***EPPR-12-14***

**India proposal on EPPR-10-17e for 12th EPPR Session**

The deletions are struck through like this and additions are in ***this font***

**General:**

1. **Statement Of Technical Rationale And Justification**

Based on the acceptance of proposals in section B, this section A has to be amended suitably, in particular para numbers A2, A4 and A5.

Based on the accepted proposals in section B, India will propose appropriate wording.

1. **Reference to revision of GTR 2**

There are many places where reference to revised version of GTR 2 and Type V test is made. It may be necessary to replace this reference by GTR 2 and add additional details where required.

1. **Table B.3.1.-1 : Classification criteria propulsion family with regard to test type VIII of Annex B 3.1:**

This table needs to be reviewed based on:

1. The proposed grades of OBD. India will propose the details, after an agreement in principle for the proposed grades.
2. Inclusion or exclusion of Hybrids, battery vehicles etc.
3. **B .4. :Text Of The Regulation, Administrative Provisions**

India is waiting for the EU on EPPR-07-16-Rev 1 as indicated in EPPR-12-08.

In addition, some changes will be required regarding the grades proposed by India. Once document is available, India will submit the necessary changes.

**Section B.1**

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| ***B.1***. **TEXT OF THE REGULATION, GENERAL PART** | | |
| **No** | **Amended Clauses** | **Justification** |
| 1 | ***1.1.*** On -board diagnostics (‘OBD’) is essential for aspects such as environmental protection ~~as well as for effective and efficient repair and maintenance of vehicles~~ . In order to address the rapid technical developments in the area of propulsion unit control systems it the list of devices monitored for electric circuit malfunctions in Annex B.1.2 shall be reviewed and supplemented ***if deemed necessary by Contracting Parties by*** [dd.mm.yyyy.] ***amend GTR appropriately.***  ***Alternatively, the text in GTR 5 may also be used.***  ***This gtr prescribes the requirements for on-board diagnostic (OBD) systems to detect, and, if applicable, record and/or communicate failures of specific vehicle and engine systems that affect the environmental or safety performance of these systems, as described in the specific modules of this gtr.***  ***In addition, this gtr specifies the elements concerning the OBD system to facilitate the diagnosis and maintenance of specific vehicle and engine systems and the possible enforcement of road-worthiness measures without containing mandatory prescriptions for this purpose.*** | Yellow highlighted is Japan Proposal EPPR-09-13e.  For Blue italics text.  1. India accepts the proposal to delete the portion proposed by JPN vide EPPR-09-13e.  2. Review and regular process of amendment is to be followed.  3. Alternate text as per GTR 5 may be considered. |
| 2 | ***1.2*** OBD stage UN I should not oblige manufacturers to change ***/ add*** fuelling ***/ ignition***  hardware and should not impose fitting of an electronic carburettor or electronic fuel injection, providing the vehicle complies with the requirements set out in Revision 1 of GTR No 2. Compliance with the OBD stage UN I requirements requires that if fuel delivery, spark delivery or intake air are electronically controlled, the applicable input or output circuits need to be monitored, limited to the items listed in Annex B.1.2. If for example a motorcycle would be equipped with a mechanically actuated carburettor, but at the same time with electronically controlled spark delivery, the primary ignition coil circuits need to be monitored. In the case of a mechanical carburettor fitted with a throttle position sensor providing a circuit signal as input to the PCU / ECU to determine the engine load, which on its turn would be used to electronically control spark delivery, requires monitoring of that throttle position sensor circuit.***However, single cylinder two wheeled vehicles is exempted from this requirement.*** Also other sensors or actuator circuits captured by points 3.3.5 and 3.3.6. of Annex B.1.1. shall be monitored although not directly used to control fuel delivery, spark delivery or intake air An example of such a case would be the wheel speed sensor circuits in case the vehicle speed would be calculated in the PCU / ECU from the wheel rotation speeds and which would be used to control the environmental performance of the vehicle. | India feels that in the case of two wheelers with single cylinder engine and a mechanical carburettor, CDI system and throttle position sensor which controls the ignition timing, it is not necessary to monitor failure.  In the case of single cylinder engine, such failure will cause drivability problem and not necessary to have MIL indicator. |
| **No** | **Amended Clauses** | **Justification**  **Section B.1** |
| 3 | ***1.3*** The malfunction indicator (MI) design will be harmonised in OBD stage UN I but the MI activation performance criteria are not standardised ***prescribed as four alternatives (Grade A, B, C and D)*** Consequently each Contracting Party is free to ***choose*** define MI activation criteria by its own, if any ***from these options***. | There has been considerable discussion about the activation criteria in the past, with India/China, Japan and EU requiring different levels. India had suggested 4 levels of stringency for MI activation for CP’s to choose from videEPPR-08-25e. Based on EC proposal that this criterion to be left open for CPs to decide, there was no further discussion on this subject.  India feels that leaving an open choice to the CP to decide, there will be no harmonisation possible at all.  Hence India suggests that 4 grades of OBD I may be prescribed. These 4 grades cover the requirements that India/China, Japan and EU had expressed as their plans at that time.  With this proposal, at least a limited harmonization is possible. |
| 4 | ***2***. Scope  Two-[ and three-wheeled] light motor vehicles equipped of Category 3-3 as defined in SR1 with a propulsion unit in accordance with table B.1.-1.  ***Contracting Parties are requested to consider the details of this GTR while enacting national/regional regulations for OBD for other vehicles of category 3.*** | India suggests that the scope of this GTR may be retained as only for two wheelers (class 3-3). It is also felt that it is advisable to add that CP could consider harmonization for other categories to the extent possible. |

