

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT (Initial)

संख्या/No. : T-1620/2151/2022
माह/Month : January, 2022

(यह परीक्षण रिपोर्ट 31/01/2025 तक वैध है / THIS TEST REPORT IS VALID UPTO 31/01/2025)



MAHINDRA, ARJUN 605 DI i TRACTOR



भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय
(कृषि, सहकारिता एवं किसान कल्याण विभाग)

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE
(DEPARTMENT OF AGRICULTURE, CO-OPERATION & FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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1. SPECIFICATIONS

- 1.1 Tractor:**
- Make : Mahindra
 Model : Arjun 605 DI i
 Type : Rear Wheel Drive, Standard Agricultural Tractor.
 Month & year of manufacture : 04/21
 Chassis number : MBNWEHDAAMNA00005
 Country of origin : India
- 1.2 Engine:**
- Manufacturer's address : M/s. Mahindra & Mahindra Limited
 (Farm Equipment Sector), MIDC Area,
 Hingna Road, Nagpur – 440016
 (Maharashtra)
- Make : Mahindra
 Model : MTVNC35NA055TR4
 Type : Four stroke, common rail direct injection,
 naturally aspirated, liquid cooled, diesel engine.
 Serial number : NMAKHVE0002
 Country of origin : India
- 1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):**
- Maximum speed at no load : 2225 to 2375 (Power Mode)
 - Low idle speed : 800 to 900
 - Speed at maximum torque : 1000 to 1300
- Rated speed, (rpm):**
- For PTO use : 2100
 - For drawbar use : 2100
- 1.3 Cylinder & Cylinder Head:**
- Number : Four
 Disposition : Vertical, Inline
 Bore/stroke, (mm) : 96/122
 Capacity as specified by the applicant, (cc) : 3532
 Compression ratio : 17.2 : 1 (± 0.5)
 Type of cylinder head : Monoblock
 Type of cylinder liners : Wet, replaceable
 Type of combustion chamber : Re-entrant bowl cavity on piston head
 Arrangement of valves : Overhead, inline
- Valve clearance (cold/hot):**
- | | <u>Cold</u> | <u>Hot</u> |
|-----------------------|-------------|------------|
| - Inlet valve, (mm) | 0.3 | 0.4 |
| - Exhaust valve, (mm) | 0.4 | 0.5 |
- 1.4 Fuel System:**
- Type of fuel feed system : Gravity and force feed
- 1.4.1 Fuel tank:**
- Capacity, (l) : 62.00
 Location : Above clutch housing
 Provision for draining of sediments/
 water : Provided
 Material of fuel tank : Metallic

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16. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

16.1 On the basis of test conducted the performance results have been summarized as evaluative (mandatory) / Non-evaluative (Non-mandatory) parameters applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of **IS: 12207-2019** for acceptance of the tractor for the purpose of subsidies/NABARD financing are summarized as under:

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
16.1.1	PTO Performance :					
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: $\pm 5\%$ for PTO power and or engine power > 26 kW. $\pm 10\%$ for PTO power and or engine ≤ 26 kW.	36.4 (Power Mode) (D)	37.4	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	36.4 (Power Mode) (D)	37.4	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% max.	264 (Power Mode) (D)	259	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	$\pm 8\%$	217 (D)	211.4	Yes
e)	Back-up torque, percent	Evaluative	12 percent	21 (D) 12 (R)	24.4	Yes
f)	Maximum operating temperature, ($^{\circ}\text{C}$)					
	1) Engine oil	Evaluative	The declared value should not exceed the max. value specified by the oil company and the observed value under high ambient condition should not exceed the declaration.	135 (D)	122	Yes
	2) Coolant	Evaluative	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.	110 (D)	101	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. Power under High ambient conditions.	2.59 Maximum (R)	0.22	Yes
h)	Smoke level, m^{-1}	Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR).	3.25 Maximum (R)	0.09	Yes

