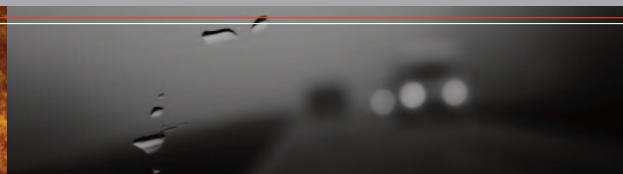


# Driver safety in bad weather

## Guidance for fleet managers



This e-guidance explains common hazards associated with driving in bad weather and provides guidance for fleet managers on reducing the risks faced by drivers.

Fleet managers have a responsibility to ensure their drivers understand the risks of driving in adverse weather and are properly educated, equipped and scheduled to help them cope with the conditions.

Drivers also have a responsibility to ensure they are as safe as possible. At the end of this guidance you will find essential advice also available as a separate pdf for you to distribute by email or as a print out to anyone who drives.

Managers and drivers need to work together to ensure all drivers are well prepared.

### What are the dangers?

Weather is often unpredictable and conditions can change suddenly. Drivers need to be aware of the heightened road risk that can be presented by all types of weather, including:

- Rain and hail
- Wet, slushy or icy roads
- Snow and sleet
- Strong winds
- Darker evenings and early mornings
- Blinding low level sun
- Dazzling summer sun
- Heat haze
- Blowing dust and sand

In adverse weather conditions, visibility is reduced and stopping distances may increase. Traffic may also be slow-moving, meaning journeys take longer than expected so drivers are more prone to tiredness.

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## What can managers do?

### STEP ONE Plan and schedule journeys

In adverse weather it is safest not to drive. In this age of good internet connections and better communication systems such as Skype, not making journeys is an increasingly possible and profitable option for many at-work drivers.

It is crucial for fleet managers and drivers to check weather forecasts and traffic news regularly for warnings of hazardous conditions (for example the Met Office website in the UK). If bad weather is expected, or has already started, consider whether to re-route or postpone a journey. Remember that certain conditions are more dangerous depending on road type. For example:

- rural roads can be very dangerous in icy weather due to steep hills, sharp bends and the fact that they are often not gritted and narrow;
- exposed bridges can be dangerous for high-sided vehicles in strong winds;
- heavy rain may cause some low-lying roads to flood.

Consider whether drivers might become stranded in remote locations and whether they will have to drive at night in bad weather, compounding the risk due to lower visibility. If weather conditions are severe or predicted to be severe (for example thickly-falling snow, blizzards, hurricanes or widespread flooding), or weather warnings have been issued, do not let drivers set out on a journey.

Ensure all managers understand the risks of driving in dangerous conditions and always put safety first. They should instruct drivers who are already somewhere else to make an overnight stay if conditions are severe, rather than press on.

Also ensure that a manager is always aware of drivers' routes, schedules, location and expected times of arrival.

#### Routes should be planned to

- Avoid particular roads that are known to be hazardous in certain conditions;
- Stick to major routes where possible, as these are usually better lit and gritted first in icy weather.

#### Schedules should take into account

- Possible delays caused by bad weather;
- Regular breaks – at least 15 minutes every two hours<sup>1</sup>;
- Non-driving activities, such as loading or unloading, or meetings between journeys.

### STEP TWO Educate your drivers

You can take the following steps to ensure your drivers understand the risks of bad weather driving and how they can minimise those risks. All of these steps should be taken when recruiting drivers and on a regular basis:

- **Risk assess** – through practical, theory and hazard awareness tests. This should include an assessment of awareness of the risks of driving in dangerous weather conditions and actions to reduce these risks.
- **Train** – provide on-road training (according to areas of concern highlighted in risk assessments), including practising slowing down and keeping a greater distance in dangerous weather conditions and in darkness.
- **Educate** – deliver classroom-based education on the risks of driving in bad weather and best practice advice and company policy on what to do if caught in bad weather or in event of a breakdown (and equipment they are provided with to help them in these situations). The 'advice for drivers' at the end of this sheet is available as a separate pdf that can be distributed to drivers, or use this information to develop your own hand-outs.
- **Remind** – include policies and advice on bad weather driving in driver handbooks, issue relevant email reminders and display posters to remind drivers how to stay safe.
- **Talk** – hold group briefings when severe weather is expected, to warn drivers of the dangers, remind them what to do in these conditions, and ask them about any concerns they have, such as particular routes.