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| **No** | **Amended Clauses** | **Justification**  **Section B.1** |
| 5 | Modify Table B.1.-1 as given below | 1. India proposes that in case of bi-fuelled vehicles where petrol is used for starting of emergency purposes OBD need not be mandated in petrol mode. The proposal is in line with the Indian proposal for Type IV test. (Sr. No. 3 of EPPR-11-07). 2. In the case of pure electric/compressed air and hydrogen fuel cell vehicles, there is no exhaust emission. 3. The later version of Draft revision of GTR 2 does not include hybrid vehicle. Hence the table need be corrected. 4. Once the emission norms for H2 vehicles get incorporated in GTR2, OBD for Hydrogen vehicles can be finalised. Currently H2 vehicles are not covered in GTR. |

|  | **Vehicle with PI engines including hybrids** | | | | | | | | | **Vehicles with CI engines including hybrids** | | **Pure electric vehicle**  **or**  **vehicle propelled with compressed air (CA)** | **Hydrogen Fuel cell vehicle** |
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| **Mono-fuel** | | | | **Bi-fuel\*** | | | **Flex-fuel** | | **Flex-fuel** | **Mono-fuel** |
| **Petrol** | **LPG** | **NG/Biomethane** | **H2** | **Petrol** | **Petrol** | **Petrol** | **Petrol** | **NG/Biomethane** | **Diesel** | **Diesel** |
| **LPG** | **NG/Biomethane** | **H2** | **Ethanol (E85)** | **H2NG** | **Biodiesel** |
| Functional OBD | Yes | [Yes] | [Yes] | [Yes] ***NO*** | [Yes] | [Yes] | [Yes] | [Yes] | [Yes] | [Yes] | [Yes] | [Yes] ***NO*** | [Yes] ***NO*** |
| Type VIII test | [Yes] | [Yes] | [Yes] | [Yes] ***NO*** | [Yes  (petrol only)] | [Yes  (petrol only)] | [Yes  (petrol only)] | [Yes  (petrol only)] | [Yes (NG/biomethane only)] | [Yes  (B5 only)] | [Yes] | [No] | [No] |
| ***Note :***  ***Requirement of this GTR is not applicable in petrol mode, for motor vehicle that is designed primarily for permanent running on LPG or NG / bio-methane or hydrogen, having a petrol system, with petrol tank capacity not exceeding 2 litres in the case of 3-3 category vehicle.*** | | | | | | | | | | | | | |