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1	2	3	4	5	6	7	
16.1.2	Drawbar performance :						
a)	Max. drawbar pull with ballasted corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 70% of static mass of tractor with ballast.	20.14 (D) 19.98 Minimum (R)	24.66	Yes	
b)	Max. drawbar pull with standard ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without ballast or with standard ballast, as the case may be.	15.72 (D) 15.38 (R) Minimum	18.92	Yes	
c)	Maximum drawbar power with standard ballast, (kW).	Evaluative	Minimum 80 % of PTO power as referred in SI No. i) a) of PTO performance in case of tractors having total static mass > 1500 kg Minimum 75 % of PTO power as referred in SI No. i) a) of PTO performance in case of light weight tractors having ≤1500 kg total static mass of tractor Minimum 75 % of the engine power as referred in SI No. i) a) of engine performance in case of tractors which do not have a PTO shaft.	29.12 (D) 29.8 (R) Minimum	33.5	Yes	
d)	Maximum transmission oil temperature, (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	120 (D)	86	Yes	
16.1.3	Power lift and hydraulic pump performance :						
a)	Maximum lifting capacity throughout the range of lift, (kN):						
	1)	At hitch points	Evaluative	Tolerance of ± 10%	18.15 (D)	17.2	Yes
	2)	With the standard frame	Evaluative	The lift capacity should at least be 24 kg/PTO kW. and it should be 21.5 kg/engine kW where the tractor is not provided with a PTO shaft.	12.35 (D) 8.78 (R) Minimum	12.25	Yes
b)	Maximum drop in the height of the point of application of the force after each 5 minutes interval for a total duration of 30 Minutes, (mm)		Non Evaluative	The observed value should not exceed 50 mm	50 (D) Maximum	35	Yes
16.1.4	Brake performance at 25 kmph:						
a)	Maximum stopping distance at a force, equal to or less than 600 N on brake pedal with road ballast, (m):						
	1)	Cold brake	Evaluative	10	10 (R)	6.87	Yes
	2)	Hot brake	Evaluative	10	10 (R)	6.92	Yes

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1	2	3	4	5	6	7
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² , (N)	Evaluative	600	600 (R) Maximum	148 to 204	Yes
c)	Whether parking brake is effective at a force of 600 N at foot pedal (s) or 400 N at hand lever	Evaluative	Yes / No	Yes	Yes	Yes
16.1.5	Noise measurement :					
a)	Maximum ambient noise emitted by the tractor, dB(A)	Evaluative	As per CMVR	88 (R)	81	Yes
b)	Maximum noise at operator's ear level, dB(A)	Evaluative	As per CMVR	96 (R)	92	Yes
16.1.6	Amplitude of mechanical vibrations at:					
1)	Left foot rest	Non Evaluative	100 microns (max.)	100(R)	406	No
2)	Right foot rest				121	No
3)	Seat (with driver seated)				56	Yes
4)	Steering wheel				388	No
16.1.7	Air cleaner:					
	Maximum air cleaner oil pull over, (%)	Evaluative	0.25 (Max.)	Dry type air cleaner fitted		Not applicable
16.1.8	Haulage requirements :					
a)	Gross mass of the trailers, (tones):					
	Two wheel	Non Evaluative	As specified by the manufacturer	5.0 (D)	5.0	Yes
	Four wheel	Non Evaluative		7.0 (D)	7.0	Yes
b)	Distance travelled / liter of fuel consumption, (km/l):					
	Two wheel	Non Evaluative	As specified by the manufacturer	4.80 to 4.83 (D)	5.27 to 5.44	Yes
	Four wheel	Non Evaluative		4.26 to 4.38 (D)	5.01 to 5.11	Yes
c)	Fuel consumption, (ml/km/tonne):					
	Two wheel	Non Evaluative	As specified by the manufacturer	29.2 to 39.7 (D)	36.8 to 38.0	Yes
	Four wheel	Non Evaluative		29.0 to 29.3 (D)	28.0 to 28.5	No

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1	2	3	4	5	6	7	
16.1.9	Wetland cultivation :						
	Sealing for the following assemblies:		Evaluative	The identified assemblies should essentially meet the requirement of IS: 11082. No water ingress in the identified assembly given in column-2. If tractor does not meet the requirements of wetland cultivation, it may be recommended for dry land operation only.	There should be no ingress of water and/or mud (R)	No ingress of water and/or mud was observed	Yes
	1)	Clutch assembly	-do-				
	2)	Brake housings	-do-				
	3)	Front axle hubs	-do-				
	4)	Engine Oil	-do-				
5)	Transmission Oil	-do-					
16.1.10	Safety features :						
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulic pipes (As per IS 12239 (Part2))	Meets the requirement	Yes		
b)	Lighting arrangement	Evaluative	As per CMVR	Meets the requirement	Yes		
c)	Seating requirements (Tractors having more than 1150 mm rear track width)	Non Evaluative	Should meet the requirements of IS: 12343 (As amended from time to time)	Does not meet the requirement	No		
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	Meets the requirement	Yes		
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS: 4468 (Part-I) (As amended from time to time)	Does not meet the requirement	No		
f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time)	Meets the requirement	Yes		
g)	Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time)	Not provided	Not applicable		
h)	1)	Maximum travelling speed at rated engine speed in reverse gears, Kmph	Evaluative	Should not exceed 20 Kmph	13.22 (Meets the requirement)	Yes	
	2)	Audible warning signal on tractor	Evaluative	As soon as the travelling speed in reverse gear reaches to 20 kmph, an audible warning signal on tractor shall be activated. The safety aspects about the operation of shuttle technology shall be brought in operation and manufacturer /dealer shall ensure the training on this aspect to operator before the delivery of tractor.	Not fitted	Not applicable	

