



BULLY DOG
#1 IN PERFORMANCE

INSTALLATION GUIDE



BFT 1 (450-700 HP) Cummins Turbo Charger

Applications	Part #
Cummins ISX (1999-2003)	56100

INTRODUCTION

The BFT 1 for Cummins ISX (1999-2003) works great 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 turbo charger 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 turbo charger will not be honored. It is highly recommended that this turbo charger be installed by an experienced and knowledgeable mechanic.



TROUBLESHOOTING:

Technical support is available by calling 866-bulldog (866-285-5936).

TURBO INSTALLATION

1. Mount the turbocharger on the turbine inlet flange. All other connections must be flexible and heavy pipe work should be supported. Always pre-lube with clean engine oil.
2. Always position the bearing housing so that the oil drain is at the bottom and kept within 22° of the vertical center line when installed on the engine.
3. Oil should be filtered below 15/20 microns. The oil quality must be as specified by the engine manufacturer. e.g. API - CD (MIL - L - 2104C). Turbo life can be extended by using super high performance diesel (SPHD) oils, particularly where extended oil drain periods are used.
4. Full oil pressure must show at the turbocharger oil inlet within 3 - 4 seconds of the engine firing to prevent damage to turbocharger bearing system from lack of lubrication.
5. The minimum oil pressure, when the engine is on load must be 210 kPa [2.0 kgf/cm², 30 lbf/in²] and pressures up to 415 kPa [4.0 kgf/cm², 60 lb/in²] are satisfactory. Under idling conditions the pressure should not fall below 70 kPa [0.7 kgf/cm², 10 lbf/in²].
6. The oil inlet pipe must have an inside diameter of at least 9.5 mm [0.375 in.] and the oil drain pipe should have an inside diameter of at least 19 mm [0.75 in.]. The oil must drain downwards by gravity from the turbocharger into the engine under all operating conditions.
7. Air cleaner pressure drop should not exceed 500 mm [20 in.] of water. Avoid damp/wet air conditions in filter as this can dramatically increase pressure drop on a temporary basis.
8. The exhaust back pressure after the turbocharger should not exceed 500 mm [20 in.] of water.

INSTALLATION CHECKLIST

1. Before installing a new turbo charger consult a knowledgeable mechanic to understand why the original turbocharger needs replacing before just installing a new turbo charger.
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 without obstruction ie. free from oil, gasket pieces, dust/dirt/carbon or foreign objects.
4. Replace the oil and air filters using those only recommended by the equipment manufacturer.
5. Change the engine oil using the type specified by the engine manufacturer. A minimum of CD oil is needed for the turbocharger diesel engine.
6. Check that the turbocharger oil inlet and drain connections are clean and free from obstruction and will not leak under pressure.
7. Mount the turbocharger on the exhaust flange and check that the turbine inlet gasket fits properly without obstructing the gas passages.
8. Rotate the turbocharger central bearing housing so that the oil inlet and drain are in the vertical position. Up to 22 Degrees from vertical is permitted.
9. 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.
10. Rotate the 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.
11. Assemble the exhaust system to the turbine housing outlet. Check that the gasket/connection is well made and will not leak in use.
12. Check the exhaust system is well supported and not causing excess loads on the turbocharger. Fit any supports/brackets back in position.
13. Check all hose/pipe clamps/studs/nuts are correctly torqued.
14. 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 in use.
15. Crank the engine WITHOUT firing (engine/fuel pump stop out) until engine oil flows out of the turbocharger drain flange.
16. Assemble the oil drain pipe and check that the connection is well made without obstruction.
17. Check that the engine fuel injection system is correctly regulated as per the manufacturers specifications.
18. 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).
19. Accelerate the engine and check that there are no leaks/obstructions of the air/oil/gas under pressure.
20. Check that the hoses/connections do not deform under normal operation before switching off the engine, leave it ticking over at idle for at least 1 minute to cool the turbine.

Doc.# 56100-99 V1.0

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