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| **No.** | **Amended Clauses** | **Justification**  **Section B.1** |
| 6 | ***3.2*** ‘calculated load value’ means referring to an indication of the current airflow divided by peak airflow, where peak airflow is corrected for altitude, if available. ***The manufacturer may choose any other appropriate parameter (such as throttle position, intake manifold pressure etc.) and shall demonstrate the adequacy of that parameter.*** This definition provides a dimensionless number that is not engine‑specifics and provides the service technician with an indication of the proportion of engine capacity being used (with wide open throttle as 100%); | Technical option to use other parameters than airflow may be permitted to provide more flexibility to the designer. |
| 7 | ***3.10.*** ‘on-board diagnostic system’ ‘(OBD) ’ means an electronic system fitted on-board of a vehicle that has the capability of identifying the likely area of malfunction ***in the emission control related sensors and actuators*** by means of fault codes stored in a computer memory which can be accessed by means of a generic scan tool.  ***Alternatively, the text in GTR 5 may also be used:***  ***"On-board diagnostic system (OBD)" means a system on board of a vehicle or engine which has the capability of detecting malfunctions, and, if applicable, of indicating their occurrence by means of an alert system, of identifying the likely area of the malfunctions by means of information stored in computer memory, and/or communicating that information off-board.*** | 1. India agrees with the Japan position to keep the objective of OBD as environmental protection. 2. For better clarity since the OBD I is limited to malfunction of sensors or actuators. 3. Alternate text as per GTR 5 may be considered. |
| 8 | ***~~3.11.~~*** ~~‘ NOVC vehicle’ means a not off-vehicle chargeable hybrid electric vehicle;~~ | Cf WLTP-2013-028 GTR Proposal to delete this clause is acceptable as the later version of Draft revision of GTR 2 does not include hybrid vehicle |
| 9 | ***~~3.12~~***~~. ‘ OVC vehicle’ means an off-vehicle charging hybrid electric vehicle;~~ |
| 10 | ***3.18.*** ‘warm-up cycle’ means vehicle operation whereby the coolant temperature ***or engine oil temperature or cylinder block or cylinder head surface temperature*** rises by at least 22 ***O*** C K from engine start-up to at least 70°C 343.2 K (70°C); | 1. To cater to needs of air cooled engines. 2. To follow the practice of temperature units as agreed for the draft GTR for Type IV test |

