v-band clamp and position off of the turbo flange.



Remove the turbocharger coolant return line bolt and remove the coolant return line.

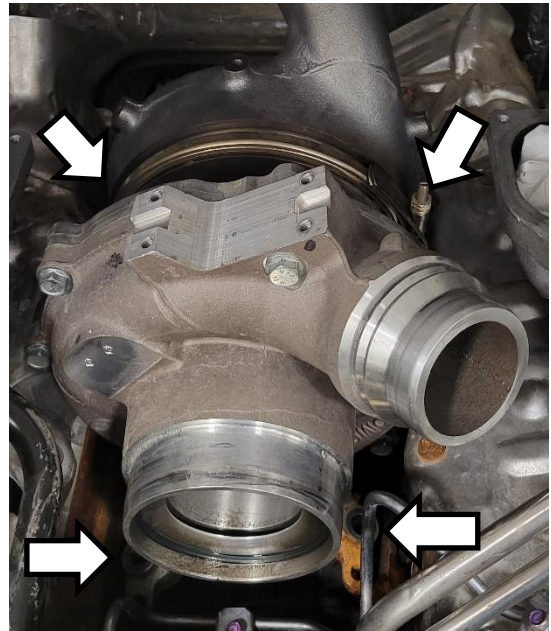


Disconnect the turbo actuator electrical connector.

Note: It is recommended but not required to remove the turbo actuator from the compressor cover to allow for more clearance when removing the turbo from the engine bay.



Remove the 4 turbocharger mounting bolts and remove the turbocharger from the engine bay.



With the turbocharger removed, clean the pedestal mating surface to ensure the gasket seals properly when reinstalled.

Note: Be sure to cover the lower valley when cleaning the surface and wipe the valley clean of all oil and debris.



Install the new gasket into position and install the new turbocharger. Tighten the mounting bolts finger tight at this time.

Note: Be sure to align the driver side up-pipe with the turbine housing while sliding into position.

Note: If actuator was removed for clearance during install, reinstall now.

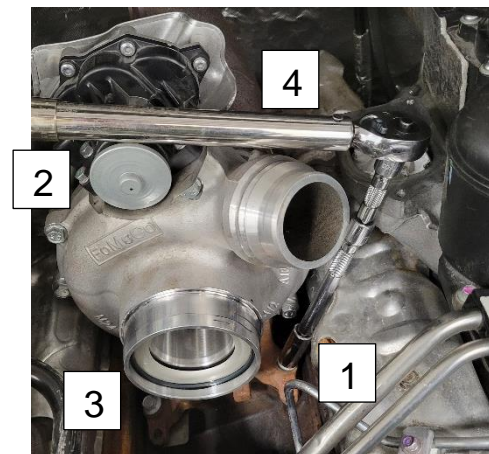


Loosely position the V-band clamp onto the sealing flanges and tighten finger tight.



Tighten the turbocharger mounting bolts in 2 steps following the pattern.

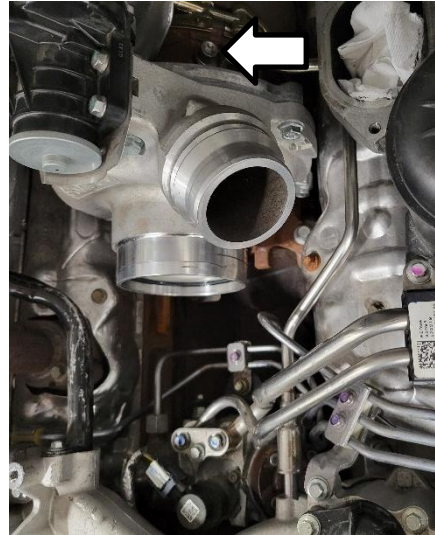
Step 1: Torque to **133 inlbs**
Step 2: Torque to **41 ftlbs**



Reinstall the turbocharger coolant return tube. Use a small amount of coolant to lubricate the O-ring and seal prior to installation.

Step 1: Torque the bolt to **106 inlb**
Step 2: Tighten an additional **30 degrees**

NOTE: Check the seal and O-ring for nicks or cuts. Replace as necessary.



Tighten the driver side up-pipe v-band clamp. Torque to **159 inlb**.



Install the upper downpipe flange onto the turbocharger and loosely install the v-band clamp.

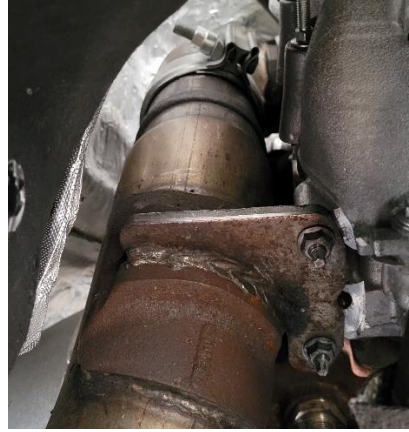


Install the downpipe mount bolt and tighten finger tight.

Torque the V-band clamp to **17 lbft** first, then torque the downpipe mount bolt to **18 lbft**.



Install the lower downpipe into position and install the nuts hand tight.



