



BFT CATERPILLAR TURBO INSTALLATION MANUAL

CATERPILLAR® 3406B, 3406C, 3406E, C15 & C16 (1989-2003)
PART# 56250



**BULLY
DOG**

BIG RIG

INTRODUCTION

The BFT 1 for Caterpillar 3406B, 3406C, 3406E, C15 and C16 (1989-2003) works as a performance enhancement or as an OEM replacement. This install guide lists all of the installation requirements and conditions that must be met for this turbocharger to work properly and to uphold the Bully Dog warranty. If it is clear that any of the conditions have not been met then the Bully Dog warranty for this turbocharger will not be honored. It is highly recommended that this turbocharger be installed by an experienced and knowledgeable mechanic.

CHECKLIST:

1. Before installing a new turbocharger consult a knowledgeable mechanic to understand why the original turbocharger needs replacing before installing a new turbocharger.
2. Check the turbocharger nameplate to ensure the Part No. is correct for the engine/application.
3. Check the engine intake and exhaust systems are clean and free from obstructions; free of oil, gasket pieces, dust/dirt/carbon or foreign objects.
4. Have the manufacturer specified replacement air filter and oil filter ready when the turbo is installed.
5. Have the manufacturer specified oil type and amount ready when the turbo is installed. Full oil change is needed.
6. Check new turbocharger oil inlet and drain. Remove any plugs or debris that maybe in the hole.

INSTALL:

1. Drain oil, remove all connections to old turbo, and remove all gaskets.
2. Check that the new manufacturer specified gaskets fit correctly on all connects; exhaust manifold turbo mount, oil inlet gasket.
3. Place the gasket and appropriate hardware in/on the exhaust manifold turbo mount. Then mount the new turbocharger. Check gasket after securing the turbo.
4. Rotate the turbocharger central bearing housing so that the oil inlet and drain are in the vertical position. The vertical drain position can only deviate 22° off of vertical.
5. Pour some clean engine oil into the turbocharger oil inlet hole and twist the turbocharger rotor assembly until clean oil starts to flow out of the oil drain flange.
6. Rotate compressor housing into the correct position and assemble the air intake and boost outlet connections. Check that the connections are well made and do not have a possibility of leaking under pressure.
7. Assemble the exhaust system to the turbine housing outlet. Check that the gasket/connection is well made and will not leak.
8. Check that the exhaust system is well supported and not causing excess loads on the turbocharger. Fit any supports/brackets back in position.
9. Check all hose/pipe clamps/studs/nuts are correctly torqued.
10. Carefully assemble the turbocharger oil inlet pipe and check that the connection is clean, well made and will not leak under pressure. Do NOT use liquid gasket substances as any excess will enter the turbocharger oil system and obstruct oil flow damaging the turbocharger bearing system.
11. Crank the engine WITHOUT firing (engine/fuel pump stop out) until engine oil flows out of the turbocharger drain flange.
12. Assemble the oil drain pipe and check that the connection is well made without any obstruction.
13. Check that the engine fuel injection system is correctly regulated as per the manufacturers specifications.
14. Start the engine and leave ticking over at idle for approx. 1 minute so that the oil supply system is fully operational including the new filter(s).
15. Accelerate the engine and check that there are no leaks/obstructions of the air/oil/gas under pressure.
16. Check that the hoses/connections do not deform under normal operations before switching off the engine, leave it ticking over at idle for at least 1 minute to cool the turbo.

