SPECIFICATION OF TRACTOR OPERATED COMBINE HARVESTER

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. SPECIFICATION  1.1 General | | | | | | | | | |
|  | | | Name & address of manufacturer | | : | |  | | |
|  | | | Make | | : | |  | | |
|  | | | Model | | : | |  | | |
|  | | | Brand name (if any) | | : | |  | | |
|  | | | Type | | : | |  | | |
|  | | | Year of manufacture | | : | |  | | |
|  | | | Latest ICT/Batch Test report Number | | : | |  | | |
|  | | | Maximum PTO power, kW | | : | |  | | |
|  | | | Country of origin | | : | |  | | |
| 1.2 | | | Prime mover | |  | |  | | |
| 1.2.1 | | | Tractor | |  | |  | | |
|  | | | Make | | : | |  | | |
|  | | | Model | | : | |  | | |
|  | | | Type | | : | |  | | |
| 1.2.2 | | | Engine | |  | |  | | |
|  | | | Make | | : | |  | | |
|  | | | Model | | : | |  | | |
|  | | | Type | | : | |  | | |
|  | | | Engine speed (rpm) (Manufacturer’s recommended setting ) | | | | | | |
|  | | | Maximum speed at no load, rpm | | | : |  | | |
|  | | | Rated speed, rpm | | | : |  | | |
|  | | | No load engine speed recommended for field operation, rpm | | | : |  | | |
|  | | | Low idle speed, rpm | | | : |  | | |
|  | | |  | | |  |  | | |
| 1.2.1 | | | Cylinder and cylinder head | | |  |  | | |
|  | | | Number | | | : |  | | |
|  | | | Disposition | | | : |  | | |
|  | | | Bore/Stroke, mm | | | : |  | | |
|  | | | Capacity, cm3 | | | : |  | | |
|  | | | Compression ratio | | | : |  | | |
|  | | | Arrangement of valves | | | : |  | | |
|  | | | Type of cylinder liners | | | : |  | | |
|  | | | Type of head | | | : |  | | |
|  | | | Valve clearance in cold, mm | | |  |  | | |
|  | | | Inlet valve | | | : |  | | |
|  | | | Exhaust valve | | | : |  | | |
| 1.2.2 | | | Fuel system | | |  |  | | |
|  | | | Type of fuel system | | | : |  | | |
| 1.2.2.1 | | | Fuel tank | | |  | |  | |
|  | | | Material | | | : | |  | |
|  | | | Size, mm | | | : | |  | |
|  | | | capacity, l | | | : | |  | |
| 1.2.2.2 | | | Fuel feed pump | | |  | |  | |
|  | | | Make | | | : | |  | |
|  | | | Type | | | : | |  | |
|  | | | Model/Group combination number | | | : | |  | |
| 1.2.2.3 | | | Fuel filters | | |  | |  | |
|  | | | Make | | | : | |  | |
|  | | | Model/Group combination No. | | | : | |  | |
|  | | | Number (s) | | | : | |  | |
|  | | | Type of element | | | : | |  | |
|  | | | Capacity of final stage filter, l | | | : | |  | |
|  | | | Water separator (Provided/not provided) | | | : | |  | |
| 1.2.2.4 | | | Fuel injection pump | | |  | |  | |
|  | | | Make | | | : | |  | |
|  | | | Model/Group combination No. | | | : | |  | |
|  | | | Type | | | : | |  | |
|  | | | Designation | | | : | |  | |
|  | | | Method of drive | | | : | |  | |
| 1.2.2.5 | | | Fuel injectors | | |  | |  | |
|  | | | Make | | | : | |  | |
|  | | | Type | | | : | |  | |
|  | | | Model/Group combination No. | | | : | |  | |
|  | | | | Injection opening pressure, (Mpa) | | | : | |  |
|  | | | | Injection timing | | | : | |  |
|  | | | | Firing order | | | : | |  |