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| ***B .2.* TEXT OF THE REGULATION, FUNCTIONAL ON-BOARD DIAGNOSTICS (OBD)** | | |
| **No.** | **Amended Clauses** | **Justification** |
| 11 | ***1.*** OBD stage UN I  Two - and three-wheeled light motor vehicles  *of category 3-3* in the scope of this GTR shall be equipped with an OBD system which complies with the functional requirements and test procedures laid down in in this GTR. | To restrict the scope of two wheelers of category 3-3 |
| 12 | ***1.1***. OBD stage UN I.  ***1.1.1***. The technical requirements of this section shall be mandatory for two- [and three-] wheeled light motor vehicles *of category 3-3* equipped with an OBD stage UN I system.  ***1.1.2.*** The OBD stage UN I system shall monitor for any electric circuit and electronics failure of the vehicle’s control system laid down in Annex B.2.2. | To restrict the scope of two wheelers of category 3-3 |
| 13 | ***1.3.1.*** For the purposes of points 2.3.5. and 2.3.6. the electric circuit and electronic failure diagnostics with regard to OBD stage UN I shall at a minimum contain the ***emission control related*** sensors and actuators diagnostics as well as the internal diagnostics of the electronic control units listed in Annex B.1.2., ***In the case of a single cylinder engines, where failure of a sensor or actuator that results in IC engine to get stopped and become immovable and not further possible to start the vehicle till the failure is rectified, then monitoring of those sensors or actuators are exempted.*** | If the failure of sensor/actuator which stops the engine and vehicle particularly in case of single cylinder engine, then there is no emissions from the vehicle and it ensures environmental protection. Hence, no need of MI in such a case.  Para 2.3.5 and 2.3.6 are not available in this document |
| 14 | ***1.3.2.*** By [dd.mm.yyyy], the list in Annex B.1.1.2. shall be reviewed and updated for technical progress if deemed necessary. | This is a duplication of clause No 1 of Section B1. |
| 15 | ***2.1.*** Two- and three-wheeled light vehicles shall be equipped with an OBD stage UN I system so designed, constructed and installed in a vehicle as to enable it to identify types malfunction over the entire ***useful*** life of the vehicle. | India had suggested inclusion of a definition for useful life of vehicle in the draft GTR for Type IV. This change may be done, if the definition for useful life of vehicle is accepted |
| 16 | ***2.1.1***. Access to the OBD system required for the inspection, diagnosis, servicing or repair of the vehicle shall be unrestricted and standardised. All OBD relevant fault codes shall be consistent with point 3.11. of Annex B.1.1. | India is awaiting the outcome of bilateral discussion EC and Japan (Page No. 10 of EPPR-12-08) |

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| **No.** | **Amended Clauses** | **Justification**  **Section B.2** |
| 17 | ***2.2.1.1.*** A manufacturer may disable the OBD system if its ability to monitor is affected by low fuel levels or below the minimum state of charge of the propulsion or electric system batteries (maximum discharge of capacity). Disablement shall not occur when the fuel tank level is above 20 percent of the nominal capacity of the fuel tank ***as declared by the manufacturer.*** or above the minimum state of charge of the propulsion or electric system batteries . | Consequential to delete the Hybrid vehicles from the scope of this GTR.  In any case this will not be applicable to pure electric vehicles, since they are zero emission vehicles. |
| 18 | ***2.6.*** T he OBD system shall record fault code(s) indicating the status of the control system. Separate status codes shall be used to identify correctly functioning control systems and those control systems which need further vehicle operation to be fully evaluated. If the MI is activated due to malfunction or permanent default modes of operation, a fault code shall be stored that identifies the type of malfunction. A fault code shall also be stored in the cases referred to in point 2.3.5. | Clause 2.3.5 not available |
| 19 | ***2.6.1***. The distance travelled by the vehicle while the MI is activated shall be available at any moment through the serial port on the standardised diagnostic connector. By means of derogation for vehicles equipped with a mechanically operating odometer that does not allow input to the electronic control unit, “distance travelled” may be replaced with “engine operation time” ***or number of engine rotations*** and shall be made available at any moment through the serial port on the standardised diagnostic connector  ***In the case of “engine operation time” or number of engine rotations, their equivalence with respect to distance to be defined.*** | The option of monitoring the number of engine rotations may be provided. This will be a cost effective method for 2 wheelers. |