TROUBLESHOOTING GRID

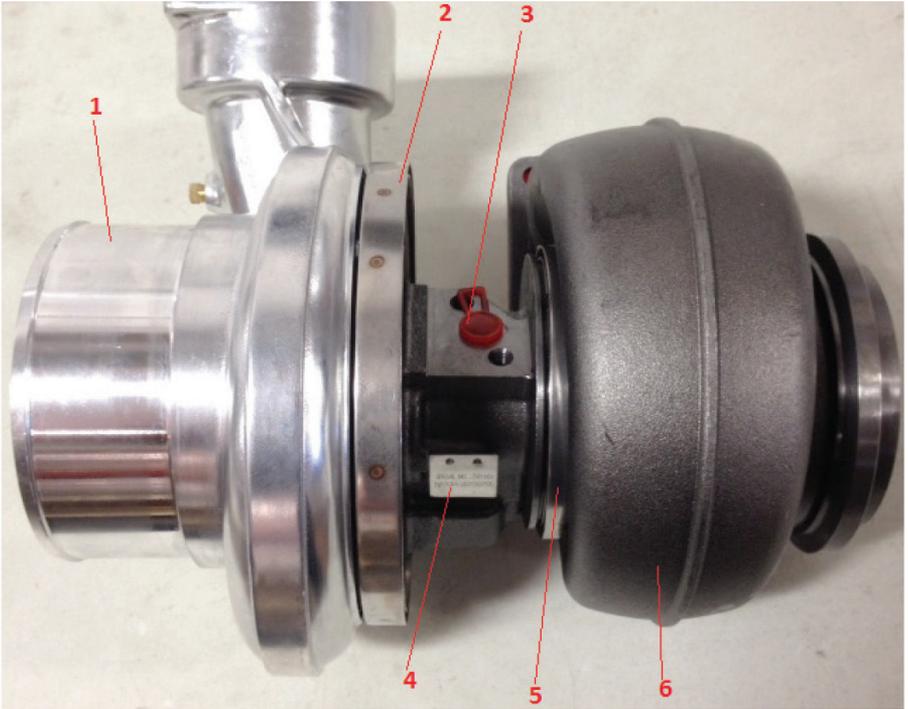
	Engine Running Hot	Poor Transient Response
Dirty air cleaner- Clean or replace element	0	0
Restricted compressor intake duct- Remove debris or item causing the restriction	0	0
Restricted air duct from compressor to intake manifold- Remove restriction look for damaged parts.	0	0
Air leak in feed from air cleaner to compressor- Replace seals gaskets or tighten fasteners as required.		
Air Leak in feed between compressor to intake manifold- Replace seals, gaskets and tighten fasteners as required	0	0
Air leak between intake manifold and engine- Refer to engine manufacturer's manual and replace gaskets or damaged parts as required.	0	
Foreign object in exhaust manifold (from engine)- Refer to engine manufacturer's manual and remove obstruction.		
Restricted exhaust system- remove restriction or replace damaged parts as required.	0	
Exhaust manifold cracked, gaskets missing or blown- refer to engine manufacturer's manual and remove obstruction		0
Gas leak at turbine inlet/ exhaust manifold joint- Replace gasket or tighten fasteners as required.		0
Gas leak in ducting after turbine outlet- Refer to engine manufacturer's manual and repair oil leak.		0
Restricted turbocharger oil drain line- identify and remove restriction. Replace parts as needed.		
Restricted engine crankcase breather- refer to engine manufacturer's manual to clear restriction		
Turbo bearing housing sludged or choked- change oil and filter in engine replace turbo as needed		
Fuel injector pump or fuel injectors incorrectly set- Refer to engine manufacturer's manual and replace or adjust faulty components as required.		0
Engine valve timing incorrect- Refer to engine manufacturer's manual for correct settings and adjust as required		
Worn engine pistons, rings or liners- Refer to engine manufacturer's manual for correct settings and adjust as required		
Burnt valves and or pistons- Refer to engine manufacturer's manual and repair as required		
Excessive dirt build up on compressor wheel and / or diffuser vanes- Clean in accordance with details in the appropriate Holset publication		
Turbocharger damaged- Find and correct cause of failure or replace as necessary		
Leaking hose- replace hose and clips	0	

CATERPILLAR TURBO

Smoke	Engine lacks power	Black Exhaust Smoke	Blue Exhaust Smoke	High Oil Consumption	Turbo is Noisy	Cyclic sound from Turbo	Oil leak from Compressor Seal	Oil leak from turbine seal
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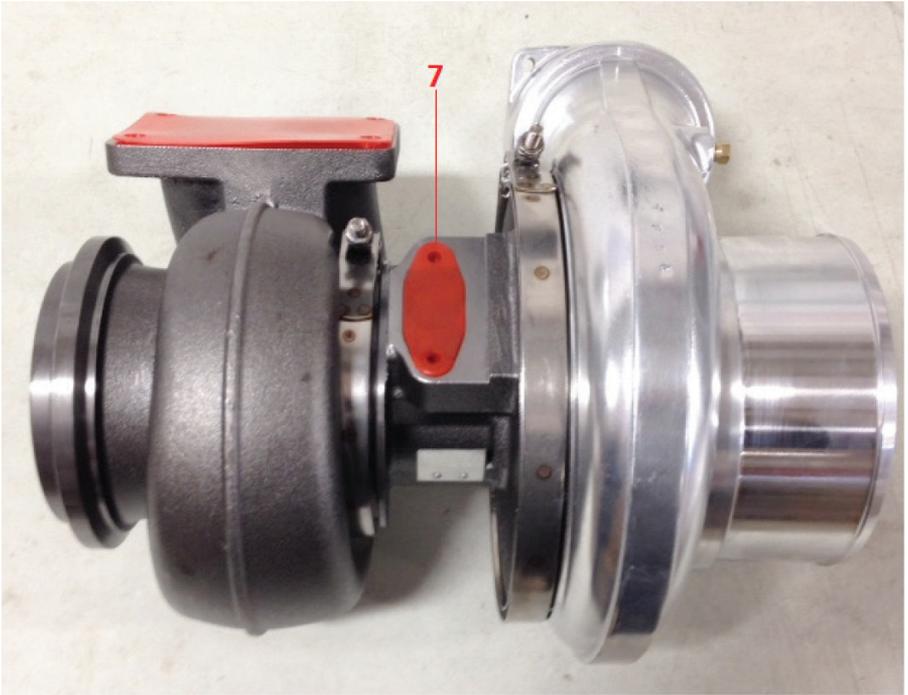
MAJOR COMPONENTS

1. Intake / Compressor Housing.
2. Intake V-Band Clamp.
3. Oil Inlet.
4. Name Plate with serial and batch numbers.
5. Exhaust / Turbine Housing V- Band Clamp
6. Exhaust / Turbine Housing



MAJOR COMPONENTS

1. Oil Inlet





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Free Technical Support at: 940-783-9915

Doc. 56250-99v2.1