

Miscellaneous items

13-1 Engine and transmission

13-2 Fuel system

13-3 LPG/CNG fuel system

13-4 Electrical wiring

Miscellaneous items

13-1 Engine and transmission

Summary of legislation

Applicable legislation

- Land Transport Rule: Vehicle Standards Compliance Rule 2002, section 7.4

Condition and performance

- The vehicle must be safe to be operated.
- The components and materials must be fit for their purpose and within safe tolerance of their state when manufactured or modified.

Modifications

- A modification that affects the engine and transmission must be inspected and certified by an LVV specialist certifier, unless the vehicle:
 - is excluded from the requirement for LVV specialist certification (**Table 13-1-1**), and
 - has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Reasons for rejection

Condition

- The engine or gearbox is insecurely mounted.
- A driveshaft is bent or severely damaged.
- A driveshaft flange:
 - is insecure, or
 - has a bolt or nut missing.
- A driveshaft support bearing is:
 - insecure, or
 - worn beyond manufacturer's specifications.
- A driveshaft universal joint spider (cross) bearing:
 - is worn so that the movement in the joint is beyond manufacturer's specifications, or
 - caps have loose or missing cap bolts or circlips, or
 - is damaged, displaced or the seals between the spider journals and bearing caps are missing.
- A rubber doughnut-type driveshaft coupling:
 - is worn or damaged beyond manufacturer's specifications, or
 - is split or delaminated so that its mechanical integrity is affected, or
 - securing bolt is loose or missing.
- A driveshaft slip joint (spline) is worn beyond manufacturer's specifications.
- The universals in the driveshaft are not fitted in accordance with manufacturer's specifications.

Modifications

- A modification (**Note 1**) affects the engine and transmission (**Note 2**), and:
 - is not excluded from the requirements for LVV specialist certification (**Table 13-1-1**), and
 - is missing proof of LVV specialist certification, that is:
 - the vehicle is not fitted with a valid LVV certification plate, or
 - the operator is not able to produce a valid modification declaration or authority card.

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13-1 Engine and transmission (cont.)

Table 13-1-1. Modifications that do not require LVV certification

Fitting of or modification to:	LVV certification is not required provided that:
Substitution of engines	<ul style="list-style-type: none"> ▪ when compared with the OE engine, the replacement engine: <ul style="list-style-type: none"> - is of the same or less cubic capacity, and - has equal or less weight, and - has the same or less power output, and - uses the same fuel (petrol, diesel, LPG, CNG), and - uses the same unmodified attachment points and system (ie bolts-in), and - uses the same family of block and cylinder head from the same vehicle manufacturer, and - is of the same configuration.
Minor modifications to OE engine	<ul style="list-style-type: none"> ▪ the modifications result in not more than 20% more power than the OE engine, which may include the fitting of: <ul style="list-style-type: none"> - extractor or free-flow exhaust manifolds, or big bore exhaust systems - changed intake manifolds - changed or multiple carburettors - modified fuel injection systems - changed ignition systems - alternative cold air box induction systems. ▪ (See Note 2).
Gearbox substitution	<ul style="list-style-type: none"> ▪ the OE gearbox cross-member has not been heated, cut or welded, and ▪ the OE gearbox cross-member mounting to the OE body or chassis members is unchanged, and ▪ no replacement gearbox cross-member is used, and ▪ the OE driveshaft(s) is unmodified, and ▪ no substantial modifications have occurred to the floor or gearbox tunnel area, other than provision for gear-shift mechanism.
Change from 4WD to permanent 2WD (removal of drive train components in 4WD vehicles)	<ul style="list-style-type: none"> ▪ the vehicle was originally manufactured with selectable 4WD and a solid/live front axle.
Fitting of or modification to:	LVV certification is never required:
Any modification for the purposes of law enforcement or the provision of emergency services	<ul style="list-style-type: none"> ▪ in-service requirements for condition and performance must be met.

