Issue date:	Date of entry into force:	In force:
-	-	-

Legal basis:
Sections 7, 7a, 16, 143 and 144 of the Vehicles Act (82/2021)

Sanctions for non-compliance with this Regulation are laid down in the following:
Sections 189–191 and 193–197 of the Vehicles Act (82/2021).

EU legislation to be implemented:

Amendment information:
The regulation repeals:

Regulation of the Finnish Transport and Communications Agency of 5 June 2023 amending section 6.3 of the Regulation on the modification of the structure of a car and its trailer (TRAFICOM/534395/03.04.03.00/2022) and

Regulation of the Finnish Transport and Communications Agency of 25 February 2021 on the modification of the structure of a car and its trailer (TRAFICOM/194495/03.04.03.00/2019)

Modification of the structure of a car and its trailer

Contents

1 General

1.1 Scope

This Regulation applies to vehicles in categories M and N (*car*), a vehicle in category O (*trailer*) and a comparable vehicle in the category 'OTHER' recorded in the register:

1) the technical requirements for modification;

2) the explanations required for the changes;

3) the exemptions applicable to the demonstration of conformity and requirements;

4) alternative requirements; and

5) changes that require a modification inspection and changes that do not require a modification inspection.

The requirements governing the cargo baskets on vehicles in categories N_2, N_3, O_3 and O_4 used for the transport of goods are also provided in a separate regulation issued by the Finnish Transport and Communications Agency.

The additional technical requirements and exemptions from the technical requirements governing the approval of a special purpose vehicle for use on the road, as well as the demonstration of conformity, shall be provided separately.

1.2 Definitions

In addition to the provisions of the Vehicles Act, the following definitions shall apply:

1) *a reference vehicle* refers to a vehicle used for reference when demonstrating compliance of the vehicle after modifications;

2) *a reference engine* refers to the engine installed in the reference vehicle at the manufacturing stage;

3) *the power measurement certificate* refers to the protocol indicating the result of the power measurement performed on the vehicle;

4) *the axles* refer to the axles of the vehicle and parts of the suspension system, such as the subframe, control arms, springs, shock absorbers and stabilisers;

5) *the basic axle type* refers to a rigid axle, a floating axle, a semi-rigid axle, and a separately suspended axle;

6) *the suspension type* refers to helical springs, rubber springs, leaf springs, parabola springs, air suspension, torsion rod springs, and hydraulic springs;

7) *a factory-manufactured part* refers to a part for road transport, manufactured for that purpose, the manufacturer of which possesses the necessary professional skills and appropriate equipment and facilities for the manufacture of that part;

8) *the width of the tyre* refers to the nominal metric width indicated on the tyre and, if this is not available, the nominal width according to the STRO (*The Scandinavian Tire & Rim Organization*) or ETRTO (*The European Tyre and Rim Technical Organisation*) standard;

9) *manufacturer* refers to the manufacturer as defined in the Framework Regulation for cars and their trailers and the manufacturer's representative as defined in the Framework Regulation for cars and their trailers;

10) *an integral body* refers to a body structure where the bodywork and the body frame of the vehicle comprise a single part;

11) *a body with a separate bodywork* refers to a structure with a separate bodywork frame acting as a supporting structure and a separate body installed on top of it;

12) *a model generation* refers to a group of vehicle models of a similar age as determined by the vehicle manufacturer. These vehicles are mainly similar to each other in terms of design and technical properties;

13) *welding report* refers to a description of the welding methods and welding materials presented to the inspector to assess the conformity of the modifications;

14) *a report on the strength of fastenings* refers to a calculation of the sufficient strength of independently manufactured fastenings, or a report based on equivalence;

15) *a theoretical braking calculation* refers to an estimation of braking performance which is based on the functional dimensioning of the components used in the system and on the properties of the vehicle;

16) *a similarity report* refers to a report by the manufacturer or a report available in literary sources on the differences between the vehicle to be modified and a corresponding vehicle in terms of the characteristics that are the subject of the modification;

17) *functional dimensioning* refers to the dimensioning of a structure based on strength and the capacity to transmit forces;

18) *strength class* refers to the strength class of a screw defined with reference to EN ISO 898-1:2013 or the SAE (Society of Automotive Engineers) standard.

19) *electrical safety equipment* refers to a system, component and separate technical unit, electrically operated, intended to prevent an accident, to protect the occupants of the vehicle or other road users in the event of an accident, or to provide the authorities with information on accidents.

2 General requirements on modifying cars and their trailers

2.1 General requirements

The modifications made to a vehicle under this Regulation shall be submitted for a modification inspection, unless otherwise specified in this Regulation. Modifications smaller than those referred to in this provision shall not require a modification inspection. Modifications greater than those permitted under this Regulation require an exemption granted by the Finnish Transport and Communications Agency for approval in a modification inspection, unless otherwise provided in or by virtue of the Vehicles Act. However, in a modification inspection, the modification of a vehicle to correspond to the reference vehicle may be accepted without the need for an exemption.

After all the modifications to the vehicle, the vehicle shall meet the technical requirements valid during its first implementation or subsequently, unless otherwise provided in the relevant regulations, or in this or other provisions.

Notwithstanding what is provided elsewhere in this Regulation, modifications and additions to the vehicle's electronic systems shall be presented for a modification test if the vehicle was put into service on or after 7 July 2024 and if the vehicle is subject to cybersecurity requirements. As proof of compliance with a vehicle's cybersecurity requirements, a modification inspection may accept a statement from the electronic system manufacturer or the vehicle manufacturer or the person carrying out the modification that the cybersecurity risks caused to the vehicle by the modification have been assessed and the necessary risk mitigation measures have been taken.

In addition to the provisions of this Regulation, modifications to the vehicle shall be carried out in accordance with the instructions of the vehicle manufacturer. The instructions shall be applied in place of this provision if they provide for a change to be made in a manner other than that provided for in this provision or if they prohibit the modification of the vehicle permitted by this provision.

The means of demonstrating the conformity of a modified vehicle shall be subject to the provisions of the Vehicles Act and provisions laid down by virtue of it or other applicable provisions, unless otherwise provided in this Regulation.

Where a vehicle is returned to its original condition in respect of any previous modification and has satisfied the relevant requirements in its original state, the means of demonstrating conformity referred to in this Regulation need not be applied in the demonstration of conformity. Conformity may be demonstrated by means of a report issued by the manufacturer, the manufacturer's representative, or their authorised representative/repair shop, with reference to which the inspector can verify compliance. Conformity may also be demonstrated by means of another report if, on the basis of the report and visually or using the usual tools at the inspector's disposal, it can be established that the vehicle has been restored to its original condition and meets the requirements for the restored vehicle and its related systems. Information on the restoration of the vehicle to its original condition shall be entered in the register.

Modifications to the vehicle may not significantly impair transport safety. The components fitted to the vehicle shall be designed for use on the road.

2.2 Requirements for the reference vehicle

A vehicle of the same make, series and generation of models and manufactured in large series for a given market may be used as a reference vehicle. A vehicle manufactured for non-European markets can only be used as a reference vehicle for a vehicle originally manufactured for the market in question.

Only a vehicle of the same series and generation of models of which at least 500 vehicles of the same type have been produced and for which the inspector may, if necessary, require the presentation of a manufacturer's certificate, is accepted as a reference vehicle. A manufacturer's certificate or, for a vehicle put into service before 1 January 1978, a report in the literature is acceptable evidence of belonging to the same series and generation of models.

2.3 Requirements for the power measurement certificate

The power measuring certificate shall be a measurement protocol with graphs from the measuring device for engine power, in which the power, torque and boost pressure values and rotational speed data shall be recorded by the measuring device, and the certificate shall indicate the unique vehicle identification number. The power measuring certificate shall be issued by the party carrying out the measurement.

2.4 Modifying a vehicle before its initial implementation

Prior to the first entry into service of a vehicle, a type-approved or individually approved vehicle shall not be modified in such a way that it does not remain in con-

formity with the requirements for approval and the requirements in force on the date of entry into service.

However, the installation and modification of the following equipment and components shall be permitted without needing to change the approval of the whole vehicle, provided that, after the modifications, the vehicle complies, at the time of its entry into service or at a later date, with any relevant legislative or regulatory requirements:

1) electronic entertainment devices;

2) telephone, on-board computer, navigator and other similar devices;

3) additional measuring devices;

4) safety systems for children;

5) tyres and rims, if their modification does not require a modification inspection;

6) additional lamps and the modifications to the vehicle required by their attachment;

7) additional heating devices;

8) roof rack and roof rails;

9) roof hatch and roof window;

10) towing hook for personal vehicles, utility cars and lorries;

11) splash guards and inner fenders;

12) bodywork designer parts specific to vehicle models if the measurements or weights indicated in the vehicle approval are not exceeded after their installation;

13) seat warmers;

14) power window lifters;

15) devices preventing unauthorised use and theft alarms;

16) driver assistance systems other than those required for the vehicle;

17) air conditioning;

18) active sound attenuation within the vehicle;

19) data connection between the vehicle and servicing;

20) sun visor;

21) aerodynamic auxiliary parts;

22) weighing systems;

23) tachograph;

24) equipping the cargo compartment/bed of a lorry or van (category N) with a protective liner, thermal insulation or shelf required for the transport of goods;

25) software updates approved by the vehicle manufacturer, unless otherwise specified below in this Regulation;

26) optional alcolock.

A vehicle whose CO_2 emissions have been approved using the WLTP measurement method under UN Regulation No 154 may be modified as specified in points 1 to 25 of the list above before first registration, provided that the declared CO_2 value of the vehicle is not affected by the modifications.

2.5 Modifications permitted without an alteration inspection after the commissioning of the vehicle

2.5.1 Modificationspermitted for all vehicles

Equipment modifications under section 2.4 may be made to the vehicle even after the first entry into service without any obligation to have a modification inspection conducted.