| 1.2.3 | | | Governor | |  | |  | |
|  | | | Make | | : | |  | |
|  | | | Type | | : | |  | |
|  | | | Designation | | : | |  | |
|  | | | Governed range of engine speed, rpm | | : | |  | |
| 1.2.4 | | | Air Intake System | |  | |  | |
|  | | | Type | | : | |  | |
| 1.2.4.1 | | | Pre-cleaner | | : | |  | |
|  | | | Make | | : | |  | |
|  | | | Type | | : | |  | |
|  | | | Number | | : | |  | |
|  | | | Location | | : | |  | |
| 1.2.4.2 | | | Air cleaner | |  | |  | |
|  | | | Make | | : | |  | |
|  | | | Type | | : | |  | |
|  | | | Number | | : | |  | |
|  | | | Location | | : | |  | |
|  | | | Type of element | | : | |  | |
|  | | | Service indicator | |  | |  | |
|  | | | Dust unloading valve | | : | |  | |
|  | | | Recommended service Schedule | | : | |  | |
|  | | | Suction pressure at max. power, kPa | | : | |  | |
| 1.2.5 | | | Exhaust | |  | |  | |
|  | | | Make | | : | |  | |
|  | | | Type | | : | |  | |
|  | | | Pressure at max. power, kPa | | : | |  | |
|  | | | Provision of spark arresting device/any other device | | : | |  | |
| 1.2.5.1 | | | EGR | | : | |  | |
| 1.2.5.2 | | | Turbocharger (Provided/Not provided) | |  | |  | |
|  | | | Make | | : | |  | |
|  | | | Model | | : | |  | |
| 1.2.6 | | | Lubrication system | |  | |  | |
|  | | | Type | | : | |  | |
|  | | | Type of oil pump | | : | |  | |
|  | | | Method of drive | | : | |  | |
|  | | | Oil sump capacity, l | | : | |  | |
| 1.2.6.1 | | | Filters | |  | |  | |
|  | | | Make | |  | |  | |
|  | | | Type of oil filters | | : | |  | |
|  | | | Location | | : | |  | |
|  | | | Relief valve pressure setting,(kPa) | | : | |  | |
|  | | Minimum permissible pressure, (kPa) | | : | |  |
| 1.2.7 | | Cooling system | |  | |  |
|  | | Type | | : | |  |
| 1.2.7.1 | | Water pump | |  | |  |
|  | | Make | | : | |  |
|  | | Type | | : | |  |
|  | | Size of impeller, mm  Diameter  No. of vanes | | :  : | |  |
|  | | Method of drive | | : | |  |
| 1.2.7.2 | | Details of fan | |  | |  |
|  | | Material & type | | : | |  |
|  | | No. of blade | | : | |  |
|  | | Size, mm | | : | |  |
| 1.2.7.3 | | Radiator | |  | |  |
|  | | Make | | : | |  |
|  | | Type and Radiator cap pressure, kgf/cm2 | | : | |  |
|  | | Means of temperature control | | : | |  |
|  | | Bare radiator capacity, l | | : | |  |
|  | | Total coolant capacity, l | | : | |  |
|  | | Means of grill cleaning, if any | | : | |  |
| 1.2.8 | | Starting system | |  | |  |
|  | | Type | | : | |  |
|  | | Any aid for cold starting | | : | |  |
| 1.2.9 | | Electrical system | |  | |  |
| 1.2.9.1 | | Starter motor | |  | |  |
|  | | Make | | : | |  |
|  | | Type | | : | |  |
|  | | Model/ Group combination No. | | : | |  |
|  | | power,kW | | : | |  |
| 1.2.9.2 | | Alternator | |  | |  |
|  | | Make | | : | |  |
|  | | Model | | : | |  |
|  | | Output rating | | : | |  |
| 1.2.9.3 | | Voltage regulator | | : | |  |
| 1.2.9.4 | | Battery | |  | |  |
|  | | Make | | : | |  |
|  | | Model/Type No. | | : | |  |
|  | | Type | | : | |  |
|  | | 20 h rating | | : | |  | | |

