

Static!



Australian Government

Australian Transport Safety Bureau

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The ATSB is an operationally independent bureau within the
Australian Government Department of Transport and Regional Services

**A driver's guide to fires
caused by static
electricity**

Static fires at **PETROL STATIONS**

Static electricity is a phenomenon that can occur when two objects or substances come in contact with each other and are then separated.

The build up of electricity is often noticed by drivers and passengers when they receive a mild electric shock as they exit the vehicle.

The electric charge is generated by friction between the person's body and the seat.

In most cases the static electricity discharges when the person touches the metal door on exiting the vehicle.

If the first point of contact happens to be the metal fill point of the dispenser nozzle, the spark may ignite the surrounding fuel vapours and cause a brief flash fire.

**Static electricity +
petrol vapour = danger!**

Reducing the risk of **STATIC-IGNITION WHEN REFUELLING**

It is common for motorists to return to their vehicle to retrieve their wallet or purse, speak with a passenger, or take an odometer reading. Re-entering your vehicle, however, can increase the risk of a static-ignited fire.

The interaction between your clothing and the seat fabric caused by sliding over the car seat can generate static electricity. If you return to the fuel dispenser without having touched any metal, the electricity can discharge from your body on contact with the nozzle.

**‘Don't jam objects into
the handle of the
dispenser nozzle’**

The risk of a static electricity fire igniting on returning to the dispenser is likely to be low at petrol stations in Australia. This is because Australian legislation does not permit open-hold latches on the dispenser nozzle, thereby encouraging motorists to continue holding the handle until refuelling is completed. A risk may remain, however, if you jam an object into the handle of the dispenser nozzle in order to keep it open and re-enter your vehicle.



Can petrol fires ignite from **EXPLODING MOBILE PHONES?**

Between 1993 and 2004, there were 243 reported incidents of fires breaking out at petrol stations around the world. None of these incidents occurred as a result of mobile phones igniting.

According to industry reports, the notion of mobile phones exploding or igniting at petrol stations was triggered by a hoax email. Perpetuated by the rise of the Internet, warnings about the dangers of mobile phones were in global circulation by the late 1990's.

What the research says:

- ▶ The temperatures needed for static-ignited fires are much higher than the normal operating temperatures of mobile phone components
- ▶ Hot surfaces would only be an ignition concern if there is a phone or battery malfunction
- ▶ Mobile phones with non-genuine batteries may be at risk of over-heating and possibly generating a spark.

If a fire occurs, leave the nozzle in the fill pipe of the vehicle and move away from it. Notify the station attendant immediately.



In 2004, a leading oil company issued a memo to all retail site staff to explain the need for mobile phone warnings. It stated that, while the company has no experience of fires being caused in this manner, most mobile phone manufacturers do not certify their equipment as safe to use in hazardous areas.

‘Mobile phones can lead to driver distraction during refuelling’

Mobile phone warnings could reduce the chance of fuel spill and fire caused by motorist inattention.

Beware the dangers of **CONTAINER FIRES**

There have been a number of serious incidents in Australia where static electricity has started a fire when containers or jerry cans were being filled.

Research shows that there is a higher risk of a container fire igniting when the petrol can is in the back of a ute or truck than on the ground. The static charge accumulates from the friction between the surface of the moving vehicle and the container. It can also accumulate as the petrol flows through the container while it is being filled.

In both cases, it is possible for the charge to build up sufficient energy to cause a spark between the container and the dispenser nozzle. This spark can ignite the fuel vapours in the air.

To avoid container fires:

- ▶ Only use containers that meet Australian standards
- ▶ Keep the nozzle in contact with the container during filling
- ▶ Fill the container slowly to reduce static build-up and avoid fuel spillage and splattering
- ▶ Avoid filling a container while it is in the vehicle or on the back of a ute or truck

How can you **MINIMISE THE RISK?**

To minimise the build up of static charge and to control the effects of static discharge:

- ▶ **Switch off your engine**
Turn your vehicle off and disable any other auxiliary sources of ignition to avoid the generation of sparks.
- ▶ **Do not smoke**
Do not smoke or light matches in the vicinity of the refuelling area.
- ▶ **Do not re-enter and get out of your car**
Do not re-enter your vehicle while refuelling is in progress. Staying outside your vehicle will reduce the potential for any build-up of static electricity to be discharged at the nozzle.
- ▶ **Discharge static build-up**
Discharge any static build-up before reaching the nozzle. This can be done by touching the metal door of the vehicle with a bare hand.
- ▶ **Do not jam the refuelling trigger**
Do not use any object to jam the refuelling trigger to keep it open.