The following will be considered minor modifications or additions to vehicle devices and equipment which have no effect on transport safety and thus do not result in an obligation to undergo an alteration inspection:

1) affixing a parking permit or other similar sign required by an authority to the inside of the windscreen or front side windows of the vehicle, if the sign does not adversely affect visibility ahead and does not affect the functioning of the car safety systems;

2) installation of a reflection display (*HUD display*), provided that it does not impair the visibility out of the car;

3) modification of the tyre width by not more than 40 mm or 20% of the maximum tyre width declared by the manufacturer or entered in the register, whichever is greater, where the load capacity of the tyres does not limit the mass on the axle authorised for the vehicle in use to less than the technically permissible mass on the axle and the modification of the outer diameter of the tyre, taking into account the provisions of paragraphs 3.13 and 4.8;

4) modification of the nominal rim diameter by not more than 26 mm as declared by the manufacturer or registered, taking into account the provisions of paragraph 3.13;

5) modification or replacement of gearbox, provided that the change has no effect on the operation of driver-assisted restraint systems and that the speedometer and the tachograph and speed limitation device, if any, are calibrated;

6) modification of the transmission ratio, provided that the change does not affect the operation of driver assistance restraint systems and that the speedometer and the tachograph and speed limitation device, if any, are calibrated;

7) a change in the colour of the vehicle, the details regarding which may be entered in the register in connection with a periodic roadworthiness test;

8) the replacement of the exhaust pipe into an accessory piping, original accessory piping or piping approved for type-approval of a vehicle, and a change

in the diameter, length or outlet position of the exhaust pipe, if, after the change, the vehicle complies with the requirements of the in-service measurement of external noise and the modifications do not pose any danger to other road users or to the occupants of the vehicle;

9) in a vehicle put into service before 1 January 2026 and in a vehicle where the system is not required, modifications may be made to a tyre pressure monitoring system (*TPMS*), or the system may be disabled or re-enabled, provided that the disabled or inoperative system does not interfere with the operation of other systems;

10) equipping a vehicle used for driving instruction in accordance with the Driving Licence Act (386/2011) with the symbol of the dual control vehicle, a separate rear-view mirror, and a separate pedal acting on the service brake, which must be firmly attached to the vehicle, have a brake force corresponding to the vehicle's own brake pedal, and be capable of achieving the same brake force as the vehicle's own brake pedal, as referred to in the Act and the provisions issued by virtue of it;

11) replacement or modification of windscreens or other glazing, taking into account the requirements of paragraph 3.17 or 4.12, except where electrical restraints are connected to the glass pane.

2.5.2 Modifications allowed without a modification inspection for vehicles put into service 1 January 1998

In vehicles commissioned before 1 January 1998, the following will be comparable to a minor modification to vehicle devices and equipment which have no effect on transport safety nor result in an obligation to undergo an alteration inspection:

1) modification and replacement of the exhaust manifold;

2) modifying and replacing the carburettor and modifying the number of carburettors;

3) modifying the starting devices;

4) altering the compression ratio of engines other than those equipped with an air compressor;

5) modifying and replacing the camshaft of engines other than those equipped with an air compressor;

6) modifying the valves and channels of engines other than those equipped with an air compressor;

7) changing the software of engines other than those equipped with an air compressor or those using fuel mainly consisting of ethanol;

8) modifying and replacing the inlet manifold;

9) replacing the carburettor or carburettors with fuel injection equipment, and modifying the fuel injection equipment;

10) replacement of springs and suspension components under the conditions set out in section 3.11.2, except for a change in the type of suspension.

11) replacement of the original catalytic converter with a universal, EU type-approved accessory catalytic converter.

The above modifications to a vehicle put into service on or after 1 January 1998 shall be presented for approval during a modification inspection.

2.6 Modifications affecting register entries

According to that provision, changes which require a change test must be recorded in the vehicle registration data.

Amendments other than those referred to in this provision shall be deemed to have a material impact on the information to be entered in the register and, therefore, to be subject to a change review if they affect the information contained in Part 1 of the registration certificate.

3 Modifying the structure of cars with a maximum technical classification weight of 7,500 kg

The provisions of this section and its sub-paragraphs shall apply to vehicles of categories M_1, N_1, M_2, N_2 vehicles and vehicles of a similar nature with a technically permissible maximum mass not exceeding 7 500 kilograms in the category 'OTHER' recorded in the register.

In a vehicle put into service before 1 January 1998, the modifications listed in this Chapter may be accepted in an inspection conducted by an inspector, unless otherwise stated below.

Compliance with the regulations of the modifications listed in this chapter for a car entering into service on or after 1 January 1998 shall be indicated in connection with an alteration inspection as per the regulation on the technical requirements for cars and their trailers, hereinafter referred to as *the car regulation*, or according to the applicable regulations for vehicles entering into service in preceding years, unless otherwise provided for below in respect of these vehicles.

3.1 Frame

The modifications made to the frame referred to in the sub-paragraphs of this section may not be made to a vehicle put into service on or after 1 January 1998.

3.1.1 Integral body

The integral body frame may be modified by means of strengthening welding or bolted connections.

Repair or modification by welding of an auxiliary body attached to the body of the vehicle by means of bolted connections to at least equivalent to the original strength is permitted. The change inspection shall include a welding report to be used by the inspector to assess the appropriateness of the modification work

3.1.2 Body with a separate bodywork

The frame of a vehicle equipped with a separate bodywork may be modified by encasing the U profile frame to make a rectangular profile frame or reinforcing the original frame by other means.

The frame of a vehicle in category N may be extended from the rear of the vehicle with material at least equivalent to that of the original frame by a maximum of one metre, if the bodywork of the vehicle is extended to an equivalent degree. After the modification, the vehicle must meet the requirements for rear swing-out (lateral displacement of the rear angle) prescribed for categories N_2 and N_3 in Regulation (EU)

No 1230/2012[1] or (EU) 2021/535[2]. A coupling device may not be attached to the lengthening piece.

3.1.3 Base plate structure

A structure in which a separate base plate attached to the body with bolted connections acts as a load-bearing structure may be strengthened by welding or by reinforcements attached with bolted connections.

3.2 Modification of the body structure

3.2.1 Modification of the body width

The bodywork of a vehicle put into service before 1 January 1998 may be widened by up to 200 mm. No changes may be made to the load-bearing structures of the vehicle that weaken their strength.

Vehicles put into service on or after 1 January 1998 may have their bodywork width altered only by the addition of a set of prefabricated wideners or other equivalent components intended for the vehicle.

3.2.2 Flip and removable front end

Flip front end refers to a structure where the vehicle's front mudguards and the front cover form a whole which opens up in one piece.

A removable front end refers to a structure where the vehicle’s front mudguards and the front cover form a whole which can be removed in one piece.

A flip or removable front end may be fitted to a vehicle put into service before 1 January 1998 if:

1) the vehicle was originally fitted with a frame, auxiliary frame, or frame housings bearing the main loads on the front axle;

2) the vehicle is confirmed to have a strength at least equivalent to that of the original by constructing a tubular frame in place of the inner mudguards or by other means if the mudguards to be removed, including the inner mudguards, have acted as load-bearing structures or stiffeners, and the strength of the modified structure is reported to the inspector;

3) the intrusion of reinforcement components and other modified structures into the driver's cab in the event of a collision is prevented in a manner at least equivalent to that of the original structure; and

4) the front end locking and potential pin-jointing shall be implemented without creating a risk of the front end opening up or becoming detached while driving.

3.2.3 Modifying the roof

The lowering of the roof of a vehicle put into service before 1 January 1998 shall be permitted on the following conditions:

[1] Commission Regulation (EU) No 1230/2012 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council with regard to type-approval requirements for masses and dimensions of motor vehicles and their trailers and amending Directive 2007/46/EC of the European Parliament and of the Council.
[2] Commission Implementing Regulation (EU) 2021/535 laying down rules for the application of Regulation (EU) 2019/2144 of the European Parliament and of the Council as regards uniform procedures and technical specifications for the type-approval of vehicles, and of systems, components and separate technical units intended for such vehicles, as regards their general construction characteristics and safety.

1) the extent to which it is lowered shall not exceed 16% of the height of the windscreen measured in the direction of the front pillar or 100 mm measured in the direction of the front pillar;

2) the front and middle bars may be tilted slightly by bending or cutting them off, provided that all nested profiles are welded and that welding reports and documentation on the intermediate stages are presented to the inspector;

3) the end bars may be tilted or cut off provided that all nested profiles are welded and that welding reports and documentation on the intermediate stages are presented to the inspector;

4) the viewing area through the windscreen shall meet the requirements which were valid during the commissioning of the vehicle.

When the roof is lowered, the roof may be extended and widened.

The roof of a vehicle put into service before 1 January 1998 may be raised on the same conditions as those set out above, provided that the modification does not significantly weaken the body structure.

3.2.4 Transforming a vehicle into a convertible

The transformation of the bodywork of a vehicle put into service before 1 January 1998 into that of a convertible of the same model generation shall be permitted on the following conditions:

1) The body and the potential bodywork or base plate shall be transformed in all terms into those of an equivalent convertible version and a similarity report on the technical differences between the saloon and convertible versions shall be submitted;

2) the strength of the windscreen frame shall be equivalent to the windscreen frame of the convertible version, and if this cannot be proven or if the convertible version had a roll bar, a roll bar shall also be installed in the altered vehicle, in which case the roll bar shall be identical to the original or to the provisions in Section 3.6; and

3) the outermost front seats shall have at least three-point seat belts and the other seats shall have at least lap belts or, if the vehicle also has three-point seat belts on the back seat, the modified vehicles shall also have at least three-point seat belts.

3.2.5 Bumpers

The bumpers of a vehicle put into service before 1 January 1998 may be modified or removed. In such a case, any sharp fastenings and other sharp elements resulting from the alteration work shall be removed.

Vehicle bumpers may be modified, irrespective of the date of entry into service of the vehicle, as necessary for the installation of authorised equipment in the vehicle. Compliance may be verified by an inspection carried out by an inspector.

3.2.6 Modification of an open cargo space

The length of the open cargo space of a vehicle in category N may be modified, but its rearmost part must extend longitudinally at least to the rearmost part of the body. The open cargo space may be widened by no more than 200 mm or narrowed by no more than 500 mm. The modification must be made in such a way that the lateral protection requirements that may apply to the vehicle are met and that the modification does not pose a special hazard to pedestrians.

3.2.7 Raising the body frame

Raising the body frame of a vehicle with a separate frame may be accepted with the dimensions specified in section 3.11.2, provided that it is done with metal or plastic raising pieces of sufficient strength and fasteners of at least the same dimensions and strength as the original fastening arrangement. The thickness of the raising pieces must be recorded in the register in connection with the modification inspection.

3.3 Body replacement

This section of the Regulation shall not apply to the replacement of a separate cargo basket on an N_2 category vehicle with a technically permissible maximum mass not exceeding 7 500 kg, as provided for in the Regulation of the Finnish Transport and Communications Agency on load compartments and securing loads.

