Informal Document **GRPE-92-08-Rev.1**
92nd GRPE, 25–28 March 2025
Agenda item 3 (a)

European Commission

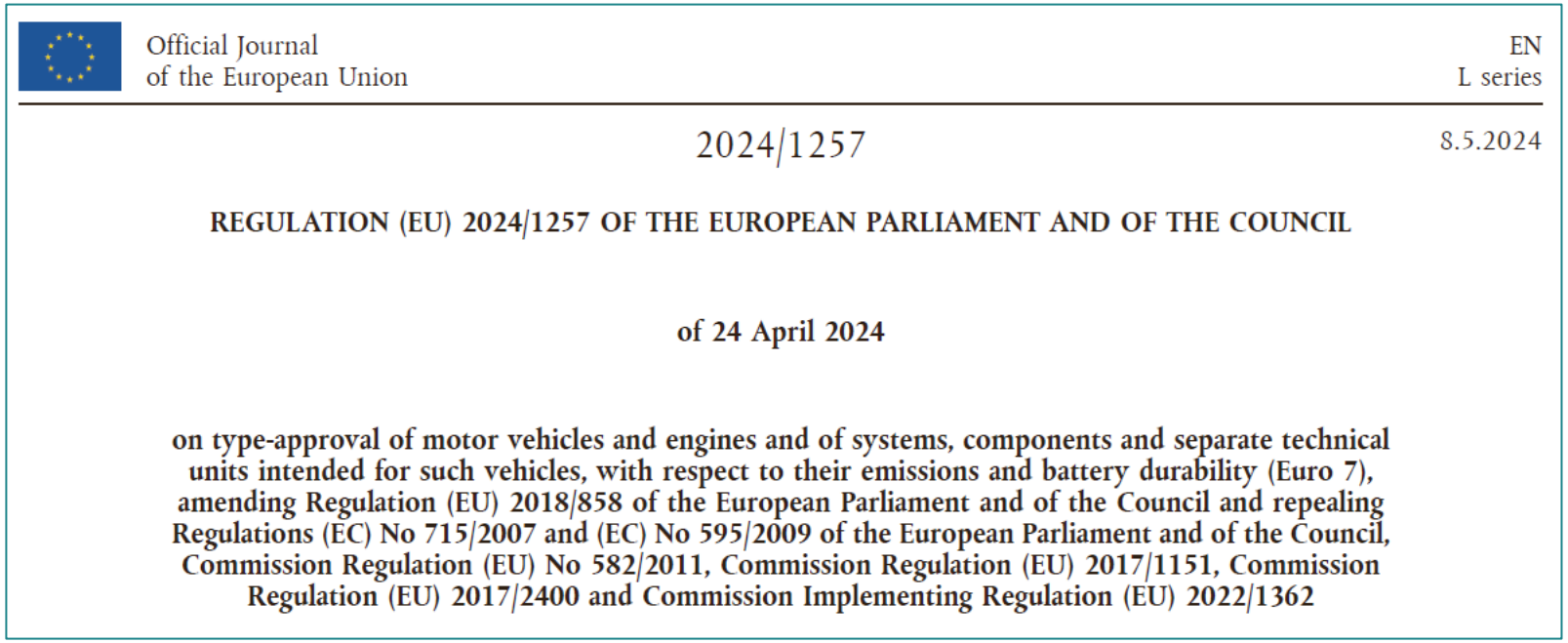
Euro 7 – UN transposition plan

Proposal for the transposition of Euro 7 LDV provisions into UN Regulations 83, 154 and 168

Working Party on Pollution and Energy – 92nd session
Geneva, 25-28 March 2025
GROW.I.2 - Mobility

Background

- Following the adoption of the main Euro 7 regulation in April 2024, implementing legislation is currently being developed in the EU



