

Shining a light

Peter Shakespeare turns his spotlight on to overcoming the biggest cause of MOT failure among most types of commercial vehicles – lamps and their adjustment

Between April 2016 and March 2017, 4.0% of HGVs presented for the MOT initially failed the test due to incorrect headlight aim, and 3.8% failed due to other lighting-related issues. In the same period, coach and bus failure rates were 3.1% and 2.6% respectively; a similar percentage of trailers were affected; almost a third of vans in the 3.0-3.5t gvw weight class (31.3%) initially failed their MOT because of similar problems. Lighting is the biggest cause of truck MOT failure.

Failing the MOT on first presentation is bad news for commercial vehicle operators. It has a negative impact on the firm's operator compliance risk score (OCRS), which means the DVSA will pay more attention to that firm's activities,

and it can be costly in vehicle downtime.

Why exactly lights prove so problematic during the MOT could come down to factors such as fitting poor-quality bulbs, a failure by drivers to detect lighting issues, excessive voltages, high mileage and associated vibration, according to Ring Automotive specialist lighting product manager Carl Harrison.

He says: "In my experience, people tend not to think too hard when buying bulbs. Better quality bulbs cost more, but they last longer and the long-life type have reinforced filaments and are not as badly affected by vibration. If you are operating tippers or in areas with poor road surfaces, continued bumps and jolts will shorten the life of a bulb considerably. We advise operators to

at least fit OE-standard bulbs or where possible choose an upgrade.

"Another pitfall is white light showing to the rear. Usually it will be the result of a damaged lens, but where vehicles have illuminated signage fitted, it is easy to overlook whether it is showing white light to the rear," he explains.

Many tail lamp arrays on trucks, tractor units and especially trailers, have multiple lamps for running lights, indicators and brakes. The MOT test requires each group to be of the same brightness. Ensuring this means replacing bulbs like-for-like, with the correct specification of bulb. Operators should follow OE guidance for their vehicle to establish the correct specification. Another often overlooked lamp is the poor visibility (fog) light. As

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it is used relatively infrequently, there is a danger that it won't work in the test, unless it is inspected prior to the MOT. Harrison says if a lamp is fitted to the vehicle, even if it is ancillary, it must work, so the tester can see if it complies with the light emission regulations. It is also advisable to ensure lamp covers and lenses are clean, inside and out, when presenting the vehicle for test. Dirt or degradation of the lens material reducing the intensity of the output can result in a failure.

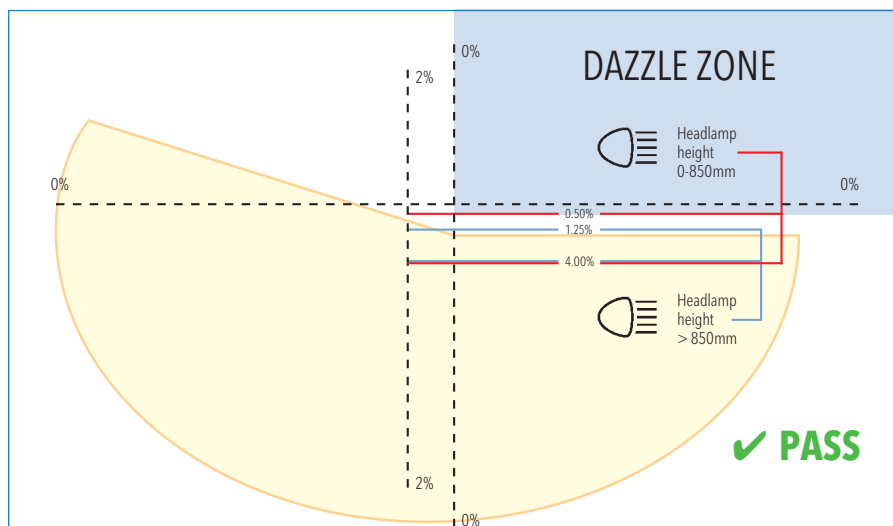
In terms of headlamp alignment, Harrison says the most likely causes of misalignment are: incorrect fitment of the bulb; the wrong standard of bulb, which affects the position of the filament; or the light output of the bulb. Misalignment of or condensation in the headlamp unit is another common problem. And the alignment of adjustable headlamp beams is affected by load, so the vehicle should be presented with the same weight at which the beams were originally set (see box).

If a vehicle often needs to have bulbs changed, it might be worth checking that the wiring loom voltage is not exceeding the rating of bulbs. A 24V commercial vehicle loom can run at 26 or 27V, according to Harrison, who points out that higher voltages can decrease the life of bulbs significantly.

Operators sending their trucks and buses for test through a commercial vehicle dealer or workshop should check that its standard pre-test includes lights and headlamp aim to MOT standards. Any issues should be rectified before the vehicle is presented.

Changes to commercial vehicle testing on 20 May 2018 have affected MOT inspection 63 (lamps) and inspection 66 (directional indicators and hazard warning lamps); see links below.

Above all, though, a DVSA spokesperson urged: “It's vital that




FOCUS ON HEAVY VEHICLE HEADLAMP ALIGNMENT MOT TEST

Three years ago, DVSA introduced a revised standard that aligns the headlamp aim test with the 2010/48/EU and 2014/45/EU directives. And since then, MOT failures from headlamp alignment issues have fallen, from 7% in 2015 to the 4% last year. For buses and coaches, the improvement was 5.75% to 3.1%.

The changes extended the tolerance band for headlamp centres up to 850mm. The lower limit of the horizontal cut-off test was increased, from 3.25% to 4%. That means that headlamp centres would fail if the horizontal cut-off was above the upper limit of 0.5% (as it always has been), or below the lower limit of 4%.

The recently changed standard also required inspectors to look for any white light in the dazzle zone formed by the 0% vertical and the 0.5% horizontal lines. Any light there is likely to dazzle oncoming traffic, resulting in a vehicle failure. If a beam is required to have a 'kick up' to the side of the dazzle zone, this must show on the headlamp aim tester screen, according to the DVSA. However, lots of headlamps have a flat beam pattern or just a small 'kick up', and some headlamps can be presented at the test with beam deflectors.

The area where the top edge of the light becomes squared off to prevent dazzle is called 'image break'. Referring to locating this part of the light, a DVSA spokesperson said: “On the test, we try to define the 'image break' point on the screen to ensure it is within the 0% and 2% vertical lines. Pinpointing this has become more and more difficult because of the design of modern dipped beam light sources and the placement of the hot spot within the beam pattern.”

drivers make sure their vehicles are safe to drive before every journey they take. By performing these checks daily and not just waiting for their annual test, drivers can help keep Britain's roads safe and avoid serious or fatal collisions. They can also avoid being subject to any penalties by our enforcement staff.” 

FURTHER INFORMATION

2018 Heavy Goods Vehicle (HGV) Inspection Manual (pp161-173) – <https://is.gd/ibubec>

2018 Public service vehicle (PSV) Inspection Manual (pp156-167) – <https://is.gd/enitot>

MOT manual for LCVs – <https://is.gd/xuyixo>

Preparing for the headlamp aim test (DVSA guidance) – <https://is.gd/biduso>