



AIRBAGS AND DRIVERS WITH DISABILITIES

Fact Sheet Number 8

INTRODUCTION

In a car accident the driver's head will sometimes hit the steering wheel causing serious injury or even death. In recent years, the driver's airbag has been developed to inflate, and cushion the head to prevent it from hitting the steering wheel. This is called a supplementary restraint system. It is designed to be used with a seatbelt, is now fitted to most new cars and has had a beneficial effect in reducing injuries sustained in accidents.

STEERING WHEEL AIRBAGS

How does the airbag work?

An airbag sits in the middle of the steering wheel. The vehicle is fitted with sensors, which can detect that the vehicle is slowing very quickly during an accident. When this happens, gas is produced which inflates the airbag. This bag provides a cushion between the driver's head and the steering wheel. The airbag inflates very rapidly, with total inflation taking as little as 40 thousandths of a second. The bag has holes, which then allow the airbag to deflate rapidly.

Using steering wheel airbags with steering devices

Drivers with disabilities may use adaptations fitted to the standard steering wheel of a vehicle. These adaptations (steering devices) facilitate steering with one hand and, when used with an infra-red unit, the operation of secondary controls, eg. horn and indicators.

There was concern that, if the vehicle was also fitted with an airbag, the driver could be at risk of injury from the steering aid being dislodged when the airbag was activated. There was also concern that the inflation of the airbag could be prevented or affected by the steering aid. The Transport Research Laboratory was asked to carry out controlled firings of driver airbags in vehicles fitted with a driver dummy and a:

- steering spinner;
- steering spinner and infra-red unit; and

· tetraplegic grip.

Videos of the firings showed that:

- a) The airbags could inflate fully.
- b) None of the steering devices were damaged, although the force of the airbag did move some of them out of position.
- c) In all cases, the dummy's hand was pushed out of, or away from, the steering aid.

These findings can only be indicative of what may happen with an airbag, as each steering device was tested only once, and a dummy was used instead of a real person. The Research Institute for Consumer Affairs (RICA) has also commissioned research into the secondary safety of adaptations and the following advice is based on the findings of both the MAVIS and RICA research.

- a) Airbags will probably reduce the risk of injury to the face caused by steering devices that are anchored to the rim of the steering wheel. However, the motorist is advised to seek guidance from the steering device manufacturer.
- b) Although not tested by the Forum of Mobility Centres, there is a concern that accelerator/brake rings might become detached. Guidance should be sought from the manufacturer of the ring.
- c) Steering devices with a fixing bar that crosses the centre of the steering wheel **must not** be used with an airbag. Although this was not tested in the trials, there is a danger that the inflating airbag could cause the bar to become detached and injure the driver.

The Forum of Mobility Centres does not recommend deactivating or removing the airbag. In almost all cases, you are less likely to have a serious head/facial injury with an airbag fitted than without one. Removal or deactivation of the airbag might also affect product liability meaning that the manufacturer could claim that your injury would not have been so severe if you had not deactivated or removed the airbag.

If you have a joystick fitted between you and the airbag, it could cause injury during an accident and might prevent the airbag from inflating correctly. If possible, the joystick should be sited to one side of the airbag.

Seating Position

Incidents have been reported in the USA of serious injury and even death caused by sitting too close to the airbag. American airbags are more violent than European airbags; they tend to be larger due to the different seat belt wearing laws and lower wear rates, inflate more

rapidly and also deploy in lower speed accidents. Nevertheless, sitting too close to any airbag can cause injuries. To help avoid serious head or chest injuries, drivers should sit as far as reasonably practicable from the steering wheel. This is also the case if the car is not fitted with an airbag. You may need to check if pedals and other controls can be modified to enable you to do so.

If the steering wheel can be tilted, try tilting it down slightly so that the deploying airbag is less likely to impact with your head or neck. Reclining the seat may also help. However, drivers should ensure their driving position neither reduces their view from the vehicle nor their ability to control the vehicle. It is also important to feel comfortable when driving.

SIDE AIRBAGS

Side airbags are becoming increasingly common. They are mounted either in the door or the seat. Any additional metal structures fitted to the door might cause injury if the airbag is deployed, or prevent correct inflation of the airbag. If a side airbag is fitted into the seat, removal of the seat (e.g. to enable the fitting of a swivel seat) might also deactivate the driver's airbag fitted in the steering wheel. Guidance should be sought from the vehicle manufacturer before removing the seat. If the seat is removed, it should be stored securely and preferably returned to the manufacturer. The airbag module should not be removed from the seat and cannot be transferred to the replacement seat.

AIRBAGS AND CHILD SEATS

Never use a rear-facing child restraint in the front seat of a car fitted with a passenger airbag. This is because the restraint will be too close to the dashboard and, in an accident, the expanding airbag is liable to cause serious or fatal injury to the child. If this is unavoidable, the passenger airbag must be deactivated.

AIRBAGS OF THE FUTURE

Manufacturers are working on 'intelligent' airbags. These can be tailored according to who is driving the vehicle. This means, for example, that if you are frail and need to sit close to the steering wheel, the bag will inflate less powerfully than if you are of large build and sit further back from the wheel. Some manufacturers are already fitting this new type of airbag into their vehicles, but currently only on luxury models.

MARCH 2008