



## Swedish Transport Agency Regulation amending the Swedish Road Administration Regulations (VVFS 2003:29) on national type-approval of systems, components and separate technical units;

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ROAD TRAFFIC

The Swedish Transport Agency provides<sup>1</sup> – pursuant to Chapter 8, Section 16 of the Vehicle Ordinance (2009:211); Sections 3 and 12 of the Exhaust Emission Control Ordinance (2011:345); and Section 3 of the Ordinance (2011:811) on accreditation and roadworthiness testing with regard to the Swedish Road Administration Regulations (VVFS 2003:29) on national type-approval of systems, components and separate technical units – that Chapter 1, Sections 1 and 2; Chapter 4, Section 1; and Annex 5 shall read as follows.

### Chapter 1

**Section 1** This Regulation contains detailed provisions concerning national type-approval of systems, components and separate technical units pursuant to Chapter 3 of the Vehicle Ordinance (2009:211) and national type-approval of conversion kits according to the Act (2011:318) on exhaust emission control.

**Section 2** The terms used in the Regulation have the same meaning as in the Act (2001:559) on road traffic definitions, the Ordinance (2001:651) on road traffic definitions, the Vehicles Act (2002:574), the Vehicle Ordinance (2009:211), the Act (2011:318) on exhaust emission control, the Exhaust Emission Control Ordinance (2011:345), and the Swedish Transport Agency's Regulations and general advice (TSFS 2013:63) on cars and trailers towed by cars, unless otherwise specified.

<sup>1</sup> See Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services.

*Test report* means a document presenting test results for a system, component or separate technical unit and containing a verified design document.

*Type approval number* means a designation assigned to a particular type of system, component or separate technical unit at the time of type-approval. The designation consists of the stylised letter T\*), a serial number and a combination of letters, in this order. The related annex specifies the letter combinations.

Chapter 1, Section 4 of the Vehicle Ordinance states that *manufacturer* means the party responsible to the approval authority for all aspects of the type-approval process and for conformity of production, without the requirement to be directly involved at all stages of production of the system, component or separate technical unit to which the type-approval relates.

\*) 

## Chapter 4

**Section 1** The test must be carried out by a testing laboratory accredited in accordance with Section 4 of the Act (2011:791) on accreditation and conformity assessment. For the accreditation of the testing laboratory, the following additional requirements apply.

– The laboratory shall be independent of interested parties (third-party status).

– The laboratory shall be able to carry out tests in accordance with the relevant annex to this Regulation.

Tests referred to in the first paragraph may also be carried out by a testing laboratory in any other country of the European Economic Area (EEA), which:

– is accredited for the task against the standard SS EN ISO/IEC 17025 by an accreditation body that meets and applies the requirements of SS EN 45003; or

– otherwise offers equivalent guarantees of technical and professional competence and guarantees of independence.

For the Swedish Transport Agency

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## **Annex 5. Conversion kits for operation with ethanol fuel and methane gas**

### *1. General*

1.1 Different types of conversion kits are characterised by differences in one of the following respects:

- Conversion kit manufacturer;
- Software;
- Constituent components;
- The vehicle family for which it is intended; or
- Environmental or emission class in which the original vehicle is approved.

1.2 The letter combination of the type-approval designation shall be ES.

1.3 The application for type approval shall be accompanied by the following documents and details:

1. Installation manual.
2. Service manual.
3. Description of the parent vehicle.
4. Documentation on resistance to current fuels for components of the fuel system, excluding tanks.
5. List of vehicle types included in the vehicle family for which the conversion kit is intended.

### 1.4 Installation manual

1.4.1 An installation manual in Swedish shall be included in each conversion kit.

1.4.2 The installation manual shall contain the following:

1. Detailed description of how the conversion kit is to be installed in the vehicle and what skills the installer needs.
  2. Detailed description of the function and components of the conversion kit.
  3. The conversion kit's type approval number, if one has been allocated.
  4. Vehicle manufacturer.
  5. Vehicle category.
  6. Vehicle model.
  7. Engine type.
  8. Engine size.
  9. Gearbox type.
  10. Description of the location of the conversion kit data plate.
- 1.5 Service manual

1.5.1 A service manual in Swedish shall be included in each conversion kit.

1.5.2 The service manual shall include the following:

1. Instructions on how to maintain the vehicle after installation of the conversion kit;
2. Service schedule specifying the necessary service and maintenance in addition to the normal service schedule of the vehicle; and
3. Description of actions in the event of any failure that may occur in the vehicle.

1.6 Description of the parent vehicle may be made by reference to the relevant parts of Appendix 3, Annex 1 to EU Regulation 2017/1151 or of Appendix 1, Annex 10 to Directive 70/220/EEC.

