

**CHAPTER 2 : ESSENTIAL CHARACTERISTICS OF THE VEHICLE AND ENGINE AND INFORMATION CONCERNING THE CONDUCT OF TESTS**

- 1.0 Description of the Vehicle -----
- 1.1 Trade name or mark of the vehicle -----
- 1.2 Vehicle type -----
- 1.3 Manufacturer's name and address -----
- 1.4 Unladen mass of vehicle(kN) -----
- 1.4.1 Reference mass of vehicle -----
- 1.4.2 Gross Vehicle Weight -----
- 1.5 Gear box -----
- 1.5.1 Manual or automatic -----  
(If it is automatic give all pertinent technical data)
- 1.5.2 Number of gears -----
- 1.5.3 Transmission ratio : -----
- 1.5.3.1 First Gear -----
- 1.5.3.5 Over Drive -----
- 1.5.3.6 Gear Shifting Pattern -----
- 1.6 Final drive ratio -----
- 1.7 Tyres -----
- 1.7.1 Dimensions -----
- 1.7.2 Dynamic rolling circumference -----
- 1.7.3 Type -----
- 1.7.4 Ply Rating -----
- 1.7.5 Tyre Pressure : -----  
Front -----

- Rear -----
- 1.8 Wheel drive : -----  
 Front. -----  
 Rear -----
- 1.9 Vehicle performance (declared by manufacturer) -----
- 1.9.1 Vehicle max. speed. -----
- 1.9.2 Acceleration max. ----- m/sec<sup>2</sup>
- 2.0 Description of engine -----
- 2.1 Make : -----
- 2.2 Type : -----
- 2.3 Working principle : -----  
 four-stroke/two-stroke :
- 2.4 Bore : -----mm
- 2.5 Stroke : ----- mm
- 2.6 Number and layout of cylinders and firing order -----
- 2.7 Cylinder capacity : ----- cm<sup>3</sup>
- 2.8 Compression ratio -----  
 (Specify the tolerance)
- 2.9 Drawings of combustion chamber and piston crown -----
- 2.10 Minimum cross-sectional area of inlet and outlet ports -----
- 2.11 Cooling System : liquid / air cooling -----
- 2.11.1 \_Characteristics of liquid-cooling system -----
- 2.11.1.1 Nature of liquid Circulating pump : Yes/No -----
- 2.11.1.2 Characteristics of make(s) and type(s) -----

- 2.11.1.3 Drive ratio -----
- 2.11.1.4 Thermostat: setting -----
- 2.11.1.5 Radiator : drawing(s) or make(s) and type(s) -----
- 2.11.1.6 Relief valve : pressure setting -----
- 2.11.1.7 Fan : Characteristics or make(s) and type(s) -----
- 2.11.1.8 Fan drive system                      Drive ratio : -----
- 2.11.1.9 Fan cowl : -----
- 2.11.2 Characteristics of air-cooling system -----
- 2.11.2.1 Blower : characteristics or make(s) and type(s) -----
- 2.11.2.2 Drive ratio (s) : -----
- 2.11.2.3 Air ducting ( standard production): -----
- 2.11.2.4 Temperature regulating system : -----  
yes/no / Brief description
- 2.11.3 Temperature permitted by the manufacturer -----
- 2.11.3.1 Liquid cooling : max. temperature at engine outlet -----
- 2.11.3.2 Air cooling: Reference point -----
- 2.11.3.3 Max. temperature at reference point -----
- 2.11.3.4 Max. outlet temperature of the inlet intercooler -----
- 2.11.3.5 Max. exhaust temperature at the point in the exhaust -----  
pipe(s) adjacent in outlet flange(s) of the exhaust  
manifolds
- 2.11.3.6 Fuel temperature :                      min                      .max -----
- 2.11.3.7 Lubricant temperature:                      min                      .max -----
- 2.12 Supercharger : yes/no (Description of the system) -----
- 2.13 Intake System : -----
- 2.13.1 Intake manifold :                      Description -----

- 2.13.2 Air filter :                      Make:              Type: -----
- 2.13.3 Intake silencer:                  Make:              Type: -----
- 2.14    Device for recycling crank-case gases :              -----  
Description and diagrams
- 3.0    Additional anti-pollution devices (if any, and if not covered by another heading) -----  
Description and diagrams
- 4.0    Air intake and fuel feed                                      -----
- 4.1    Description and diagrams of inlet pipes and their accessories -----  
(dash pot, heating device, additional air intakes, etc.)
- 4.1.1    Maximum permitted depression of air intake at characteristic place. (Specify location of measurement) kPa -----  
(Specify the tolerance) (Specify range if applicable)
- 4.2    Fuel feed    -----
- 4.2.1    Feed pump    -----  
Pressure or characteristic diagram  
(Specify the tolerance)
- 4.2.2    Injection System    -----  
System description  
Working principle : Intake manifold / direct injection /  
Injection prechamber / swirl chamber.
- 4.2.2.1    Pump    -----
- 4.2.2.1.1    Make (s)    -----
- 4.2.2.1.2    Type (s)    -----
- 4.2.2.1.3    Delivery :  $\text{mm}^{-3}$  per stroke or cycle at a pump of ----- rpm at  
full. Injection or characteristic diagram -----  
(Specify the tolerance)
- 4.2.2.1.4    Calibration procedure : On engine/ On pump bench -----
- 4.2.2.1.5    If boost control is supplied, state the characteristic fuel delivery and boost pressure versus engine speed. -----
- 4.2.2.1.6    Injection timing    -----