Note 1 Definitions

Modify means to change a vehicle from its original state by altering, substituting, adding or removing a structure, system, component or equipment, but does not include repair.

Repair means to restore a damaged or worn vehicle, its structure, systems, components or equipment to within safe tolerance of its condition when manufactured, including replacement with undamaged or new structures, systems, components or equipment.

Note 2 LVV certification is always required for the fitting of a supercharger or turbocharger as a modification, or the upgrading of a supercharger, turbo or wastegate, or the re-chipping of electronic engine control units on turbo vehicles.

Note 3 Externally venting wastegates (screamer pipes) are not permitted as they are not adequately muffled and the exhaust gasses passing through the wastegate are not directed through the vehicle's exhaust system. However, wastegates that have their own exhaust system or exhaust pipe exiting behind the passenger compartment are permitted.

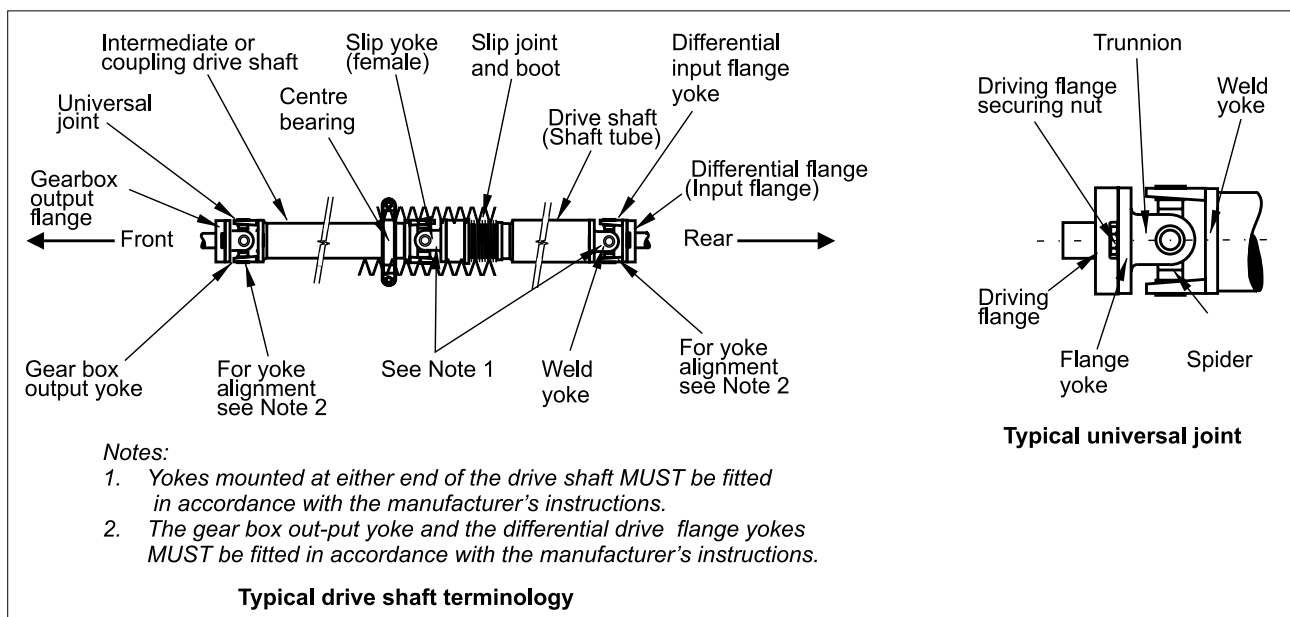


Figure 13-1-1. A typical driveshaft assembly

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13-1 Engine and transmission

Summary of legislation

Applicable legislation

- Land Transport Rule: Heavy Vehicles 2004

Permitted equipment

- The vehicle may be fitted with a device to restrict the field of swing of a driveshaft in the event of driveshaft failure.

