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| **DETAILED TECHNICAL SPECIFICATIN FOR AGRICULTURAL TRACTORS /COMBINED HARVESTER WITH BHARAT STAGE TREM IV/V ENGINE** | | | |
| **1.0** | **General** |  | |
| 1.1 | Name of Manufacturer / Importer |  | |
| 1.1.1 | Address |  | |
| 1.1.2 | Name of the contact Person |  | |
| 1.1.3 | Telephone Numbers |  | |
| 1.1.4 | Fax No. |  | |
| 1.1.5 | Email |  | |
| 1.2 | List of Imported components (% By value) (Attach list separately indicating Name and Part Number) |  | |
| 1.3 | Method of selection (by Testing Authority or by the manufacturer / applicant) |  | |
| 1.4 | Recommended duration and Schedule of Running-In by manufacturer |  | |
| 1.4.1 | Engine |  | |
| 1.4.2 | Transmission |  | |
| **2.0** | **Tractor** |  | |
| 2.1 | Type |  | |
| 2.1.1 | Make |  | |
| 2.1.2 | Model No. |  | |
| 2.1.3 | Brand name, if any |  | |
| 2.1.4. | Indian Trade name |  | |
| 2.1.5 | Chassis Number and its place of location on the tractor |  | |
| 2.1.6 | Serial No. |  | |
| 2.1.7 |  |  | |
| 2.1.8 | Year of Manufacture |  | |
| 2.1.9 | Variant(s), if any (Variant name and variant features, also Include a model wise separate sheet for necessary details) |  | |
| 2.1.10 | Maximum PTO Power, kW (Declared value) |  | |
| 2.1.11 | Rated PTO Power, kW (Declared value) |  | |
| 2.1.12 | CFMTTI Test Report Number |  | |
| 2.1.13 | Assembly identification | Identification mark | Location |
| 2.1.13.1 | Engine identification / Sl. Number |  |  |
| 2.1.13.2 | Chassis identification / Sl. Number |  |  |
| 2.1.13.3 | Gearbox/Transmission housing identification Mark / No. |  |  |
| 2.1.13.4 | Hydraulic System identification Mark/No. |  |  |
| 2.1.13.5 | Other major assemblies, if any |  |  |
| **3.0** | **Reserved** |  | |
| **4.0** | **Engine** |  | |
| 4.1 | Description of engine |  | |
| 4.2 | Type (NA/TC/TCIC, DI/IDI) |  | |
| 4.3 | Manufacturer's name & Manufacturing Plant address. |  | |
| 4.4 | Manufacturer's engine code |  | |
| 4.5 | Cycle: four stroke/two stroke1 |  | |
| 4.6 | Bore (mm) |  | |
| 4.7 | Stroke (mm) |  | |
| 4.8 | Number and layout of cylinders |  | |
| 4.9 | Engine capacity (cm3) |  | |
| 4.10 | Rated speed (rpm) |  | |
| 4.11 | Maximum torque speed (rpm) |  | |
| 4.12 | Volumetric compression ratio2 |  | |
| 4.13 | Combustion system description |  | |
| 4.14 | Drawing(s) of combustion chamber and piston crown |  | |
| 4.15 | Minimum cross-sectional area of inlet and outlet ports |  | |
| **5.0** | **Electrical System:** |  | |
| 5.1 | Batteries: |  | |
| 5.1.1.1 | - Make |  | |
| 5.1.1.2 | - Model, if any |  | |
| 5.1.1.3 | - Type |  | |
| 5.1.1.4 | - Capacity and rating |  | |
| 5.1.1.5 | - Location |  | |
| 5.1.1.6 | - Ground polarity |  | |
| 5.2 | Self-Starter: |  | |
| 5.2.1 | - Make |  | |
| 5.2.2 | - Model |  | |
| 5.2.3 | - Capacity & Power rating |  | |
| 5.2.4 | - Serial Number |  | |
| 5.3 | Generator (Alternator/Dynamo): |  | |
| 5.3.1 | - Make |  | |
| 5.3.2 | - Model |  | |
| 5.3.3 | - Type |  | |
| 5.3.4 | - Out put rating |  | |
| 5.3.5 | - Power rating |  | |
| 5.3.6 | - Serial Number |  | |
| 5.4 | Details of Instruments panel: |  | |
| 5.4.1 | Engine speed –cum-cumulative run hour meter. |  | |
| 5.4.2 | Lubricant oil pressure gauge/ indicator lamp |  | |
| 5.4.3 | Coolant (water) temperature gauge (with colour zones). |  | |
| 5.4.4 | Fuel level gauge (with colour zones). |  | |
| 5.4.5 | Main switch (key-turn type). |  | |
| 5.4.6 | Light switch (rotary type). |  | |
| 5.4.7 | Turn indicator light switch |  | |
| 5.4.8 | Hazard light switch |  | |
| 5.4.9 | Head light (long beam) indicator lamp. |  | |
| 5.4.10 | Battery charging indicator lamp. |  | |
| 5.4.11 | Turn indicator-cum-hazard indicator tell-tale |  | |
| 5.4.12 | Fuel shut-off knob |  | |
| 5.4.13 | Horn push button. |  | |
| 5.4.14 | Specify other if any |  | |
| 5.5 | Lighting Installation requirements |  | |
| 5.5.1 | Head lamp |  | |
| 5.5.1.1 | Main beam |  | |
| 5.5.1.1.1 | Make |  | |