1.7 Testing in accordance with point 4 below shall be carried out by a testing laboratory that has been notified to the European Union for the task in accordance with Section 7 of the Act (2011:791) on accreditation and conformity assessment.

## 2. Definitions

In this Annex the following definitions apply.

- |     |                                |   |
|-----|--------------------------------|---|
| 2.1 | <i>Parent vehicle</i>          | The vehicle chosen to act as the vehicle on which the requirements referred to in paragraph 3 of this annex are to be tested and to which the vehicle family refers   |
| 2.2 | <i>Vehicle family</i>          | A vehicle with a type of conversion kit installed with the following in common with the parent vehicle <ul style="list-style-type: none"><li>– Environmental or emission class;</li><li>– Emission control system; and</li><li>– Engine family.</li></ul>                           |
| 2.3 | <i>Engine family</i>           | Engines which do not differ from the parent vehicle in respect of: <ul style="list-style-type: none"><li>– engine volume in the range 0.7 to 1.15, and</li><li>– engine power in the range 0.7 to 1.15.</li></ul>   |
| 2.4 | <i>Emission control system</i> | The components and systems that limit exhaust emissions, the electronic engine management control unit and each exhaust emission-related component that provides the engine management control unit with input data or receives the output from the engine management control unit. |
| 2.5 | <i>OBD system</i>              | Emission control systems capable of identifying the likely location of error by   |

means of fault codes stored in a computer memory.

### 3. Requirements

#### 3.1 Conversion of car to run on ethanol fuel

3.1.1 The conversion kit shall comply with the applicable exhaust emission requirements resulting from:

- Annex I to Regulation (EC) No 715/2007 in the case of type 1 or type 1a test resulting from Implementing Regulation 2017/1151;
- Annex 1 to Regulation (EC) No 595/2009 for the PEMS test pursuant to Implementing Regulation 582/2011; or
- Chapter 5, Section 26 of the Swedish Transport Agency's Regulations and general advice (TSFS 2013:63) on cars and trailers towed by cars.

#### 3.2 Conversion of car to run on methane gas

3.2.1 The conversion kit shall comply with the applicable exhaust emission requirements resulting from:

- Regulation (EC) No 715/2007 in the case of type 1 or type 1a test resulting from Implementing Regulation 2017/1151; or
- Exhaust emissions in the case of type 1 test in accordance with Directive 70/220/EEC.

3.3 Included components shall be marked with the type approval designation. An indelible data plate shall be affixed to the vehicle after installation of the conversion kit. This data plate shall state the manufacturer of the conversion kit and the type approval designation. The application for type approval shall indicate where and how this marking is intended to be affixed.

3.4 The conversion kit must not affect the diagnostic function of the OBD system, if the vehicle is equipped with such.

3.5 The conversion kit must not change the maximum engine power of the parent vehicle by more than 5 per cent compared to the original vehicle.

### 4. Testing

#### 4.1 Exhaust emissions

4.1.1 Conversion kits intended for 2001 and later model year passenger cars or 2002 and later model year light trucks shall be tested using the appropriate method:

- Type 1 or type 1a test (with conformity factor) resulting from Implementing Regulation (EU) 2017/1151;
- WHTC or PEMS test (with conformity factor) resulting from Implementing Regulation (EU) No 582/2011; or
- Type 1 test resulting from Directive 70/220/EEC.

#### 4.2 Exhaust gas analysis at idle

4.2.1 Exhaust emissions at idling and increased idling speed shall be tested in accordance with section 30.2 of Annex 1 to the Swedish Transport Agency's Regulations and general advice (TSFS 2017:54) on roadworthiness tests.

#### 4.3 Engine power measurement

4.3.1 Comparative power measurement shall be performed by appropriately comparing the engine power between a converted car (parent vehicle) and the original car. On a flexible-fuel ethanol car, the comparison shall be carried out on the same individual car. An ethanol-fuel car may be compared to an identical unconverted car.

4.3.2 Alternatively, the engine power can be determined in accordance with Chapter 5, Sections 2–4 of the Swedish Transport Agency's Regulations and general advice (TSFS 2013:63) on cars and trailers towed by cars.

4.4 ECE type-approval or national type-approval from another country may be used to demonstrate compliance with the requirements referred to in paragraph 3.

### 5. *Conformity of production*

The manufacturer shall assess and evaluate which tests are necessary during manufacture in order to ensure that a conversion kit will, over the course of its ongoing manufacture, meet the same requirements as the type-approved conversion kit. The manufacturer shall also decide on the extent to which such tests shall be carried out.

However, the test referred to in paragraph 4 above shall be carried out after every 5,000 units produced, or as a minimum one test per year. In the case of testing, the requirements of paragraph 3 above shall be met and such tests may be carried out in-house.