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| ***B*.2.1 ANNEX : FINCTIONAL ASPECTS OF OBD SYSTEM**  **Section B.2.1** | | | |
| **No.** | **Amended Clauses** | | **Justification** |
| 20 | ***3.1.*** ***Except in the case of Grade A OBD UN1,*** Upon determination of the first malfunction of any component or system, ‘freeze-frame’ engine conditions present at the time shall be stored in computer memory. Stored engine conditions shall include, but are not limited to, calculated load value, engine speed, fuel trim value(s) (if available), fuel pressure (if available), vehicle speed (if available), coolant temperature, intake manifold pressure (if available), closed- or open-loop operation (if available) and the fault code which caused the data to be stored. | | This feature is not necessary for Grade A OBD |
| 21 | ***3.1.1.*** ***Except in the case of Grade A OBD UN1*** The manufacturer shall choose the most appropriate set of conditions facilitating effective and efficient repairs in freeze-frame storage. Only one frame of data is required. Manufacturers may choose to store additional frames provided that at least the required frame can be read by a generic scan tool meeting the specifications of points 3.9. and 3.10. If the fault code causing the conditions to be stored is erased in accordance with point 2.8. of Annex B.1., the stored engine conditions may also be erased. | | This feature is not necessary for Grade A OBD |
| 22 | ***3.1.2.*** The calculated load value shall be calculated as follows:  ***If the airflow measurement is used for the calculated load value,***  Equation B.1.1.-1 ***shall apply***    ***If any other parameter is used (refer 3.2 of B.1.), appropriate formula may be used.*** | | Consequential to proposal to amend 3.2 of B1. |
| 23 | ***3.2.*** ***Except in the case of Grade A OBD UN1,*** If available, the following signals in addition to the required freeze-frame information shall be made available on demand through the serial port on the standardised diagnostic connector, if the information is available to the on-board computer or can be determined using information available to the on-board computer: diagnostic trouble codes, engine coolant temperature, fuel control system status (closed-loop, open-loop, other), fuel trim, ignition timing advance, intake air temperature, manifold air pressure, air flow rate, engine speed, throttle position sensor output value, secondary air status (upstream, downstream or atmosphere), calculated load value, vehicle speed, the position of the antilock brake system switch (on/off), the activated default mode(s) and fuel pressure.  The signals shall be provided in standard units based on the specifications in point 3.7. Actual signals shall be clearly identified separately from default value or limp-home signals. The type and details of whichever data to be stored as freeze frame will be at the discretion of the manufacturer as required to adequately demonstrate the ability to suitably understand the failure mode and conditions.  ***The type and details of whichever data to be stored as freeze frame, will be at the choice of the manufacturer as required to adequately demonstrate the ability to understand suitably the failure mode and conditions.*** | | 1. This feature is not necessary for Grade A OBD  2. For more design flexibility. |
| **No.** | **Amended Clauses** | **Justification**  **Section B.2.1** | |
| 24 | ***4.2.*** Upon request, the vehicle manufacturer shall make the relevant information on the OBD system available to any interested components, diagnostic tools or test equipment manufacturer on a non-discriminatory basis: | India is awaiting the outcome of bilateral discussion EC and Japan (Page No. 10 of EPPR-12-08) | |
| 26 | ***4.2.1.*** A description of the type and number of preconditioning cycles used for the original [certification] / [approval of the vehicle;  ***4.2.2***. A description of the type of the OBD demonstration cycle used for the original [certification] / [approval] of the vehicle for the component monitored by the OBD system;  ***4.2.3.*** A comprehensive document describing all sensed components with the strategy for fault detection and MI activation (fixed number of driving cycles or statistical method), including a list of relevant secondary sensed parameters for each component monitored by the OBD system and a list of all OBD output codes and format used (with an explanation of each) associated with individual emission related powertrain components and individual non-emission related components, where monitoring of the component is used to determine MI activation. In particular, a comprehensive explanation for the data in service $ 05 Test ID $ 21 to FF and the data in service $ 06 shall be provided. In the case of vehicle types that use a communication link in accordance with ISO 15765-4 ‘Road vehicles — Diagnostics on Controller Area Network (CAN) — Part 4: Requirements for emissions-related systems’, a comprehensive explanation for the data in service $ 06 Test ID $ 00 to FF, for each OBD monitor ID supported, shall be provided. | India is awaiting the outcome of bilateral discussion EC and Japan (Page No. 10 of EPPR-12-08) | |
| 27 | ***4.2.7.*** The request for information shall identify the exact specification of the vehicle model for which the information is required. It shall confirm that the information is required for the development of replacement or retrofit parts or components or diagnostic tools or test equipment. | India is awaiting the outcome of bilateral discussion EC and Japan (Page No. 10 of EPPR-12-08) | |
| 28 | ***4.2.8.*** Access to vehicle security features used by authorised dealers and repair shops shall be made available to independent operators under protection of security technology according to the following requirements:  (1) data shall be exchanged ensuring confidentiality, integrity and protection against replay;  (2) the standard https//ssl-tls (RFC4346) shall be used;  (3) security certificates in accordance with ISO 20828 shall be used for mutual authentication of independent operators and manufacturers;  (4) the independent operator’s private key shall be protected by secure hardware.  The Contracting Parties will specify the parameters for fulfilling these requirements according to the state-of-the-art.  The independent operator shall be approved and authorised for this purpose on the basis of documents demonstrating that they pursue a legitimate business activity and have not been convicted of relevant criminal activity. | India is awaiting the outcome of bilateral discussion EC and Japan (Page No. 10 of EPPR-12-08) | |

