



# Institute of Advanced Motorists

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## *Fact Sheet 16/001*

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### **USE OF GEARS AND ADVANCED DRIVING**

Advanced Driving is all about being in the right place at the right time, travelling at the right speed with the correct gear engaged. In other words, “Speed for the hazard – gear for the speed”. This IAM fact sheet helps you to achieve a balance between safe, controlled progress and fuel economy.

Using the gears correctly is a basic requirement of advanced driving; select the right gear before reaching a hazard and use the intermediate ratios whenever necessary, including for brisk acceleration.

Properly co-ordinated gear changes are smooth and precise without any jerking, and passengers do not usually notice them. A smooth downward change requires a little pressure on the accelerator pedal to match engine speed to the road speed when the drive is taken up again.

Do not change down though the gears when slowing down. It’s “brakes to slow – gears to go”, except in an emergency. You can use the lower gears for maximum engine braking going down a steep hill or on a slippery road where you might skid, or if your brakes fail.

Don’t ride or slip the clutch, or coast to a stop with the clutch disengaged.

Automatic gearboxes remove most of the need for decision-making about gear changes in normal driving conditions. But, always consider the advantages of using the intermediate ‘hold’ positions when brisk acceleration is needed.

Recent research by the IAM and BBC Radio 4’s ‘Today’ programme looked at why some drivers exceed the 30mph speed limit. The research was confined to drivers likely to commit ‘marginal’ speed violations in 30mph limits, not those that greatly exceed the limit. All the participants had manual transmissions and 79% had modern, five speed gear boxes. Drivers were asked: “Do you ever find the car tends to ‘creep’ above 30 mph without you realising it?” 74% of those taking part in the poll answered “Yes”. They were then asked what gear they would normally use when trying to maintain a steady 30mph. 54% thought that they should be in either fourth or fifth gear.

The research is thought to be the first looking at driver behaviour and gear selection.

It suggests that selecting the most appropriate and most flexible gear for the speed is a simple, practical step that individual drivers can take to curb their speed and avoid prosecution. But selecting the appropriate and most flexible gear for the speed isn’t enough on its own. You also have to use good acceleration sense.

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Acceleration sense is the ability to vary the speed of the vehicle in response to changing road and traffic conditions by accurate use of the accelerator, and it requires careful observation, full anticipation, sound judgement of speed and distance and an awareness of the vehicle's capabilities. By using third gear and accurate acceleration sense, you can stay within a 30mph speed limit quite comfortably in most modern manual cars without putting any strain on the engine, the gearbox or the transmission.

Developing your acceleration sense will also help you to avoid unnecessary braking. Braking, even at 30 mph (44 feet/14 meters per second) can destabilize the vehicle. But, if you vary your speed in 30mph speed limits by just using the accelerator (acceleration sense), you have a finer level of control of your vehicle and your speed.

You can also improve fuel consumption and minimise expensive wear and tear on your car too. Optimum economy levels aren't just about the engine and road speeds; throttle openings are important factors too. You actually consume a lot more fuel, and you are much less environmentally friendly, if you are in a high gear (fourth or fifth) at a low road speed (30 mph or less). That's because the throttle opening has to be wider to address the imbalance between the inappropriate gear and your speed. More fuel is admitted into the manifold and the engine, and the result is that you tend to increase your road speed. But, if you select a more responsive gear (third) for the same road speed (30 mph or less) and you use a "light right foot", the throttle opening will be narrower and less fuel consumed. Smoother driving gives you better control of the vehicle and improved passenger comfort – plus it's more economic and more environmentally friendly.

For information on any other aspect of driving or riding please contact the IAM on 020 8996 9600 or visit [iam.org.uk](http://iam.org.uk).