

# Turbochargers & Superchargers



**S**uperchargers & turbochargers are air pumps that look & work rather like a hair drier. They force air into an engine, which makes it work more efficiently and therefore go faster.

**Superchargers** are powered, directly or indirectly, from the engine itself – usually they are driven by a belt, but a few have electric motors. The advantage of a supercharger is that it gives immediate power when you put your foot down. The disadvantage, at least with traditional systems, is that they also take power away from the engine because of the energy required to drive them. For this reason, turbochargers have often been preferred over superchargers.

**Turbochargers** are powered by the exhaust gases from your engine, which means that they are simply using a waste product for their power. The problem with turbochargers is that they require a great deal of exhaust gas to get them spinning, so they don't work well at low revs. This causes a condition known as 'turbo-lag' – you put your foot down and wait for the acceleration to start. Modern turbochargers have, to some extent, overcome this problem.

However, turbochargers, because they get their power from the exhaust pipe, get very hot, even though the air is generally run through a special radiator called an intercooler. For this reason turbochargers have a reputation for unreliability, and they're expensive to fix.

Carmakers are currently claiming that the newer turbochargers are much more reliable. Saab spokesman Kevin Smith, describing his company's turbochargers as 'bulletproof' claimed they would "last for the engine's life." Smith's claim begs the question of just how long he expects a modern Saab engine to last.

Respected mechanic and widely syndicated radio talkshow host Ron Ananian has a different view about the desirability of turbochargers, saying that the problems with turbocharged vehicles aren't necessarily limited to turbocharger failure: "[Turbocharged engines] won't go the dis-

tance without at least a cylinder-head gasket replacement". He said this problem may occur in as little as 50–65,000km.

We agree with him. Superchargers and turbochargers are not necessary for the vast majority of drivers of petrol-powered cars, and we recommend you avoid them where possible.

However, it's not really possible to buy a modern diesel-powered car without a turbocharger. And that's one more thing to go wrong •

## CLEAR & PRESENT DANGER

Symptoms of a dead or dying turbocharger include:

- A whistling noise coming from the turbocharger
- A puff of white smoke when you suddenly accelerate
- Excessive delay before you accelerate.