3.3.1 Replacing the body frame

Replacing the body frame of a vehicle put into service before 1 January 1998 with a body belonging to the same generation of models shall be permitted on the following conditions:

1) the bodywork or base plate is equivalent to, or is reinforced to be equivalent to the original bodywork or base plate of the vehicle body; a similarity report shall be submitted on the equivalence of the bodyworks or base plates;

2) when an open body is installed in a vehicle, the outermost front seats shall have at least three-point seat belts and the other seats shall have at least lap belts; however, in seating positions that have previously been wearing three-point seat belts, these should also be worn after the change.

The bodywork of a car with a separate frame, which was put into service before 1 January 1998, may be replaced with a non-original prefabricated steel body frame and its components, provided that the replacement body, including its components, is originally intended for a car of the same model year or a newer one. The strength of the bodywork attachment and of the frame or baseplate shall be at least equivalent to that of the original bodywork attachment and the vehicle for which the bodywork is intended, and a comparison between the original and the vehicle undergoing the modification or strength calculations shall be presented during the modification inspection. In the case of the replacement of an open body originally equipped with a roll-bar, the vehicle undergoing the modification shall be fitted with a roll-bar corresponding to the original or complying with the requirements under section 3.6 above.

The seat belts shall meet the requirements in force on or after the date the vehicle was put into service.

3.3.2 Other body changes

The open cargo space of a vehicle in category N may be changed for another, but its rearmost part must extend longitudinally at least to the rearmost part of the body. The open cargo space may be widened by no more than 200 mm or narrowed by no more than 500 mm. The modification must be made in such a way that the lateral protection requirements that may apply to the vehicle are met and the modification does not pose a special hazard to pedestrians.

3.4 Doors and roof bars

The number of doors and roof bars on a vehicle put into service before 1 January 1998 may be altered within the scope of the model generation. In such a case, the potential frame and base plate shall be reinforced to correspond to the reference vehicle. The alterations made in connection with the transfer of the roof bars shall be documented along with the intermediate stages, and the documentation

shall be submitted during the alteration inspection. A similarity report shall be submitted on the differences between the vehicles.

3.5 Plastic parts

In the case of vehicles put into service before 1 January 1998, the shaped plates may be replaced with plastic ones, provided that the replacement component does not weaken the rigidity of the bodywork. The components shall be attached to the original fastening points or pin-jointing using, for example, locking pins with cotters or Dzus-type quick connectors for securely attaching the parts.

A vehicle put into service before 1 January 1998 may have its doors replaced with plastic ones, provided that the vehicle is equipped at least with a roll-bar as described in section 3.6, the longitudinal braces of which reach the doorways and provide protection for the driver and passengers in the event of a side impact.

3.6 Installing roll-bar or safety frame

A roll bar or safety frame, which does not impair the function of the passive safety equipment within the vehicle in accident situations and does not unreasonably hinder the exit from the vehicle, may be installed inside the vehicle.

The main arc of the roll-bar and the safety frame shall consist of a continuous tube to which other necessary pipes shall be connected by welding with a uniform seam.

The roll bar or safety frame shall be attached to the bodywork of the vehicle by welding, or to the base plate of the integral body in at least four points with at least four through-bolts with a diameter of 10 millimetres and of strength category 8.8. In this case, steel reinforcement plates which are at least 3 millimetres thick and 150 x 150 millimetres in size should be used on both sides of the base plate. The tubes of the roller bar or the safety frame should be connected to the reinforcement plate used inside the base plate by welding with a uniform seam.

Places in which the driver or passenger may be in contact with the roll bar or safety frame tube while the vehicle is in motion shall be padded with padding at least 5 millimetres in thickness.

The roll-bar shall have a main arch (Figure 1, A) consisting of a continuous tube, the height of which shall not be less than 850 millimetres from the driver's seat surface (Figure 2). The roll-bar shall have a horizontal tube located vertically approximately in the centre of the main arc. If the horizontal tube is used to fasten the seat belts, the safe operation of the belts in the event of an accident must be taken into account in the placement. The roll-bar shall have at least one rear-end support (Figure 1, D) symmetrically positioned in the longitudinal direction of the vehicle in the horizontal part or vertical part of the top of the main arch, not more than 130 mm from the upper surface of the main arc, and at least one front-end support (Figure 1, C) attached to the vertical tubes of the main arch at the height of the horizontal tube (Figure 1, B), extending over the entire length of the doorway. A roll bar other than the original roll bar shall be at least 42 mm in diameter and have a wall thickness of at least 2.5 mm, made of a cold-drawn seamless steel tube of circular profile or a tube of equivalent strength. By way of derogation from the minimum diameter of the tube prescribed above, the front diagonal supports (Figure 1, C) may have a diameter of at least 38 mm.

Figure 1: roll bar.

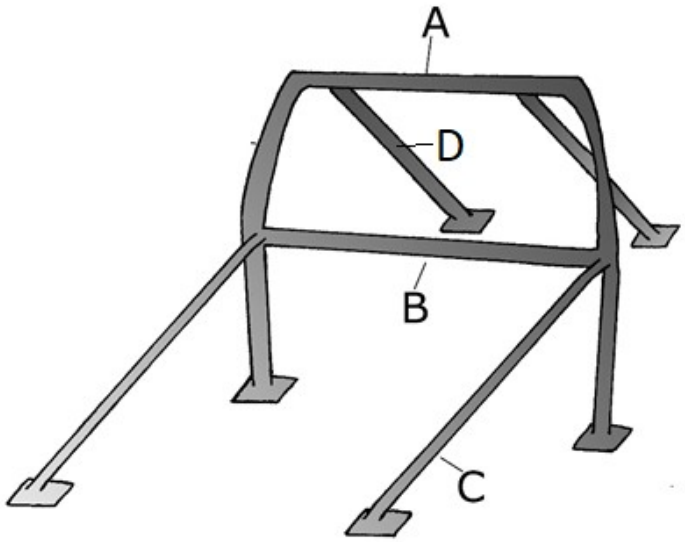
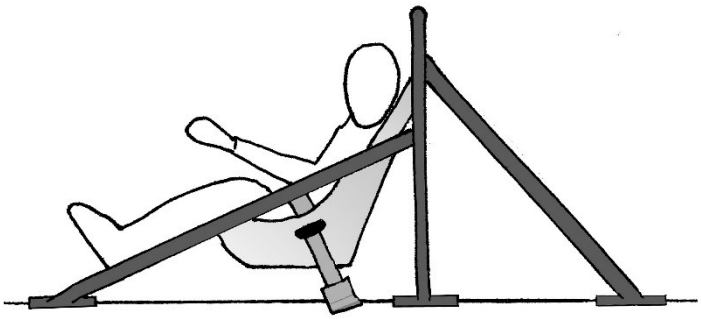


Figure 2: roll bar side projection.



Instead of a roll bar, a safety frame may be acceptable. The safety frame shall meet at least the requirements for a roll bar described above.

3.6.1 Fitting of safety belts with a roll bar or frame

The vehicle may be equipped with approved quick-release safety belts with at least three points if the vehicle is equipped with a roll bar or frame.

The belts may be attached to the original fixation points manufactured for this purpose. The belts may also be attached with a loop fastening to the roll-bar or safety frame or to a reinforced fastener 7/16-20 UNF with a threaded screw of at least strength class 10.9. The fittings shall be in a straight line to the towing direction, and the lateral belt fixation points should cover at least the width of the seats.

A reinforced fastening shall be a fixation point made to the base plate of the vehicle, which is reinforced by using on both sides of the base plate a steel wafer which is at least 3 millimetres thick and 40 cm^2 in size. If flat steel plates are used for the installation, the minimum thickness shall be 6 millimetres, and their edges shall be rounded to prevent the cutting off of belts.

No parts of the seatbelts shall be attached to the vehicle by bolting them through the seatbelts.

3.7 Seat change

Vehicle seats may be replaced by seats meeting the requirements at the time of entry into service.

Replacement of the seats shall not prevent access to the rear seat unless the seating positions of the rear seat of the vehicle are removed. The change shall take into account the potential impact on the classification of the vehicle.

A seat in a vehicle which is put into service on or after 1 January 1998 shall comply with the requirements of Directive 81/577/EEC or UN Regulation No 17 or, if the safety-belt is attached to the seat, with the requirements of UN Regulation 14.

The seats of a vehicle fitted with a side airbag shall not be replaced or fitted with seat covers which impair the operation of the airbags. However, seat fittings required by a driver or passenger with reduced mobility may allow the removal of a side airbag, provided that the modification does not interfere with other restraint systems or with the operation of the tell-tale of the airbag system. Information on the removal of the airbag shall be recorded in the register in connection with the modification inspection.

The seats shall be attached by bolting them through the base plate with at least four screws of strength category 8.8 which are at least 8 millimetres in thickness. The fastening shall be reinforced with a steel washer at least 3 millimetres thick and 40 cm^2 in surface area on both sides of the base plate.

3.8 Engine and exhaust system

3.8.1 Engine replacement and modification

The power of the vehicle engine may be increased by no more than 20 per cent compared to the original engine, or the vehicle engine may be replaced with an engine which is more powerful by no more than 20 per cent without rendering the vehicle similar to the reference vehicle.

The replacement of an engine with a more powerful engine than referred to above or increasing the power of the original engine by more than stated above is permitted under the following conditions:

1) the vehicle’s brakes, transmission and axles are at least equivalent to the reference vehicle and the anti-lock braking system corresponds to the anti-lock braking system required by the reference vehicle;

2) a report on the strength of any new or modified fasteners required for the replacement of the engine is provided, and the fasteners are appropriate;

3) if modifications apparently increasing the original power have been made to the engine, a power measurement certificate shall be submitted on the power of the modified engine.

If the vehicle is fitted with a charger, the power measurement certificate shall not be accepted if it indicates that the installation of the charger has not increased the power by more than 20 %. For the purpose of installing a series of amendments intended for a given engine, the certificate of maximum power issued by the manufacturer of the series of amendments shall be considered as an adequate report even if it provides for an increase in power of 20 per cent or less. In cases where the manufacturer of the series of amendments is not a well-known commercial manufacturer or, in other cases of doubt, a power measurement certificate shall be presented to the surveyor.

