

IS YOUR TURBO SAFE?



bogaard turbo timer

Reasons for Fitting a Turbo Timer

- Lubricates the engine's turbo bearings until they are at a safe temperature
- Extends the periods between turbo and engine servicing
- Reduces vehicle down time
- Drivers may forget - a timer never does

Reasons for Fitting Bogaard

- Modern digital circuitry
- Push button idle time selection - from 0.5 to 5 minutes
- Instant push button cancel & stop
- Attractive through or under dash mounting
- Plug-in turbo timer models for most popular vehicles
- Peace of mind no matter who drives

Facts About Bogaard

- All of our products are designed, manufactured & serviced in Australia
- All of our products are guaranteed for 24 months with unlimited kilometres
- Specialists in turbo protection products since 1984
- Our turbo timers are fitted by Australia's largest truck manufacturers on their production lines

Additional Bogaard Turbo Timer Features

- Sealed control module membrane reducing dust & moisture entry
- Parking brake connection allowing the turbo timer to operate only when the vehicle's parking brake is applied
- Lockable preferred idle period preventing the vehicle operator from changing the programmed time selection

Bogaard Turbo Timers provide lifetime protection for a fraction of the cost of a single turbo repair

What is a Turbocharger?

A turbocharger is a combination of a turbine and compressor joined by a common shaft. Super-hot exhaust gases from the engine pass through the turbine, causing it and the compressor to spin at very high speeds.

The compressor draws air through the air cleaner, compresses it and feeds it to the engine for mixing with fuel. The result of these processes is greater volumes of air/fuel mixture entering the cylinders.

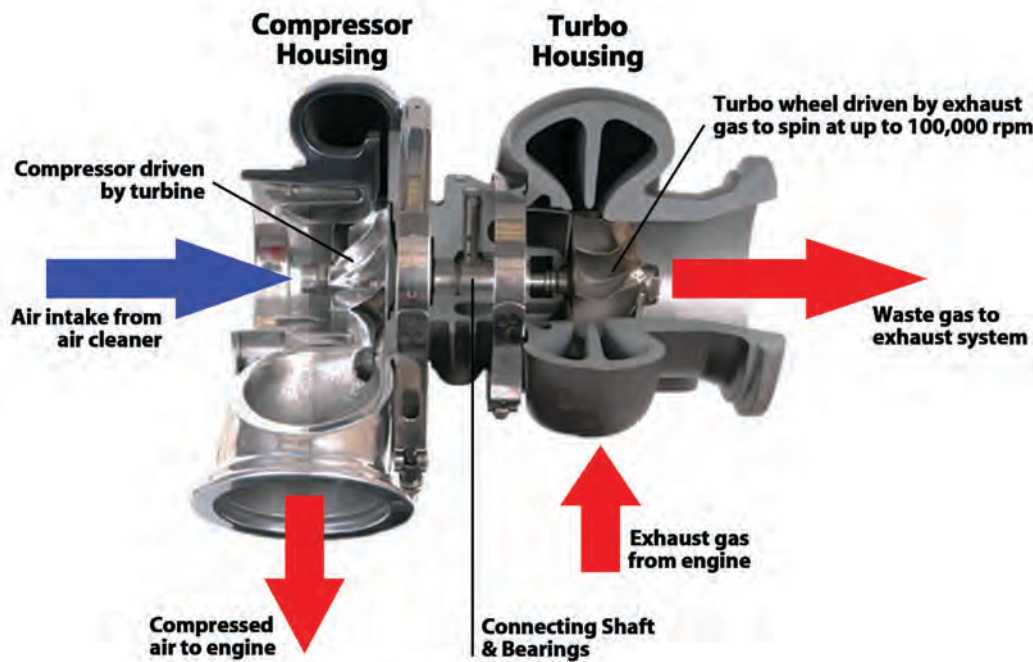
The engine, as a direct result, delivers considerably more power and torque than an identical capacity engine taking in air at normal atmospheric pressure.

Why Turbochargers Need Protection

The waste gases which drive the turbine come direct from the combustion chambers via the exhaust manifold at temperatures which can lift the turbine to over **700° C**. The turbine spins at up to **100,000 RPM**.

The turbo shaft and bearings and the oil which lubricates them must withstand these conditions on a daily basis for long periods at a time.

At switch-off, the turbo temperature is high and **lubrication to the bearings stops instantly**. Unless special precautions are taken, this may result in **thermal distortions**, the varnishing of oil on the shaft and bearings and **premature turbo failure**.



Water Cooling

Watercooling of a turbocharger does not remove the need to idle down. The following is an extract from the Owner's Manual for a car with a water cooled turbocharger produced by one of Australia's biggest manufacturers:

It is essential to maintain a clean supply of oil flowing through the turbocharger system as a sudden interruption of oil supply may cause a malfunction to the turbocharger. Therefore, if the engine has been operating at high load or at high RPM for an extended period of time, let it idle for a few minutes prior to shutdown.

How to Protect Your Turbocharger

Turbo engine manufacturers recommend that, after any brisk run, their engines be idled for a few minutes to allow the turbocharger to slow down, cool and normalize while maintaining a flow of fresh engine oil to its bearings.

This routine, if followed at **every** switch-off, will extend turbo life and significantly reduce the likelihood of premature turbocharger failure.

Automatic Turbo Protection

The most popular and foolproof method of ensuring that the engine manufacturers' recommendation is carried out every time you switch off is to fit a **Bogaard Turbo Timer**. Many thousands are fitted to all types of vehicles, as diverse as Toyota Land Cruisers and Kenworth trucks. Australia's largest and most respected truck manufacturers fit Bogaard Turbo Timers on their assembly lines.

Bogaard Turbo Timers are **inexpensive**, foolproof and fail-safe. They are **easy to fit**, with plug-in models for most passenger and off-road vehicles.

Bogaard Turbo Timers are distributed world wide by:

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