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| **B .2.2. ANNEX: MINIMUM MONITORING REQUIREMENTS FOR AN ON-BOARD DIAGNOSTIC (OBD) SYSTEM STAGE UN I LEVEL 1**  **Section B.2.2** | | |
| **No.** | **Amended Clauses** | **Justification** |
| 29 | ***2.*** Scope and monitoring requirements  ***2.1*** If fitted ***and used for emission control***, listed sensors and actuators shall be monitored for electric circuit malfunctions | For better clarity |
| 30 | ***2.1.1: Grade A:*** |  |
| 31 | ***Sensors and actuators listed in table B.2.2.1 shall be monitored for electric circuit malfunctions, open/short circuit failures*** | See Sr. No 5. |
| 32 | ***2.1.2 Grade B:*** |  |
| 33 | ***Sensors and actuators listed in table B.2.2.2 shall be monitored for electric circuit malfunctions which may cause the fuel trim values exceed the limits specified by the manufacturer.*** |  |
| 34 | ***2.1.3 Grade C:*** |  |
| 35 | ***Sensors and actuators listed in table B.2.2.2 shall be monitored for electric circuit malfunctions which may cause emissions to exceed the designated OBD emission thresholds laid down by the Contracting Party.*** |  |
| 36 | ***2.1.4 Grade D:*** |  |
| 37 | ***Sensors and actuators listed in table B.2.2.2 shall be monitored for electric circuit malfunctions which may cause emissions to exceed the designated OBD emission thresholds laid down by the Contracting Party or lead to activation of a default mode that results in a significant reduction of propulsion unit torque.*** |  |
|  | |  |  | | --- | --- | | ***Sr. No.*** | ***Sensors circuit continuity to be checked,***  ***if fitted for Emission Control*** | | ***1*** | ***Throttle position sensor*** | | ***2*** | ***Barometric pressure sensor*** | | ***3*** | ***Crankshaft position sensor*** | | ***4*** | ***Engine coolant temperature sensor or Oil temperature sensor*** | | ***5*** | ***Gear position sensor*** | | ***6*** | ***Intake air temperature sensor*** | | ***7*** | ***Intake manifold absolute pressure sensor*** | | ***8*** | ***O2 (binary or linear) signals sensor*** | | ***9*** | ***Any other sensor declared by manufacturer.*** | | ***Table B.2.2.-1 : overview of devices (if fitted) to be monitored in Grade A of OBD stage UN I*** | | |  |
| 38 | Table B.2.2.-1 ***2***: overview of devices (if fitted) to be monitored ***in Grades B, C and D of*** OBD stage UN I | Sequential change |