| 5.5.1.1.2 | Type of lens (Glass / Plastic) |  | |
| 5.5.1.1.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.1.1.4 | Numbers |  | |
| 5.5.1.2 | Dipped beam |  | |
| 5.5.1.2.1 | Make |  | |
| 5.5.1.2.2 | Type of lens (Glass / Plastic) |  | |
| 5.5.1.2.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.1.2.4 | Numbers |  | |
| 5.5.2 | Day Time Running Lamp (if provided) |  | |
| 5.5.2.1 | Make |  | |
| 5.5.2.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.2.3 | Type of lens (Glass / Plastic) |  | |
| 5.5.2.4 | Numbers |  | |
| 5.5.3 | Front Fog Lamp |  | |
| 5.5.3.1 | Make |  | |
| 5.5.3.2 | Type of lens (Glass / Plastic) |  | |
| 5.5.3.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.3.4 | Numbers |  | |
| 5.5.4 | Rear Fog Lamp |  | |
| 5.5.4.1 | Make |  | |
| 5.5.4.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.4.3 | Numbers |  | |
| 5.5.5 | Registration Plate lamp |  | |
| 5.5.5.1 | Make |  | |
| 5.5.5.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.5.3 | Numbers |  | |
| 5.5.6 | Position lamp / Parking Lamp – Front |  | |
| 5.5.6.1 | Front Position Lamp |  | |
| 5.5.6.1.1 | Make |  | |
| 5.5.6.1.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.6.1.3 | Numbers |  | |
| 5.5.6.2 | Front Parking Lamp |  | |
| 5.5.6.2.1 | Make |  | |
| 5.5.6.2.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.6.2.3 | Numbers |  | |
| 5.5.7 | Position lamp / Parking Lamp – Rear |  | |
| 5.5.7.1 | Rear Position Lamp |  | |
| 5.5.7.1.1 | Make |  | |
| 5.5.7.1.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.7.1.3 | Numbers |  | |
| 5.5.7.2 | Rear Parking Lamp |  | |
| 5.5.7.2.1 | Make |  | |
| 5.5.7.2.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.7.2.3 | Number and Colour of Lens |  | |
| 5.5.8 | Stop lamp (S1 / S2) |  | |
| 5.5.8.1 | Make |  | |
| 5.5.8.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.8.3 | Numbers |  | |
| 5.5.9 | Reversing lamp |  | |
| 5.5.9.1 | Make |  | |
| 5.5.9.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.9.3 | Numbers |  | |
| 5.5.10 | Direction indicator Lamp |  | |
| 5.5.10.1 | Front |  | |
| 5.5.10.1.1 | Make |  | |
| 5.5.10.1.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.10.1.3 | Numbers |  | |
| 5.5.10.2 | Rear |  | |
| 5.5.10.2.1 | Make |  | |
| 5.5.10.2.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.10.2.3 | Numbers |  | |
| 5.5.11 | Reflector |  | |
| 5.5.11.1 | Rear |  | |
| 5.5.11.1.1 | Make |  | |
| 5.5.11.1.2 | Type |  | |
| 5.5.11.1.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.11.1.4 | Numbers |  | |
| 5.5.11.1.5 | Reflective surface Area |  | |
| 5.5.11.1.6 | Shape (Square / rectangular / circular / elliptical /other) |  | |
| 5.5.11.2 | Side |  | |
| 5.5.11.2.1 | Make |  | |
| 5.5.11.2.2 | Type |  | |
| 5.5.11.2.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.11.2.4 | Numbers |  | |
| 5.5.11.2.5 | Reflective surface Area |  | |
| 5.5.11.2.6 | Shape (Square / rectangular / circular / elliptical /other) |  | |
| 5.5.12 | End-outline marker lamp (Top light) |  | |
| 5.5.12.1 | Front |  | |
| 5.5.12.1.1 | Make |  | |
| 5.5.12.1.2 | Type of lens (Glass / Plastic) |  | |
| 5.5.12.1.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.12.1.4 | Numbers |  | |
| 5.5.12.2 | Rear |  | |
| 5.5.12.2.1 | Make |  | |
| 5.5.12.2.2 | Type of lens (Glass / Plastic) |  | |
| 5.5.12.2.3 | Identification: TAC No. / BIS License No. /  E- Marking |  | |
| 5.5.12.2.4 | Numbers |  | |
| 5.5.13 | Diagram of vehicle indicating nomenclature of the light and light signaling devices, installation dimensions w.r.t. ground, inner and outer distance between same lighting device, distance from extreme outer edge of the vehicle (in transverse plane). |  | |
| 5.5.14 | Warning Triangle |  | |
| 5.5.14.1 | Make |  | |
| 5.5.14.2 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15 | Automotive bulbs |  | |
| 5.5.15.1 | Head lamp bulb (main beam) |  | |
| 5.5.15.1.1 | Make |  | |
| 5.5.15.1.2 | Category as per AIS-034 |  | |