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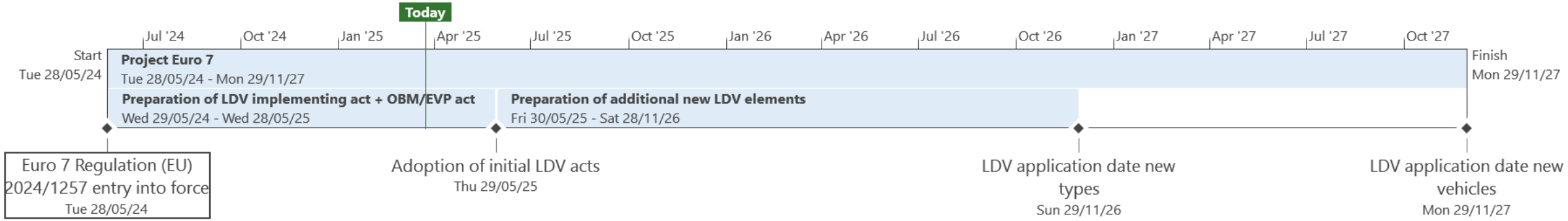
REGULATION (EU) 2024/1257 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 24 April 2024

on type-approval of motor vehicles and engines and of systems, components and separate technical units intended for such vehicles, with respect to their emissions and battery durability (Euro 7), amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No 715/2007 and (EC) No 595/2009 of the European Parliament and of the Council, Commission Regulation (EU) No 582/2011, Commission Regulation (EU) 2017/1151, Commission Regulation (EU) 2017/2400 and Commission Implementing Regulation (EU) 2022/1362

- The new Euro 7 provisions are planned to be transposed into relevant UN regulations to establish equivalence between EU and UNECE type-approval certificates

EU Timeline – LDV implementing acts



- PN10 PROVISIONS
- NEW SHED LIMIT
- LIFETIME PROVISIONS
- ANTI-TAMPERING / (CYBER) SECURITY
- MANIPULATION DEVICES / STRATEGIES
- GEAR SHIFT INDICATORS
- AMENDMENTS TO REG. (EU) 2018/858
- ELECTRIFIED VEHICLE POWER
- IN-VEHICLE BATTERY DURABILITY
- EV RANGE AT LOW TEMP
- BRAKE PARTICLE EMISSIONS
- TYRE ABRASION
- OBFCM EXTENDED SCOPE
- GEO FENCING
- AMENDMENTS TO REG. (EU) 2018/858

[NB: Order of items & timeline indications for discussion purposes only]

European Commission

DRAFT Euro 7 transposition into UN Regulations – LDV

EIF
- Euro 7 Regulation (EU) 2024/1257 entry into force: 28 May 2024

LDV
- Adoption of initial LDV implementing acts*: 29 May 2025

* Art. 14(8) Euro 7 Regulation - brake emissions, in-vehicle battery durability, tyre-abrasion, anti-tampering excluded - *tbd*

TCMV vote
- Vote by TCMV on 'UNECE mega-decision': January 2026

Council WP
- Council 'mega-decision' adoption: before March 2026

EU new types
- LDV application date *new types*: **29 November 2026**

EU new vehicles
- LDV application date *new vehicles*: 29 November 2027

GRPE 91
- Inform about Euro 7 transposition plan in GRPE 91st session: October 2024

GRPE 92
- Informal Document proposal in GRPE 92nd session: March 2025

GRPE
- Working Document submittals: July 2025 (3 months before GRPE 93rd)

GRPE 93
- Endorsement of amendment proposals in GRPE 93rd session: October 2025

WP.29 198
- WP.29 vote on amendment proposals: March 2026

entry into force
- WP.29 adoption period of ~6 months: **29 November 2026** (UN entry into force)

European Commission

Euro 7 transposition activities foreseen - LDV

The figure below indicates the current state of thinking as to how Euro 7 requirements would be transposed into UN Regulations. Some elements TBD.

Euro 7 new and updated requirements	UNR 24	UNR 83	UNR 85	UNR 103	UNR 117	UNR 154	UNR 168	UNR xxx	UNR xxx	UNR xxx
Introduction of On-Board Monitoring (OBM) provisions						x				
New Particle Number provisions						x	x			
New SHED limit for evaporative emissions						x				
Updated lifetime provisions relating to durability						x				
New requirements for anti-tampering and (cyber) security		x		TBD		x				
New requirements for manipulation devices / strategies		x				x				
Introduction of an Environmental Vehicle Passport (EVP)		x				x				
~~Gear Shift Indicator requirements~~						~~x~~				
Introduction of requirements for EV range at low temperature						x				
Updated On-board Fuel Consumption Monitoring provisions						x				
In-service conformity		x								
Replacement pollution control devices				x						
Introduction of requirements for tyre abrasion					x					
Introduction of requirements for EV system power								x		
Introduction of requirements for in-vehicle battery durability									x	
Introduction of requirements for brake particle emissions										x
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Regulation specifics - UN Regulation No. 154 Worldwide harmonized Light vehicles Test Procedure (WLTP)

