



TURBO INSTALLATION GUIDE

Fitting Instructions

1. Do not change any of the **settings or calibration** of a turbo – doing so may damage the turbo or the engine and voids warranty.
2. **For VNT turbos**, do not adjust minimum vane open position under any circumstances – doing so could cause serious damage to the turbo or engine.
3. Ensure that **correct gaskets** are used – the center hole of the gasket must be perfectly aligned with the center hole of turbo oil inlet flange. **Do not use liquid gasket or sealants particularly for the oil inlet or outlet since excessive material will enter the turbo, reducing or stopping oil flow.** For information on oil, torques and installation details, always refer to the engine or vehicle manufacturers' manuals for correct information. A modern turbo is highly sophisticated and runs at high speed – it is important that during the whole process, you prevent dirt or debris from entering any part of the turbo to avoid catastrophic damage
4. **Use new air, oil and fuel filters** and clean engine oil according to the engine or vehicle maker's specification as part of the turbo replacement installation. When installing the new oil filter, if possible, fill it with clean, fresh engine oil. Also, if it is accessible, back-fill the pressure line from the oil pump to the filter. This is particularly important for high mileage engines where the oil pressure line may empty during oil changes.



5. **Before installing the turbo**, first need to make sure that all air hoses connected to the turbo are totally clean and show no sign of any damage. For VNT turbos with pneumatic actuators, check hoses to the control valve and to the actuator as well. For VNT turbos with electronic actuators, check the vehicle wiring loom and connectors for damage since water leakage or broken wires are quite common. This also applies to pneumatic actuators with position sensor connectors. [only in 1.6 engine] In addition, the air filter and its housing must be completely clean and free from any debris.
6. **Clean the engine breather** system and ensure that it functions properly according to engine or vehicle manufacturer's manual.
7. **Careful handling** of the turbo is essential – be aware that some are quite heavy. The proper way to take the turbo out of its box is to lift it by either end housing. Grabbing it by the actuator, rods or hoses may result in severe damage. Similarly allowing the turbo to roll around on a workbench may cause damage. The gearbox inside the electronic actuator may be damaged by any impact, so additional care must be taken.
8. **For VNT turbos** with electronic actuators, avoid finger contact with connector pins at all time.
9. **Check the part number** to ensure that it is the right one for the engine. Installing the incorrect turbo to an engine may damage the turbo and/or the engine and will void the warranty.



Steps to Proper Turbo Installation

- Start the turbo installation by removing old gasket material from the exhaust manifold and pipe. The surfaces of the flange must be clean and have no damage.
- Remove all plastic or foam blanking plugs from the turbo.
- Position the turbo onto manifold or engine block using the correct new gasket or O ring, and then reconnect the exhaust pipe.
- Tighten all nuts and bolts to the correct torque.
- Pay special attention to oil feed and drain lines, which must be totally clean and have no damage to ensure unrestricted oil flow.
- Make sure that no flexible hose liners have collapsed internally, and that oil feed line is not too close to any source of heat which may have damaged the oil feed line internally. This is common on some vehicles and difficult to detect without cutting the pipe! We recommend fitting a new oil inlet pipe when installing the new turbo.
- Install oil drain line to the turbocharger, then pour new engine oil into the oil inlet hole of the turbocharger and fit the oil feed line. Spin the compressor wheel by hand a few times – it should spin freely. Note that it is normal to feel some up and down movement of the wheels. Install inlet and outlet air hoses to turbocharger compressor housing and make sure that the connection is airtight.



After the installation

- To test, crank the engine for 10 – 15 seconds to prime oil feed without starting the engine.
- Start the engine and let it idle for 3 to 4 minutes to allow for proper inspection of oil, gas and air leakage.
- If any leakage is detected during engine start up, please fix the issue immediately.
- For VNT turbos, please ensure that actuator operates correctly after starting up. During vehicle key-on and start-up, it is normal for VNT turbos to show movement in actuator, vane arm and vane mechanism, and it is also normal to hear a high-pitched noise from electric actuators.
- If no movement is detected, please investigate the cause on the vehicle, as the actuator operations has been set and tested before it left our factory.