In the case of conversion of a vehicle to the reference vehicle as referred to in paragraph 2, or, if the modified vehicle is used as a reference vehicle, the ratio of the

unladen mass of the vehicle to the net engine power after the change shall not fall below the following limits:

1) when the ratio of the reference vehicle is no more than 20 kilograms/kW, it may be reduced to the value of 12 kilograms/kW with the converted vehicle;

2) when the ratio of the reference vehicle is no more than 20 kilograms/kW, it may be reduced to the value of 10 kilograms/kW with the converted vehicle;

3) when the ratio of the reference vehicle is no more than 15 kilograms/kW, it may be reduced to the value of 7 kilograms/kW with the converted vehicle;

4) when the ratio of the reference vehicle is no more than 10 kilograms/kW, it may be reduced to the value of 5 kilograms/kW with the converted vehicle;

5) when the ratio of the reference vehicle is no more than 5 kilograms/kW, it may be reduced to the value of 4 kilograms/kW with the converted vehicle.

For the purposes of paragraphs 1 to 5, the ratio between the mass and power of the reference vehicle shall be established from the type-approval data or the similarity report. The unladen mass of the modified vehicle shall be checked at the time of the change test by weighing and a power measurement certificate shall be presented for the modified engine; the net power of the engine is considered to be the equivalent of the power under the *DIN* standard, the power under the *SAE Net* standard, multiplied by 0.9, or the power under the*SAE Gross* standard, multiplied by 0.7.

Changing the cylinder head of a different type is considered to increase the engine power in relation to the displacements of the engine from which the cylinder lid to be replaced comes.

A power measurement certificate shall not be required if the carburettor or carburettors are replaced with fuel injection equipment which is considered to increase engine power by 10 per cent, or if a petrol vehicle is transformed into a vehicle mainly using fuel consisting of ethanol, or liquid, natural, or wood gas.

3.8.2 Exception to the power to weight ratio

Notwithstanding the regulations on the power to weight ratio in Section 3.8.1, the installation of an engine with the maximum power of 100 kW is also permitted in vehicles with a rigid or separately suspended rear axle and separately suspended front axles and a separate bodywork.

for vehicles originally equipped with a U profile bodywork, it is required that frame beams are modified to a structure with a rectangular profile, using the material equivalent to the original material, and that an additional x support, made of steel, is installed between the frame beams.

By way of derogation from 3.1.2 above, a change may be made without the manufacturer’s instructions if the vehicle was put into service before 1 January 1980. In addition, the vehicles shall be equipped with a two-line braking system and the front axles shall be equipped with disc brakes.

3.8.3 Exhaust emissions after engine replacement or modification

After a change in the propulsion of the vehicle, the exhaust emission requirements for the vehicle shall be met as prescribed in section 6.

After the replacement or modification of the engine and the installation or modification of the engine control software, the exhaust emissions shall comply with the exhaust emission requirements applied in the exhaust emission inspection, corresponding to the inspection in a periodic roadworthiness test, carried out in conjunction with the modification inspection. However, if the vehicle is not subject to an in-service emission measurement due to its age or design, a visual inspection by the

modification inspector shall be sufficient to demonstrate compliance with the emission requirements.

In addition to inspecting exhaust emissions as in a periodic roadworthiness test, a vehicle put into service on or after 1 September 2009 must be shown to comply with the exhaust emission requirements applied to the approval of the vehicle at the time of its entry into service or at a later date.

Even if the engine control software of a vehicle that has entered into service on or after 1 September 2009 undergoes major changes beyond the vehicle manufacturer's updates or if a separate software accessory is installed in the vehicle without a change in the vehicle's propulsion power, the vehicle's exhaust emissions after the change shall comply with the approval requirements applied at the time of the vehicle’s entry into service and the engine power shall comply with the requirements stated in section 3.8.1.

3.8.4 Modification of the exhaust system

Major modifications to the exhaust system of the vehicle, such as the installation of a silencer or silencers, and removal of the original silencer(s), as specified in paragraph 2.5.1. is permitted if the vehicle complies with the requirements of paragraphs 3.8.3 and 3.8.5 of this Regulation in the alteration inspection and does not endanger road safety.

A catalytic converter may be installed, but the catalytic converter originally installed in the vehicle may not be removed. The catalytic converters and the sensors and exhaust clean-up systems within the exhaust system shall be duplicated if the exhaust system is duplicated before installing these devices.

3.8.5 Measuring vehicle noise

Requirements for noise are deemed to be met if the stationary noise level measured according to measurement method A of ECE Regulation 51 does not exceed the threshold values given in Table 1. As for vehicles put into service on or after 1 January 2001, the noise value shall not exceed by more than 3 dB(A) the original noise value specified by the manufacturer. The ambient conditions need not comply with the UNECE Regulation. A sound level meter may be used as a measuring instrument in accordance with the Regulation of the Finnish Transport and Communication Agency on the premises and equipment of a vehicle inspection centre. For measurements, a windscreen shall be used on the sound pressure level meter.

Engine location	**Limit value**
Front engine	98 dB (A)
Mid-engine	103 dB (A)
Rear engine	103 dB (A)

Table 1. Threshold values for noise measurement.

3.8.6 Modifying the engine location

A minor longitudinal and vertical modification of the position of the vehicle's engine by means of brackets may be approved in the modification inspection, provided that the direction of installation is not altered.

3.9 Power train

A vehicle put into service before 1 January 1998 may have its drive system modified if axles, wheel suspension devices, suspension components, and transmission components suitable for the vehicle and intended for a vehicle with a maximum authorised mass equal to or greater than the maximum authorised mass are used in the modification. The parts used for the modification shall, except for the fastenings, be factory-manufactured.

3.10 Axles and the underframe

The modifications described in this section shall be permitted for vehicles put into service before 1 January 1998.

The replacement of axles or parts of the axles with axles of a vehicle of the same model generation, axles intended for a vehicle of the same model generation and axle parts, or with axles or axle structure modification parts intended for vehicles whose basic axle type is equivalent to the vehicle, shall be permitted if:

1) the axles, axle parts or parts modifying the axle structure to be installed in the vehicle are intended for a vehicle at least similar to the vehicle modified in terms of its axle mass or the axle mass permitted by the manufacturer, and in terms of its power;

2) except for the fastenings, the axle parts or parts modifying the axle structure to be replaced or added to the vehicle shall be factory-manufactured and suitable for use in the vehicle modified for general road transport; a similarity report on the matter shall be submitted in connection with an alteration inspection;

3) the track width does not change by more than 100 millimetres;

4) the potentially required new fastenings for control arms or springs, or the axles as a whole, will be attached to the bodywork bars of the vehicle, or other structures with sufficient strength; and

5) in connection with the alteration inspection, a welding report will be submitted, as well as a report on the strength of the modified structures and independently manufactured fastenings.

Lengthening or shortening the axle spread or removing an axle or installing an axle identical to that in the reference vehicle shall be permitted. The modification shall be made according to the vehicle manufacturer’s instructions.

The modifications shall take into account the impact on brakes, see Section 3.12 of the regulation.

The rigid axle of the vehicle may be narrowed if the change results in a reduction of the track width by a maximum of 400 millimetres. A welding report must be submitted in the modification inspection.

3.11 Steering equipment and suspension

3.11.1 Steering equipment

The modifications referred to in this section shall be permitted for vehicles put into service before 1 January 1998.

Swivel axles, track rods, steering-knuckle arms, steering gear parts, the steering spindle and steering wheel as well as other comparable parts whose breakage or transformation may cause traffic accidents may not be repaired or modified by welding or by other means impairing their strength.

The replacement of parts of the steering equipment may be approved in an alteration inspection if:

1) they belong to axle entity that is in the vehicle or will be replaced in it, or correspond as concerns their functional dimensions to the steering gear parts in the axle entity in the vehicle or to be replaced in the vehicle;

2) the parts of the steering equipment to be installed in the vehicle are intended for a vehicle whose axle weight or the axle weight permitted by the manufacturer is at least equivalent to the vehicle to be modified;

3) the steering gear to be installed in the vehicle shall be attached using a bolted connection in an original fixation point in the body of the vehicle, the bodywork bar or another structure of sufficient strength, or to a fastening manufactured for this purpose and attached to one of the items above; a report on the strength of independently manufactured fastenings and a potential welding report shall be submitted;

4) the steering shaft is articulated if the steering gear to be installed is further along than the original; and

5) the collapsing or articulated steering spindle is not replaced with a rigid one.

A steering damper and power steering may be installed in the vehicle provided that these devices are suitable for the vehicle and that the modification does not significantly increase stress on the steering device or restrict the steering trajectories. If the vehicle was originally equipped with a steering shock absorber or power steering, the device in question shall not be removed, unless the vehicle is identical to a vehicle approved without the device in question after the modification.

3.11.2 Suspension

The height of the vehicle's underframe may be modified using factory-made lowering or raising springs, lowering and raising elements, portal axles, air suspension, additional air springs or height-controllable underframe sets suitable for the vehicle. The suitability shall be certified by the component manufacturer or by the designated technical service. The height may also be modified by forging springs, and by replacing and installing lowering and raising elements between the spring and the axle or the spring fixation point on the body side.

The original suspension type of vehicle may be modified by using a modification set which, except for the fastenings, shall be factory-manufactured and suitable for the vehicle modified.

Any change in the height of the vehicle shall take into account that the height requirements for lamps and other equipment are met after the change.

After the height of the underframe is modified, the ground clearance of the unloaded vehicle shall be at least 80 millimetres. The increase in the overall height of the vehicle, together with any increase in bodywork size and tyre modification, shall not exceed 100 mm, of which no more than half may be made by means other than by increasing the size of the tyres, but not more than 150 mm in the subcategories of off-road vehicles, and of which at most half may be made by means other than by increasing the size of the tyres. The increase should be symmetrically longitudinal and lateral.

When modifying the height of the underframe of a vehicle equipped with a load sensing valve, the valve shall be adjusted to the modified height.

Requirements for the high modifications of vehicle underframes:

1) the distribution of the braking forces of vehicles equipped with a load sensing valve shall be inspected by carrying out a test drive and by performing a rolling road dynamometer test in an inspection;

2) No additional springs shall be fitted to a vehicle equipped with a load sensing brake valve;

3) the tyres may not hit the structures of the vehicle in any steering or suspension position;

4) the shock absorbers may not restrict the suspension when there is no more flexibility, unless they are equipped with suspension restriction rubber bands intended for this purpose;

5) the replaced helical springs shall be suitable for the spring plates, and the springs may not become detached from the spring plates even after the axles have been lightened.

The installation of an underframe set adjustable by hand tools is permitted if:

1) as a result of the modification, the vehicle is symmetrical both horizontally and in terms of length and width;

2) height adjustment is possible on both sides of the axle;

3) the installation height at which the operation of the vehicle's brakes and the distribution of braking forces have been checked in a modification inspection is recorded in the vehicle registration data of a vehicle equipped with a mechanical load-sensing brake valve.