Scope

- Update scope to align with the scope of Euro 7 and to add additional requirements

Scope for Level 1A ;

This Regulation applies to the type approval of vehicles of categories M1, ~~M2,~~ and N1 ~~and N2 with a reference mass not exceeding 2,610 kg~~ with regard to the WLTP Type 1 test for emissions of gaseous compounds, particulate matter, particle number and to emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range and to the Type 4 test on evaporative emissions.

In addition, this Regulation lays down rules for verifying the durability of pollution control devices, ~~and~~ On-Board Diagnostic (OBD) systems, **On-Board Fuel Consumption Monitoring (OBFCM) devices, On-Board Monitoring and electric range at low ambient temperatures**.

At the manufacturer's request, type approval ~~granted under this Regulation~~ may be ~~extended~~ **granted to** ~~from vehicles mentioned above to M1, M2, N1 and~~ N2 vehicles **between 3.5 and 5 tonnes maximum mass originating from a type of vehicle of category N1** ~~with a reference mass not exceeding 2,840 kg~~ and which ~~meet the conditions laid down in this Regulation~~ **meets the requirements for a vehicle of category N1**.

Regulation specifics - UN Regulation No. 154

PN10 provisions

The Euro 7 emission limit for Number of Particles refers to PN10

- The PN10 measurement provisions introduced in GTR No. 15 Amendment 6 are transposed to the Euro 7 implementing legislation
- The same PN10 provisions are now to be introduced in Annex B5 of UN Regulation No. 154
- See Annex A1 to this presentation for the relevant new text for Annex B5

Regulation specifics - UN Regulation No. 154

Evaporative emissions: diurnal test

- Refer to Euro 7 impact assessment: https://op.europa.eu/en/publication-detail/-/publication/213be66d-5f1c-11ed-92ed-01aa75ed71a1/language-en

Table 4-12: Proposed evaporation testing conditions and limits for LDVs under PO2

Category	Passenger cars, Vans < 2.5t TPMLM (N1 classes I-II)		Vans > 2.5t TPMLM (N1 class III)	
Scenario	Scenario 1 & 2	Scenario 3	Scenario 1 & 2	Scenario 3
Emissions limit at diurnal test (g/day)	0.5	0.3	0.7	0.5

- Based on Table 3 of Annex I to Regulation (EU) 2024/1257, Euro 7 updates the limit for evaporative emission (Sealed Housing for Evaporative Determination - SHED limit) to 1.5 g/test (i.e. 0.75 g/day)

Regulation specifics - UN Regulation No. 154

Evaporative emissions: diurnal test

- Update paragraph 6.6.2. of UNR154 as follows:

"6.6.2. When tested in accordance with Annex C3 to this Regulation, evaporative emissions shall be less than that specified in Table 2.

Table 2

Emission limit for evaporative emissions test

Mass of Evaporative Emission (g/test)
~~2.0~~ **1.5**

"

Regulation specifics - UN Regulation No. 154

On-board monitoring of emissions (OBM)

- OBM monitors NOx and PM emissions, detects exhaust emission exceedances (inducement applied if emissions >2.5x threshold over ISC test) and communicates emissions information together with battery state-of-health information over the air
- Main content of rules:
  - Specification of parameters used by the OBM system (quick incorporation into SAE J1979 digital annex foreseen)
  - Specification of rules for on-board management of OBM data and transmission to OEM backend
  - Technical description of driver warnings and inducement methods
  - Requirements for in-service conformity and market surveillance of OBM systems

Regulation specifics - UN Regulation No. 154

Euro 7 updates the lifetime provisions relating to durability

- Based on Annex IV of Regulation (EU) 2024/1257
  - Main lifetime: ‘Up to 160,000 km or 8 years, whichever comes first’
  - Additional lifetime: ‘After main lifetime and up to 200,000 km or 10 years, whichever comes first’
- Update paragraph 6.7.1. of UNR154 – for Level 1a