| 5.5.15.1.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.2 | Head lamp bulb (Dipped beam) |  | |
| 5.5.15.2.1 | Make |  | |
| 5.5.15.2.2 | Category as per AIS-034 |  | |
| 5.5.15.2.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.3 | Parking Lamp bulb – Front |  | |
| 5.5.15.3.1 | Make |  | |
| 5.5.15.3.2 | Category as per AIS-034 |  | |
| 5.5.15.3.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.4 | Parking Lamp bulb – Rear |  | |
| 5.5.15.4.1 | Make |  | |
| 5.5.15.4.2 | Category as per AIS-034 |  | |
| 5.5.15.4.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.5 | Direction indicator lamp bulb - front |  | |
| 5.5.15.5.1 | Make |  | |
| 5.5.15.5.2 | Category as per AIS-034 |  | |
| 5.5.15.5.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.6 | Direction indicator lamp bulb - Rear |  | |
| 5.5.15.6.1 | Make |  | |
| 5.5.15.6.2 | Category as per AIS-034 |  | |
| 5.5.15.6.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.7 | Front Position Lamp bulb |  | |
| 5.5.15.7.1 | Make |  | |
| 5.5.15.7.2 | Category as per AIS-034 |  | |
| 5.5.15.7.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.8 | Rear Position Lamp ( tail lamp )Bulb |  | |
| 5.5.15.8.1 | Make |  | |
| 5.5.15.8.2 | Category as per AIS-034 |  | |
| 5.5.15.8.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.9 | Stop lamp bulb |  | |
| 5.5.15.9.1 | Make |  | |
| 5.5.15.9.2 | Category as per AIS-034 |  | |
| 5.5.15.9.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.10 | Number plate lamp bulb |  | |
| 5.5.15.10.1 | Make |  | |
| 5.5.15.10.2 | Category as per AIS-034 |  | |
| 5.5.15.10.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.11 | End out Marker bulb |  | |
| 5.5.15.11.1 | Make |  | |
| 5.5.15.11.2 | Category as per AIS-034 |  | |
| 5.5.15.11.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.12 | Reversing lamp bulb |  | |
| 5.5.15.12.1 | Make |  | |
| 5.5.15.12.2 | Category as per AIS-034 |  | |
| 5.5.15.12.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.13 | Front Fog Lamp Bulb |  | |
| 5.5.15.13.1 | Make |  | |
| 5.5.15.13.2 | Category as per AIS-034 |  | |
| 5.5.15.13.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.14 | Rear Fog Lamp Bulb |  | |
| 5.5.15.14.1 | Make |  | |
| 5.5.15.14.2 | Category as per AIS-034 |  | |
| 5.5.15.14.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.15 | Day time Running lamp bulb (if provided) |  | |
| 5.5.15.15.1 | Make |  | |
| 5.5.15.15.2 | Designation Category as per AIS-034 |  | |
| 5.5.15.15.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| 5.5.15.16 | Work Lamp (Plough Lamp) |  | |
| 5.5.15.16.1 | Make |  | |
| 5.5.15.16.2 | Designation Category as per AIS-034 |  | |
| 5.5.15.16.3 | Identification: TAC No. / BIS License No. / E- Marking |  | |
| **6.0** | **Transmission** |  | |
| 6.1 | - Make |  | |
| 6.2 | - Model |  | |
| 6.3 | - Type |  | |
| 6.4 | Transmission ratio | Please enclose line diagram of complete transmission system as **Annexure-III** | |
| 6.5 | Arrangement of power transmission | 2WD / 15WD | |
| 6.6 | Clutch |  | |
| 6.6.1 | Make |  | |
| 6.6.2 | Type |  | |
| 6.6.2.1 | - No. of friction plate(s) |  | |
| 6.6.3 | Transmission/PTO |  | |
| 6.6.3.1 | - Outer diameter (mm) |  | |
| 6.6.3.2 | - Inner diameter (mm) |  | |
| 6.6.3.3 | - Material of lining |  | |
| 6.6.4 | - Method of operation |  | |
| 6.7 | Gear Box |  | |
| 6.7.1 | Make |  | |
| 6.7.2 | Model/identification mark |  | |
| 6.7.3 | Type |  | |
| 6.7.4 | Number of speeds |  | |
| 6.7.5 | - Forward |  | |
| 6.7.6 | - Reverse |  | |
| 6.7.7 | Location of main gear shifting levers |  | |
| 6.7.8 | Location of speed range selector (L/M/H) lever |  | |
| 6.7.9 | - Gear shifting pattern |  | |

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| --- | --- | --- | --- | --- | --- |
| **Nominal Speeds** | | | | | |
| Movement | Gear | Number of EngineRevs. for one  Rev. of driving wheel | | Nominal speed at rated engine speed when fitted with------------ size tyres of \_\_\_\_ mm radius index, (kmph) | |