- 4.2.2.1.7 Injection advance curve -----
- 4.2.2.1.8 Injection advance -----  
(Specify the tolerance)
- 4.2.2.2 Injectors : -----
- 4.2.2.2.1 Make : -----
- 4.2.2.2.2 Type : -----
- 4.2.2.2.3 Opening Pressure ----- MPa  
or characteristic diagram  
(Specify the tolerance)
- 4.2.2.3 Injection Piping -----
- 4.2.2.3.1 Length -----
- 4.2.2.3.2 Internal diameter -----
- 4.2.2.4 Governor -----
- 4.2.2.4.1 Make (s) : -----
- 4.2.2.4.2 Type (s) : -----
- 4.2.2.4.3 Cut off point under load ----- rpm
- 4.2.2.4.4 Max. speed without load ----- rpm
- 4.2.2.4.5 Idle speed ----- rpm
- 4.2.2.5 Cold start device -----
- 4.2.2.5.1 Make(s) : -----
- 4.2.2.5.2 Type(s) : -----
- 4.2.2.5.3 System description -----
- 4.2.2.6 Starting aid -----
- 4.2.2.6.1 Make : -----
- 4.2.2.6.2 Type : -----
- 4.2.2.6.3 System description -----

- 5.0 Valve timing or equivalent data: -----
- 5.1 Maximum lift of valves, angles of opening and closing, or timing details of alternative distribution systems, in relation to top dead centre (Specify the tolerance and range) -----
- 5.2 Reference and/or setting ranges -----
- 6.0 Exhaust System -----
- 6.1 Description of exhaust equipment if the test is made with the complete equipment provided by the engine or vehicle manufacturer -----
- 6.2 Specify the back pressure at maximum net power and the location of measurement kPa (Specify the tolerance and range) -----
- 6.3 Indicate the effective volume of the exhaust (Specify the tolerance and range) -----cm<sup>3</sup>
- 7.0 Lubrication system -----
- 7.1 Description of systems -----
- 7.1.1 Position of lubricant reservoir -----
- 7.1.2 Feed system (pump, injection into intake, mixing with fuel, etc.) -----
- 7.2 Lubricating pump -----
- 7.2.1 Make : -----
- 7.2.2 Type : -----
- 7.3 Mixture with fuel -----
- 7.3.1 Percentage -----
- 7.4 Oil cooler : yes/no -----
- 7.4.1 Drawing(s) or make(s) and type(s) -----
- 8.0 Electrical equipment (Generator/alternator : characteristics or make(s) and type(s)) -----
- 9.0 Other engine driven auxiliaries -----

(Enumeration and brief description if necessary)

- 10.0 Transmission -----
- 10.1 State movement of inertia of combined flywheel and transmission at condition when no gear is engaged -----  
(Specify the range if applicable)
- 11.0 Engine performance (declared by the manufacturer) -----
- 11.1 Idling speed : -----rpm  
(Specify the tolerance)
- 11.2 Maximum rated speed : ----- rpm  
(Specify the tolerance)
- 11.3 Minimum rated speed : ----- rpm  
(Specify the tolerance)
- 11.4 Max. net torque of engine on bench : Nm at .rpm -----  
(Specify the tolerance)
- 11.5 Max. net power of engine on bench : kW at rpm -----  
Indicate power absorbed by fan kW  
(Specify the tolerance)
- 11.6 Test on bench -----  
Declared powers at the points of measurement referred to in Chapter 3 shall be stated in Table 1.

Declared speeds and powers of the engine/vehicle (strike out what does not apply) submitted for approval

(Speeds to be agreed with the testing agency)

Measurement Points *	Engine Speed : n ( rpm)	Power : P ** KW	Vehicle Speed and gear position
-----	-----	-----	-----
-----	-----	-----	-----
-----	-----	-----	-----
-----	-----	-----	-----

(NOTE : STRIKE OUT WHAT IS NOT APPLICABLE)

\* See Chapter 3 of Part IV

\*\* Net power according to Chapter 6 of Part IV