“6.7.1. …

For Level 1A;

The target useful life is ~~160,000 km~~ **200,000 km or 10 years, whichever comes first**

…”

Regulation specifics - UN Regulation No. 154

Euro 7 updates the lifetime provisions relating to durability

- Euro 7 allows a declaration rather than a type-approval test
  - References to the Type 5 test to be removed for level 1A from the main part of UNR154 and Annex C4.
- A declaration of the applicable deterioration factors by the OEM needs to be provided
  - Introduce a declaration template in a new Annex A4 ‘Declarations’

Regulation specifics - UN Regulation No. 154

For the **Ambient Temperature Correction Test (ATCT)** Euro 7 allows a declaration rather than a type-approval test

- Introduce a declaration template in a new Annex A4 ‘Declarations’

For regeneration systems Euro 7 allows a declaration of the **Ki factors** rather than a type-approval test

- Introduce a declaration template in a new Annex A4 ‘Declarations’

For **On-Board Diagnostics (OBD)** Euro 7 allows a declaration rather than a type-approval test

- Introduce a declaration template in a new Annex A4 ‘Declarations’

For the requirements for **vehicles that use a reagent for the exhaust after-treatment system** Euro 7 allows a declaration rather than a type-approval test

- Introduce a declaration template in a new Annex A4 ‘Declarations’

Regulation specifics - UN Regulation No. 154

Euro 7 - Electric range at low temperature

- Introduce requirements for electric range at low temperature for PEVs, based on the requirements in GTR 15 Amendment 6 (paragraph 5.14.2. and Annex 13)
- GTR15 Amendment 6 paragraph 5.14.2. to be added to paragraph 6 of UNR154

  6.3.12.(TBD) Low temperature family for PEVs

  Only vehicles which are identical with respect to all the following characteristics are permitted to be part of the same low temperature UBE Family:

  (a) Type of traction REESS (type of cell, type of coolant (air, liquid));

  (b) Battery management system (BMS);

  (c) Pre-heating of the REESS;

  (d) Interior heating system;

  (e) REESS insulation.

- Introduce a new annex to UNR154 (Annex B10?) to cover the test requirements for PEVs, based on relevant paragraphs of GTR15 Annex 13 and Sub-Annex 1 to that annex.

Regulation specifics - UN Regulation No. 154

Euro 7 introduces new provisions for **manipulation devices and strategies** which will be transposed into UN Regulation No. 83 [TBD]

- Provisions relating to defeat devices in paragraph 6.1.9. would therefore be relevant for Level 1b only

Euro 7 introduces new provisions for **anti-tampering, security and cyber security** which will be transposed into UN Regulation No. 83 [TBD]

- Provisions for electronic system security in paragraph 6.1.7. would therefore be relevant for Level 1b only

Regulation specifics - UN Regulation No. 154

OBFCM extended scope - Background

Current status (EU)

- OBFCM required for light-duty vehicles (ICEV, OVC-HEV) that run on liquid fuels - Regulation (EU) 2017/1151
  - Since 1 January 2021, in the case of M1 and N1, class I vehicles
  - Since 1 January 2022 in the case of N1, class II and III vehicles
- Lifetime values shall be reported every year by OEMs and Member States - Regulation (EU) 2019/631 and Implementing Regulation (EU) 2021/392
  - Purpose: to monitor/assess the real-world representativeness of the CO_2 emissions and fuel or energy consumption values determined for the purpose of type-approval.

Regulation specifics - UN Regulation No. 154

Justification

- Regulatory developments in the EU (Euro 7) have led to the requirement to enlarge the scope of OBFCM to **cover all vehicles**
- For electric vehicles, the recharged electric energy is measured during type-approval using equipment that is placed between the vehicle charger and the mains. The energy measurement at this point includes charging losses of the on-board charger. Therefore, for a direct and accurate comparison between the real-world and type-approval values, the **energy into the vehicle** needs to be measured by the OBFCM device.
- The application of additional OBFCM requirements which require standardisation may require additional **lead time and transitional provisions** regarding the accuracy requirements or the timeline for implementation, depending on the standardisation and technological development timelines.

