

EMUSA General Turbo Application Instructions

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(all items may not apply to your application)

When installing a turbocharger, the following instructions must be observed

1. Engine oil and filter must be changed before installing turbocharger. On vehicles equipped with engine oil coolers, ensure that the cooler has been flushed clean or replace after engine and/or turbocharger bearing failure.
2. Vehicle must have clean air filter and air cleaner system must be clean of any foreign objects (i.e., nuts, bolts, clips, pieces from exploded compressor wheels, etc.) Ensure the air filter elements are properly seated in the air filter system and ensure that there are no leaks between the clean side of the air filter elements and the turbocharger compressor inlet.
3. Thoroughly inspect turbocharger oil feed line for any restrictions (deposits, kinks, sharp bends, etc.) and then clean thoroughly clean before installation. Ensure that all oil deposits are removed from the turbo oil feed line. Ensure that all turbo oil feed bolts on banjo type oil feed systems are clean and open. A new oil line is highly recommended.
4. Use new and approved gaskets at the various air, oil, water, and exhaust connection to the turbocharger. Do NOT use any sealing or joint compounds at any flanged connections.
5. Turbocharger oil drain tube must be clean, unrestricted, and free of any kinks or sharp bends. Turbocharger oil drain system must maintain a reasonable diameter for the length of the entire oil drain system with a continual downward slope into the engine (i.e., no "traps"). A reasonable oil drain system inside diameter is no less than 7/16" to 1/2" for T3/T4 and TD04/TD05/TD06 turbochargers. Turbo oil drain must enter engine above the engine oil level in the oil pan. Limit oil drain port tilt to 20 degrees from vertical in either direction as tilting in excess of this amount can create leakage at both the turbine and compressor seals.

6. If the clamp plates and/or V-Band clamps are loosened for angular orientation of the compressor and/or turbine housings, ensure that the mating flanges are tightly reseated and that the fasteners are retightened to the applicable torque levels as follows:
 - Automotive t25/t28, t3/t4 turbocharger clamp plate bolts: 120 in-lbs.
 - TD04/TD05/TD06 automotive turbocharger v-band clamp: 42 in-lbs.
 - Commercial diesel turbocharger V-Band clamp: 70 in-lbs
7. Complete the orientation of the compressor and/or turbine housing before making any rigid connections to the compressor and turbine inlet and outlet to ensure that all ducting aligns closely with the turbocharger to minimize external stresses acting on the turbocharger unit.
8. Do not install any CHRA (Center Housing/ Rotating Assembly) in a damaged compressor housing or damaged, cracked turbine housing that will result in housing contact with the respective compressor/ turbine wheel. Turbine housings that are cracked in the turbine wheel contour or CHRA seal area may heave and distort during use resulting in damaging contact with the turbine wheel.
9. The Turbocharger internal wastegate system must remain operable and may not be disconnected, modified, or otherwise rendered inoperable.
10. Engine breather system must be inspected to make sure that it is fully functional and unrestricted. It is also recommended to replace the PVC valve at the time of turbocharger replacement.
11. Engine exhaust system must be inspected and any restrictions that may cause excessive exhaust backpressure must be removed.
12. Before connecting the oil drain line, crank the engine without firing until a steady stream of oil flows from the turbo oil drain port.
13. Engine must be started at idle and remain at idle for (3) minutes after installing new turbocharger.
14. Vehicle operator must maintain oil and filter change intervals as prescribed by vehicle manufacturer and idle engine for three minutes prior to shutdown to allow for proper turbocharger cool down. Installation of a turbo timer for your specific application is also recommended for extended life of your new turbocharger.

Please read over these instructions thoroughly and if you have any questions at all, please do not hesitate to contact us. We would be glad to assist you in any way that we can. We sincerely appreciate your business and hope that your installation goes well.