The installation of an underframe set adjustable otherwise than by hand tools is permitted subject to the following conditions:

1) the adjustment of the underframe set must result in the equal adjustment of both axles so that the vehicle cannot be adjusted unilaterally in the longitudinal or lateral direction;

2) the underframe set shall not be adjustable while driving, except for the factory-manufactured underframe set intended for the vehicle to be modified, which is intended to be adjusted while driving and which has been installed according to the manufacturer’s instructions;

3) the underframe set is not installed in a vehicle equipped with a mechanic load sensing valve.

3.12 Brakes

Modifications as referred to in this section shall be permitted for vehicles put into service before 1 January 1998. The modifications referred to in this section shall be permitted in the case of a vehicle put into service on or after 1 January 1998 which is not equipped with electrical safety devices which act on the brakes.

The vehicle’s fluid-operated brakes may be replaced if:

1) the brakes are more efficient than the original brakes and are derived from a vehicle or intended for a vehicle whose axle weight, or axle weight permitted by the manufacturer, and engine power are at least equivalent to those of the vehicle modified;

2) the brake caliper or brake plate is attached with bolted connection directly or using a fitting piece to the swivel axle or other similar elements, or the rear axles; a strength calculation for independently manufactured fitting pieces must be presented to an inspector;

3) the functional dimensions of the brake master cylinder are suitable for the braking system; where necessary, a boost should be used;

4) the fastenings of the brake pedal and the brake master cylinder shall be at least equivalent to the original;

5) as a result of the modification, the distribution of the braking force between the axles is not impaired compared to the original; in order to achieve the correct distribution of the braking force, an adjustment valve affecting the brakes in an axle-specific manner may be removed from or installed in the braking system; the adjustment valve installed may not be adjustable while driving;

6) an anti-lock brake system other than one installed as an accessory shall not be removed, and the disc brakes shall not be replaced with drum brakes which are not components of the reference vehicle.

A factory-manufactured hydraulically operated parking brake intended for the vehicle model may be approved in connection with an alteration inspection. The vehicle shall be equipped with a mechanically operated factory-manufactured parking brake.

A single-line braking system may be transformed into a two-line braking system by replacing the original brake master cylinder with a brake master cylinder for a two-line braking system with equivalent installation dimensions and other dimensions affecting its operation. In this case, the braking lines shall be distributed in the same way as in vehicles for which the brake master cylinder is intended. Where necessary, the other modifications required by the new brake master cylinder for the old braking system shall also be made.

In connection with axle modifications, no additional connections or extensions must be created for the braking transmission system devices.

3.13 Tyres and rims

Modifications to the vehicle's rims and tyres must be made so that after the modifications, the tyres do not come into contact with the other vehicle structures in any steering or suspension positions. In terms of shape and dimensions, the tyres and rims shall be compatible with one another according to STRO or ETRTO standards, or according to the notification from the tyre manufacturer. Tyre changes must be carried out in such a way that the requirements for spray protection are met.

The replacement of rims or related rim components shall not result in a change of more than 30 millimetres from the original in the track width of each axle of the vehicle, unless otherwise specified by the vehicle manufacturer. The rims shall be suitable for the wheel hubs and the axle weights. Rims with oval bolt holes, suitable for different pitch circles, may not be fitted to a vehicle. Fitting pieces intended by the vehicle or rim manufacturer only may be installed between the vehicle wheel hub and rim.

The structure of the rims shall not be altered unless the manufacturer of the rims has provided specific instructions for the modification.

The tyre outer diameter refers to the normal diameter indicated for the tyre size concerned according to the STRO or ETRTO tyre standards. The tyre outer diameter may be modified compared to the original tyre by no more than 15 per cent. When modifying the tyre's outer diameter, any speed limitation device and tachograph shall be calibrated, and where necessary, the speedometer readout should be corrected.

An alternative tyre size altering the dynamic rolling radius of the tyre can be recorded for the driving axle only in vehicles which do not require a speed limitation device or a tachograph. The modification inspection may approve the modification of the tyre width by no more than 50% or 105 millimetres compared to the widest tyre indicated by the manufacturer, whichever value is greater.

The tyre sizes to be accepted in the change roadworthiness test and the tyres accepted as an alternative tyre size for the vehicle in the change roadworthiness test shall be entered in the register, which limit the permissible mass on the axle in use to less than the technically permissible mass on the axle. However, tyres limiting the permissible axle mass in use to less than the technically permissible axle mass shall be such that it is possible to load the entire vehicle to the permissible mass on the road without exceeding the load capacity of the tyres. Altered axle masses shall be recorded in the register.

3.14 Electrical safety equipment

A vehicle's electrical safety equipment shall not be modified or removed unless otherwise provided for or stipulated in this Regulation or other provisions.

An electrical safety device may be removed if the requirements in force at the time of the vehicle's first entry into service do not apply to it and, insofar as the electrical safety device is concerned, the vehicle is modified to correspond to a reference vehicle not equipped with the electrical safety device. The removal of electrical safety equipment shall not interfere with the operation of other systems or result in a failure signal. Information on the removal of the electronic safety equipment shall be recorded in the register in connection with the modification inspection.

3.15 Software

The requirements for software modifications with regard to exhaust emissions and engine power are specified in paragraphs 3.8.1 and 3.8.3.

Software changes affecting the steering, braking and safety of the vehicle are permitted, provided that the modified vehicle conforms to the type-approved vehicle manufactured by the same manufacturer as regards the altered system and its closely related systems. Conformity shall be demonstrated by a vehicle manufacturer's certificate stating at least:

1) identification of the software installed;
2) which type-approval vehicle conforms to the modified vehicle type with regard to modifications;
3) the system(s) covered by the certificate;
4) what electrically controlled systems other than those referred to in sub-paragraph 3 above must be in place in the vehicle in order for the modified vehicle to operate as intended by the manufacturer;
5) how to identify the software version of the modified vehicle;
6) how the user is informed about the features, faults and correct use of the system.

The vehicle manufacturer's certificate of conformity shall be recorded in the Transport Register. The manufacturer's certificate shall contain the VIN of the vehicle to be amended or the type-approval number, variant and version of the vehicle to be modified, or any other means of identification to ensure that the certificate relates to the modified vehicle.

By way of derogation from the above, the following modifications may be made without a modification inspection:

1) bug fixes approved by the vehicle manufacturer;

2) software updates approved by the manufacturer that do not increase the vehicle's emissions or impair its steering, brakes, or safety;

3) software updates approved by the vehicle manufacturer, if the vehicle conforms to a type-approved vehicle produced by the same manufacturer as regards the system modified by the software update and its closely related systems.

3.16 Lights

The positioning, the number and the properties of vehicle lights shall, after the modifications made to the vehicle, meet the requirements valid during or after the commissioning of the vehicle.

3.17 Windscreen and other windows

The windscreen and front side windows shall have a minimum light transmittance of 70 %. Film may not be applied to the windscreen or the front windows. The windscreen and the front side windows shall not be otherwise modified or covered in such a way as to reduce their light transmittance.

If replacement of the windscreen requires a re-calibration of the electronic safety equipment, the change must be approved in a modification inspection, which must include a statement on the functionality of the systems from the person performing the calibration. However, a windscreen may be replaced with one corresponding to the original, and the calibration of the electrical safety equipment required by the change may be performed with no need for a modification inspection.

In the case of a structural change to the vehicle resulting in reduced rearward visibility, a right-hand rear-view mirror providing adequate rearward visibility shall be provided.

If rearward visibility is impaired by the installation in the vehicle of a type-approved rear window having a light transmittance of at least 70%, a right-hand rear-view mirror is not required on the vehicle if one is not required based on the time of the vehicle's entry into service. If the rear window of the vehicle is fitted with the required centre stop lamp as mandatory on the vehicle, the light transmittance of the rear window shall be at least 70 % for the lamp.

3.18 Vehicle category

Changing a vehicle's category requires the vehicle to comply with the requirements of the new category in force at the time of its first entry into service or at a later date.

The classification of a vehicle is based on the Vehicles Act and the Framework Regulation for cars and their trailers or its the definitions given in earlier legislation.

A change of classification shall be based on clear structural changes or a concurrent classification made by the manufacturer, indicated either in the vehicle type data, in the type approval data or on the manufacturer’s certificate.

3.18.1 Transforming a passenger car into a utility car

A passenger car may be converted into a van under the conditions laid down in this and point 3.18.

The van's load capacity for goods shall be equal to or greater than the permissible passenger load of the vehicle.

Passenger cars modified into vans shall have a concurrent utility van classification provided by the manufacturer, and the classification shall be indicated either in the vehicle type data, the type approval data or a certificate issued by the manufacturer. No separate classification marking or the existence of a concurrent classification is required For AC (*station wagon*) or AF (*multi-purpose vehicle*) body type vehicles under the Framework Regulation on cars and their trailers, however.

If seating positions are removed from the vehicle, the seat anchorages shall be removed, welded or broken bolts by locking and removing the seats.

3.19 Building maintenance equipment

Building maintenance equipment to be fitted temporarily to a vehicle and structures intended for their attachment may be approved in a modification inspection.

If the operation of the vehicle's electrical safety equipment is hindered by the building maintenance equipment or the structures for its attachment, the building maintenance equipment and the structures for its attachment may be approved in a modification inspection if they are installed in accordance with the vehicle manufacturer's instructions and a statement by the vehicle manufacturer on how the installation of the building maintenance equipment and the structures for its attachment

must be carried out in order to minimise the interference with the operation of the electrical safety equipment is presented in the modification inspection.

The change in the width of the vehicle caused by building maintenance equipment and its attachments shall not exceed 500 mm. The dimensions generally permitted for the vehicle on the road shall not be exceeded, however.

The installation of building maintenance equipment may cause the vehicle to exceed the maximum permissible axle mass recorded in the register with the consent of the vehicle manufacturer. The vehicle manufacturer's certificate of the manufacturer's agreement to exceeding the registered axle mass and the conditions that apply to that agreement shall be presented in the modification inspection.

Information on the building maintenance equipment intended for temporary fixing to the vehicle and the conditions that apply shall be entered in the vehicle's registration data in the modification inspection.

3.20 High-voltage system

Replacing the traction battery of an electric or hybrid vehicle with a non-original battery intended for the vehicle by the manufacturer may be approved in a modification inspection if a certificate issued by the vehicle manufacturer on the suitability of the traction battery for that vehicle is presented. The information related to the change shall be recorded in the register in the modification inspection.