#### Key messages to communicate to drivers

- **Recommend alternatives to driving** – such as travelling by train or plane, or using video conferencing rather than travelling to meetings. This can save time and money as well as being safer.
- **Preparation before setting off** – ensure drivers understand the importance of carrying out vehicle checks, checking weather forecasts and ensuring they have a bad weather driving kit in their vehicle.
- **What to do if caught in extreme weather** – tell drivers that if they become aware of a weather warning, or become caught in extreme weather, they should stop and call their manager to discuss whether to stop and wait until the weather has cleared. This might mean agreeing an unscheduled night in a hotel and associated meal costs. However, the cost of doing this in terms of expenses and staff time is a better management decision than risking the much higher costs of a crash due to driving in dangerous conditions.

- **Basic bad weather driving principles** – explain techniques that apply in all adverse conditions, such as slowing down, keeping a safe distance, looking out for vulnerable road users and ensuring you are fit to drive and focussed on the road.
- **Specific advice on coping with different conditions** – advise on what to do if caught in all types of conditions (see list on page 1), particularly the importance of stopping if necessary, slowing down and keeping your distance.
- **What to do in a breakdown** – advise on staying safe if broken down or stranded on a motorway (major trunk road) or narrow road with limited visibility such as near a bend on a rural lane. See Fleet Safety Forum e-guidance **Breakdown safety** for further advice.

### BEST PRACTICE CASE STUDY

Fleetsolve Ltd is a UK based supplier of renewable energy heating and power systems. The company issues its drivers with winter driving kits from October to March each year. Packed in a tote box, the kit includes:



- High visibility vest
- Plastic shoe covers
- Gloves
- Woolly hat
- Fold-up shovel
- Torch
- Fold-up warning triangle
- Two pieces of sacking for tyre grip
- Bar of chocolate
- Break-up hand warmer
- 9V battery and converter for mobile phone

Fleetsolve Ltd cars are also fitted with winter tyres from the end of October to the beginning of March.

Drivers are instructed to fill up on fuel before every journey so they don't run out if they are caught in delays, and overnight accommodation is arranged for them if they hit bad weather whilst out on a journey.

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### STEP THREE Equip your drivers

Drivers should be properly equipped in case of bad weather and breakdowns. A survey in 2010 asked 15,927 UK drivers how they prepared for winter driving. The results showed almost half (44%) did nothing to prepare.<sup>2</sup> It is advisable to provide a list of essential emergency kit which should be kept in vehicles. Most of this kit, such as a high visibility vest or warm high visibility coat, first aid kit and a blanket, is appropriate to be provided by employers at little expense.

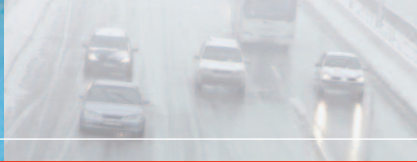
See the checklist in the Advice for Drivers section at the end of this guidance for advice on what you may wish to include in an emergency kit.

### LOST LIVES

#### Derek Bostock, aged 53

Derek Bostock, 53, died in 1997 in a crash on the A20 near Dover, UK. There was a collision ahead of Derek and with heavy fog and rain reducing visibility to 20 metres, a 43 vehicle pile-up quickly grew. Derek ran into the back of the truck in front of him. Another truck then hit him from behind, forcing his car underneath the first truck. Derek was killed instantly. His injuries were so bad that he could only be identified by his dental records.





**STEP FOUR** Maintain your vehicles

Vehicles should be regularly serviced as recommended by the manufacturer. Slippery roads mean brakes and tyres must be in perfect working order, rain and snow mean wipers and washers are needed more frequently, and shorter daylight hours mean lights are used more. Electronic warning systems should be in working order too.

Regular checks by drivers are especially important in periods of bad weather. Drivers of trucks and buses should be trained to carry out thorough walk-round checks at the start of each shift using a company walk-round check-list without fail and immediately report any defects or concerns.