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1	2	3	4	5	6	7		
16.1.11	Labelling of tractors (Provision of labelling plate):							
	1)	Make	Evaluative	Should conform to the requirements of CMVR along with maximum PTO Power in kW and year of manufacture in numerical form. <table border="1" style="margin: 5px 0;"><tr><td>MM</td><td>YY</td></tr></table> Digit 01 – 12 in box No.1 for MM will represent the months and next two digits in box No.2 for YY will represent the year of Manufacturing.	MM	YY	Mahindra	Yes
	MM	YY						
	2)	Model	Evaluative		Arjun 605 DI i	Yes		
	3)	Month & Year of manufacture	Evaluative		04/21	Yes		
	4)	Engine number	Evaluative		NMAKHVE0002	Yes		
	5)	Chassis number	Evaluative		MBNWEHDAAMNA0005	Yes		
6)	Maximum PTO power, (kW)	Evaluative	36.4		Yes			
16.1.12	Discard limit for:							
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer and supported by the printed literature	96.522	96.000 to 96.017	Yes		
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.50	0.099 to 0.117	Yes		
(c)	Piston diameter at skirt, (mm)	Non Evaluative		95.600	95.895 to 95.913	Yes		
d)	Ring end gap (mm):							
	-	Top comp. ring.	Evaluative	To be specified by the manufacturer and supported by the printed literature	1.5	0.40 to 0.45	Yes	
	-	2 nd comp. ring.			2.5	1.00 to 1.10	Yes	
-	Oil ring.	2.0			0.45 to 0.55	Yes		
e)	Ring groove clearance (mm):							
	-	Top comp. ring.	Evaluative	To be specified by the manufacturer and supported by the printed literature	0.30	Tapered	Yes	
	-	2 nd comp. ring.			0.30	0.073 to 0.078	Yes	
-	Oil ring.	0.25			0.041 to 0.046	Yes		
f)	Clearance of main bearings (mm):							
	-	Diametrical clearance	Evaluative	To be specified by the manufacturer and supported by the printed literature	0.30	0.081 to 0.105	Yes	
-	Crankshaft end float	Evaluative	0.80		0.12	Yes		

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1	2	3	4	5	6	7	
(g)	Clearance of big end bearings, (mm):						
	-	Diametrical	Evaluative	-do-	0.20	0.046 to 0.101	Yes
	-	Axial	Evaluative	-do-	0.75	0.15	Yes
(h)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	0.20	0.088 to 0.121	Yes	
(i)	Clearance between centre pin and bush, (mm)	Non Evaluative	-do-	0.205	0.072 to 0.100	Yes	
16.1.13	Literature (Submission to test agency)						
(a)	Operator manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes	
(b)	Parts Catalogue	Evaluative	Provided / Not Provided	Provided	Provided	Yes	
(c)	Workshop/ Service manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes	
16.1.14	Fitment of Roll Over Protective Structures (ROPS):						
	For tractor having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS:1182 or OECD code or equivalent International Standard		Not fitted	Not applicable	
16.1.15	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor		Provided	Yes	
16.1.16	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR		Provided	Yes	

16.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2019):					
Sl. No.	Category of break-downs	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	As observed	Whether meets the Requirements (Yes/No)
1.	Critical	Evaluative	No critical breakdown	None	Yes
2.	Major	Evaluative	Not more than two and neither of them should be repetitive in nature	Mj 21 (2 times), repetitive in nature	Yes *
3.	Minor	Evaluative	Not more than five and frequency of each should not be more than two.	None	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed five, that is, (2 major + 3 minor) or (1 major + 4 minor) or 5 minor breakdowns.	Mj 21 (2Times), repetitive in nature	Yes

* Major breakdown "Mj21" occurred two times over, therefore this being repetitive, had rendered the tractor as "Non-conforming" to the essential requirement of IS:12207-2019. This being so, the applicant, in pursuance of provision in the clause 4.1 of IS:12207-2019, had requested the Institute to conduct repeat test after replacing the pressure pipe. During repeat test "Mj21" was not observed.

