DRIVING/TOWING - 4WD DRIVING SKILLS

IT'S NOT CALLED 'IDLING' FOR NO REASON

This annoying habit is wasting fuel and damaging engines.

Allan Whiting: Outback Travel Australia Sept 2021

Many people still believe that engines need to be ‘idled’ before being put under load, or at the end of a driving stint. This practice is not only unnecessary, but wastes fuel, contaminates engine oil, clogs emissions systems, shortens engine life and … annoys nearby people.

You’ve had it happen to you, we know. You’ve had a great night’s sleep in your camping cot and you’re just aware of the rising sun when ‘old mate’ cranks up his engine. He lets it rattle and smoke away while he packs up his camp (noisily) for the next 10 minutes. If he’s towing, the coupling-up operation adds another 10.

On a still morning, everyone in a 30-metre radius is awake, annoyed and breathing in exhaust fumes.

If challenged, old mate usually becomes aggressively defensive, saying that’s it’s vital to have the engine and gearbox up to operating temperature before putting them under load. There are two issues with that claim: firstly, idling doesn’t raise engine and gearbox temperature to anything like operating condition and, secondly, prolonged idling causes long-lasting harm to the engine and exhaust after-treatment systems.

Common Myths About Idling

Idling is more efficient and uses less fuel than turning the engine off and on again.

Turning the engine off and on is hard on the starter.

Idling is the best way to warm up the engine, especially in cold weather.

Idling does not cause damage to a vehicle’s engine.

The term ‘idling’ refers to the continuous operation of a vehicle’s main propulsion engine while the vehicle is stopped. Idling is unavoidable in traffic conditions, especially during urban driving, but idling periods in traffic are usually short.

Most idling is unnecessary and can be eliminated through conscious effort. Some manufacturers do recommend a very short warm-up or cool-down period, but mainly if an engine is about to undergo or has just finished high-load or high-power operation.

Generally speaking, more than 30 seconds to five minutes of idling is excessive and should be avoided, according to every engine maker on the planet. If you read the OTA story on modern oils you'll see that they're designed to cope with cold starts and flow freely right from initial startup. Modern oil doesn't need so-called 'warming up', unless ambients are below -15C and then that warm-up is best done with an engine sump heater.

Vehicle makers are unified in their opposition to the practice of idling and we're indebted to the USA's Oak Ridge National Laboratory for its 2016 publication: Summary of OEM Idling Recommendations from Vehicle Owner's Manuals.

BMW: Drive away without delay. Do not wait for the engine to warm up while the vehicle remains stationary. Switch off the engine during longer stops, eg, at traffic lights, at railroad crossings, or in traffic congestion.

Chevrolet: Do not warm up the vehicle. Even on the coldest mornings, the vehicle is ready to go in just 30 seconds. In fact, vehicles reach optimum operating temperatures faster when driven instead of idling.

Ford: Don't idle for more than 30 seconds. Today's engines don't need to be warmed up. Prolonged idling creates excess emissions and wastes fuel. Start the vehicle and immediately drive away.

Hyundai: Don't let the engine idle longer than necessary. If you are waiting (and not in traffic), turn off your engine and restart only when you're ready to go. Remember, your vehicle does not require extended warm-up. After the engine has started, allow the engine to run for 10 to 20 seconds before placing the vehicle in gear.

Mazda: After idling for a few seconds, release the parking brake, apply the brake, shift into gear, and drive. Idling for more than one minute, may waste fuel.

Mercedes-Benz: Do not warm up the engine with the vehicle stationary.

Nissan: Avoid unnecessary engine idling. Allow the engine to idle for at least 30 seconds after starting. Do not race the engine while warming it up. Drive at moderate speed for a short distance

first, especially in cold weather. In cold weather, keep the engine running for a minimum of 2– 3 minutes before shutting it off. Extensive idling may require more oil and filter changes.

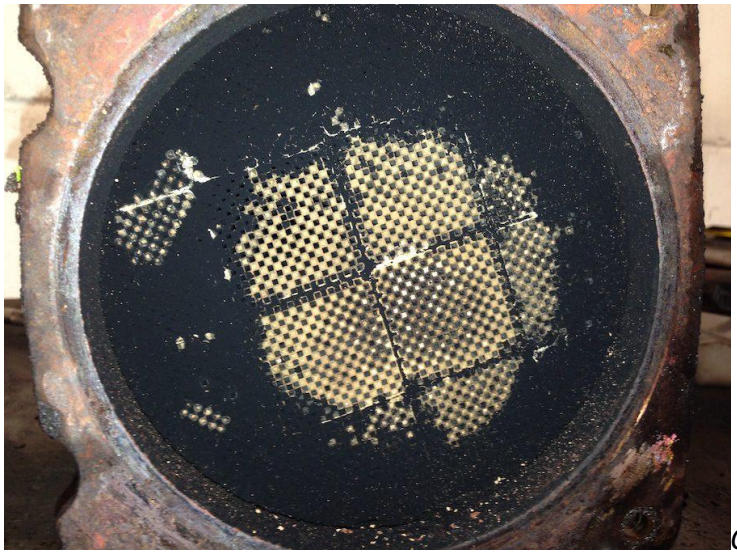
Toyota: Avoid lengthy warm-up idling. Once the engine is running smoothly, begin driving, but gently. Remember, however, that on cold winter days this may take a little longer. Avoid long engine idling. If you have a long wait and you are not in traffic, it is better to turn off the engine and start again later.

VW: Do not let your vehicle warm up while standing; instead, start driving right away.

According to most original equipment manufacturers (OEMs), idling can actually be damaging to an engine and vehicle components. Partly, this is because idling can produce sulphuric acid, which eats away at the engine and emissions-system components.

Additionally, idling results in lower in-cylinder-temperature combustion. That's easy to verify if you have an exhaust gas pyrometer that measures combustion temperature.

OTA's testing, using a pyrometer, shows that typical diesel exhaust gas temperature at idle is below 250C and that's around the minimum temperature at which a diesel particulate filter (DPF) must operate. Below that figure, you're just clogging your DPF with soot.


Clogged DPF – Turbopac pic

Low-temperature-combustion soot and varnish coatings also build up in the engine, where they can cause unnecessary wear, clogging the piston rings and 'bore glazing' the oil-retaining hone marks in the cylinder liners, so they no longer retain an oil film.

 *Bore glazing – Blue Chip Lubricants pic*

In addition to increased engine wear and tear, idling should be avoided for other important reasons, including fuel waste. Check your fuel consumption meter when you drive off after an idling session and you'll see a huge L/100km figure. That's burnt fuel that did nothing. This wasted fuel can be costly over the course of a year, especially for fleets.

The larger the engine; the more fuel is wasted while idling.

Engine oil quality is badly affected by extended idling, because the oil becomes soot- and acid-contaminated, resulting in a decrease in oil life and the need for more frequent oil changes and that's another expense.

The harmful emissions that idling creates should also be considered. These emissions include nitrogen oxides, carbon monoxide, carbon dioxide and particulate matter. Some of these pollutants pose health threats on their own and some combine with heat and sunlight to form ground-level ozone, a potent pollutant that can worsen asthma and other respiratory problems.

In summary, idling is occasionally necessary, as when bogged or stranded in extreme weather (keeping aircon or heater running in very hot or very cold conditions), but most idling is unnecessary and can be eliminated through conscious effort.

Some 4WD manufacturers recommend a very short warmup or cool-down period, but generally speaking, more than five minutes of idling is excessive and should be avoided.