Regulation specifics - UN Regulation No. 154

OBFCM requirements for PEVs [as of date]

a) Total distance travelled (lifetime) (km);

b) Total electric energy into the vehicle (lifetime) (kWh)*;

c) Total electric energy out of the battery (lifetime) (kWh)**;

d) Vehicle speed (km/h);

e) Battery Current (A);

f) Battery Voltage (V);

g) Battery state of charge (%).

* also to be included for OVC-HEVs

** to consider energy used for V2X application [and ePTO] and assess the net energy used by the vehicle

Regulation specifics - UN Regulation No. 154

OBFCM requirements for gas-fueled vehicles [as of date]

- mono-fuel gas vehicles
  a) Total distance travelled (lifetime) (km);
  b) Total gaseous fuel consumed (lifetime) (kg);
  c) Engine fuel rate (g/s);
  d) Vehicle fuel rate (g/s);
  e) Vehicle speed (km/h).

- bi-fuel gas vehicles
  a) Total distance travelled (lifetime) (km);
  b) Total distance travelled in gas fuel mode (lifetime) (km);
  c) Total gaseous fuel consumed (lifetime) (kg);
  d) Total fuel consumed in petrol mode (lifetime) (l);
  e) Engine fuel rate (g/s);
  f) Vehicle fuel rate (g/s);
  g) Vehicle speed (km/h).

Regulation specifics - UN Regulation No. 154

OBFCM requirements for fuel cell vehicles [as of date]

- NOVC-FCHV

a) Total distance travelled (lifetime) (km);

b) Total Fuel Cell Fuel Consumed (lifetime) (kg);

c) Vehicle fuel rate (g/s);

d) Vehicle speed (km/h).

- OVC-FCHV

a) Total Fuel Cell Fuel Consumed (lifetime) (kg);

b) Total Fuel Cell Fuel Consumed in charge-depleting operation (lifetime) (kg);

c) Total Fuel Cell Fuel consumed in driver-selectable charge-increasing operation (lifetime) (kg;

d) Total distance travelled (lifetime) (km);

e) Total distance travelled in charge-depleting operation with fuel cell system off (lifetime) (km);

f) Total distance travelled in charge depleting operation with fuel cell system active (lifetime) (km);

g) Total distance travelled in driver-selectable charge-increasing operation (lifetime) (km);

h) Total electric energy into the vehicle (lifetime) (kWh);

i) Vehicle fuel rate (g/s);

j) Vehicle speed (km/h);

k) Battery Current (A);

l) Battery Voltage (V);

m) Battery state of charge (%).

Regulation specifics - UN Regulation No. 154

OBFCM accuracy requirements

- Accuracy evaluation for OBFCM shall take place during TA and CoP
  - Lifetime fuel consumption
  - Lifetime electric energy into the vehicle
- For PEVs, OVC-HEVs, and OVC-FCHVs, lead time for measuring accuracy of new signals and for meeting the accuracy requirements: for discussion
  - Same date measurement of accuracy as implementation of OBFCM
  - Additional lead time for meeting accuracy requirements

Regulation specifics - UN Regulation No. 168

PN10 provisions

The Euro 7 emission limit for Number of Particles refers to PN10

- The PN10 measurement provisions introduced in GTR No. 15 Amendment 6 are transposed to the Euro 7 implementing legislation
- The same PN10 provisions are now to be introduced in Annex 5 of UN Regulation No. 168
- See Annex A2 to this presentation for the relevant new text for Annex 5

Regulation specifics - UN Regulation No. 83

Updates proposed for UN Regulation No. 83 to align with Euro 7:

- **Type 2 test** no longer a requirement for Euro 7
  - Remove Type 2 test references and requirements in Scope, Table A – Requirements, paragraphs 5.3.2. (delete content and Reserve), 5.3.7. (delete content and Reserve), 7.1. (delete content and Reserve) and 8.1.1., Annex 1 – Appendix1 (Test report), Annex 5 (Type 2 test) (delete content and Reserve) and paragraph 2.1. to Annex 6 (Type 3 test).
- For the **Type 3 test** (crankcase gases) Euro 7 now allows a declaration rather than a type-approval test
  - Introduce a declaration template in a new appendix to Annex 2 (TBD)