|  |  | LOW | HIGH | LOW | HIGH |
| Forward | 1 |  |  |  |  |
| Forward | 2 |  |  |  |  |
| Forward | 3 |  |  |  |  |
| Forward | 4 |  |  |  |  |
| Reverse | 1 |  |  |  |  |
| **7.0** | **Wheel rim** | | |  | |
| 7.1 | Size | | |  | |
| 7.2 | Front | | |  | |
| 7.3 | Rear | | |  | |
| 7.4 | Others | | |  | |
| 7.5 | Name of manufacturer | | |  | |
| 7.6 | Identification mark for front and rear rims | | |  | |
| 7.7 | Pitch circle dia of mounting bolts mm | | |  | |
| 7.8 | Number of mounting bolts | | |  | |
| 7.9 | Material (Steel/ Aluminum alloy etc.) | | |  | |
| **8.0** | **Wheel Fastener(s) and Hub cap :** | | |  | |
| 8.1 | Wheel Nut (s) / Bolt (s) | | |  | |
| 8.1.1 | Make | | |  | |
| 8.1.2 | Size | | |  | |
| 8.1.3 | Numbers per wheel | | |  | |
| 8.1.4 | Tightening torque on vehicle (recommended by Vehicle Manufacturer ) | | |  | |
| 8.1.5 | Detailed dimensional drawing along with material specifications | | |  | |
| 8.2 | Wheel Disc / Hub cap | | |  | |
| 8.2.1 | Make | | |  | |
| 8.2.2 | Method of fitment (Press/bolted/others) | | |  | |
| 8.2.3 | Brief dimensional drawing along with press fit diameter as applicable | | |  | |
| **9.0** | **List of tools normally provided with tractor** | | |  | |
| **10.0** | **Power take-off shaft** | | |  | |
| 10.1 | Location | | |  | |
| 10.2 | Height above Ground Level (mm) | | |  | |
| 10.3 | No. of Splines | | |  | |
| 10.4 | Direction of Rotation  (Viewed from Driving End) | | |  | |
| 10.5 | Size (mm) | | |  | |
| 10.6 | Name of Standard to which it conforms | | |  | |
| 10.7 | Rated Speed (rpm) | | |  | |
| 10.8 | Proportional Erpm at Std. 540 PTO rpm | | |  | |
| 10.9 | PTO Speed at Rated Engine Speed (rpm) | | |  | |
| 10.10 | Details of Other PTO Shaft, if any | | |  | |
| **11.0** | **Belt** **pulley** | | |  | |
| **12.0** | **Power lift** | | |  | |
| 12.1 | Make | | |  | |
| 12.2 | Type of Pump | | |  | |
| 12.3 | Oil Capacity | | |  | |
| 12.4 | Pump Capacity at Rated Erpm and | | |  | |
| 12.5 | Minimum Pressure, (Ipm) | | |  | |
| 12.6 | Rated Speed of Pump corresponding  To Rated Erpm (rpm) | | |  | |
| 12.7 | Relief Valve Opening Pressure, kPa (kgf/cm2) | | |  | |
| 12.8 | Pressure Sustained by Open Relief Valve. | | |  | |
| 12.9 | Hydraulic Power at 90% of Min. Relief Valve | | |  | |
| 12.10 | Setting (Crack-Off setting), kW | | |  | |
| 12.11 | Lifting Capacity, kN (kgf)  (Max. Force exerted through full range & Corrected to those values corresponding to Hydraulic Power) | | |  | |
| 12.12 | At Hitch Points | | |  | |
| 12.13 | On Standard Frame | | |  | |
| 12.14 | Means of Position and Response Control | | |  | |
| 12.15 | Means of Draft Control | | |  | |
| **13.0** | **Drawbar (s)** | | |  | |
| 13.1 | Swinging drawbar : | | |  | |
| 13.2 | Linkage drawbar : | | |  | |
| **14.0** | **Hitch** | | |  | |
| 14.1 | Front : | | |  | |
| 14.2 | Type & Location | | |  | |
| 14.3 | Height above Ground level (mm) | | |  | |
| 14.4 | Type of adjustment | | |  | |
| 14.5 | Width (mm) | | |  | |
| 14.6 | Diameter of pinhole (mm) | | |  | |
| 14.7 | Rear | | |  | |
| 14.8 | Type | | |  | |
| 14.9 | Location | | |  | |
| 14.10 | Height above Ground level (mm) | | |  | |
| 14.11 | Type of adjustment | | |  | |
| **15.0** | **Steering** | | |  | |
| 15.1 | Make | | |  | |
| 15.2 | Type | | |  | |
| 15.3 | Location | | |  | |
| 15.4 | Method of Operation | | |  | |
| 15.5 | Diameter of Steering Wheel (mm) | | |  | |
| 15.6 | Steering Housing Oil Capacity (I) | | |  | |
| **16.0** | **Brakes** | | |  | |
| 16.1 | Service Brake | | |  | |
| 16.1.1 | Make Type | | |  | |
| 16.1.2 | Location | | |  | |
| 16.1.3 | Thickness of Brake Lining (mm) | | |  | |
| 16.1.4 | Area of Liner (sq. cm) | | |  | |
| 16.1.5 | Material of Lining (Asbestos/Non-asbestos) | | |  | |
| 16.1.6 | Method of Operation | | |  | |
| 16.2 | Parking brake | | |  | |
| 16.2.1 | Make | | |  | |
| 16.2.2 | Type | | |  | |