Drivers of cars, vans and motorbikes should be instructed to carry out vehicle checks at least once a week and before every long journey, including ensuring tyre tread depth is at least 3mm; this should always be done in cold temperatures to get a correct reading, not a warm garage. For more information on safe vehicle checking, see the **Fleet Safety Forum e-guidance** on this topic.

**BEST PRACTICE CASE STUDY**

UK based online grocer Ocado raises awareness of the dangers of winter driving through annual poster campaigns, email bulletins, and plasma screen video messages in communal staff areas. Office staff can work from home if the weather is too bad to travel. Fleet drivers are provided with: waterproofs; fleece jackets; high visibility vests; torches; safety boots; and mobile phones for emergency use. Company policy states that journeys must be rerouted and cancelled if the weather requires it. The company also pays for overnight accommodation for any employee who becomes stranded by the weather whilst out on the road.



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**LOST LIVES**

Ashley Felder, and twins Sy'Mone and Brianna Johnson, all 14, lost their lives in January 2010, in a crash in Pontiac, Detroit, USA. Ashley's mother Barbara was driving them to school but visibility was reduced and the road was slippery due to a snow storm. The car slid sideways into the path of an oncoming pick-up truck. Ashley Felder died at the scene and her mother Barbara suffered serious injuries. The Johnson twins both died later in hospital.

**Fox News**



## Improving vehicle safety in bad weather

While there are things you can do to ensure your vehicles are prepared to be as safe as possible in adverse weather conditions, there are no fail-safe solutions to the risks these conditions present.

### Will changing your tyres improve safety?

Winter tyres have been the topic of much debate in the media. Winter tyres improve traction through the use of different compounds which don't harden at low temperatures, as well as greater tread depth and more sipes (small slits in the tread blocks, which allow a better contact between tyre and wet road surface).

Some countries have legal requirements for them to be used at certain times of year.

For example Luxembourg will introduce this legislation during 2012, joining Germany, where it already exists. At the time of writing there is no industry standard for what constitutes a winter tyre, but the European Union is planning to introduce industry wide regulation in 2012, which will require anything being sold as a winter tyre to meet certain performance standards in terms of reducing stopping distances on snow.

Research by the British Tyre Manufacturers Association shows that winter tyres help to reduce stopping distances. For instance a car fitted with winter tyres and travelling at 60mph (97kph) at 5 degrees Celsius stopped 5m shorter than when it was fitted with regular tyres.<sup>3</sup> This small reduction of risk is a positive thing, but drivers must be reminded that keeping a safe distance – in wet conditions at least twice what would be considered safe in dry conditions (73 metres for a car travelling at 60mph/97kph) – is still vitally important.

Studded tyres tend to be winter tyres with raised metal studs imbedded into the surface of the tyre to improve traction further. Designed primarily for use on snow and ice covered surfaces. Analysis of daily crash results in four Norwegian cities showed that studded tyres resulted in more crashes on days with snow or frost. This is understood to be caused by driver behaviour: drivers slowed down in snowy conditions with unstudded tyres, but increased their speed when using studded tyres due to an over-confidence in the safety of the tyres.<sup>4</sup>



### The key advice remains to

- 1 avoid driving wherever possible if conditions before setting off are risky due to bad weather, and
- 2 if weather deteriorates en-route, ensure drivers are properly equipped to deal with the emerging circumstances and to proceed with extra caution as detailed above; or if too risky, stop.

Vehicle safety measures relating to bad weather you should consider in addition to this however, include:

- Winter tyres – Research by manufacturers (see box) demonstrates that they can reduce stopping distances in slippery conditions, as well as increasing traction and fuel efficiency.
- Snow socks – these are a relatively new innovation, comprising hi-tec fabric covering for tyres to improve grip without damaging road surfaces. They are presented as an alternative to either winter tyres or snow chains.<sup>5</sup>
- Snow chains – these should only be used when there is a complete covering of snow on the roads and must be removed for driving on asphalt as they can be dangerous and damaging to road surfaces. In British Columbia, Canada, vehicles in the mountains must be equipped with snow tyres or chains for six months of the year.<sup>6</sup>
- ABS and ESP – Over the past 30 years technologies such as anti-lock braking systems (ABS), and latterly electronic stability control (ESP / ESC) have been widely introduced as standard on new vehicles. These safety features help the vehicle to avoid skidding and maintain stability, particularly in wet and icy conditions. Research has shown that ESP in particular reduces crash risk significantly.<sup>7</sup> These features should be sought out as standard features on fleet vehicles.