Regulation specifics - UN Regulation No. 83

Updates proposed for UN Regulation No. 83 to align with Euro 7:

- Update **In-service Conformity** requirements (Annex 4) to reflect updates to Annex II of the Main Implementing Act to Euro 7

  "5.10.3. Pass/Fail/Invalid outcome for a single test

  An ISC emissions test shall be considered as 'passed' for one or more pollutants when the emissions result is equal or below the emission limit set out in paragraph 6.3.10. of UN Regulation No. 154 for that type of test. **When testing vehicles in the additional lifetime, the durability multiplier for adjusting the emission limits shall be used**. …"

  - The durability multiplier for the additional lifetime is 1,2 for gaseous pollutants, based on Table 2 of Annex IV to Regulation (EU) 2024/1257

Regulation specifics - UN Regulation No. 83

- **OBD In-Use Performance Requirements** monitoring is no longer a requirement for Euro 7
  - Remove OBD IUPR test references and requirements in paragraph 3.1.1.(a), 3.3.2., Annex 2 – Appendix 2 (Manufacturer's certificate of compliance with the OBD in-use performance requirements) and Annex 11 (On-Board Diagnostics (OBD) – In-use Performance Requirements)

Regulation specifics - UN Regulation No. 83

Updates proposed for UN Regulation No. 83 to align with Euro 7:

- Euro 7 replaces '**defeat devices**' with '**manipulation devices and strategies**'
  - Remove references and requirements to defeat devices in paragraphs 3.4.1., 3.4.9. and 5.1.7., 8.1.1., Annex 1 – Appendix 3a (Documentation Packages)***, Annex 1 – Appendix 3b (Methodology for the assessment of AES)*** and paragraph 6.1.1. to Annex 8 (Type 6 test)

    *** Appendix 3a and 3b will be replaced by appendices to a new annex, as described below

  - Transpose Euro 7 MIA [Article 15] requirements on manipulation devices and strategies to a new paragraph in Section 5 of UNR83

  - Transpose Euro 7 MIA [Annex IV] requirements on manipulation devices and strategies to a new annex of UNR83 (Annex 12 TBD)

Regulation specifics - UN Regulation No. 83

Updates proposed for UN Regulation No. 83 to align with Euro 7:

- Euro 7 introduces requirements for '**anti-tampering, security and cybersecurity**'
  - Update paragraph 5.1.5. based on [Article 17] of Euro 7 Main Implementing Act
  - Currently paragraph 5.1.5. makes a x-reference to paragraph 6.1.7. of UNR154. This will no longer be required as all the provisions would no be in UNR83
  - Add a new annex based on [Annex XIV] of Euro 7 Main Implementing Act (Annex 13 TBD)

Regulation specifics - UN Regulation No. 83

Updates proposed for UN Regulation No. 83 to align with Euro 7:

- Euro 7 introduces an **Environmental Vehicle Passport (EVP)** in the second Implementing Act
  - Certain environmental performance parameters (static parameters - subset of eCoC) are accessible through a QR code accessible from inside the vehicle
  - EVP parameters include the level of pollutant emission limits, CO2 emissions, fuel consumption, electric energy consumption, electric range and engine or electric motor power, and battery durability and other related values
- The second Implementing Act also introduces requirements for certain dynamic (vehicle-specific) **parameters to be displayed inside the vehicle**, where appropriate
  - Data to be displayed in-vehicle include data from the EVP, the OBM system and the OBFCM device, including lifetime values, and the state of health of the traction battery

Other Euro 7 requirements

EV system power for LDV

- Euro 7 will x-reference to the new UNR on EV system power – see WP.29/2025/25

In-vehicle battery durability for LDV

- Euro 7 foresees x-reference to the new UNR based on GTR No. 22 which is currently in development

Brake particle emissions for LDV

- To be decided as to whether the requirements relating to brake particle emissions will be included in a separate EU Implementing Act or whether Euro 7 will x-reference to a future UNR covering this topic.