Condition

- The transmission must:
 - be within safe tolerance of its original condition, and
 - have adequate strength and performance characteristics for the conditions and loading for which the vehicle was constructed.
- A device fitted to a vehicle to restrict the field of swing of a driveshaft in the event of driveshaft failure must be within safe tolerance of its original condition.

Modification

- A modification or repair that affects the engine or transmission must be inspected and certified by an HVS certifier of category HVEC, HVMC or HVIC, unless the vehicle:
 - excluded from the requirement for HVS certification (**Table 13-1-2**), and
 - has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Reasons for rejection

Condition

- Refer to general vehicle pages.
- A device fitted to a vehicle to restrict the field of swing of a driveshaft in the event of driveshaft failure is:
 - missing, where there is evidence that one was originally fitted, or
 - not securely attached, or
 - cracked, or
 - significantly deteriorated or damaged so that it is unlikely to prevent the driveshaft from striking the ground, chassis or floor in the event of driveshaft failure, or
 - showing evidence of contact with the driveshaft.

Modification

- A modification or repair affects the engine or transmission and:
 - is not excluded from the requirements for HVS certification (**Table 13-1-2**), or
 - the modification is not for the purpose of law enforcement or the provision of emergency services, or
 - is missing proof of HVS certification, that is the vehicle was modified or repaired since the last CoF inspection and no valid LT400 form from an HVS certifier of category HVEC, HVMC or HVIC has been presented.

Table 13-1-2. Requirements for HVS certification

HVS certification is required	HVS certification is not required
<ol style="list-style-type: none"> Significant work involving: <ol style="list-style-type: none"> relocation of components fitting of components that are not identical to OE components modification of components. 	<ol style="list-style-type: none"> Any modification or repair likely to have been carried out before 1 January 1997 (modifications and repairs before this date generally required certification but for inspection purposes no evidence of this is required). Any repair or modification not listed in the left-hand column unless the vehicle inspector considers that certification is required because the modification or repair has affected the vehicle's safety performance (a second opinion from an expert may be needed, eg the manufacturer's representative, or a reputable workshop).

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13-1 Engine and transmission

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999

Mandatory equipment

1. The engine compartment must be lined with, or made of, fire-resistant materials.

Permitted equipment

2. The vehicle may be fitted with a device to restrict the field of swing of a driveshaft in the event of driveshaft failure.

Condition and performance

3. Refer to general vehicle pages.
4. The design of the engine and engine compartment must ensure that no fuel, oil or other combustible materials could accumulate or drip on to any high temperature surface.
5. Devices to protect against driveshaft failure must be maintained within safe tolerance of their original condition.

Modification

6. Refer to general vehicle pages.

Reasons for rejection

Mandatory equipment

1. The engine compartment is not lined with, or made of, fire-resistant materials.

Condition and performance

2. Refer to general vehicle pages.
3. Fuel, oil or other combustible materials have accumulated or dripped onto a high temperature surface within the engine compartment.
4. A fire-proof lining is:
 - a) missing, or
 - b) damaged or deteriorated so that the risk of fire is increased.
5. A device fitted to a vehicle to restrict the field of swing of a driveshaft in the event of driveshaft failure is:
 - a) missing, where there is evidence that one was originally fitted, or
 - b) not securely attached, or
 - c) cracked, or
 - d) significantly deteriorated or damaged so that it is unlikely to prevent the driveshaft from striking the ground, chassis or floor in the event of driveshaft failure, or
 - e) showing evidence of contact with the driveshaft.

Modification

6. Refer to general vehicle pages.

Miscellaneous items

13-1 Engine and transmission

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999

Mandatory equipment

1. The engine compartment must be lined with, or made of, fire-resistant materials.

Permitted equipment

2. The vehicle may be fitted with a device to restrict the field of swing of a driveshaft in the event of driveshaft failure.