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| 1.2.9.5 | Horn |  |  |
|  | Make | : |  |
|  | Type | : |  |
|  | Number | : |  |
|  | Detail of approval of horn | : |  |
| 1.3 | Combine |  |  |
| 1.3.1 | Wheel equipments |  |  |
| 1.3.1.1 | Drive wheel |  |  |
|  | Make | : |  |
|  | Type | : |  |
|  | Location | : |  |
|  | Number, size & Ply rating | : |  |
|  | Track width, mm | : |  |
|  | Recommended tyre pressure, kPa | : |  |
|  | Loading capacity at recommended tyre pressure (kg) | : |  |
| 1.3.1.2 | Steered wheel |  |  |
|  | Make | : |  |
|  | Type | : |  |
|  | Location | : |  |
|  | Number/size & Ply rating | : |  |
|  | Track width (mm) | : |  |
|  | Recommended tyre pressure, kPa | : |  |
|  | Loading capacity at recommended tyre pressure (kg) | : |  |
| 1.3.1.3 | Wheel base, mm | : |  |

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| 1.3.2 | | Transmission system | | |  | | |  | | | | | | | | | | |
| 1.3.2.1 | | Clutch | | |  | | | For Main Clutch | | | | For P.T.O. clutch | | | | | | |
|  | | Make | | | : | | |  | | | |  | | | | | | |
|  | | Type | | | : | | |  | | | |  | | | | | | |
|  | | Size, mm | | | : | | |  | | | |  | | | | | | |
|  | | No. of friction discs | | | : | | |  | | | |  | | | | | | |
| 1.3.2.2 | | Gear box | | |  | | |  | | | | | | | | | | |
|  | | Make | | | : | | |  | | | | | | | | | | |
|  | | Type | | | : | | |  | | | | | | | | | | |
|  | | Location | | | : | | |  | | | | | | | | | | |
|  | | No. of speeds | | | : | | |  | | | | | | | | | | |
|  | | Oil capacity, l | | | : | | |  | | | | | | | | | | |
| 1.3.2.3 | | Final drive | | |  | | |  | | | | | | | | | | |
|  | | Type | | | : | | |  | | | | | | | | | | |
|  | | Reduction ratio | | | : | | |  | | | | | | | | | | |
|  | | Oil capacity,l | | |  | | |  | | | | | | | | | | |
| 1.3.2.4 | | Differential unit | | | | | | | | | | | |
|  | | Type | | | : | | |  | | | | | | | | | | | |
|  | | Reduction ratio | | | : | | |  | | | | | | | | | | | |
|  | | Oil capacity | | | : | | |  | | | | | | | | | | | |
| 1.3.3 | | | | Brakes | |  | | |  | | | | | | | | | |
| 1.3.3.1 | | | | Service brake | |  | | |  | | | | | | | | | |
|  | | | | Make | | : | | |  | | | | | | | | | |
|  | | | | Type | | : | | |  | | | | | | | | | |
|  | | | | Area of disc/Shoe at each wheel side (cm2) | | : | | |  | | | | | | | | | |
| 1.3.3.2 | | | | Parking brake | |  | | |  | | | | | | | | | |
|  | | | | Type | | : | | |  | | | | | | | | | |
|  | | | | Location & method of operation | | : | | |  | | | | | | | | | |
| 1.3.4 | | | | Steering system | |  | | |  | | | | | | | | |
|  | | | | Make | | : | | |  | | | | | | | | |
|  | | | | Type | | : | | |  | | | | | | | | |
|  | | | | Outer diameter of steering control wheel, mm | | : | | |  | | | | | | | | |
| 1.3.5 | | | | Hydraulic system | |  | | |  | | | | | | | |
| 1.3.5.1 | | | | Hydraulic pump for harvester’s hydraulic cylinders | | | | | | | | | | | | |
|  | | | | Type | | | | : | | | |  | | | | |
|  | | | | Make | | | | : | | | |  | | | | |
|  | | | | Model | | | | : | | | |  | | | | |
|  | | | | Number(s) | | | |  | | | |  | | | | |
| 1.3.5.2 | | | | No. of hydraulic cylinders | | | | : | | | |  | | | | |
| 1.3.6 | | | | Reel assembly | | | |  | | | |  | | | | |
|  | | | | Type | | | | : | | | |  | | | | |
|  | | | | Type and Number of tine bars | | | | : | | | |  | | | | |
|  | | | | Size of tine bars, mm  Dia.  Length | | | | :  : | | | |  | | | | |
|  | | | | Dia. and working width of reel, mm | | | | : | | | |  | | | | |
|  | | | | Range of speed corresponding to recommended no load speed of engine, rpm | | | | : | | | |  | | | | |
|  | | | | Number of tines on each bar and their spacing, mm | | | | : | | | |  | | | | |
|  | | | | Arrangement for raising and lowering the reel assembly | | | | : | | | |  | | | | |
|  | | | | Safety device in reel drive | | | | : | | | |  | | | | |
| 1.3.7 | | | | Cutter bar assembly | | | |  | | | |  | | | | |
|  | | | | Working width, cm | | | | : | | | |  | | | | |
|  | | | | Effective cutter bar width, cm | | | | : | | | |  | | | | |
| 1.3.7.1 | | | | Knife blades | | | |  | | | |  | | | | |
|  | | | | No. & type of knife blades | | | | : | | | |  | | | | |
|  | | | | Knife drive safety arrangement | | | | : | | | |  | | | | |
|  | | Knife stroke, mm | | | | : | | | |  | | | | |
|  | | Knife frequency per minute | | | | : | | | |  | | | | |
|  | | Knife speed corresponding to recommended no load speed of engine, rpm | | | | : | | | |  | | | | |
