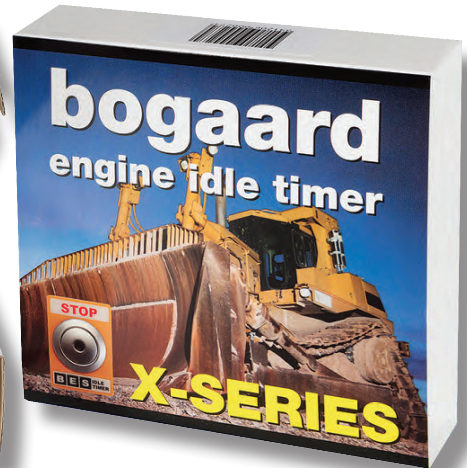


# BOGAARD X SERIES IDLE TIMERS



## Why Fit an X Series Timer?

- X Series timers have been designed to operate in the **electrically and physically demanding** environments encountered in earthmoving, agricultural and industrial applications
- **10 idle periods** for the installer to select, from 30 seconds to 30 minutes
- **Water and dust proof** override switch
- **Park brake safety feature** - the timer will only operate when the brake is applied



## X Series Models

- X104 Single output
- X105 Double output
- X106 Energise to stop systems

- All models are suitable for electronic controlled and non-electronic controlled engines

- All models operate in both 12 and 24 volt applications

### A Bogaard Product

- All products are designed, manufactured and serviced **in Australia**
- We have been specialists in automotive electrical products for **more than 30 years**
- Our idle timers are fitted by Australia's largest truck manufacturers on their production lines
- All products are **guaranteed for 24 months** with unlimited kilometres warranty against manufacturing faults and workmanship

### 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 both 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 PRM**.

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.

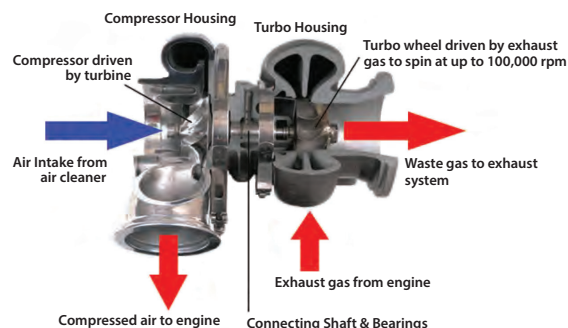
At switch-off, the turbo temperature is high and **lubrication to the bearings stops instantly**. Unless special precautions are taken, this may result in **thermal distortions**, the varnishing of oil on the shaft and bearings and **premature turbo failure**.

### How to Protect a Turbocharger

Manufacturers of turbo engined vehicles and machines recommend that, after running, the engine 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.

The most popular and foolproof method of ensuring that this is carried out every time you switch off is to fit a **Bogaard Idle Timer**.



**Drivers and operators may forget -  
a timer never does**

**BOGAARD**  
AUTO ELECTRICAL ACCESSORIES