Condition and performance

3. Refer to heavy vehicle pages.
4. The design of the engine and engine compartment must ensure that no fuel, oil or other combustible materials could accumulate or drip onto any high temperature surface.
5. Devices to protect against driveshaft failure must be maintained within safe tolerance of their original condition.

Modification

6. Refer to heavy vehicle pages.

Reasons for rejection

Mandatory equipment

1. The engine compartment is not lined with, or made of, fire-resistant materials.

Condition and performance

2. Refer to heavy vehicle pages.
3. Fuel, oil or other combustible materials have accumulated or dripped on to a high temperature surface within the engine compartment.
4. A fire-proof lining is:
 - a) missing, or
 - b) damaged or deteriorated so that the risk of fire is increased.

Modification

5. Refer to heavy vehicle pages.

Miscellaneous items

13-2 Fuel system

Summary of legislation

Applicable legislation

- Land Transport Rule: Vehicle Equipment 2004

Condition and performance

1. Fuel tanks, fuel lines and associated components must be:
 - a) securely mounted, and
 - b) made of suitable materials, and
 - c) in good condition, and
 - d) free from significant leaks, and
 - e) positioned so that the risk of mechanical damage or heat gain is minimised.

Modification

2. A modification that affects the fuel tank and fuel lines must be inspected and certified by a Low Volume Vehicle Specialist Certifier, unless the vehicle:
 - a) is excluded from the requirement for LVV certification (**Table 13-2-1**), and
 - b) has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Reasons for rejection

Condition

1. There is a noticeable fuel leak from the fuel system.
2. The security of the fuel tank is affected by:
 - a) corrosion damage (**Note 1**), or
 - b) cracking or other damage, or
 - c) insecure or loose tank mountings.
3. A fuel line is insecure or loose so that it is likely to be damaged during normal use of the vehicle.
4. A fuel pipe is severely damaged or excessively corroded.
5. A fuel hose is damaged or perished.
6. The fuel pump is insecure.
7. The fuel filler cap or capless fuel filler seal is missing, insecure or likely to allow fuel spillage when the vehicle is in normal use.
8. The fuel tank is fitted with a 'temporary use' fuel filler cap.

Modification

9. A modification affects the fuel system, and:
 - a) is not excluded from the requirements for LVV specialist certification (**Table 13-2-1**), or
 - b) is missing proof of LVV specialist certification, that is:
 - i. the vehicle is not fitted with a valid low volume vehicle certification plate, or
 - ii. the operator is not able to produce a valid modification declaration or authority card.

Miscellaneous items

13-2 Fuel system (cont.)

Table 13-2-1. Modifications that do not require LVV certification

Fitting of or modification to:	LVV certification is not required provided that:
Fuel system changes and modifications	<ul style="list-style-type: none"> ▪ no structural modifications have occurred to the vehicle during the installation or modification, and ▪ the filling location remains the same, and ▪ the fuel type (petrol, diesel) has not changed (other than a change to LPG/CNG).
Fitting of or modification to:	LVV certification is never required:
Any modification for the purposes of law enforcement or the provision of emergency services	<ul style="list-style-type: none"> ▪ in-service requirements for condition and performance must be met.

Note 1 Corrosion damage is where the metal has been eaten away, which is evident by pitting. The outward signs of such corrosion damage is typically displayed by the lifting or bubbling of paint. In extreme cases, the area affected by corrosion damage will fall out and leave a hole.

Miscellaneous items**13-2 Fuel system****Summary of legislation****Applicable legislation**

- Land Transport Rule: Passenger Service Vehicles 1999

Mandatory equipment

1. Fuels for a PSV and the vehicle's equipment must be carried in permanent fuel tanks.
2. Each filling inlet must be provided with a leak-proof cap.