|  | | Type of crop dividers | | | | : | | | |  | | | | |
|  | | Arrangement for lifting lodged crop | | | | : | | | |  | | | | |
| 1.3.7.2 | | Knife guard | | | |  | | | |  | | | | |
|  | | No & type of knife guard | | | | : | | | |  | | | | |
|  | | Type | | | | : | | | |  | | | | |
| 1.3.7.3 | | Knife back | | | |  | | | |  | | | | |
|  | | Type | | | | : | | | |  | | | | |
|  | | Dimensions, mm | | | | : | | | |  | | | | |
| 1.3.8 | | | | Cutting platform auger | |  | | |  | | | | | |
|  | | | | Type of crop conveyor | | : | | |  | | | | | |
|  | | | | Size of auger , mm | |  | | |  | | | | | |
|  | | | | Speed of auger corresponding to recommended no load speed of engine, rpm | | : | | |  | | | | | |
|  | | | | Arrangement for adjusting the clearance of crop auger | | : | | |  | | | | | |
|  | | | | Auger drive safety arrangement | | : | | |  | | | | | |
| 1.3.9 | | | | Details of scoop/retrachible fingers | |  | | |  | | | | | |
|  | | | | Number | | : | | |  | | | | | |
|  | | | | Height of scoop/range of throw,mm | | : | | |  | | | | | |
|  | | | | Axial spacing between the scoop/fingers, mm | | : | | |  | | | | | |
|  | | | | Peripheral distance between the scoop/fingers, mm | | : | | |  | | | | | |
|  | | | | Arrangement for adjustment of fingers length | | : | | |  | | | | | |
| 1.3.10 | | | | Undershot conveyor | |  | | |  | | | | | |
|  | | | | Type of feeder conveyor | | : | | |  | | | | | |
|  | | | | No. size and spacing of comb bar | | : | | |  | | | | | |
|  | | | | Conveyor drive safety arrangement | | : | | |  | | | | | |
|  | | | | Speed corresponding to recommended no load engine speed of engine, rpm | | : | | |  | | | | | |
| 1.3.11 | | | | Threshing drum | |  | | | | For Wheat | | | For Paddy | |
|  | | | | Type | | : | | | |  | | |  | |
|  | | | | Diameter and Width, mm | | : | | | |  | | |  | |
|  | | | | Range of speed corresponding to recommended no load speed of engine, rpm | | : | | | |  | | |  | |
|  | | | | No. of bars | | : | | | |  | | |  | |
|  | | | | No. of pegs and their spacing on each bar | | : | | | |  | | |  | |
|  | | | | No. of hub plate | | : | | | |  | | |  | |
|  | | | | Length of rasp bar/peg bar, mm | | : | | | |  | | |  | |
|  | | | | Height of pegs, mm | | : | | | |  | | |  | |
|  | | | | Method of speed variation | | : | | | |  | | |  | |
|  | | | | Provision of stone trap | | : | | | |  | | | | |
|  | | | | Safety device | | : | | | |  | | | | |
| 1.3.12 | | | | Concave | | |  | | | | For Wheat | | For Paddy | | |
|  | | | | Overall width of concave, mm | | | : | | | |  | |  | | |
|  | | | | Effective width, mm | | | : | | | |  | |  | | |
|  | | | | Type of concave | | | : | | | |  | |  | | |
|  | | | | No. of bars | | | : | | | |  | |  | | |
|  | | | | Peripheral length, mm | | | : | | | |  | |  | | |
|  | | | | Peripheral effective length, mm | | | : | | | |  | |  | | |
|  | | | | Effective area, sq. cm. | | | : | | | |  | |  | | |
|  | | | | Details of extension | | | : | | | |  | |  | | |
|  | | | | Range of clearance, mm | | |  | | | |  | |  | | |
|  | | | | Front | | | : | | | |  | |  | | |
|  | | | | Rear | | | : | | | |  | |  | | |
|  | | | | Method of adjusting the clearance between drum and concave | | | : | | | |  | | | | |
| 1.3.13 | | | | Rear beater | | |  | | | |  | | | | |
|  | | | | Type | | | : | | | |  | | | | |
|  | | | | Size of beater, length and width, mm | | | : | | | |  | | | | |
|  | | | | Speed corresponding to recommended no load speed of engine, rpm | | | : | | | |  | | | | |
| 1.3.14 | | | | Baffle plate (Deflector) | | |  | | | |  | | | | |
|  | | | | Type | | | : | | | |  | | | | |
|  | | | | No. of flap | | | : | | | |  | | | | |
|  | | | | Size of Baffle plate, mm | | | : | | | |  | | | | |
|  | | | | Method of flap adjustment | | | : | | | |  | | | | |
| 1.3.15 | | | | Separating mechanism | | |  | | | |  | | | | |
| 1.3.15.1 | | | | Straw walkers | | |  | | | |  | | | | |
|  | | | | Number(s) | | | : | | | |  | | | | |
|  | | | | Type | | | : | | | |  | | | | |
|  | | | | Size of each straw walker, mm | | |  | | | |  | | | | |
|  | | | | Length | | | : | | | |  | | | | |
|  | | | | Width | | | : | | | |  | | | | |
|  | | | | Oscillations per minutes corresponding to recommended no load speed of engine, rpm | | | : | | | |  | | | | |
|  | | | | Provision for varying oscillations of straw walkar | | | : | | | |  | | | | |

