**Open Points**

**Freeze Frame Information**

F.F.D for OBD Type A. Should type A be exempt?

**Section II - Text of the global technical regulation**

 [3.6. “default mode” ” refers to a case where the engine management controller switches to a setting that does not require an input from a failed component or system]

[3.20 “warm-up cycle” means vehicle operation whereby the coolant temperature rises by at least 22 ºC from engine start-up to at least 70°C or the lubrication oil temperature rises by at least [xx] ºC from engine start-up to at least [yy] °C. In the case of an air-cooled engine as alternative to the coolant temperature either the rise in temperature of the cylinder block or of the cylinder head surface may be selected.ad surface may be selected.]

**Annex I**

[3.1 Except in the case of grade A OBD I, 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 (if available), intake manifold pressure (if available), closed- or open-loop operation (if available) and the diagnostic trouble code which caused the data to be stored.]

[3.1.1 Except in the case of grade A OBD I, 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 diagnostic trouble code causing the conditions to be stored is erased in accordance with point 5.2.8.1. of Section II the stored engine conditions may also be erased.]

[3.2 Except in the case of grade A OBD I, 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 choice of the manufacturer as required to adequately demonstrate the ability to understand suitably the failure mode and conditions.]

**Annex III**

[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 durability requirements of pollution control devices at the discretion of the Contracting Party.]

[3.1.2 The test vehicle(s) shall be equipped with the aged emission components used for durability tests. The OBD environmental verification tests are to be finally verified and reported on the durability of pollution control devices;]

Template for the RMI (new Annex): Based upon some of the already existing templates in the parties.

3.12. The connection interface between the vehicle and the diagnostic tester shall be standardised and meet all the requirements of ISO [DIS] 19689 “Motorcycles and Mopeds -- Communication between vehicle and external equipment for diagnostics -- Diagnostic connector and related electrical circuits, specification and use” or ISO 15031-3:2004 “Road vehicles — Communication between vehicle and external test equipment for emissions-related diagnostics — Part 3: Diagnostic connector and related electric circuits: specification and use”. The preferred installation position is under the seating position. Any other position of the diagnostic connector shall be subject to the approval authority’s agreement and be readily accessible by service personnel but protected from tampering by non-qualified personnel. The position of the connection interface shall be clearly indicated in the user manual.

3.13. Until 2020, the vehicle manufacturer may use an alternative connection interface upon request. Where an alternative connection interface is used, the vehicle manufacturer shall provide an adapter enabling connection to a generic scan tool. Such an adapter shall be provided in a non-discriminating manner to all independent operators.

Address in the Technical report the need of improve vibration and the temperature requirement

3.19 "useful life" means the relevant period of distance and/or time over which compliance with the OBD system has to be assured.

Address in the Technical report why time has been kept