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16.3 Salient Observations:

16.3.1 Laboratory tests:

16.3.1.1 Drawbar performance test:

- i) The LHS and RHS tyre creeping was recorded as 45 and 30 mm respectively during 10 hrs test. This should be looked into for necessary corrective action.

16.3.1.2 Hydraulic performance test:

- i) During the lifting capacity test at hitch point, leakage of hydraulic oil was observed due to crackage of the pump outlet pipe. Upon this the applicant has requested for the replacement of “pipe pressure (part No. 007216359C01)” of same specification. This defect was categorized as Major breakdown (Mj- 21). The replacement of pipe was allowed as per IS: 12207-2019.
- ii) Again during warming up, leakage of hydraulic oil was observed from same “pipe pressure (part No. 007216359C01)”. The nut of pressure pipe at pump end was tightened as per service manual.
- iii) Again during warming up, the oil leakage was observed from same “pipe pressure (part No. 007216359C01)” when the hydraulic oil temperature was 60⁰C. As the leakage of oil was occurred from the same place and pipe, this breakdown is repetitive in nature and hence does not meet the evaluative requirement of clause 5.1 (b) of IS: 12207-2019.
- iv) The applicant, vide letter No. FD/BVH/ICT/T4A605i/21-22/08 dated 20.09.2021, has informed that they have carried out detailed root cause analysis. The applicant has also informed that the pressure pipe center line is offset with respect to its ferule nut. This offset resulted in deep scoring marks on outer surface of pressure pipe thereby increasing the stress concentration at local zone resulting in crack in the pipe and thus leakage of hydraulic oil. Since, the Trem- IV model is not in production and the design of this pipe is different for Trem- IV model, we will introduce check point in manufacturing process to ensure desired concentricity.
- v) Further, the applicant, vide letter No. FD/BVH/ICT/T4A605i/21-22/09 dated 30.09.2021 has requested for **repeat test** after replacing “pipe pressure (Pump to VTU), part No. 007216359C01, Quantity 1 Number”. The applicant’s request for replacement of above referred pipe was accepted as per provision given under clause 5.2 of IS: 12207-2019. This defect is categorized as **“Mj-21, repetitive in nature”**.
- vi) Major breakdown “Mj21” occurred two times over, therefore this being repetitive, had rendered the tractor as “Non-conforming” to the essential requirement of IS:12207-2019. This being so, the applicant, in pursuance of provision in the clause 4.1 of IS:12207-2019, had requested the Institute to conduct repeat test after replacing the pressure pipe. During repeat test “Mj21” was not observed.

All of the above should be looked into for necessary corrective action.

16.3.1.3 Mechanical Vibration:

The amplitude of mechanical vibration on various assemblies marked as (*) in Chapter – 8 of this test report is on higher side. This calls for dampening down of vibrations especially on foot rest & steering control wheel to improve the operational comfort and service life of components.

16.3.1.4 Specifications of three point linkage:

- i) The dimension of width of ball of lower hitch point does not meet the requirement of IS: 4468- 1997 (Part-I) (Reaffirmed in October, 2017). This should be looked into for necessary corrective action at production level.
- ii) Lateral distance from lower hitch point to centre line of tractor does not meet the requirement of IS: 4468- 1997 (Part-I) (Reaffirmed in October, 2017). This should be looked into for necessary corrective action.

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- iii) Some of the parameters conform to Cat. I and some of them conform to Cat. II. Keeping in view the spirit of standardization, necessary improvements may be incorporated.

16.3.1.5 Components and assembly inspection:

The backlash between crown wheel and pinion was reached to 0.23 mm against the discard limit of 0.21 mm that too only after 140 hours of operation. This should be looked into for necessary corrective action.

16.4 Maintenance / Service Problems:

No noticeable maintenance or service problem was observed during the test.

16.5 Recommendation with regard to safety on tractor:

The following requirements, inter alia, may be considered for incorporation on the tractor:

- i) Longitudinal distance from SIP to center line of differential lock pedal has been measured as "185 mm" against the requirement of "355 to 770 mm" as per IS: 12343-1998 (Re-affirmed in January, 2019).
- ii) Vertical retainers at both sides of clutch pedal should be provided as per IS: 12239 (Part-1) – 2018.
- iii) Spark arrester should be provided in the exhaust system as per the requirement of IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).
- iv) The working clearance between position and draft control lever of hydraulic system was measured as 30 mm against the minimum requirement 70 mm as per IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).
- v) Master shield of PTO shaft should be provided as per the requirement of IS: 4931-1995 (Re-affirmed in January, 2019).