Tyre abrasion for LDV

- Euro 7 targets x-reference to the tyre abrasion requirements in UN Regulation No. [117]

Euro 7 – UN transposition plan
Next steps

- The process of transposing Euro 7 provisions into relevant UN regulations is on track
- Some decisions of where best to introduce some elements still need to be made
- A working document needs to be prepared and submitted in July to accommodate a vote in GRPE 93rd session in October 2025

Thank you

European Commission

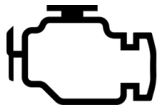
Euro 7 emissions type-approval – overall structure

Pollutant & CO_2 emissions:
- Reg. (EU) 2017/1151

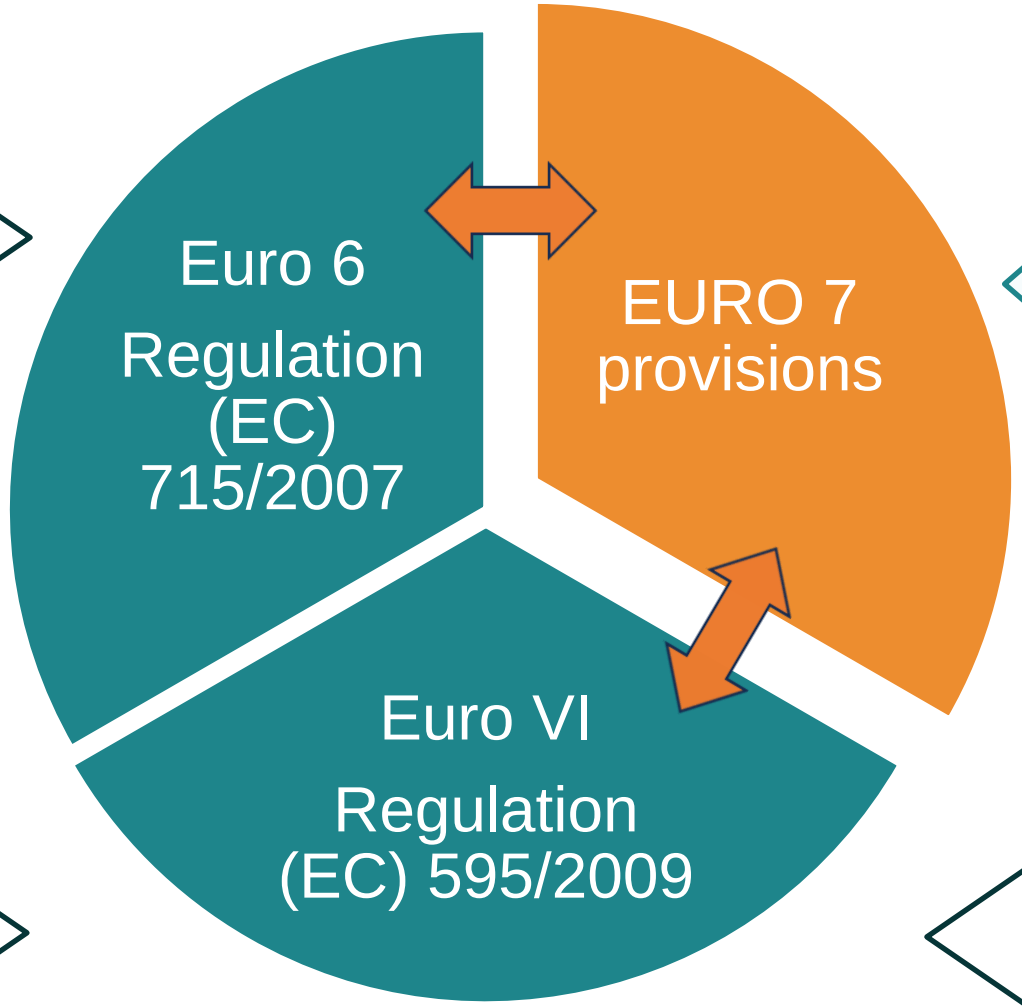
- UNR 24-03
- UNR 83-08
- UNR 85-00
- UNR 103-00
- UNR 154-02
- UNR 168-00

Pollutant emissions:
- Reg. (EU) 582/2011

- UNR 49-07
- UNR 85-00



: +CO_2 emissions



Main new elements in EURO 7:
- On-Board Monitoring

- Brake particle emissions

- In-vehicle battery durability

- Tyre abrasion

HDV CO_2 emissions:
- Reg. (EU) 2017/2400

- Reg. (EU) 2022/1362