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| 1.3.15.2 | Stepped grain pan |  |  | |
|  | Type | : |  | |
|  | Size, mm | : |  | |
|  | Inclination and method of adjustment if any (degree) | : |  | |
| 1.3.15.3 | Cleaning sieves |  |  | |
| 1.3.15.3.1 | Top sieve |  |  | |
|  | No. of sieve | : |  | |
|  | Type | : |  | |
|  | Overall size of sieve( L X W), mm |  | Front | Rear |
|  | Oscillation per minute corresponding to recommended no load speed of engine | : |  | |
|  | Lift/throw, mm | : |  | |
|  | Arrangement for varying the opening of the sieve | : |  | |

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| --- | --- | --- | --- | --- |
| 1.3.15.3.2 | Bottom sieve |  |  | |
|  | No. of sieve | : |  | |
|  | Type | : |  | |
|  | Overall size of sieve, (L XW) mm |  |  | |
|  | Oscillation per minute corresponding to recommended no load speed of engine | : |  | |
|  | Arrangement for varying the opening of the sieve | : |  | |
| 1.3.15.4 | Blower |  |  |
|  | Dia. mm | : |  |
|  | Effective width, mm | : |  |
|  | No. & type of blade | : |  |
|  | Type of drive | : |  |
|  | Method of varying the blower speed | : |  |
|  | Range of Speed corresponding to recommended no load speed of engine, rpm | : |  |
|  | Method of controlling the air blast | : |  |
| 1.3.15.5 | Grain pan |  |  |
|  | Type | : |  |
|  | Size, mm | : |  |
|  | Inclination (degree) and method of adjustment if any | : |  |
| 1.3.15.6 | Tailing pan |  |  |
|  | Type | : |  |
|  | Size, mm | : |  |
|  | Inclination, (degree) and method of adjustment if any | : |  |
| 1.3.16 | Grain conveying mechanism |  |  |
| 1.3.16.1 | Bottom grain conveyor |  |  |
|  | Type | : |  |
|  | Size of conveyor( length Dia. and Pitch), mm |  |  |
|  | Speed corresponding to recommended no load speed of engine, rpm | : |  |
| 1.3.16.2 | Grain elevator |  |  |
|  | Type | : |  |
|  | Length of elevator, mm | : |  |
|  | Speed corresponding to recommended no load speed of engine, rpm | : |  |
|  | Elevator drive safety arrangement | : |  |
|  | Method of tensioning the chain | : |  |

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| 1.3.16.3 | | | Upper grain auger | | |  | |  | |
|  | | | Type | | | : | |  | |
|  | | | Size of auger (Length, Dia. and Pitch), mm | | | : | |  | |
|  | | | Speed corresponding to recommended no load speed of engine , rpm | | | : | |  | |
|  | | | Drive safety arrangement | | | : | |  | |
| 1.3.17 | | | Tailing conveying mechanism | | |  | |  | |
| 1.3.17.1 | | | Bottom tailing auger | | |  | |  | |
|  | | | Type | | | : | |  | |
|  | | | Size of auger( length, Dia. and pitch), mm | | | : | |  | |
|  | | | Speed corresponding to recommended no load speed of engine, rpm | | | : | |  | |
|  | | | Drive safety | | | : | |  | |
| 1.3.17.2 | | | Tailing elevator | | |  | |  | |
|  | | | Type | | | : | |  | |
|  | | | Length of elevator, mm | | | : | |  | |
|  | | | Speed corresponding to recommended no load speed of engine, rpm | | | : | |  | |
|  | | | Method of tensioning the chain | | | : | |  | |
|  | | | Elevator drive safety arrangement | | | : | |  | |
| 1.3.17.3 | | | Upper tailing auger | | |  | |  | |
|  | | | Type | | | : | |  | |
|  | | | Size( length, Dia. and Pitch), mm | | | : | |  | |
|  | | | Speed corresponding to recommended no load speed of engine, rpm | | | : | |  | |
|  | | | Drive safety | | | : | |  | |
| 1.3.18 | | | Grain tank | | |  | |  | |
|  | | | Location | | | : | |  | |
|  | | | Capacity | | |  | |  | |
|  | | | Volume basis, m3  (With wheat) | | | : | |  | |
|  | | | Provision of grain tank cover | | | : | |  | |
|  | | | Provision for indication of grain tank filling | | | : | |  | |
| 1.3.18.1 | | | Grain conveying auger (Bottom of grain tank) | | | | | | |
|  | | | Type | | | : | |  | | |
|  | | | Size, mm | | | : | |  | | |
|  | | | Speed corresponding to recommended field operation rpm of engine, rpm | | | : | |  | | |
|  | | | Safety device | | | : | |  | | |
| 1.3.18.2 | | | Grain unloading auger | | |  | |  | | |
|  | | | Type | | | : | |  | | |
|  | | | Size (length Dia. and pitch), mm | | | : | |  | | |
|  | | | Horizontal reach, cm | | | : | |  | | |
|  | | | Discharge height above ground level, cm | | | : | |  | | |
|  | | | Clearance height, cm | | | : | |  | | |
|  | | | Speed corresponding to recommended no load speed of engine, rpm | | | : | |  | | |
|  | | | Safety device | | | : | |  | | |
| 1.4 | | | Safety devices provided on the machine | | | | | | | | |
| i)  ii)  iii)  iv)  v) | | |  | | | | | | | | |
| 1.5 | | | Details of Operating controls, gauges and instruments | | | | | | | |
| 1.6 | | | Seat |  | |  | | | |
|  | | | Make | : | |  | | | |
|  | | | Type | : | |  | | | |
|  | | | Type of suspension | : | |  | | | |
|  | | | Type of dampening | : | |  | | | |
|  | | | Horizontal adjustment, mm | : | |  | | | |
| 1.7 | | Overall dimensions of combine harvester, cm |  | | Working  position | | Transport  position | |
|  | | Length | : | |  | |  | |
|  | | Width | : | |  | |  | |
|  | | Height | : | |  | |  | |
| 1.8 | | Mass |  | |  | | | |
|  | | Mass of combine harvester with coolant, fuel, lubricants & grain tank (wheat) full and 75 kg mass on the operator's seat, kg |  | |  | | | |
|  | | Total | : | |  | | | |
|  | | Front | : | |  | | | |
|  | | Rear | : | |  | | | |
| 1.9 | | Ground clearance, mm | : | |  | | | |
| 1.10 | | Total number of lubricating points: | | | | | | |
|  | | Grease Nipples/grease holes | : | |  | | | |
|  | | Greasing cups | : | |  | | | |
|  | | Oiling | : | |  | | | |
| 1.11 | | Header transport trailer |  | |  | | | |
|  | | Type | : | |  | | | |
|  | | Size, mm  Length  Width  Height | :  :  : | |  | | | |
|  | | No. & type of wheel | : | |  | | | |
|  | | Make | : | |  | | | |
|  | | Size & Ply rating | : | |  | | | |
|  | | Track width (mm) | : | |  | | | |
|  | | Height of trailer hitch in transport position, mm | : | |  | | | |
| 1.12 | | Details of labelling plate | : | |  | | | |

