

Headlamp Aim



A guide

**to help your
vehicle pass the
headlamp aim check**

Background

Headlamp aim is by far the most common failure item at Annual Test for both HGVs and PSVs.

VOSA (formerly VI) conducted a headlamp aim survey in 2002. The survey sample was 584 vehicles (mostly goods vehicles), and the conclusions were:

- A significant number of vehicles were failed due to the headlamps not being matched i.e. one side aimed either high or low, while the other was OK
- Of the vehicles failing the test, 42% would have passed if the headlamp causing the fail had been set to a position that matched the opposite side.
- The failure rate could be reduced significantly through improved maintenance/preparation.

General checks before your annual test

There are a number of things operators and vehicle repairers/presenters can do to improve the likelihood of their vehicles passing the test.

- **Is the headlamp free of condensation?**
If the beam pattern is blurred and the examiner cannot determine a distinctive cut off point, this is a reason for failure. Try leaving the headlamps on for a short time to 'burn off' the condensation.
- **Has the headlamp bulb been changed?**
Make sure that the bulb is correctly aligned with the location lugs in the headlamp unit. After a bulb has been changed, it may be necessary to re-aim the headlamp (a different bulb may alter the headlamp aim). It is recommended to always use good quality bulbs.
- **Is the headlamp & its internal reflector secure?**
Tap the headlamp with your hand and assess if the headlamp unit or the internal reflector is insecure.

- **Is the headlamp reflector corroded or deteriorated?**
Just have a look through the headlamp glass and replace if it is corroded or deteriorated.
- **Is the headlamp adjuster free?**
A check of the adjusters (and a drop of penetrating oil) while preparing the vehicle for test can make all the difference.
- **Is the vehicle fitted with headlamps that dip to the right?**
Vehicles with UK registration plates should have headlamps that dip to the left to comply with the Road Vehicle Lighting Regulations. However, headlamps that dip to the right are acceptable at the MOT test providing beam converters are fitted.
- **General checks before the headlamp aim is checked.**
Ensure that the tyre pressures are correct, the suspension is correctly adjusted /settled/inflated and always check the headlamp aim in the condition that the vehicle will be presented for test i.e. laden or unladen.
- **Are the headlamp adjusters easily accessible?**
It may be easier to remove the headlamp surround before presenting the vehicle for test. Be careful however that the removal of these surrounds doesn't leave sharp edges.
- **Does the in-cab headlamp adjustment device work?**
This device may be used to enable the headlamp alignment criteria to be met. This said, both headlamps must comply with the device set in one position.

What do I do if I don't have a headlamp beam checker?

You can always take your vehicle to a garage that has calibrated headlamp aim equipment or to a VOSA test station for a voluntary check of the headlamp aim. If this is not practical, there are a couple of straightforward checks that can be undertaken which may help you.

The checks below rely on the surface the vehicle is standing on being flat and level.

Either

a) Drive the vehicle to within approx. 600mm (24") of a wall, and with the headlamps on dipped beam:

- **Check both headlamps aim at the same height?** If they do not, the best you can do is ensure the adjusters are free and then adjust one to match the other. Refer to the diagrams in the centre pages of the handout to see which part of the patterns must be aligned.
- **Does the in-cab adjusting device work?** Do both headlamps go up and down together?
- **Do both headlamps dip to the left?** If you have changed a headlamp unit, you may have been supplied with one designed for use on the continent.

OR

b) Hold a black board approx. 600mm (24") in front of one headlamp, and with the headlamps on dipped beam:

- Mark the beam height.
- Move the board in front of the other headlamp and compare the image.
- **Follow the steps described in method a) above.**