Condition and performance

3. Refer to general vehicle pages.
4. Fuel tanks and fuel lines must be:
 - a) corrosion resistant, and
 - b) designed and constructed of durable, fuel-resistant material, and
 - c) securely mounted, and
 - d) reasonably protected from collision damage.
5. Access to the fuel-tank filling inlet must be from outside the body of the PSV.

Reasons for rejection**Mandatory equipment**

1. Fuel for a PSV is carried in a temporary fuel tank.

Condition and performance

2. Refer to general vehicle pages.
3. A fuel tank or fuel line shows signs of corrosion.
4. The fuel-tank filling inlet cannot be accessed from outside the body.
5. A fuel cap:
 - a) does not tighten properly, or
 - b) seal is in poor condition.

Miscellaneous items**13-2 Fuel system****Summary of legislation****Applicable legislation**

- Land Transport Rule: Passenger Service Vehicles 1999

Mandatory equipment

1. Fuels for a PSV and the vehicle's equipment must be carried in permanent fuel tanks.
2. Each filling inlet must be provided with a leak-proof cap.

Condition and performance

3. Refer to general vehicle pages.
4. Fuel tanks and fuel lines must be:
 - a) corrosion resistant, and
 - b) designed and constructed of durable, fuel-resistant material, and
 - c) securely mounted, and
 - d) reasonably protected from collision damage.
5. Access to the fuel-tank filling inlet must be from outside the body of the PSV.

Reasons for rejection**Mandatory equipment**

1. Fuel for a PSV is carried in a temporary fuel tank.

Condition and performance

2. Refer to general vehicle pages.
3. A fuel tank or fuel line shows signs of corrosion.
4. The fuel-tank filling inlet cannot be accessed from outside the body.
5. A fuel cap:
 - a) does not tighten properly, or
 - b) seal is in poor condition.

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13-3 LPG/CNG fuel system

Summary of legislation

Applicable legislation

- Land Transport Rule: Vehicle Standards Compliance 2002
- Land Transport Rule: Vehicle Equipment 2004

Mandatory equipment

1. A motor vehicle equipped with an LPG or CNG fuel system that is in working order must display a current alternative fuel inspection certificate.

Condition

2. An LPG or CNG fuel system must be in safe working condition.

Modification

3. The installation of an LPG or CNG fuel system is not a modification that requires certification by a LVV specialist certifier.
4. A modification to an existing LPG or CNG fuel system must be inspected and certified by an approved LPG or CNG fuel inspector or inspecting organisation.

Reasons for rejection

Mandatory equipment

1. A vehicle that is equipped with an LPG or CNG fuel system that is in working order does not have a current alternative fuel inspection certificate (**Note 1** and **Note 2**).

Condition

2. An LPG or CNG fuel system component is:
 - a) loose, or
 - b) significantly corroded, distorted or cracked.
3. A gas line:
 - a) shows signs of corrosion damage (**Note 3**), such as pitting, or
 - b) is bulging, or
 - c) is insecure, or
 - d) is damaged, eg cut or crimping.
4. There is a noticeable gas leak.
5. There is corrosion damage, distortion or fracture within 300 mm of a tank mounting

Note 1 Definitions

Alternative fuel inspection certificate means evidence of vehicle inspection relating to the periodic in-service inspection and certification of an LPG or CNG fuel system.

Alternative fuel installation certificate means an inspection and certification document relating to the installation of an LPG or CNG fuel system. It is not required for the issue of a WoF or CoF.

LPG/CNG fuel system means a fuel storage and conducting system that is used to provide liquid petroleum gas (LPG) or compressed natural gas (CNG) for the purpose of propulsion of a vehicle.

Note 2 An LPG or CNG fuel system with all the necessary components is deemed to be in working order, whether or not it is charged. A system that has had the filler connection removed is deemed to be not in working order.

Note 3 Corrosion damage is where the metal has been eaten away, which is evident by pitting. The outward signs of such corrosion damage is typically displayed by the lifting or bubbling of paint. In extreme cases, the area affected by the corrosion damage will fall out and leave a hole.