Reinstall the exhaust to the downpipe flange and loosely install the bolts

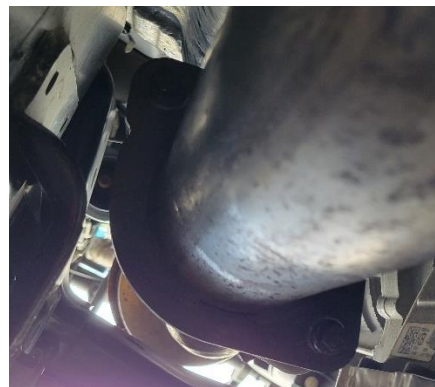


Torque the downpipe mounting nuts to **22 lbft.**

Torque the upper downpipe clamp to **41 lbft.**



Torque the downpipe flange to exhaust bolts to **26 lbft.**



Install a new gasket into position and install the passenger side up-pipe into position.

Torque the v-band clamp to **17 ftlb.**

Torque the three manifold flange nuts to **18 ftlb.**



Install the turbocharger heat shield.
Torque the three bolts to **89 inlb.**



Install the lower intake manifold into position on the turbocharger.

Torque the mounting bolts to **18 ftlb.**
Tighten the clamp to **31 inlb.**



Before installing the upper intake manifold, ensure to clean the mounting surfaces, remove the covers placed on the openings, and check the gaskets in the upper intake manifold for nicks or cuts.



Connect the turbocharger actuator electrical connector and slide cover into place.

After installation is complete, the turbo actuator must be recalibrated to the truck at a ford dealer.



Install the upper intake manifold into position

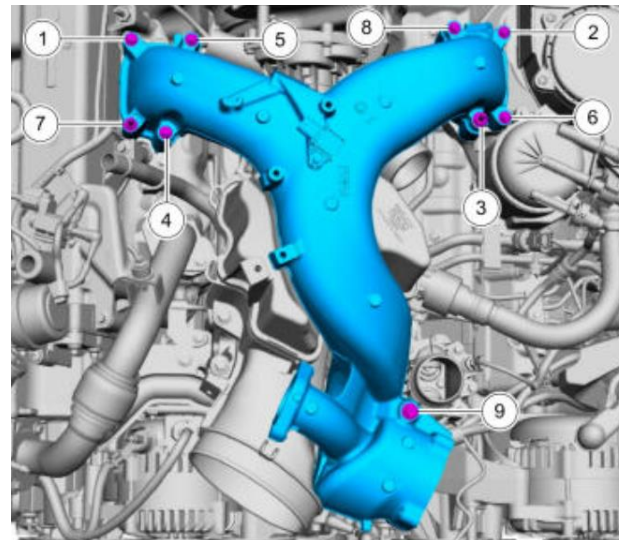


Torque all fasteners as specified below following the torque pattern provided.

Step 1: Torque bolts 1-8 to **89 inlb**

Step 2: Tighten bolts 1-8 additional **90 deg**

Step 3: Torque bolt 9 to **18 lbft**



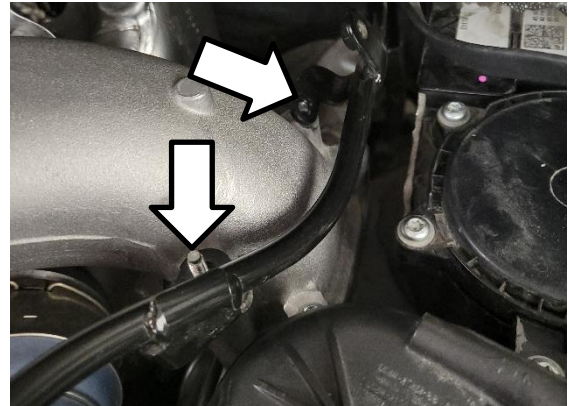
Install the EGR cooler outlet tube with new gaskets provided. Torque bolts to **89 inlb**.



Reconnect the EGR temp sensor located below the intake manifold.



Place the oil dipstick tube back into position and install fasteners. Torque both fasteners to **89 inlb**.



Install the EBP sensor tube.

Torque the flare nut to **177 inlb**.
Torque the mounting nut to **89 inlb**.



Reconnect the MAP sensor, EBP sensor, and EGR temp sensor connectors.



Install the intake manifold support and torque fasteners to **89 inlb.**



Install the throttle valve and torque fastener to **89 inlb.**

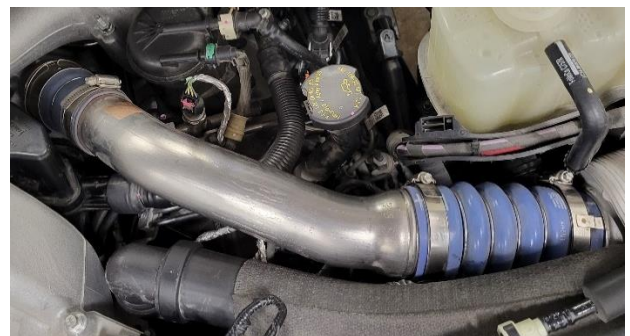
Reconnect the throttle valve connector.



Install the Outlet charge air cooler pipe.



Install the Inlet charge air cooler pipe.



Install the air intake pipe and reconnect the MAF electrical connector.



Reinstall the lower and upper cowl panels. Reconnect the washer fluid lines disconnected during removal.

Reinstall the wiper arms and antenna.



Reinstall the passenger side fender liner and wheel.

Torque wheel nuts to **150 ftlb.**



Refill with coolant. Once full, perform a pressure test to ensure there are no leaks.

Reconnect the negative battery terminals.



After installation is complete, the turbo actuator must be recalibrated to the truck at a Ford dealer. If not calibrated, turbo performance could be affected.