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| **No.** | **Amended Clauses** | **Justification**  **Section B.2.2** |
| 39 | ***2.2.*** If there are more of the same device types fitted on the vehicle listed in the table B.1.2.-1 ***B.2.2.2*** those devices shall be separately monitored and reported in case of malfunctions. If a malfunction is marked with “UN I” in table B.1.2.-1 ***B.2.2.2*** it shall mean that monitoring is mandatory for OBD stage UN I ***of Grade , B, C and D*** | Editorial and consequential |
| 40 | ***2.3.*** Sensors and actuators ***listed in table*** ***B.2.2.2*** shall be associated with a specific diagnostic level that defines which type of diagnostic monitoring shall be performed as follows: | Editorial and consequential |
| 41 | ***2.6.*** Exemption regarding OBD emission verification tests (type VIII)  At the request of the manufacturer and based on a technical justification [to the satisfaction of the [approval] authority], certain OBD monitors listed in table B B.1.2.-1 ***B.2.2.2*** may be exempted from type VIII emission verification tests referred to in section B.2. under the condition that the manufacturer can demonstrate to the [approval] authority that: | Consequential to Indian proposal for 4 grades of OBD |

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| ***B.3*. TEXT OF THE REGULATION, TEST TYPE VIII, OPTIONAL ENVIRONMENTAL ON-BOARD DIAGNOSTIC TEST**  **Section B.3** | | |
| **No.** | **Amended Clauses** | **Justification** |
| 42 | ***1.*** Introduction  ***1.1.*** This Annex describes the procedure for type VIII testing, environmental on-board diagnostics (OBD), which a Contracting Party may require for the [certification] / [approval] of a vehicle complying with the UN stage I requirements. Test type VIII environmental verification testing ***requirements depend upon the Grade of the OBD opted by the Contracting Party.*** is optional and application of OBD emission and other failure are at the discretion of the Contracting Party. Clauses 2 to  The procedure describes methods for checking the function of the OBD system on the vehicle by simulating failure of emission-relevant components in the powertrain management system and emission-control system.  ***1.2***. The manufacturer shall make available the defective components or electrical devices to be used to simulate failures. When measured over the appropriate test type I cycle, such defective components or devices shall not cause the vehicle emissions to exceed by more than 20 percent the OBD emission thresholds if the Contracting Party applies these fail thresholds as MI activation performance criteria. | The type VIII test is mandatory only in the case of Grades B,C or to evaluate the malfunction indication of the fuel trim or emission threshold limits etc. |
| 43 | ***1.3.*** When the vehicle is tested with the defective component or device fitted, the OBD system shall be approved if the malfunction indicator is activated. The system shall also be approved if the indicator is activated below the OBD emission thresholds if the Contracting Party applies these fail thresholds as MI activation performance criteria,***as prescribed for Grades B, C and D*** . | Consequential to India’s proposal to grouping the activation performance criteria in different grades. |
| 44 | ***2.*** OBD stage UN I  The test procedures in this annex shall be prescribed by those Contracting Parties that have decided to apply explicit OBD fail thresholds which are used as MI activation performance criteria ***as prescribed for Grades B, C and D***. | --do-- |