| 16.2.3 | Size | | |  | |
| 16.2.4 | Method of Operation | | |  | |
| **17.0** | **Wheel Equipment** | | |  | |
| 17.1 | Steering Wheels | | |  | |
| 17.1.1 | Make | | |  | |
| 17.1.2 | No., Size and Ply Rating | | |  | |
| 17.1.3 | Arrangement | | |  | |
| 17.1.4 | Type of Tyres | | |  | |
| 17.1.5 | Max. Permissible Load of each Tyre (kgf) | | |  | |
| 17.1.6 | Recommended inflation pressure, kPa (kgf/cm2) | | |  | |
| 17.1.7 | For Field (Including Wet land) kpa(kgf/cm2) | | |  | |
| 17.1.8 | For Road | | |  | |
| 17.1.9 | Track Width (mm) | | |  | |
| 17.1.10 | Method of Changing Track Width | | |  | |
| 17.2 | Driving Wheels | | |  | |
| 17.2.1 | Make | | |  | |
| 17.2.2 | No., Size and Ply Rating | | |  | |
| 17.2.3 | Type of Tyres | | |  | |
| 17.2.4 | Max. Permissible Load of each tyre, kg | | |  | |
| 17.2.5 | Pressure | | |  | |
| 17.2.6 | Recommended inflation pressure, kPa (kgf/cm2) | | |  | |
| 17.2.7 | different conditions | | |  | |
| 17.2.8 | For Field | | |  | |
| 17.2.9 | Track Widths (mm) | | |  | |
| 17.2.10 | Method of changing Track Width | | |  | |
| **18.0** | **Wheel base (mm)** | | |  | |
| 18.1 | Method of changing Wheelbase, if any Range of adjustment (mm) | | |  | |
| **19.0** | **Minimum ground clearance (mm)** | | |  | |
| 19.1 | Method of changing Ground Clearance, if any | | |  | |
| 19.2 | Clearance Limiting part | | |  | |
| **20.0** | **Seat** | | |  | |
| 20.1 | Make | | |  | |
| 20.2 | Type | | |  | |
| 20.3 | Type of Suspension /Type of Damping | | |  | |
| 20.4 | Range of Adjustment | | |  | |
| **21.0** | **Lubricants/Coolant Capacity, liters** | | |  | |
| 21.1 | Lubricants: | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Particulars** | **Recommended grade** | **Capacity (l)** | **Change period (h)** | | | **Filter change period (h)** |
| 21.1.1 | Air cleaner oil |  |  |  | | |  |
| 21.1.2 | Bare engine sump |  |  |  | | |  |
| 21.1.3 | Total lub. oil of engine |  |
| 21.1.4 | Steering housing |  |  |  | | |  |
| 21.1.5 | Gearbox housing oil |  |  |  | | |  |
| 21.1.6 | Differential housing oil |  |  |  | | |  |
| 21.1.7 | Front axle |  |  |  | | |  |
| 21.1.8 | Rear axle |  |  |  | | |  |
| 21.1.9 | Final drive (front) |  |  |  | | |  |
| 21.1.10 | Final drive (rear) |  |  |  | | |  |
| 21.1.11 | Hydraulic system (\*) |  |  |  | | |  |
| 21.1.12 | Other (Brake etc ) |  |  |  | | |  |
| 21.1.13 | Grease |  |  |  | | |  |
| 21.2 | Number of lubricating points: | | |  | | | |
| 21.2.1 | Oiling | | |  | | | |
| 21.2.2 | Grease nipples | | |  | | | |
| 21.2.3 | Grease cups | | |  | | | |
| **22.0** | **Tightening torque (kgm / Nm):** | | |  | | | |
| 22.1 | Cylinder head nut & bolts | | |  | | | |
| 22.2 | Main bearings nut & bolts | | |  | | | |
| 22.3 | Big end bearings nut & bolts | | |  | | | |
| 22.4 | Flywheel bolts | | |  | | | |
| **23.0** | **Mass and Ballast:** | | | **Front** | **Rear** | | **Total** |
| 23.1 | Unballasted Tractor: Mass of the tractor in working order with full tanks & radiators. [Optional front & rear weights (ballast), tyre ballast, the tractor operator, mounted implements, mounted equipments or any specialized components are not included]. | | |  |  | |  |
| 23.2 | Tractor with standard ballast: Mass of the tractor in working order with standard ballast of -------- kgf at front and ------- kgf at rear, full tanks & radiators. [Tyre ballast, the tractor operator, mounted implements, mounted equipments or any specialized components are not included]. | | |  | | | |
| **24.0** | **Recommended ballast for different test:** | | | | | | |
| 24.1 | **Ballast mass** | | | **For drawbar test** | | **For field test** | **For road test** |
| 24.1.1 | Front - C.I. Ballast (kg) | | |  | |  |  |
| 24.1.2 | - Water ballast (kg ) | | |  | |  |  |
| 24.1.3 | Rear - C.I. Ballast (kg) | | |  | |  |  |
| 24.1.4 | - Water ballast (kg) | | |  | |  |  |
| 24.1.5 | Front - Location of C.I. ballast weights | | |  | |  |  |
| 24.1.6 | Rear - Location of C.I. ballast weights | | |  | |  |  |