16.6 Adequacy of Literature supplied with machine:


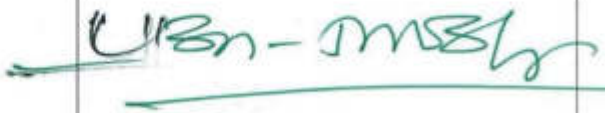
16.6.1 The following literatures were supplied with the test tractor for reference during the test:-

- a) Operator Manual for "Mahindra Arjun 605 DI i" tractor model.
- b) Parts catalogue for "Mahindra Arjun 605 DI i" tractor model.
- c) Service manual (Part-I and Part-II) for "Mahindra Arjun 605 DI i" tractor model.

16.6.2 The operator manual may be brought out for the guidance of users and service personnel as per IS:8132-1999 incorporating, inter alia, the following:

- i) Safe hitch height while using trailer
- ii) Coolant water ratio
- iii) Toll free number / "CARE Button "for convenience of the farmers.

TESTING AUTHORITY:

C.V. CHIMOTE TEST ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report is compiled by: **Nitesh Kumar Verma**, Agricultural Engineer.

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17. APPLICANT'S COMMENTS

Para no.	Our reference	Applicant's comments
17.1	16.3.1.2	Necessary controls and check points for child part/ assembly process has been implemented through Production Part Approval Process (PPAP) at supplier as well as manufacturing plant. Further there is no case reported of pressure pipe failure on customer tractors or on multiple test samples during internal field validation.
17.2	16.3.1.5, 16.5 & 16.6	Parameters will be studied and necessary action will be initiated.
17.3	16.6.2(i)	We will study further and necessary action will be decided.
	16.6.2(ii)	We will study requirement and necessary details will be incorporated in the operator's manual.
	16.6.2(iii)	The applicant vide letter No. FD/BVH/ICT/T4A605i/21-22/14 dated 21.01.2022 stated that National Toll Free Number is available in the "Operator Manual supplied to the customer." It is observed that no such number is provided in the operator manual submitted to the Institute. Applicant had subsequently submitted vide e-mail dated 22.01.2022 that "Toll free number is available in latest operator manual".

ANNEXURE- I

BRIEF SPECIFICATION OF IMPLEMENTS USED DURING FIELD TEST

S. No.	Parameters	Disc Plough	Rotavator	Roto puddler
1	Make	Farmking	Mahindra	Escorts
2	Type	Mounted	Mounted	Mounted
3	No. of Discs / Blades	Two	36 in 8 flanges	46
4	Type of Discs / Blades	Plain concave	Hatchet	Hatchet
5	Size of Discs / Blades, (mm)	655	265 x 85 x 8	225 x 45 x 6.6
6	Spacing of Discs /Flanges, (mm)	495	325	NA
7	Lower hitch point span, (mm)	760	785	755
8	Mast height, (mm)	480	595	660
9	Overall Dimensions, (mm):			
	Length	1480	970	2045
	Width	1060	1690	940
	Height	1180	1105	1215
10	Gross Mass, (kg)	200	450	385

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ANNEXURE-II

BRIEF SPECIFICATION OF HALF CAGE WHEEL

Sr.No.	Items	Specification
1	Type	Half cage wheel
2	Outer dia. (mm)	1200
3	Width (mm)	360
4	No. & Type of Lugs	14, straight lugs made of MS angle section welded to angle iron frame
5	Size of angle section, (mm)	50 x 50 x 5
6	Length of lug, (mm)	360
7	Spacing of lug, (mm)	260
8	Weight of each cage wheel, (kg)	100

ANNEXURE-III

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	45.40
2.	PTO performance test	12.96
3.	Power lift and hydraulic pump performance test	4.25
4.	Drawbar performance test	16.25
5.	Turning ability	0.30
6.	Location of centre of gravity	0.20
7.	Operator's field of vision	Nil
8.	Brake test	3.25
9.	Noise measurement	1.50
10.	Mechanical vibration test	1.25
11.	Nominal speed test	0.73
B.	FIELD TEST:	
1.	Disc ploughing	10.50
2.	Rotavation	10.75
3.	Puddling (including 5.0 hours water proof test)	10.25
C.	HAULAGE TEST:	5.36
D.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	16.48
TOTAL:		140.03