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2.STRAW CHOPPER CUM SPREADER (SMS) (IF FITTED)

|  |  |  |  |
| --- | --- | --- | --- |
| 2.1 | General |  |  |
|  | Make of SMS | : |  |
|  | Model of SMS | : |  |
|  | Type of SMS | : |  |
|  | Name and complete Address of the  manufacturer of SMS including  PIN/Mob./email etc. | : |  |
|  | Year of manufacturer of SMS | : |  |
| 2.2 | Rotor |  |  |
|  | Rotor Diameter, mm | : |  |
|  | No of lugs on Rotor in a row | : |  |
|  | Rotor dia with blade, mm | : |  |
|  | No of rows in a periphery | : |  |
|  | Length of pivotal flail, mm | : |  |
|  | Width of flail, mm | : |  |
|  | Thickness of flail | : |  |
|  | No. of flail in one set | : |  |
|  | Spacing between flail of one set, mm | : |  |
|  | Distance between adjacent flail unit,  mm | : |  |
|  | No of Rows/bar of serrated blade | : |  |
|  | No of serrated blade in a row | : |  |
|  | Spacing between serrated blades, mm | : |  |
|  | Clearance between pivotal blade and  concave | : |  |
|  | Overlapping of pivotal blade on serrated blade, mm | : |  |
|  | Rotor rpm | : |  |
| 2.3 | Transmission | : |  |
|  | Diameter of Drive Pulley | : |  |
|  | Diameter of Driven pulley | : |  |
| 2.4 | Spreader |  |  |
|  | Total no of flap, mm | : |  |
|  | Length of flap, mm | : |  |
|  | Distance between flaps, in (left to right) | : |  |
|  | SMS sheet thickness , mm | : |  |
|  | Spreader angle with horizontal, Degree | : |  |
|  | Spreader angle with line of travel ,  degree | : |  |
|  | Spreader sheet thickness, mm | : |  |
| 2.5 | Overall dimensions (mm) |  |  |
|  | Length | : |  |
|  | Width | : |  |
|  | Height | : |  |
| 2.6 | Overall Mass (kg) | : |  |
| 2.7 | Colour | : |  |
| 2.8 | Hardness & chemical composition |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 2.9 | SAFETY REQUIREMENT FOR SMS  (evaluative) | : |  |
|  | Guards over all moving parts | : |  |
|  | RPM indicator of rotor | : |  |
|  | Overlapping of flail and fixed serrated  blade (The clearance should be  adjustable) | : |  |

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| --- | --- | --- | --- |
| 2.10 | Labeling plate on SMS (details) |  |  |

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| --- | --- | --- | --- | --- | --- | --- |
| 3 | | Lubricants: | |  |  | |
| Sl. No. | Particulars | | As recommended by the applicant | | | Oil change period | |
| 1. | Engine oil | |  | | |  | |
| 2. | Hydraulic oil | |  | | |  | |
| 3. | Transmission and final drive housing oil | |  | | |  | |
| 4. | Hydrostatic steering oil | |  | | |  | |
| 5. | Grease | |  | | |  | |