4 Modifying the structure of vehicles with a technically permissible maximum mass exceeding 7500 kg

The provisions of this section and its sub-paragraphs apply to vehicles of categories M_1, N_2, N_3, M_3 and comparable vehicles entered in the register in the category ‘other’ with a technically permissible maximum mass exceeding 7 500 kg.

The amendments listed in this paragraph and its sub-paragraphs shall require a review of the amendment, unless otherwise provided for in this provision. The conformity of the amendments provided for in this section and its sub-paragraphs may be verified by an inspection carried out by an inspector, unless otherwise specified below.

4.1 Bodywork

The bodywork may be modified only according to the instructions provided by the manufacturer. The welding seams created in connection with bodywork modifications shall be presented to the inspector without surface treatment, zinc coated, or painted.

Connection devices shall be attached to the vehicle according to the vehicle manufacturer’s and connection device manufacturer’s instructions.

4.2 Modification of the body structure

Any changes relating to the load body shall be presented in the alteration inspection in accordance with the provisions on load bodies and securing the load.

Modification of the driver’s cab on a vehicle put into service on or after 1 January 1980 is permitted in accordance with the manufacturer’s instructions. Modification of the cab of a vehicle put into service before 1 January 1980 is permitted if, after the changes have been made, the cab is at least as strong as the original structure and the modification does not affect road safety.

After a change to the body structure, the vehicle shall comply with the requirements for underrun protection and lateral protection in force at or after the date of the vehicle’s entry into service.

4.3 Engine and exhaust system

4.3.1 Engine modification or replacement

The engine and engine of a power not exceeding the original engine power or of a different cylinder capacity shall be changed to the vehicle.

As a result of modifying or replacing the engine in connection with other than those referred to in the above in section 2.5, the vehicle power may increase by no more than 20 per cent compared to the reference vehicle, under the following conditions:

1) the vehicle's brakes, transmission and axles are at least equivalent to the reference vehicle and the standard anti-lock braking system, if any, corresponds to the anti-lock braking system of the reference vehicle;

2) a report on the strength of any new or modified fasteners required for the replacement of the engine is provided, and the fasteners are appropriate;

3) if the engine has undergone modifications that appear to affect engine power, a power measurement certificate shall be presented for the modified engine power;

4) an explanation of the power of the unchanged engine to be replaced by the vehicle shall be provided.

Replacing a cylinder head with another type of cylinder head is comparable to replacing the engine, and in terms of engine capacity, the power of the replaced engine is considered equivalent to the power of the engine from which the cylinder head to be installed in the vehicle is derived, unless otherwise proven in a power measurement certificate.

The installation of an air compressor or compressed air cooler or the modification of an engine equipped with an air compressor shall be considered comparable to engine replacement; however, not so the modification of a petrol engine equipped with an air compressor into an engine mainly using fuel consisting of ethanol.

A modification of the vehicle engine software is permitted if the components or software potentially used for the modification have been approved for motor in question, and the meeting of vehicle emissions is demonstrated in accordance with section 4.3.2.

If the engine of the vehicle is changed, a power measurement certificate shall be provided for the modified engine. However, the power measurement certificate does not need to be presented for the changes in point 2.5, for changes made to reduce exhaust emissions as referred to in paragraph 4.3.2(6), or if a petrol-fuelled vehicle is converted to a fuel composed mainly of ethanol, or LPG, natural gas or wood gas.

4.3.2 Exhaust emissions after engine replacement or modification

The original exhaust emission level may not be increased due to modifying or replacing the engine.

A vehicle put into service on or after 1 October 2000 shall, after modification or replacement of the engine, demonstrate compliance with the exhaust emission requirements applicable at the time of entry into service or subsequent to the vehicle approval. In addition, the vehicle shall comply with the in-service exhaust emission requirements in the exhaust gas measurement carried out in connection with the change survey.

Where a vehicle entered into service on or after 1 October 2000 is replaced with a unchanged engine intended for a vehicle of the same type and corresponding to the emissions requirements, with all structures and devices directly affecting the emissions, it shall be sufficient to demonstrate compliance with the exhaust emission re-

quirements in the case of a change review exhaust gas measurement at the time of entry into service.

A vehicle which has been put into service before 1 October 2000 after modification or replacement of the engine shall comply with the in-service tailpipe emission requirements for the exhaust emissions measurement carried out in the context of the change survey. However, if the vehicle is not subject to an in-service emission measurement on account of its age or design, even in the periodic roadworthiness test, a visual inspection by the change surveyor shall be sufficient to demonstrate compliance with the emission requirements.

The devices or systems affecting emissions which have been installed in the vehicle in connection with the manufacturing process, such as urea spraying equipment, may not be subsequently modified or removed without an indication that the vehicle continues to meet the emission requirements applicable to approval at the time of entry into service of the vehicle even after the modifications.

A vehicle may be fitted with type-approved retrofit exhaust gas cleaning systems according to UN Regulation 132. If the system type-approval indicates that the system changes the exhaust emissions of the engine to the more stringent emission class, the changed emission level shall be recorded in the vehicle registration data in the change survey. Otherwise, only the data of the installed cleaning system shall be recorded in the vehicle registration data.

If modifications other than those approved by the vehicle manufacturer are made to the vehicle's engine control software, or if an additional, separate device affecting the software is installed in the vehicle with no modification of the vehicle's propulsion force, after the modification, the vehicle must meet the emission requirements in force at the time of the vehicle's entry into service and applied to its approval, and the engine power shall meet the requirements stated in section 4.3.1.

In the exhaust system, the section of the system downstream of the devices affecting emissions and noise may be modified without a report on compliance with the requirements on emissions and noise. When installing the heat platform, the exhaust gases must not be discharged until after the last silencer.

4.3.3 Measurement of vehicle noise

After engine replacement or modification, or after modification of the exhaust system, the vehicle shall be deemed to comply with the noise requirements if the stationary noise level measured according to measurement method A of ECE Regulation 51 does not exceed the threshold values given in Table 2. However, for vehicles put into service on or after 1 January 2001, the noise value shall not exceed by more than 3 dB(A) the original noise value specified by the manufacturer. The ambient conditions need not comply with the UNECE Regulation. A sound level meter may be used as a measuring instrument in accordance with the Regulation of the Finnish Transport and Communication Agency on the premises and equipment of a vehicle inspection centre. For measurements, a windscreen shall be used on the sound pressure level meter.

Engine location	**Limit value**
Front engine	98 dB (A)
Mid-engine	103 dB (A)
Rear engine	103 dB (A)

Table 2. Threshold values for noise measurement.

4.4 Power train

The type of drive may be modified if the modification uses axles, suspension system devices, suspension parts and power train parts suitable for the vehicle whose maximum permitted mass is intended for vehicles which are at least as large. The parts used for the modification shall, except for the fastenings, be factory-manufactured.

4.5 Axle, axles and underframe

The axle structure of the vehicle may be modified, and the distance between the axles may be altered. An additional axle or axles may be installed in the vehicle. An axle or axles may be removed from the vehicle. Modifications to vehicles commissioned on or after 1 January 1980 shall be made according to the manufacturer's instructions which must be presented in an alteration inspection.

In connection with axle modifications, a theoretical braking calculation shall be submitted for a vehicle equipped with pneumatic brakes, and a brake inspection equivalent to that performed in connection with a periodic roadworthiness test shall be carried out on the vehicle. However, a report on the conformity of the brakes of a vehicle entered into service on or after 1 January 2010 or equipped with a hydraulic braking system shall be carried out in accordance with the provisions applicable to the approval of the vehicle on the basis of the car order or the preceding date of entry into service of the vehicle.

In connection with the axle modifications of vehicles equipped with an anti-block or electrically controlled braking system, a certificate issued by the manufacturer on whether software updates have been made in connection with the modification, and on the functionality of the systems, such as electrically controlled brakes, the traction control system, electronic stability control, lane departure warning and the developed emergency braking systems after the modification, must be presented. The requirements of Sections 4.9 and 4.11 of the regulation shall be taken into account in connection with modifications.

The underframe manufacturer's certificate shall be submitted on the pre-requisites for implementing an axle modification and on the changed masses. The data on the nameplate alone are not considered sufficient.

To check the appropriateness of modifications requiring welding, a welding report issued by the party carrying out the modification work shall be submitted in an inspection.

4.6 Steering equipment and suspension

Modifications to the vehicle steering equipment, such as the replacement of the steering equipment, the steering gear and the steering box be different from the original, as well as adding and removing a steering or a steered axle, shall be implemented according to the vehicle manufacturer's instructions, and a report by the party carrying out the modification work on the appropriateness of the modifications shall be submitted. The conformity of the vehicle after the modifications shall be demonstrated on the basis of the car order or the preceding date of entry into service of the vehicle in accordance with the applicable provisions.

Modifications to the suspension type shall be made using the modification kit suitable for the vehicle being modified and its weight. Except for the fastenings, the kit shall be factory-manufactured.

4.7 Brakes

Modifications of the braking system shall be carried out in such a way as to meet the requirements laid down for the brakes. If the braking system contains complex electronic systems, it must be shown that the other systems related to the operation of the braking system also meet the requirements after the modification.

Following modifications to the functional dimensioning of the parts of the vehicle's pneumatic brakes, compliance of the brakes with requirements shall be verified in a braking inspection equivalent to that performed in connection with a periodical inspection, and through theoretical calculation of the operation of the brakes. However, a change in the conformity of the brakes of a vehicle entered into service on or after 1 January 2010 and of a vehicle equipped with an electrically controlled

brake shall be provided as required by the approval at the time of entry into service of the vehicle.

The load sensing brake valve of a vehicle may be removed if:

1) the total weight of the vehicle and the ratio between the axle weights equivalent to an empty vehicle do not exceed five thirds; or the vehicle is equipped with an anti-lock brakes;

2) the vehicle is not used to tow a trailer of category O_3 and O_4;

3) the vehicle was commissioned before 1 January 1990; and

4) the manufacturer's instructions for modifying the brakes, and a report by the party carrying out the modification work, confirming that the modifications were made according to the manufacturer's instructions, shall be submitted for the modification.

The vehicle registration data shall indicate that the use of the vehicle for towing a trailer in category O_3 and O_4 without an anti-lock braking system is prohibited.

The modification or removal of the parking brake on a given axle must be performed according to the vehicle manufacturer's instructions, and information on the modification shall be indicated in the register. Where necessary, the register entries on the maximum permitted weight of vehicles and vehicle combinations shall be updated.