| **25.0** | **Mass of tractor in Ballasted condition (kg):** | | | | | | |
| **S. No** | **Test** | **Front** | | **Rear** | | | **Total** |
| 25.1 | For drawbar |  | |  | | |  |
| 25.2 | For Field tests |  | |  | | |  |
| 25.3 | For Puddling |  | |  | | |  |
| 25.4 | For Haulage |  | |  | | |  |

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| --- | --- | --- | --- | --- |
| **26.0** | **Overall Dimension of Tractor (mm):** | | | |
| 26.1 | - Length | | |  |
| 26.2 | - Width | | |  |
| 26.3 | - Height | | |  |
| 26.4 | - Ground clearance(mm) | | | ------- (Specify the limiting part) |
| **27.0** | **Colour of tractor:** | | |  |
| 27.1 | - Chassis & Engine | | |  |
| 27.2 | - Sheet metal | | |  |
| 27.3 | - Bonnet | | |  |
| 27.4 | - Mudguards | | |  |
| 27.5 | - Wheel rims | | |  |
| **28.0** | **Performance Characteristics:**  **(Please refer IS 12207:2008 for the declarations and tolerances)** | | | |
| **Characteristics** | | **Requirements or Tolerance as per IS 12207:2008** | **Values declared by the applicant** |
|  | **2** | | **3** | **4** |
| 28.1 | PTO Performance : | | |  |
| 28.1.1 | - Max. power under 2 h test, (kW) (Natural ambient condition) | | Declared value to be achieved with a tolerance of: -5 / +10% for PTO power >35hp. –7.5/+10% for PTO power ≤ 35 hp |  |
| 28.1.2 | Power at rated engine speed, (kW) | | --do-- |  |
| 28.1.3 | Specific fuel consumption corresponding to maximum power, (g/kWh) | | ± 5% |  |
| 28.1.4 | Maximum equivalent crankshaft torque, (Nm) | | ± 8% |  |
| 28.1.5 | Equivalent crankshaft torque at maximum power, Nm (kgf-m) | | -- |  |
| 28.1.6 | Back-up torque, percent | | 7 percent, min. |  |
| 28.1.7 | Maximum operating temperature ( °C) | | | |
| 28.1.7.1  28.1.7.2 | **-** Engine oil | To be declared by the manufacturer under high ambient conditions. | |  |
| - Coolant (water) | -- do-- | |  |
| 28.1.8 | Engine oil consumption, (g/kWh) | Not exceeding 1% of SFC at max. power under High ambient conditions | |  |
| 28.1.9 | Smoke level | Maximum light absorption coefficient of 3.25 / m or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR) | |  |
| 28.2 | Belt pulley performance (if desired by the manufacturer) | | | |
| 28.2.1 | Power at rated engine speed | Declared value to be achieved with a tolerance of: -5 / +10% for PTO power >35hp. –7.5/+10% for PTO power ≤ 35 hp | |  |
| 28.2.2 | Power at standard linear belt speed [(15.75±0.25) m/s] | --do-- | |  |
| 28.2.3 | Maximum operating temperature of oil in the belt pulley, °C | Nil | |  |
| 28.3 | Drawbar Performance : | | | |
| 28.3.1 | Max. drawbar pull with ballast corresponding to 15 percent wheel slip or 7 percent track slip, (kN) | Minimum 65% of static mass with ballast | |  |
| 28.3.2 | Max. drawbar pull without ballast or with standard ballast corresponding to 15 percent wheel slip or 7 percent track slip, (kN) | Minimum 65% of static mass of tractor without ballast or with standard ballast | |  |
| 28.3.3 | Maximum drawbar power without ballast or with standard ballast, (kW). | Minimum 80% of PTO power as referred in 13.1(a) above of PTO performance | |  |
| 28.3.4 | Max. transmission oil temperature ( °C) | To be declared by the manufacturer | |  |
| 28.4 | Power lift and hydraulic pump performance: | | |  |
| 28.4.1 | Maximum lifting capacity throughout the range of lift, (kN): | | |  |
| 28.4.1.1  28.4.1.2 | - At hitch points | To be declared by the manufacturer | |  |
| - With the standard frame | The lift capacity should at least be 18 kg/PTO hp and it should be 16 kg/engine hp where the tractor is not provided with a PTO shaft. | |  |
| 28.4.2 | Maximum drop in the height of the point of application of the force after each 5 minutes interval for a total duration of 30 minute, (mm) | To be declared by the manufacturer | |  |
| 28.5 | Brake performance at 25 kmph: | | |  |
| 28.5.1 | Maximum stopping distance at a force equal to or less than 600 N on brake pedal with ballast, (m): | | |  |