SELECTED PERFORMANCE AND OTHER CHARACTERISTICS AS PER IS 15806-2018

TO BE DECLARED BY APPLICANT

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S. No | Characteristics | | | Category (Evaluative/Non evaluative) | | Requirement | | | | | Tolerance | | | | | | | Declarati-on by applicant | Remarks |
| 1. | Prime mover performance | | | | | | | | | | | | | | | | | | |
|  | a) | Max. Power (absolute) Average max. power observed during 2 hrs. max. power test in natural ambient condition, kW | | Evaluative | | To be declared by manufacturer | | | | | Declared value to be achieved with a tolerance of ±5% | | | | | | |  |  |
| b) | Max. power observed during test after adjusting the no load engine speed as per recommendation of the manufacturer for field work, kW | | Evaluative | | To be declared by manufacturer | | | | | -do- | | | | | | |  |  |
| c) | Power at rated engine speed, kW (under natural ambient condition) | | Non-Evaluative | | To be declared by manufacturer | | | | | -do- | | | | | | |  |  |
| d) | Specific fuel consumption corresponding to average maximum power under 2h maximum power test, g/kWh. | | Evaluative | | -do- | | | | | +5%(Max.) | | | | | | |  |  |
| e) | Max. smoke density at 80% load between the speed at max. power & 55% of speed at max. or 1000 rpm whichever is higher | | Evaluative | | As pre CMV rules. | | | | | Nil | | | | | | | - |  |
| f) | Max. crank shaft torque, (Nm) observed during the test after no load engine speed is adjusted as per manufacture’s recommendation for field work | | Evaluative | | To be declared by manufacturer | | | | | ±8% | | | | | | |  |  |
| g) | Back up torque, % | | Evaluative | | 7 percent, (Min.) | | | | | Nil | | | | | | | - |  |
| h) | Max. Operating temperature, 0C  i) Engine oil | | Evaluative | | To be declared by manufacturer | | | | | Nil | | | | | | |  | The observed value under the high ambient condition should not exceed maximum safe value specified by the oil company which will be provided by the applicant |
|  | ii) coolant | | Evaluative | | To be declared by manufacturer | | | | | Nil | | | | | | |  | The declared value should not exceed the boiling temperature of coolant under the pressurized or otherwise and the observed value under high ambient condition should not exceed the declaration |
| i) | Lubrication oil consumption, g/kWh | | Evaluative | | Not exceeding 1 % of specific fuel consumption at maximum power under high ambient condition | | | | | Nil | | | | | | |  | The value should be based on the test conducted under high ambient condition |
| 2.Brake performance at 24km/h or Maximum Speed whichever is less | | | | | | | | | | | | | | | | | | | |
|  | a) | Max. Stopping distance at a force equal to or less than 600 N on brake pedal (m) – (cold brake and hot brake) | | Evaluative | | As pre CMV rules. | | | | | Nil | | | | | | |  |  |
|  | b) | Max. Force exerted on brake pedal to achieve a deceleration of 2.5 m/sec2 | | Evaluative | | ≤ 600 N | | | | | Nil | | | | | | |  |  |
|  | c) | Effectiveness of parking brake at a force of 600 N at foot pedal or 400 N at Hand lever | | Evaluative | | As pre CMV rules. | | | | | Nil | | | | | | |  | Based on the test conducted, Yes/No as the case may be should be indicated |
| 3.Mechanical vibration | | | | | | | | | | | | | | | | | | | |
|  | i) | Operator’s platform | | Non evaluative | | | 120 μm max. | | | | Nil | | | | | | |  |  |
|  | ii) | Steering wheel | | Non evaluative | | | 150 μm max. | | | | Nil | | | | | | |  |
|  | iii) | Seat with driver seated | | Non evaluative | | | 120 μm max. | | | | Nil | | | | | | |  |
| 4.Air cleaner oil pull over | | | | | | | | | | | | | | | | | | | |
|  | i) | Max. oil pull over in percentage when tested in accordance with IS: 8122. (Part-2)-2000 | | Evaluative | | | 0.20% max. | | | | Nil | | | | | | |  |  |
| 5.Noise measurement | | | | | | | | | | | | | | | | | | | |
|  | i) | Max. ambient noise emitted by combine at by standards position dB (A) | | Evaluative | | | | as per CMVR | | | Nil | | | | | |  | | As per road transport condition |
|  | ii) | Max. noise at operator’s ear level dB (A) | | Evaluative | | | | as per CMVR | | | Nil | | | | | |  | | In actual field condition |
| 6. Header Lifting Test | | | | | | | | | | | | | | | | | | | |
|  |  | Satisfactory completion of header lifting test | | Evaluative | | | |  | | | Nil | | | | | |  | | The observed Hydraulic oil temp should not exceed maximum safe value specified by the oil company which will be provided by the applicant. |
| 7.Discard limit | | | | | | | | | | | | | | | | | | | |
|  | a) | Cylinder bore diameter, mm | | Evaluative | | | | Should not exceed the values declared by the manufacture | | | Nil | | | | |  | | |  |
|  | b) | Piston diameter, mm | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | c) | Piston to cylinder liner clearance at skirt | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | d) | Ring end gap, mm | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | e) | Ring groove clearance, mm | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | f) | Diametrical clearance of big end bearing, mm | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | g) | Axial clearance of big end bearing, mm | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | h) | Diametrical clearance of main bearings, mm | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | i) | Axial clearance of main bearings, mm | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | j) | Thickness of brake lining | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | k) | Thickness of clutch plate | | Evaluative | | | | -do- | | | Nil | | | | |  | | |  |