4.8 Tyres and rims

The tyre sizes to be accepted in the change roadworthiness test and the tyres accepted as an alternative tyre size for the vehicle in the change roadworthiness test shall be entered in the register, which limit the permissible mass on the axle in use to less than the technically permissible mass on the axle. However, the tyres must be such that loading the entire vehicle up to the mass permissible for the vehicle on the road is possible without exceeding the load-bearing capacity of the tyres. Altered axle masses shall be recorded in the register.

An alternative tyre size altering the dynamic rolling radius of the tyre can be recorded for the driving axle only in vehicles which do not require a speed limitation device or a tachograph.

The structure of the rims shall not be altered unless the manufacturer of the rims has provided specific instructions for the modification. In connection with tyre modifications, the requirements for the splash-head and the spray-suppression system shall be met, and the vehicle tyres may not hit the vehicle structures at any steering angle or at any stage of the suspension.

4.9 Electrical systems

The electrical safety devices in the vehicle may not be modified or removed unless otherwise indicated in this regulation. An electrical safety device may be removed if the requirements in force at the time of the vehicle's first entry into service do not apply to it and, insofar as the electrical safety device is concerned, the vehicle is modified to correspond to a reference vehicle not equipped with the electrical safety device. The removal of electrical safety equipment shall not interfere with the operation of other systems or result in a failure signal. Information on the removal of the electronic safety equipment shall be recorded in the register in connection with the modification inspection. However, an electric safety device may be removed if the vehicle did not have the system concerned when it was put into service, and if the safety device concerned is not mandatory.

Modifications to the vehicle's electronic systems may not impair the operation of complex electronic systems. The manufacturer's report on the operation of the sys-

tems after the modifications shall be submitted in connection with an alteration inspection.

4.10 Lights

The positioning, the number and the properties of vehicle lights shall, after the modifications made to the vehicle, meet the requirements valid during or after the commissioning of the vehicle.

4.11 Software

The requirements for software modifications with regard to exhaust emissions and engine power are specified in paragraphs 4.3.1 and 4.3.2.

Software changes affecting the steering, brakes, and safety of the vehicle shall be permitted, provided that the modified vehicle conforms to the type-approved basic vehicle manufactured by the same vehicle manufacturer in respect of the modified system and its essential components. Conformity shall be demonstrated by a vehicle manufacturer’s certificate stating at least:

1) identification of the modified vehicle;
2) identification of the software installed;
3) which type-approval vehicle conforms to the modified vehicle type with regard to modifications;
4) the system(s) covered by the certificate;
5) what electrically controlled systems other than those referred to in subparagraph 3 above must be in place in the vehicle in order for the modified vehicle to operate as intended by the manufacturer;
6) how to identify the software version of the modified vehicle;
7) how the user is informed about the features, faults and correct use of the system.

The vehicle manufacturer's certificate of conformity shall be recorded in the Transport Register.

The manufacturer’s certificate shall contain the VIN of the vehicle to be amended or the type-approval number, variant and version of the vehicle to be modified, or any other means of identification to ensure that the certificate relates to the modified vehicle.

By way of derogation from the above provision, the following may be carried out without a modification inspection:

1) bug fixes approved by the vehicle manufacturer;

2) software updates approved by the manufacturer that do not increase the vehicle's emissions or impair its steering, brakes, or safety;

3) software updates provided by the vehicle manufacturer, if the vehicle conforms to a type-approved vehicle manufactured by the same manufacturer with regard to the system modified by the software update and the systems essentially related to it.

4.12 Windscreen and other windows

The windscreen and front side windows shall have a minimum light transmittance of 70 %. No film shall be fitted on the windscreen and the front side windows. The windscreen or the front side windows shall not be otherwise modified or covered in such a way as to reduce their light transmittance.

If the replacement of the windscreen requires a re-calibration of the electronic safety equipment, the vehicle shall be presented for a modification inspection after the change, which shall include a statement on the functionality of the systems by the person carrying out the calibration. - However, a windscreen may be replaced

with one corresponding to the original, and the calibration of the electrical safety equipment required by the change may be performed with no need for a modification inspection.

4.13 Vehicle category

Changing a vehicle's category requires the vehicle to comply with the requirements of the new category in force at the time of its first entry into service or at a later date. The classification of a vehicle is based on the definitions in the Vehicles Act and the Framework Regulation on motor vehicles and their trailers or earlier legislation. The change of classification shall be based on clear structural changes or a parallel classification by the manufacturer, either in the vehicle type data, in the type approval data or in the manufacturer’s certificate.

4.14 Road maintenance equipment

Road maintenance equipment to be temporarily fitted to a vehicle and structures intended for their attachment may be approved in a modification inspection.

If the operation of the vehicle's electrical safety equipment is hindered by the road maintenance equipment or the structures for its attachment, the road maintenance equipment and the structures for its attachment may be approved in a modification inspection if they are installed in accordance with the vehicle manufacturer's instructions and a statement by the vehicle manufacturer on how the installation of the road maintenance equipment and the structures for its attachment must be carried out in order to minimise the interference with the operation of the electrical safety equipment is presented in the modification inspection.

The change in the width of the vehicle caused by road maintenance equipment and its attachments shall not exceed 500 mm. The dimensions generally permitted for the vehicle on the road shall not be exceeded, however.

Information on the road maintenance equipment intended for temporary fixing to the vehicle and the conditions that apply shall be entered in the vehicle's registration data in the modification inspection.

5 Modification of the trailer structure

The changes listed in this section and its sub-paragraphs require a modification inspection. An exemption granted by the Finnish Transport and Communications Agency is required for the approval of modifications of greater scope than those listed in this Regulation during the modification inspection.

The conformity of a vehicle may be verified by an inspection carried out by a vehicle inspector, unless otherwise specified below.

5.1 O_1 and O_2 category trailer

The sub-paragraphs of this section 5.1 shall apply to vehicles in categories O_1 and O_2.

5.1.1 Frame

The vehicle frame may be reinforced by encasing the U-profile frame.

The frame of the vehicle may be extended from the rear with material matching that of the original frame. A welding report on the extension of the frame must be presented in the modification inspection. Evidence of the fact that the vehicle complies with the mass distribution requirements shall be provided to the inspector in the modification inspection.

The frame modifications must not pose a danger to other road users.

5.1.2 Modification of the body structure

A modification of the body structure of a trailer may be approved in a modification inspection, provided that the change does not pose a risk and the inspections carried out by the inspector or the report presented show that the vehicle complies with the requirements affected by the modification.

A strength calculation and welding report of the strength of the body structure and its attachment to the frame shall be presented in the modification inspection.

The altered unladen mass of the vehicle shall be determined during the modification inspection by weighing the vehicle, and the altered dimensions by measuring them.

The width of the body structure shall not be altered by more than 200 mm and shall not exceed the maximum width generally permissible for the vehicle on the road.

5.1.3 Axles and the underframe

The axle system of a vehicle may be replaced by an axle system suitable for the axle masses recorded in the vehicle register. The requirements of section 5.1.5 shall apply to the modification of any braking device. The vehicle's shock absorbers may be replaced with shock absorbers suitable for the vehicle’s axle loads recorded in the register, which do not restrict the suspension travel.

5.1.4 Suspension

The springs of the vehicle may be replaced with modification components suitable for the vehicle and its masses.

A vehicle’s suspension type may be changed to one suitable for the vehicle's masses, provided that a statement on the masses from the suspension manufacturer is presented in the modification inspection. The change must be made using factory-made components, with the exception of the spring fasteners.

5.1.5 Brakes

The brakes of the vehicle may be modified in terms of their effective dimensions and made equivalent to the original, provided that the thrust head is also compatible with the brake power transmission and the wheel brakes. A statement by the manufacturer of the braking equipment shall be provided in the modification inspection. The operation of the brakes must be examined in the modification inspection to the same extent as in the periodic roadworthiness test.

5.1.6 Tyres and rims

The tyres and rims of a vehicle may be replaced with modification components suitable for the vehicle and its axle masses, provided that the components do not come into contact with the vehicle’s structures in any suspension position.

The structure of the rims shall not be altered unless the manufacturer of the rims has provided specific instructions for the modification.

5.1.7 Lights

The positioning, the number and the properties of vehicle lights shall, after the modifications made to the vehicle, meet the requirements valid during or after the commissioning of the vehicle.

5.1.8 Vehicle category

Changing a vehicle's category requires the vehicle to comply with the requirements of the new category in force at the time of its first entry into service or at a later date.

The classification of a vehicle is based on the definitions in the Vehicles Act and the Framework Regulation on cars and their trailers. The change of classification shall be based on clear structural changes or a parallel classification by the manufacturer, either in the vehicle type data, in the type approval data or in the manufacturer's certificate.

5.2 O_3 and O_4 category trailer

This section 5.2 and its sub-paragraphs applies to O_3 and O_4 category vehicles.

In a modification inspection, the Regulation on technical requirements for combinations of vehicles is applied to requirements for coupling devices fitted to the vehicle.

If the trailer manufacturer no longer exists but has merged with another manufacturer as a result of an acquisition, the certificate of the change in structure issued by the acquiring company shall also be accepted as a manufacturer's certificate. Similarly, instructions issued by the acquiring company shall be accepted as instructions issued by the manufacturer.

5.2.1 Bodywork

The bodywork may be modified only according to the instructions provided by the manufacturer. The welding seams created in connection with bodywork modifications shall be presented to the inspector without surface treatment, zinc coated, or painted.

5.2.2 Body structure

Any changes relating to the load body shall be presented in the modification inspection in accordance with the provisions on load bodies and securing the load.

After a change to the body structure, the vehicle shall comply with the requirements for underrun protection and lateral protection in force at or after the date of the vehicle's entry into service.

5.2.3 Axle, axles and underframe

The axle structure of the vehicle may be modified, and the distance between the axles may be altered. An additional axle or axles may be installed in the vehicle. An axle or axles may be removed from the vehicle. Modifications to vehicles commissioned on or after 1 January 1980 shall be made according to the manufacturer's instructions which must be presented in an alteration inspection.

In connection with axle modifications, a theoretical braking calculation shall be submitted for a vehicle equipped with pneumatic brakes, and a brake inspection equivalent to that performed in a periodic roadworthiness test shall be carried out on the vehicle. However, a report on the conformity of the brakes of a vehicle put into service on or after 1 January 2010 shall be submitted in accordance with the provisions applied to the approval of the vehicle based on the Car Regulation or the preceding date of entry into service of the vehicle.