| 28.5.1.1 | -Cold brake | 10 m | |  |
| 28.5.1.2 | -Hot brake | 10 m | |  |
| 28.5.2 | Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s2 | 600 N | |  |
| 28.5.3 | Whether parking brake is effective at a force of 600 N at foot pedal(s) or 400 N at hand lever | Yes / No | |  |
| 28.6 | Noise measurement : | | | |
| 28.6.1 | Maximum ambient noise emitted by the tractor dB(A) | As per CMVR | |  |
| 28.6.2 | Maximum noise at operator’s ear level dB(A) | As per CMVR | |  |
| 28.7 | Amplitude of mechanical vibrations at: | | | |
| 28.7.1 | -Foot rest (left / right) | 100 microns, max | |  |
| 28.7.2 | -Seat (with driver seated) | 100 microns, max | |  |
| 28.7.3 | -Steering wheel | 100 microns, max | |  |
| 28.8 | Air Cleaner Oil Pull Over: | | | |
|  | Max. percentage of oil pull over | 0.25 % Maximum | |  |
| 28.9 | Haulage requirements : | | | |
| 28.9.1 | - Gross mass of the trailers, (tones): |  | |  |
| 28.9.2 | (1) Two wheel | To be specified by the manufacturer | |  |
| 28.9.3 | (2) Four wheel | --do-- | |  |
| 28.9.3.1 | - Distance travelled / litre of fuel consumption, (km/l) |  | |  |
| 28.9.4 | (1) Two wheel | To be specified by the manufacturer | |  |
| 28.9.5 | (2) Four wheel | --do-- | |  |
| 28.9.5.1 | - Fuel consumption (ml/km/gross mass tonne) |  | |  |
| 28.9.6 | (1) Two wheel | To be specified by the manufacturer | |  |
| 28.9.7 | (2) Four wheel | --do-- | |  |
| 28.10 | Wetland cultivation : |  | |  |
|  | Sealing for the following assemblies: | The identified assemblies should essentially meet the requirement of IS 11082. No water ingress in the identified assemblies given in column 2. Note – Water droplets due to condensation not to be considered as water ingress. | |  |
| 28.10.1 | Clutch assembly |
| 28.10.2 | Brake assembly |
| 28.10.3 | Front axle hubs |
| 28.11 | Safety features: | | | |
| 28.11.1 | Guards against moving and hot parts | As per CMVR | |  |
| 28.11.2 | Lighting arrangement | As per CMVR | |  |
| 28.12 | Labelling of Tractors: |  | |  |
| 28.12.1 | Provision of labelling plate | Should conform to the requirements of CMVR along with declared value of PTO HP | |  |
| 28.13 | Discard limits for: | | | |
| 28.13.1 | Cylinder bore diameter, (mm) |  | |  |
| 28.13.2 | Cylinder ovality and taperness, (mm) |  | |  |
| 28.13.3 | Piston diameter, (mm) |  | |  |
| 28.13.4 | Clearance between piston and cylinder liner at the skirt, (mm) |  | |  |
| 28.14 | Piston ring end gap (mm): |  | |  |
| 28.14.1 | - Compression rings |  | |  |
| 28.14.2 | - Oil rings |  | |  |
| 28.15 | Piston ring groove clearance (mm): |  | |  |
| 28.15.1 | **-** Compression rings |  | |  |
| 28.15.2 | - Oil rings |  | |  |
| 28.16 | Clearance of main bearings (mm): |  | |  |
| 28.16.1 | Diametrical clearance |  | |  |
| 28.16.2 | Crankshaft end float |  | |  |

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| --- | --- | --- | --- |
| 28.17 | Clearance of big or small end bearings, (mm): |  |  |
| 28.17.1 | Diametrical |  |  |
| 28.17.2 | Axial |  |  |
| 28.18 | Clearance between king pin and bush, (mm) |  |  |
| 28.19 | Clearance between center pin and bush, (mm) |  |  |
| 28.20 | Clearance between valve guide and stem (mm) |  |  |
| 28.21 | Spring index of valve springs N/mm/(kgf/mm) |  |  |
| 28.21.1 | Inner spring |  |  |
| 28.21.2 | Outer spring |  |  |
| 28.22 | Backlash of timing gears (mm) |  |  |
| 28.22.1 | Overall thickness of clutch plate (mm) |  |  |
| 28.22.1.1 | - Transmission clutch |  |  |
| 28.22.1.2 | - PTO shaft |  |  |
| 28.23 | Height of lining over rivet head of clutch lining (mm) |  |  |
| 28.23.1 | - Transmission clutch |  |  |
| 28.23.2 | - PTO shaft |  |  |
| 28.24 | -Thickness of brake lining (mm) |  |  |
| 28.24.1 | Height of lining over rivet head of brake lining (mm) |  |  |
| 28.24.2 | Depth of oil groove of brake disc in case of oil immerse brake |  |  |
| 28.25 | Backlash of transmission gears (mm): |  |  |
| 28.25.1 | - Transmission gears |  |  |
