

## **O5** GENERAL VEHICLE ISSUES

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### **O5.1** GENERAL

**O5.1.1** Production vehicles are rarely suited to site work in their standard form, so before purchasing a vehicle, consideration should be given to the model's suitability for modifications and its ability to carry the necessary equipment. The ease with which an operator can move from the off side seat to the near side door should also be considered.

**O5.1.2** The choice of vehicle type, engine size and gearbox should reflect the acceleration and manoeuvrability required of that vehicle during normal working conditions.

**O5.1.3** All vehicles and equipment shall be checked for correct operation before work commences. All checks should be documented and all faults reported prior to work commencing. If necessary, the vehicle or equipment should be taken out of service until faults are rectified. Basic vehicle checks should always include fuel, lights, oil, water, electrics and tyres.

**O5.1.4** All site vehicles should, where practicable, have all round visibility, for example, estate cars should be used in preference to vans. Where this is not practicable, additional mirrors should be fitted to eliminate blind spots.

### **O5.2** CONSPICUITY

**O5.2.1** Any vehicle engaged in works on the highway not in an established works zone should be of a conspicuous colour.

**O5.2.2** Subject to the specific requirements of the following sections, any works vehicles that are used to protect the workforce or form part of the signing of the works should be of conspicuous colour and appropriate marking. This is particularly important for that part of the vehicle visible to drivers and prescribed as part of any sign mounted on the vehicle.

**O5.2.3** In addition, on high-speed roads, all vehicles stopping on the highway for works purposes or inspections shall be equipped with high visibility rear markings. High visibility rear markings should comprise either:

- a) signing to diagram 7403, or
- b) the alternative light arrow sign in accordance with [Section O10.8](#), or
- c) chevron markings comprising alternate strips of fluorescent orange-red retroreflective material and fluorescent yellow non-retroreflective material, of not less than 150 mm width each, inclined at 45-60° to the horizontal and pointing upwards, or
- d) a solid block of fluorescent orange-red retroreflective material.

The markings described in (c) and (d) above should cover as much of the rear-facing portion of the vehicle as possible without obscuring windows, vehicle lighting or registration plates.

Where the main body of the vehicle being used is not a recognised conspicuous colour (yellow or white) then the above markings should be supplemented by a high visibility fluorescent yellow retroreflective strip, of not less than 50 mm wide, along the side of vehicle as a minimum.

**O5.2.4** Red retroreflective tape shall also be applied to all rear facing edges of open doors, guardrails and equipment lockers.

**05.2.5** Where rear facing high visibility markings may be obscured by any device mounted on the vehicle (e.g. lorry-mounted crash cushion (LMCC) or cone laying adaptation), at any time that the vehicle is stopped on a high-speed road, additional markings complying with paragraph **05.2.3** (c) or (d) shall be applied to any face of the device which is displayed to the rear and other road users.

**05.2.6** Works vehicles should be kept clean to maintain conspicuity.

**05.2.7** Motor vehicles with a maximum gross weight exceeding 7.5 tonnes and trailers with a maximum gross weight exceeding 3.5 tonnes must be fitted with rear markings in accordance with the Lighting Regulations.

**05.2.8** Vehicles used for works purposes shall be identified by displaying to the rear the sign to diagram 7404 "HIGHWAY MAINTENANCE". The sign to diagram 7404 variant "MOTORWAY MAINTENANCE" may be used instead when working on motorways only.

### **05.3 ROOF-MOUNTED BEACONS**

**05.3.1** Without prejudice to the specific requirements of the following sections, any vehicle stopping on the highway for works purposes or inspections shall be equipped with either a roof-mounted flashing amber warning light bar (comprising at least two independent light sources) or two independent roof-mounted flashing amber warning beacons, visible through 360°.

**05.3.2** Roof-mounted flashing amber warning beacons must comply with the requirements of the Road Vehicle Lighting Regulations and should also comply with the United Nations Economic Commission for Europe (UNECE) Regulation 65 on Special Warning Lamps.

**05.3.3** If the main roof-mounted beacon is likely to be obscured from the rear by parts of the vehicle or any equipment carried on the vehicle, additional beacons should be fitted toward the rear of the vehicle where they will remain visible.