Miscellaneous items**13-4 Electrical wiring****Summary of legislation****Applicable legislation**

- Land Transport Rule: Heavy Vehicles 2004

Condition

1. The current ratings of the electrical wires in a vehicle must not be exceeded.
2. Electrical wires in a heavy vehicle must:
 - a) be insulated and protected from damage that could be caused by water, fuel, oil, other fluids, dirt or heat, and
 - b) if practicable, be clipped or otherwise gathered into looms with an insulating material.
3. Electrical wires and looms must:
 - a) be appropriately and securely fastened to the vehicle to protect them from damage, and
 - b) where they pass through holes in the vehicle structure, be protected from damage.

Reasons for rejection**Condition**

1. An electrical wire shows signs of:
 - a) overheating, or
 - b) chafing, or
 - c) other damage.
2. Electrical wires in a heavy vehicle are not:
 - a) insulated and protected from damage that could be caused by water, fuel, oil, other fluids, dirt or heat, or
 - b) clipped or otherwise gathered into looms with an insulating material, where this is practicable.
3. Electrical wires and looms are not:
 - a) appropriately and securely fastened to the vehicle to protect them from damage, or
 - b) protected from damage where they pass through holes in the vehicle structure.

Miscellaneous items

13-4 Electrical wiring

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999

Condition

Electrical voltages up to and including 32 volts AC or 115 volts DC:

1. The electrical current ratings appropriate to that make and model of cable as installed in the PSV must not be exceeded.
2. Electrical cables must be:
 - a) insulated and protected from heat, water, fuel, oil and other fluids used in the PSV, and
 - b) held securely in position and protected from damage due to cutting, abrasion or chafing.
3. Any cable that enters or passes through the passenger compartment must be protected from damage by secure covers.
4. Where electrical cables or equipment are installed in a PSV there must be a sign warning of the operating voltage adjacent to any detachable service cover giving access to the electrical cables or equipment.

Reasons for rejection

Condition and Performance

1. An electrical cable is not:
 - a) insulated and protected from damage that could be caused by water, fuel, oil, other fluids, dirt or heat, or
 - b) if practicable, clipped or otherwise gathered into looms with an insulated material, or
 - c) appropriately and securely fastened to the vehicle, or
 - d) protected from damage where it passes through holes in the vehicle structure.
2. An electrical cable that enters the passenger compartment is not protected by a secure cover.
3. A detachable service cover inside the vehicle giving access to electrical cables or equipment does not have a sign warning of the operating voltage.
4. An electrical cable or insulation shows signs of overheating, chafing or other damage.

Miscellaneous items

13-4 Electrical wiring

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999

Condition

1. The electrical current ratings appropriate to that make and model of cable as installed in the PSV must not be exceeded.
2. Electrical cables must be:
 - a) insulated and protected from heat, water, fuel, oil and other fluids used in the PSV, and
 - b) held securely in position and protected from damage due to cutting, abrasion or chafing.
3. Any cable that enters or passes through the passenger compartment must be protected from damage by secure covers.
4. Where electrical cables or equipment are installed in a PSV there must be a sign warning of the operating voltage adjacent to any detachable service cover giving access to the electrical cables or equipment.

Reasons for rejection

Condition and Performance

1. An electrical cable is not:
 - a) insulated and protected from damage that could be caused by water, fuel, oil, other fluids, dirt or heat, or
 - b) if practicable, clipped or otherwise gathered into looms with an insulated material, or
 - c) appropriately and securely fastened to the vehicle, or
 - d) protected from damage where it passes through holes in the vehicle structure.
2. An electrical cable that enters the passenger compartment is not protected by a secure cover.
3. A detachable service cover inside the vehicle giving access to electrical cables or equipment does not have a sign warning of the operating voltage.
4. An electrical cable or insulation shows signs of overheating, chafing or other damage.