In the case of axle changes on a vehicle equipped with an anti-lock braking system or an electrically controlled braking system, a certificate issued by the manufacturer shall also be provided indicating whether any software updates have been made in connection with the change and whether the systems, such as electrically controlled brakes or stability control systems, are functioning properly after the change. The modifications shall take into account the requirements of section 5.2.7 of the Regulation.

The underframe manufacturer's certificate shall be submitted on the pre-requisites for implementing an axle modification and on the changed masses. The data on the nameplate alone are not considered sufficient.

To check the appropriateness of modifications requiring welding, a welding report issued by the party carrying out the modification work shall be submitted in an inspection.

5.2.4 Steering equipment and suspension

Changes to the steering equipment on the vehicle and the addition or removal of a steering or steered axle shall be carried out in accordance with the vehicle manufacturer's instructions, and a report on the appropriateness of the modification work shall be presented by the person carrying out the work. The conformity of the vehicle after the modifications shall be demonstrated on the basis of the car order or the preceding date of entry into service of the vehicle in accordance with the applicable provisions.

Modifications to the suspension type shall be made using the modification kit suitable for the vehicle being modified and its weight. Except for the fastenings, the kit shall be factory-manufactured.

5.2.5 Brakes

Modifications of the braking system shall be carried out in such a way as to meet the requirements laid down for the brakes. If the braking system contains complex electronic systems, it must be shown that the other systems related to the operation of the braking system also meet the requirements after the modification.

Following modifications to the functional dimensioning of the parts of the vehicle’s pneumatic brakes, compliance of the brakes with requirements shall be verified in a braking inspection equivalent to that performed in connection with a periodical inspection, and through theoretical calculation of the operation of the brakes. However, in the case of a modification of a vehicle put into service on or after 1 January 2010 and of a vehicle equipped with electronically controlled brakes, a statement of the conformity of the brakes as required by the approval at the time of entry into service of the vehicle, or a statement by the vehicle manufacturer indicating which type-approved vehicle the vehicle corresponds to in terms of its braking system after the modifications, must be provided.

The modification or removal of the parking brake on a given axle must be performed according to the vehicle manufacturer’s instructions, and information on the modification shall be indicated in the register.

5.2.6 Tyres and rims

The tyre sizes to be accepted in the change roadworthiness test and the tyres accepted as an alternative tyre size for the vehicle in the change roadworthiness test shall be entered in the register, which limit the permissible mass on the axle in use to less than the technically permissible mass on the axle. However, the tyres must be such that loading the entire vehicle up to the mass permissible for the vehicle on the road is possible without exceeding the load-bearing capacity of the tyres. Altered axle masses shall be recorded in the register.

The requirements for the splash guard and the spray-suppression system shall be met in connection with tyre modifications, and the vehicle’s tyres may not come into contact with the vehicle's structures at any steering angle or at any stage of the suspension.

The structure of the rims shall not be altered unless the manufacturer of the rims has provided specific instructions for the modification.

5.2.7 Electrical systems

The electrical safety devices in the vehicle may not be modified or removed unless otherwise indicated in this regulation. However, an electric safety device may be removed if the vehicle did not have the system concerned during its commissioning, and if the safety device concerned is not mandatory.

Modifications to the electrical systems of the vehicle shall not impair the operation of the various complex electronic systems in the vehicle. The vehicle manufacturer's report on the operation of the systems after the modifications must be presented in the modification inspection.

5.2.8 Lights

The positioning, the number and the properties of vehicle lights shall, after the modifications made to the vehicle, meet the requirements valid during or after the commissioning of the vehicle.

5.2.9 Vehicle category

Changing a vehicle's category requires the vehicle to comply with the requirements of the new category in force at the time of its first entry into service or at a later date.

The classification of a vehicle is based on the definitions in the Vehicles Act and the Framework Regulation on cars and their trailers. The change of classification shall be based on clear structural changes or a parallel classification by the manufacturer, either in the vehicle type data, in the type approval data or in the manufacturer’s certificate.

6 Vehicle propulsion modifications

Changes in propulsion other than those referred to in this section shall not be approved in a modification inspection without an exemption granted by the Finnish Transport and Communications Agency.

It is possible to convert a petrol-powered car to diesel or vice versa, if, following the conversion, a vehicle put into service before 1 September 2009 is shown to comply with the exhaust emission requirements applicable at the time of entry into service during the inspection of the exhaust emissions in the periodic roadworthiness test. If the vehicle, due to its age or design, is not subject to an in-service emission measurement during the periodic roadworthiness test, it shall be sufficient to demonstrate compliance with the emission requirements merely by a visual inspection carried out by the modification inspector.

A vehicle put into service on or after 1 September 2009 may be converted from petrol to diesel or vice versa if it complies with the exhaust emission requirements applicable to the approval, which were in force at the time the vehicle was put into service, or with later requirements.

The vehicle's OBD system, if any, must remain accessible after the conversion.

Modifications to the driving force of a vehicle shall not give rise to malfunctions in the vehicle’s OBD system, if any.

The approval of modifications to the high-voltage system in electric and hybrid vehicles is provided for in section 3.20 High-voltage system.

6.1 Electric propulsion system

A vehicle put into service on or after 21 August 2002 shall meet the requirements of UN Regulation 100 at the time of entry into service of the vehicle when it becomes electric. However, to demonstrate electromagnetic compatibility, a certificate of

suitability for the vehicle to be modified, issued by the manufacturer of the modification kit, or an indication of electromagnetic compatibility for all parts of the high-voltage equipment shall suffice.

Insulation resistance may be measured under normal ambient humidity conditions without stabilisation. Conformity shall be demonstrated in accordance with the car order or the preceding provisions in force at the time of entry into service of the vehicle.

A vehicle put into service before 21 August 2002 shall comply with the following requirements when converting into electric mode:

1) protection against electric shocks shall be implemented in accordance with paragraph 5.1 of UNECE Regulation 100;

2) the batteries shall be placed and secured in such a way that they are not susceptible to damage or detachment in the event of a collision;

3) if the traction battery is a lead-acid battery, it shall be equipped with a fan or a duct to prevent hydrogen gas accumulation;

4) the windscreen defrosting system shall be effective enough to ensure adequate visibility through the windscreen in cold weather;

5) the vehicle shall be equipped with an indication of the direction of driving selector position to the driver;

6) when leaving the vehicle, the driver shall receive a declaration if the vehicle is still in active driving mode.

The conformity of the changes to the vehicle referred to in the preceding paragraph shall be verified by an inspection carried out by the inspector. In addition, an opinion of an authorised body or inspector referred to in the Electrical Safety Act (1135/2016) or a commissioning inspection report drawn up by the person responsible for making the changes in the vehicle meeting the requirements laid down in the Act on Electrical Safety must be presented.

When a vehicle is fully electrically powered, the components necessary for the operation of an internal combustion engine may be removed from the vehicle which, after the modification, is no longer necessary. The changed own mass of the vehicle must be weighed at the time of the roadworthiness test and recorded in the register after the changes have been made.

When a vehicle is fully electric, it is not necessary to demonstrate compliance with the emission and noise requirements.

The brake and power steering booster of a vehicle equipped with hydraulic vacuum-assisted brakes may be modified to operate with a separate pump without proof of compliance with the braking or steering device requirements.

High-voltage batteries shall be positioned in such a way that they are not exposed to damage in the event of a collision.

6.2 Gas propulsion system

When a vehicle is transformed into a vehicle operated by liquefied or natural gas, emission requirements are deemed to be met if the modification set is intended to be used in the vehicle concerned and meets the UNECE regulation 115. In addition, the car must meet the exhaust emission requirements applicable at the time of its entry into service during the inspection corresponding to the verification of exhaust emissions in the periodic roadworthiness test, conducted in connection with the modification inspection. Components complying with the requirements of UNECE

Regulation 67 shall be used for the installation of the liquefied petroleum gas installation and components complying with the requirements of UN Regulation 110 for the installation of the natural gas installation.

The installation of the liquid and natural gas equipment shall be inspected at an inspection site referred to in Chapter 6 of the Act on the Safety Handling of Hazardous Chemicals and Explosives (390/2005), and a certificate on this shall be submitted in connection with the alteration inspection. The certificate shall indicate that the gas installation movement is:

1) checked that the fuel tank and components of the LPG or NG fuel system are marked to indicate compliance with the UN Regulation;

2) checked that the installation of the fuel tank complies with the UN Regulation; and

3) performed a retrofitting tightness check in accordance with the UN Regulation.

In the installation of wood gas installations, the installation shall be permanently installed and shall not endanger the occupants of the vehicle or other road users. In the change roadworthiness test, the vehicle must be weighed and the changed data recorded in the register. The change should take into account possible effects on, for example, the classification of the vehicle.

No power measurement certificate is required for changes in liquid, natural gas or wood gases, see paragraphs 3.8.1 and 4.3.1.

6.3 Fuel consisting mainly of ethanol as the driving power

Modification of a petrol-fuelled vehicle to a fuel consisting primarily of ethanol is permitted under the conditions laid down in point 7 of section 2.5.2 and sections 3.8.1, 4.3.1 and 6.

Modification of a vehicle put into service on or after 1 September 2009 in order to use a fuel composed mainly of ethanol may be approved in the modification inspection provided that:

1) the products installed in the vehicle to carry out the modification are suitable for use in the vehicle in question;

2) the vehicle's other parts and components are suitable for fuel composed mainly of ethanol and can withstand the continuous use of such fuel;

3) the vehicle complies with the requirements for vehicles fitted with an Otto engine and put into service over 10 years ago in an inspection of exhaust emissions equivalent to a periodic roadworthiness test, carried out in connection with the modification inspection.

In connection with the modification inspection, a certificate by the manufacturer of the product referred to above in section 1 shall be presented as regards the suitability of the product for the vehicle subject to the modification, together with a certificate from the entity which carried out the modification that as part of the modification the vehicle was fitted with, or that the vehicle contains, other parts and components referred to above in section 2, which are suitable for fuel composed mainly of ethanol that can withstand the continuous use of such fuel.

In connection with the modification inspection, information is entered in the register that the vehicle has been modified to use a fuel composed mainly of ethanol.

7 Transitional provisions

The Regulation applies to vehicle modifications made after the entry into force of the Regulation. By way of derogation, structural changes initiated before the entry into force of this Regulation may be carried out and approved until xx.xx.20xx in accordance with the provisions in force at the time of the entry into force of this Regulation. However, the obligation to carry out a review shall be governed by this provision from the date on which the order enters into force. A vehicle which has been successfully modified before the entry into force of this provision may continue to be used in traffic.