**05.3.4** The roof-mounted beacons shall be in use when entering, leaving or moving within the site, when travelling in traffic at less than the general traffic speed, and when stationary on the hard shoulder.

**05.3.5** When stationary within the confines of a fully installed traffic management arrangement, the roof-mounted beacons shall be switched off, unless they form part of the guarding of the works, e.g. works on minor roads, or are required for mobile works; see [Sections O10](#) and [O11](#).

**05.3.6** Vehicles engaged on snow clearing, gritting operations or similar work shall display a flashing amber warning beacon at all times when operating.

### **05.4 IMPACT PROTECTION**

**05.4.1** Impact Protection Vehicles (IPV), Mobile Lane Closure (MLC) vehicles, and Mobile Carriageway Closure (MCC) vehicles shall be fitted with a lorry-mounted crash cushion (LMCC). The requirements for LMCCs are given in Departmental Standard TD 49 "Requirements for lorry-mounted crash cushions" (DMRB 8.4.7). As higher specification LMCCs become available their use should be adopted if appropriate.

**05.4.2** It should be noted that vehicles fitted with a LMCC currently contravene the Road Vehicles (Construction and Use) Regulations 1986, as amended, with regard to the permissible overhang (regulation 11) when the LMCC is in operational mode. To enable the vehicle to be operated legally, a special dispensation known as a Vehicle Special Order (VSO) must be obtained from the Department for Transport before the vehicle is put into service. Further details about applying for a VSO can be found on the DfT website ([www.dft.gov.uk](http://www.dft.gov.uk)) under the heading "Vehicle special orders section 44 requirement".

**O5.4.3** In addition to the overhang requirements of regulation 11, the vehicle must comply with all the other applicable requirements of the Construction and Use Regulations as well as those of the Road Vehicles Lighting Regulations 1989, also as amended.

**O5.4.4** A device which automatically activates the block vehicle's brakes when any contact is made with the rear of a LMCC shall be fitted in order to minimise roll-forward and the risk of any secondary accident in the event of a collision. The device should conform to the specification provided in [Appendix 4.2](#), and once fitted to the vehicle will be subject to a notifiable alteration with the Vehicle and Operator Services Agency (VOSA). For notifiable alteration requirements in Northern Ireland, refer to the Department of the Environment – Driver and Vehicle Testing Agency.

**O5.4.5** Seat belts with a minimum of three points of anchorage to the vehicle shall be fitted for all occupants of block vehicles (e.g. IPV, MLC and MCC vehicles), and they should be worn at all times whilst operations are being carried out.

**O5.4.6** Head restraints shall be fitted and correctly adjusted (centre of restraint at eye level) for all the occupants of block vehicles and advance sign vehicles.

**O5.4.7** It is recommended that a safety survey of the block vehicle cab be undertaken whenever additional fittings or protruding items, such as two-way radios, are fitted.

## **O5.5 TEMPORARY TRAFFIC MANAGEMENT VEHICLE SPECIFICATIONS**

**O5.5.1** Vehicles used for the installation, maintenance and removal of static traffic management on high-speed roads shall comply with the following specifications in paragraphs [O5.5.2](#) to [O5.5.5](#). Compliance with these specifications is also recommended for use on all types of highway irrespective of speed limit.

### **O5.5.2 Inspection/supervisor vehicles**

- conspicuous colour (e.g. yellow or white – a non-reflective yellow colour, No. 355 (lemon) to Table 1 of BS 381C: 1996 “Specification for colours for identification, coding and special purposes” is recommended);
- 70 mm capital letter height “HIGHWAY MAINTENANCE” sign to diagram 7404 (externally mounted on rear of vehicle) (see also paragraph [O5.2.8](#));
- roof-mounted amber light bar (visible 360°) with a minimum of two independent light sources;
- “Class RA2” to BS EN 12899-1 or microprismatic reflective markings on the rear of the vehicle in accordance with paragraph [O5.2.3](#) (c) or (d); and
- company or client livery on side of vehicle.