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| **No.** | **Amended Clauses** | **Justification**  **Section B.3** |
| 45 | ***3.1.1.*** The environmental OBD verification and demonstration tests shall be carried out on a test vehicle, that shall be properly maintained and used, dependent on the chosen durability test method set out in [section B.4. of Revision 1 of GTR No 2] using the test procedures laid down in section B.2. of this GTR and in the applicable World-harmonised Motorcycle Test Cycle (WMTC) set out in section B.2. of GTR No 2. | These clauses may be deleted since, there is no certainty that OBD related failures would have occurred during the Type V test. |
| 46 | ***3.1.2***. In case of applying the durability test procedure set out in [section B.4. of Revision 1 of GTR No 2] the test vehicles shall be equipped with the aged emission components used for durability tests as well as for the purposes of this section B.2. and the OBD environmental tests are to be finally verified and reported at the conclusion of the Type V durability testing; |  |
| 47 | ***3.1.3.*** In case the OBD demonstration test requires emission measurements, the type VIII test shall be carried out on the test vehicles used for the type V test (durability of pollution control devices). Type VIII tests shall be finally verified and reported at the conclusion of the type V durability testing. |  |
| 48 | ***3.2.*** ***In the case of Grade D of*** The OBD system shall indicate the failure of an emission-related component or system when that failure results in emissions exceeding the OBD emission thresholds or any powertrain fault that triggers an operation mode that significantly reduces torque in comparison with normal operation, providing that these OBD fail thresholds are applied as MI activation performance criteria ***based on Grade B, C or D mandated*** by a Contracting Party. | For better clarity, since Indian proposal specifies this requirement only for Grade D OBD |
| 49 | ***4.1 In the case of Grade B, C and D OBD*** | The procedure described in this item is applicable to Grades B, C and D of OBD. A separate clause is proposed for Grade A |
| 50 | ***4.1.3.*** Driving the vehicle with a simulated malfunction over the applicable type I test cycle and measuring the emissions of the vehicle, as follows:  ***4.1.3.1.*** For OVC vehicles, the pollutant emissions shall be measured under the same conditions as specified for Condition B of the applicable type I test (points 3.1.3. and 3.2.3 of Annex B.2.1. of Revision 1 of GTR No 2.).  ***4.1.3.2.*** F or NOVC vehicles, the pollutant emissions shall be measured under the same conditions as in the type I test; | May be deleted because of proposal to delete the scope of hybrid vehicles from GTR 2 Rev 1. |

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| **No** | **Amended Clauses** | **Justification**  **Section B.3** |
| 51 | ***4. 1.1.4***. Determining whether the OBD system reacts to the simulated malfunction and alerts the vehicle driver to it in an appropriate manner. | Sequential change |
| 52 | ***4. 1.2***. Alternatively, at the request of the manufacturer, malfunction of one or more components may be electronically simulated in accordance with the requirements laid down in point 8. | Sequential change |
| 53 | ***4. 1.3***. Manufacturers may request that monitoring take place outside the type I test cycle if it can be demonstrated to the [approval] authority that the monitoring conditions of the type I test cycle would be restrictive when the vehicle is used in service. | Sequential change |
| 54 | ***4. 1.4.*** For all demonstration testing, the Malfunction Indicator (MI) shall be activated before the end of the test cycle. | Sequential change |
| 55 | ***4.2. In the case of Grade A or OBD I*** |  |
| 56 | ***4.2.1 .If the OBD parameter requires engine to be driven for MIL activation, vehicle shall be driven as per driving cycle prescribed in GTR 2 Rev 1, or any driving cycle prescribed by manufacturer including key `ON` `OFF` cycles, vehicle can be considered meeting circuit discontinuity when the MIL activates within maximum of 10 driving cycles.***  ***4.2.2 If the OBD parameter does not require vehicle to be driven for MIL activation, vehicle can be considered meeting circuit discontinuity for the tested OBD parameter*** | With regulatory cycle, there is possibility of particular failure may not be indicated, hence suggested demonstration of MIL activation on driving cycle prescribed by manufacturer. |
| 57 | ***5.1.*** Test vehicle  The test vehicles shall meet the requirements of [Annex B.6.3. of Revision 1 of GTR No 2] regarding test type V after mileage accumulation in accordance with the requirements on partial or full mileage accumulation and as representative parent vehicle remain within the boundaries of the OBD family set out in Annex B.2.1. | This clause should appear in the GTR for Type V test and not in OBD document |
| 58 | ***8.3.4***. If a Contracting Party applies MI activation performance criteria ***(Grade B, C or D)*** any powertrain malfunction that triggers any operating mode which significantly reduces engine torque, it shall be detected and reported by the powertrain / engine control system. | For better clarity, since Indian proposal specifies this requirement only for B, C and D Grades of OBD |

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