| 28.25.2 | - Crown wheel and pinion |  |  |
| 28.25.3 | - Final drive gear |  |  |
| 28.25.4 | - Safety features, if any |  |  |
| 28.26 | Optional requirements : | Requirements | Declaration |
| 28.26.1 | Seating requirements | Should meet the requirements of IS 12343:1998 |  |
| 28.26.2 | Fitment of ROPS | With a provision for fitment of ROPS. If ROPS fitted it should meet the requirement of IS 11821:1992 |  |
| 28.26.3 | Technical requirements for PTO shaft | Should meet the requirements of IS 4931:1995 |  |
| 28.26.4 | Dimensions of three point linkage | Should meet the requirements of IS 4468 (Part-I):1997 |  |
| 28.26.5 | Specifications of linkage and swinging drawbars | Should meet the requirements of IS 12953:1990 and IS 12362 Part 3:1994. |  |
| 28.26.6 | Accessories | Trailer hitch, front tow hook, linkage drawbar may be provided. |  |
| 28.27 | Horn |  | |
| 28.27.1 | Make and country of origin(if imported) |  | |
| 28.27.2 | Type(As per IS 1884:1993) |  | |
| 28.27.3 | Operating Voltage |  | |
| 28.27.4 | Identification No./ Part No. |  | |
| 28.27.5 | Number |  | |
| 28.27.6 | Drawing showing installation of horn |  | |
| 28.27.7 | The shape and material of the body work at the front of the horn, which might be affect the level of the sound, emitted by the horn and have a masking effect. |  | |
| 28.28 | Rear-view mirrors |  | |
| 28.28.1 | Make (s) |  | |
| 28.28.2 | Type Approval Number / E- marking / BIS License No. |  | |
| 28.28.3 | Nos. of mirrors installed on the vehicle |  | |
| 28.28.4 | Drawing(s) showing the location & Installation dimension details of the rear-view mirror(s) in relation to the structure of the vehicle |  | |

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| 28.29 | Windscreen Wiping system (If drivers cabin is provided) |  |
| 28.29.1 | Wind Screen Wiper |  |
| 28.29.1.1 | Type (Manual/power) |  |
| 28.29.1.2 | No. of wipers |  |
| 28.29.2 | Wiper motor |  |
| 28.29.2.1 | Make |  |
| 28.29.2.2 | Type |  |
| 28.29.2.3 | Identification mark |  |
| 28.29.2.4 | Rated voltage |  |
| 28.29.2.5 | Number of sweep Frequencies |  |
| 28.29.2.6 | Highest sweep frequency (Cycles/min) |  |
| 28.29.2.7 | Lowest sweep frequency (Cycles/min) |  |
| 28.29.3 | Wiper arm |  |
| 28.29.3.1 | Length |  |
| 28.29.3.2 | Make |  |
| 28.29.3.3 | Identification |  |
| 28.29.4 | Wiper blade |  |
| 28.29.4.1 | Length |  |
| 28.29.4.2 | Make |  |
| 28.29.4.3 | Identification |  |
| 28.29.5 | Drivers ‘R’ Point coordinates (Drawing showing drivers ‘R’ point co-ordinates shall be provided) |  |
| 28.30 | Safety glass |  |
| 28.30.1 | Front wind shield (laminated) |  |
| 28.30.1.1 | Make |  |
| 28.30.1.2 | Identification: TAC No. / BIS License No. / E-Marking |  |
| 28.30.1.3 | Type (flat/curved, clear/tinted) |  |
| 28.30.1.4 | Thickness (mm) |  |
| 28.30.1.5 | No. of pieces |  |
| 28.30.2 | Side Windows (Left & Right) |  |
| 28.30.2.1 | Make |  |
| 28.30.2.2 | Identification: TAC No. / BIS License No. / E-Marking |  |
| 28.30.2.3 | Type (flat/curved, clear/tinted, toughened/laminated) |  |
| 28.30.2.4 | Thickness (mm) |  |
| 28.30.3 | Rear Window |  |
| 28.30.3.1 | Make |  |
| 28.30.3.2 | Identification: TAC No. / BIS License No. / E-Marking |  |
| 28.30.3.3 | Type (flat/curved, clear/tinted, toughened/laminated) |  |
| 28.30.3.4 | Thickness (mm) |  |
| 28.31 | Hydraulic Brake Hose: |  |
| 28.31.1 | Make |  |
| 28.31.2 | Identification: TAC No. / BIS License No. / E-Marking |  |
| 28.32 | Brake fluid |  |
| 28.32.1 | Make |  |
| 28.32.2 | Trade name |  |
| 28.32.3 | Specification / grade as per Indian standard |  |
| 28.33 | Tow Hook: (Whenever used) |  |
| 28.33.1 | Make |  |
| 28.33.2 | Part No. |  |
| 28.33.3 | Designed loading capacity |  |
| 28.34 | Mechanical Coupling: |  |
| 28.34.1 | Make |  |
| 28.34.2 | Part No. |  |
| 28.34.3 | Designed loading capacity |  |
| 28.35 | Front Coupling Device: |  |
| 28.35.1 | Make |  |
| 28.35.2 | Part No. |  |
| 28.35.3 | Designed loading capacity |  |