|  | l) | Spring stiffness(N/mm) | | - | | | | -do- | | | Nil | | | | |  | | |  |
|  | m) | Clearance between valve and valve guide(mm) | | - | | | | -do- | | | Nil | | | | |  | | |  |
| 8.Field performance | | | | | | | | | | | | | | | | | | | |
|  | a) | Suitability for crops | Evaluative | | Wheat & paddy (Wheel type) Paddy (Track type) | | | | | | | Nil | | | |  | | |  |
|  | b) | Processing losses (%) | Evaluative | | Wheat  Barley  Rice  Sorghum  Maize  Oil seed, rape  Soya-  beans | | | | :  :  :  :  :  : | Max 3%  Max 4%  Max 4%  Max 3%  Max 4%  Max 4%  Max 5% | | Nil | | | |  | | |  |
|  | c) | Threshing efficiency | Evaluative | | - | | | | : | ≥ 98 % for wheat and paddy | | Nil | | | |  | | |  |
|  | d) | Cleaning efficiency | Evaluative | | - | | | | : | ≥ 96 % for wheat and paddy | | Nil | | | |  | | |  |
|  | e) | Grain breakage in main grain tank | Evaluative | | - | | | | : | ≤ 2.5 % | | Nil | | | |  | | |  |
|  | f) | Non collectable losses | Evaluative | | - | | | | : | ≤ 2.5 % for wheat, paddy and gram  ≤ 4.0 % for soyabean | | Nil | | | |  | | |  |
| 9. Field performance for Straw Management System (If fitted) | | | | | | | | | | | | | | | | | | | |
|  | a) | Uniformity of straw spread ,CV (Percent) | Evaluative | | - | | | | : | 20, Max. | | - | | | |  | | |  |
|  | b) | Weighted mean size of chopped straw, cm | Evaluative | | - | | | | : | 20,Max. | | - | | | |  | | |  |
| 10. Safety requirements | | | | | | | | | | | | | | | | | | | |
|  | a) | Guards against all moving parts/drives and hot part | | Evaluative | | | | Belt and chain drives, pulleys hydraulic pipes(Around operators workplace) | | | | | -- | |  | | | | As per IS 12239 (Part 1) |
|  | b) | Lighting arrangement | | Evaluative | | | | essential as per CMVR | | | | | - | |  | | | | -- |
|  | c) | Grain tank cover | | Evaluative | | | | Essential | | | | | - | |  | | | |  |
|  | d) | Spark arrester in engine’s exhaust in case naturally aspirated engine | | Evaluative | | | | Essential | | | | | - | |  | | | |  |
|  | e) | Stone trap before concave | | Evaluative | | | | Essential | | | | | - | |  | | | |  |
|  | f) | Rear view mirror | | Evaluative | | | | Essential | | | | | - | |  | | | |  |
|  | g) | Fire extinguisher | | Evaluative | | | | Essential | | | | | - | |  | | | |  |
|  | h) | Slip clutch at following drives –  i) Cutting platform auger  ii) Undershot conveyor drive  iii) Grain & tailing elevator | | Evaluative  Non evaluative  Non evaluative | | | | Essential  Optional  Optional | | | | | - | |  | | | |  |
|  | i) | Anti slip surfaces at operator platform & ladder & proper gripping for the control levers. | | Evaluative | | | | Essential | | | | |  | | -- | | | | As per IS 12239 (Part 1) |
|  | j) | Working clearance around the controls | | Evaluative | | | | Essential 70mm, min | | | | | - | |  | | | | As per IS 12239 (Part 1) |
|  | k) | Labelling of control and gauges and operating controls | | Evaluative | | | | Essential | | | | | - | |  | | | | As per IS 6283(Part 1) |
| 11. Material of construction : | | | | | | | | | | | | | | | | | | | |
|  | | Guards, knife blades and knife back | | Non evaluative | | | Conforming to IS 6024, IS 6025 and IS 10378 respectively | | | | - | | | - | | | | | - |
| 12. | | Material of blades for Straw Management System (SMS) | | Non-Evaluative | | | The flail and fixed blades shall be manufactured from steel having the following chemical composition or such other composition as shall be agreed between the supplier and the purchaser:  a)Carbon : 0.70 to 0.1 %  b)Manganese : 0.6 to 0.97 %  c)Chrome : 0.1 %  d)Nickle : 0.1 % | | | | | | |  | | | | |  |
| 13. | | Bushes for flail blades | | Non-Evaluative | | | Mild steel | | | | | | |  | | | | |  |
| 14. | | Hardness of flail blades for Straw Management System (SMS) | | Evaluative | | | Bush section : 20 to 35 HRC  Edge section(Hardened zone) : 48 to 48 HRC  Remainder zone: 20 to 35 HRC | | | | | | |  | | | | |  |
| 15. | | Hardness of serrated blades for Straw Management System (SMS) | | Evaluative | | | Bush section : 20 to 35 HRC  Edge section(Hardened zone) : 48 to 58 HRC  Remainder zone: 20 to 35 HRC | | | | | | |  | | | | |  |
| 16. Safety Requirements for Straw Management System(if Fitted) | | | | | | | | | | | | | | | | | | | |
|  | a) | Guards against all moving parts/drives and hot parts | | Evaluative | | | Essential | | | | | | |  | | | | |  |
|  | b) | RPM indicator for rotor | | Evaluative | | | Desirable | | | | | | |  | | | | |  |
|  | c) | Overlapping of flail and fixed serrated blades | | Evaluative | | | Essential | | | | | | |  | | | | | The clearance of the flail and fixed serrated blades should be adjustable |

Place: Signature------------------------------------------

Date: Name of the applicant---------------------------

Designation---------------------------------------

Address-------------------------------------------

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