

Specially adapted coach for wheelchair users



All buses and coaches, defined as passenger vehicles with more than 8 seats in addition to the driver's seat and weighing more than 5 tonnes Gross Vehicle Weight, come within scope of the London Low Emission Zone (LEZ) from mid 2008. At this time it will be necessary for these vehicles to conform to the Euro III level for Particulate Matter (PM) emissions.

A number of charitable organisations operate specially adapted buses and coaches to transport wheelchair users to events. The extensive bodywork modifications to these vehicles dictate that they have a long lifespan. If the vehicle does not have a Euro III type approved engine fitted then it will not comply with the 2008 LEZ criteria. However, there are instances when certain advanced engines of this age do conform to the LEZ standards, in relation to PM. To find out if this is the case the operator would need to check the engine type displayed on the manufacturer's plate, usually located on the driver-side door frame, and see if the engine is listed on the LEC (Low Emission Certificate) Eligible Engines List - available on the Transport for London website (<http://www.tfl.gov.uk/roadusers/lez/vehicles/options/5374.aspx>). If the engine appears on the LEC list, the vehicle operator may apply to a VOSA test station for the vehicle to be inspected and to undergo a smoke test. If it passes the test, which is more stringent than the usual MOT smoke check, a LEC may be issued. This certificate, renewable annually, makes the vehicle a compliant vehicle for the current London Low Emission Zone until 2012, when the emission standard is tightened to Euro IV for particulate matter.

If the vehicle's engine does not appear on the LEC register then the operator of such a vehicle would need to consider how often it is likely to enter the LEZ during each year. If the number of visits is extremely low, it may be most economic to pay the daily charge for a non-compliant vehicle at each visit, rather than modifying the vehicle. This charge is £200 per day for a vehicle of this size.

If visits to Greater London are more frequent it may be sensible to consider retrofitting the vehicle with a PM abatement device which will reduce its PM emission level to below the Euro III standard. A full-flow Diesel Particulate Filter (DPF) will typically reduce particulate emissions by two Euro standards. If the vehicle has a Euro II engine at present, then a DPF system should be

sufficient to reduce its PM emissions to those of Euro IV, ensuring LEZ compliance meeting both the 2008 and 2012 standards.

If the engine is older, DPFs that utilise a catalytic coating to provide regeneration (or burn off the accumulated soot) may not be suitable for such older engines (pre-Euro, Euro I) which have less good lubricating oil control than newer types. In these cases DPFs with a fuel-borne catalyst, or with an active regeneration system may be more suitable for earlier vehicles. Such systems, when fitted to older vehicles, may not enable compliance with the Euro 4 standard for PM, but will certainly meet the Euro 3 PM standard as a minimum.

If the vehicle has a Euro II engine at present, then a partial filtration system may be sufficient to reduce its PM emissions to those of Euro III, ensuring LEZ compliance until 2012 at lower cost.

Whether the operator chooses to fit either a full-flow DPF or a partial filter, it must be a system approved under the RPC scheme operated by VOSA, or where an RPC is not available, a particulate abatement device deemed by Transport for London to result in an equivalent emission standard (and listed in the LEC Approved Devices List) will enable the vehicle to be compliant with the proposed LEZ standards.

A further option could be to install a replacement engine, certified to Euro III, which would render the vehicle compliant until 2012. Addition of a DPF to the new engine would ensure compliance beyond 2012 – as would the fitment of a DPF to a Euro II replacement engine if the vehicle operator wanted to be certain of meeting all the proposed LEZ emission standards for PM. This is an expensive option which only makes economic sense on vehicles with a long useful life, where the potential for reduced maintenance and fuel consumption will offset some of the costs of conversion. There are a number of proprietary engine suppliers who can develop conversions for buses and coaches.