Research and development continues to seek ways of improving vehicle safety. One example would be to use information from windscreen wipers, temperature gauges and wheel traction sensors to recommend reduced speeds to the driver.<sup>8</sup>





## Sources of further information

### Fleet Safety Forum

This guidance is by the Fleet Safety Forum, a not for profit global initiative by the road safety charity Brake to help managers around the world reduce their road risk. Subscribers to Brake's Fleet Safety Forum receive up-to-date information, research and resources including free posters and guidance on a variety of fleet safety topics, as well as a regular e-bulletin and discounted invitations to conferences and workshops. If you are not a subscriber, you can join the Forum online at [www.fleetsafetyforum.org](http://www.fleetsafetyforum.org) to immediately access a range of guidance, or alternatively call us on **+44 (0)1484 559909** or email [forum@brake.org.uk](mailto:forum@brake.org.uk) for a list of our guidance and their prices.

### Other Fleet Safety Forum e-guidance on related topics:

- **Vehicle maintenance: the interface between drivers and managers**
- **Breakdown safety: An information sheet for fleet managers**
- **Keeping your distance**
- **Using vehicle markings to improve road safety**

### More online advice about bad weather driving

**Make time for winter**, Department for Transport, UK, 2011

**Driving in severe weather** and **Winter Driving**, Highways Agency, UK, 2011, 2010

**Winter driving tips**, RoSPA, UK, 2011

**Bad weather driving guide**, Freight Scotland, UK, 2009

**Driving in icy and snowy conditions**, *Winter Motoring Magazine*, Green Flag Motoring Assistance, UK, 2011

**Driving at Night**, Green Flag Motoring Assistance, UK

**Suitability of Winter Tyres on Trucks and Buses**, Route One / Continental, 2010

**Winter tyres cost benefit analysis**, Transport Scotland, UK, 2011

**Winter Driving**, Transport Canada, 2008

**Winter driving – be prepared, be safe**, Ontario Ministry of Transportation, Canada, 2011

**Winter Driving: You, your vehicle, and winter driving**, Transport Canada, 2008

**Driving in the snow**, Transport, roads & maritime service, New South Wales Government, Australia

**Planning a winter road trip** and **Road reports** at [www.snowreports.co.nz](http://www.snowreports.co.nz)

## End Notes

- <sup>1</sup> *Driver Fatigue and Road Accidents*, RoSPA, 2001
- <sup>2</sup> *Winter driving/gritting survey*, AA, 2010
- <sup>3</sup> [www.tyresafe.org](http://www.tyresafe.org)
- <sup>4</sup> *Fridstroem, L, Nordic Road & Transport Research, Swedish Road & Transport Research Institute, Linköping, Sweden, 2001 n1 p9-11, ISSN 1101-5179*
- <sup>5</sup> *Snow socks or winter tyres?, Which, 2010*
- <sup>6</sup> *Ministry of Transportation and Infrastructure, British Columbia, Canada*
- <sup>7</sup> *Effectiveness of ABS and Vehicle Stability Control Systems*, Monash Accident Research Centre for RACV, 2004
- <sup>8</sup> *Speed Limits for Inclement Conditions as presented at the 2009 Enhanced Safety of Vehicles conference, Safer Travels, American Psychological Association, 2011*
- <sup>9</sup> *Driving in Adverse Weather Conditions, Highway Code, Department for Transport, 2011*
- <sup>10</sup> *Speed- in towns and villages*, Brake



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## Advice for drivers

# Your safety in bad weather

### Bad weather and driving

Adverse weather conditions can make driving much more dangerous. Consider the following, which are all extra hazards on top of the hazards already faced when driving:

- Rain and hail
- Wet, slushy or icy roads
- Snow and sleet
- Strong winds
- Darker evenings and early mornings
- Blinding low level sun
- Dazzling summer sun
- Heat haze
- Blowing dust and sand

Before setting off, ask yourself:

- Is my journey necessary? The best way to stay safe in bad weather is to stay home or use alternative means of travel such as trains.
- What is the weather forecast? Check both local and national news, and remember some roads are particularly dangerous in certain conditions. For example, steep rural roads are treacherous in icy weather and some roads are more susceptible to flooding and strong side winds.
- Have I planned the safest route? It's safest to stick to major routes in bad weather and allow plenty of time for possible hold-ups.
- Is my vehicle fit to drive? Car and motorcycle tyre tread depth should be at least 3mm to be safe in wet or icy conditions and tyres should be inflated to the pressure recommended by the manufacturer. Lights and wipers need to be fully functioning and windscreen, windows and mirrors need to be completely clear.
- Is my emergency kit packed? Use the list in the box below to ensure you have everything you need and anything else you consider necessary and your manager advises.

#### Emergency kit tick-list:

- ice-scraper and de-icer
- cloths for clearing windscreen / mirrors
- high-visibility vest
- warning triangle
- fully charged mobile phone – for use only when parked
- torch and spare batteries
- blanket, warm coat and boots
- food and drink
- first-aid kit
- map
- old carpet and spade if driving in snow

### If you are driving in bad weather:

**Keep your speed low.** In bad weather it can take longer to react to hazards and your speed should be reduced accordingly.

- To avoid skidding, take corners very slowly and steer gently and steadily; use the highest gear possible to avoid wheel spin, but don't let your speed creep up. Never brake suddenly if your vehicle starts to skid.

- If you need to cross shallow flood water, drive very slowly in first gear with the engine speed high to prevent stalling. Test brakes immediately after by driving slowly over a flat surface and pressing the brakes gently. Warn any passengers first.
- In fog never speed up suddenly if visibility improves – fog can be patchy and you may suddenly re-enter it.
- In strong winds take extra care when on exposed stretches of road and if your vehicle is being blown about, slow right down in order to maintain a steady course and keep your distance and avoid overtaking any vehicle, but particularly high sided vehicles and very small vehicles such as motorbikes as these are more liable to be blown off course.

**Keep your distance.** Stopping distances are double in the wet and ten times greater in icy weather.<sup>9</sup> The gap between you and the vehicle in front is your braking space in a crisis.

- In snow and ice maintain at least a ten second gap between you and the vehicle in front.
- In rain maintain at least a four second gap between you and the vehicle in front.
- In wind keep well back from all vehicles as any vehicle, but particularly high sided large vehicles and small vehicles such as motorbikes and small cars can be affected badly by turbulence.
- Hanging on to someone else's taillights (for example in fog or darkness) provides a false sense of security and can mean you're not fully focussed on the road. Don't do it.

**Keep a sharp look out.** Visibility is often reduced in bad weather. Be alert and do your best to make sure you have plenty of warning of potential hazards.

- Fixed signs might warn of exposure to high-winds, and variable message signs on motorways warn of fog and snow, and may display temporary slower speed limits.
- Switch on lights as soon as daylight starts to fade. In urban areas use dipped beam. Use full beam on other roads at night but dip them when there is someone in front or coming towards you.
- Pedestrians are harder to spot in the dark and may not be visible until they are very close. In areas where pedestrians are likely, drop your speed to 20mph (about 30kph); at 20mph it takes at least 12 metres to stop, this distance doubles to 23 metres at 30mph.<sup>10</sup>
- In fog use dipped headlights or if visibility is seriously reduced use fog lights. Switch off fog lights when visibility improves.
- Keep a pair of sunglasses (prescription if needed) in your vehicle all year round to wear in bright sunshine, especially if the sun is low or reflecting off a wet road, but bear in mind that sunglasses can also impede visibility by making things appear dull so it is important to also reduce speed.
- In rain snow and hail adjust wiper speed appropriately to keep the windscreen as clear as possible and maximise visibility.

#### Warning! Look out for winter vehicles

- Maintain a safe distance behind salting vehicles. These travel at speeds of up to 40mph and spread salt across all lanes of carriageways. Do not attempt to overtake them.
- Maintain a safe distance behind snowploughs. These can throw up large amounts of snow that can be a hazard to vehicles. Do not attempt to overtake.