### **O5.5.3 Traffic management/maintenance vehicles (personnel/equipment carrier)**

- conspicuous colour (e.g. yellow or white – a non-reflective yellow is recommended (see paragraph [O5.5.2](#)));
- 140 mm capital letter height “HIGHWAY MAINTENANCE” sign to diagram 7404 (externally on rear of vehicle) (see also paragraph [O5.2.8](#));
- “Class RA2” to BS EN 12899-1 or microprismatic reflective markings on the rear of the vehicle in accordance with paragraph [O5.2.3](#);

- all seats shall be fitted with head restraints and 3 point inertia reel belts;
- working lights;
- reversing bleeper;
- front roof-mounted amber light bar (visible 360°) with a minimum of two independent light sources, and rear-mounted flashing amber beacons (visible 360°);
- company or client livery on side of vehicle;
- high visibility fluorescent yellow retroreflective strip along side of vehicle; and
- CCTV for rearward vision.

#### **O5.5.4 Equipment installation/removal vehicles**

- conspicuous colour (e.g. yellow or white – a non-reflective yellow is recommended (see paragraph [O5.5.2](#)));
- 140 mm capital letter height “HIGHWAY MAINTENANCE” sign to diagram 7404 (externally mounted on rear of vehicle) (see also paragraph [O5.2.8](#));
- “Class RA2” to BS EN 12899-1 or microprismatic reflective markings on the rear of the vehicle in accordance with paragraph [O5.2.3](#);
- all seats shall be fitted with head restraints and 3 point inertia reel belts;
- working lights;
- reversing bleeper;
- front roof-mounted amber light bar (visible 360°) with two independent light sources, and rear-mounted flashing amber beacons (visible 360°);
- company/client livery on side of vehicle;
- high visibility fluorescent yellow retroreflective strip along side of vehicle;
- special adaptation to provide a low level working platform with a guard rail arrangement within the normal width of the vehicle (e.g. tail lift or well);
- driver/operative intercom system; and
- CCTV for rearward vision.

#### **O5.5.5 Impact protection vehicles**

- conspicuous colour (e.g. yellow or white – a non-reflective yellow is recommended (see paragraph [O5.5.2](#)));
- 10 tonne minimum on the road weight;

- lorry-mounted crash cushion (LMCC) – see [Section O5.4](#). For details of the latest specification for LMCCs see Departmental Standard TD 49 “Requirements for lorry-mounted crash cushions” (DMRB 8.4.7);
- automatic brake activation system in accordance with [Appendix 4.2](#); see also paragraph [O5.4.4](#);
- signing equipment in accordance with [Section O10.7](#);
- light arrow sign in accordance with [Section O10.8](#);
- reversing bleeper;
- 140 mm capital letter height “HIGHWAY MAINTENANCE” sign to diagram 7404 (externally mounted on rear of vehicle) (see also paragraph [O5.2.8](#));
- “Class RA2” to BS EN 12899-1 or microprismatic reflective markings on the rear of the vehicle in accordance with paragraph [O5.2.3](#) (c) or (d) when LMCC is in the stowed position;
- front-mounted amber light bar with two independent light sources and rear-mounted flashing amber beacons visible when the cushion and the light arrow are in the stowed position;
- all seats shall be fitted with head restraints and seatbelts with a minimum of three points of anchorage to the vehicle; and
- CCTV for rearward vision.

## NOTES:

1. A vehicle complying with this specification can also be used for the installation and removal of longitudinal coning as long as it is fitted with a special adaptation to provide a low-level working platform with a guard rail arrangement within the normal width of the vehicle i.e. a “coning well”.
2. The light arrow sign shall not display any form of arrow when on a two-way single carriageway road and, other than at the scene of an incident, the light arrow sign shall not display any form of arrow when on a hard shoulder of a dual carriageway.

**O5.6 CONVOY WORKING VEHICLES**

- O5.6.1** For details of vehicles used in the Convoy Working technique ([Section O9](#)) see [Section O9.3](#).

**O5.7 MOBILE LANE CLOSURE VEHICLES**

- O5.7.1** For details of vehicles used in the Mobile Lane Closure technique ([Section O10](#)) see [Section O10.6](#).

**O5.8 MOBILE CARRIAGEWAY CLOSURE VEHICLES**

- O5.8.1** For details of vehicles used in the Mobile Carriageway Closure technique ([Section O11](#)), see [Section O11.8](#).