

व्यावसायिक परीक्षण रिपोर्ट (वैरिएंट) प्रथम बैच परीक्षण
COMMERCIAL TEST REPORT (Variant) 1st Batch Test

संख्या / No. : T-1524/2051/2021

माह / Month : March, 2021

(यह परीक्षण रिपोर्ट 31/03/2026 तक वैध है। / THIS TEST REPORT IS VALID UP TO : 31/03/2026)



VST SHAKTI, MT 224 - 1D/AJAI - 4W TRACTOR



सत्यमेव जयते

भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय
कृषि, सहकारिता एवं किसान कल्याण विभाग
मशीनीकरण एवं प्रौद्योगिकी प्रभाग

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(Department of Agriculture, Cooperation & Farmers Welfare, Mechanization & Technology Division)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

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3. ESSENTIAL TESTS

3.1 SPECIFICATIONS

3.1.1 Tractor:	
Make	: VST SHAKTI
Model	: MT 224 – 1D/AJAI – 4W
Brand name	: None
Type	: Four wheeled, 4WD, Unit construction, General purpose, Agricultural Tractor.
Month & Year of manufacture	: 09 / 19
Chassis number	: BCDTJB079499
Country of origin	: India
3.1.2 Engine:	
Make	: VST Tillers Tractors Limited
Model	: V3D
Type	: Four stroke, liquid cooled, naturally aspirated, Indirect injection, diesel engine
Serial number	: BEAEJB025439
3.1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):	
- Maximum speed at no load	: 3125 to 3175
- Low idle speed	: 850 to 950
- Speed at maximum torque	: 2150 to 2250
Rated speed, (rpm):	
- For PTO use	: 3000
- For drawbar use	: 3000
3.1.3 Cylinder & Cylinder Head:	
Number	: Three
Disposition	: Vertical, Inline
Bore/stroke, (mm)	: 73/78 (apa)
Capacity as specified by the applicant, (cc)	: 979.35
Compression ratio	: 23: 1
Type of cylinder head	: Monoblock
Type of cylinder liners	: Wet, non replaceable
Type of combustion chamber	: Indirect injection
Arrangement of valves	: Overhead
Valve clearance (cold/hot):	
- Inlet valve, (mm)	: 0.30/0.30
- Exhaust valve, (mm)	: 0.30/0.30
3.1.4 Fuel System:	
Type of fuel feed system	: Gravity and force feed
3.1.4.1 Fuel tank:	
Make	: VST (apa)
Capacity, (l)	: 17.4
Location	: Above clutch housing
Provision for draining of sediments/ water	: Not provided
Material of fuel tank	: Metallic
3.1.4.2 Water separator	: Not provided
3.1.4.3 Fuel feed pump	: Not provided

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2.5 m/sq sec, (N)

Whether parking brake is effective at a :
force of 600N at foot pedal (s) or 400 N
at hand lever

Effective

Effective

Remark (*): Data's were taken from variant model vide test report no. T-1076/1601/2017

8. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

- 8.1 On the basis of tests conducted the performance results have been summarized as evaluative (mandatory) and non-evaluation (not-mandatory) parameter 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:-

S. 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
8.1.1	PTO Performance :					
a)	Max. power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: $\pm 5\%$ for PTO power or engine power >26 kW, $\pm 10\%$ for PTO power or Engine power ≤ 26 kW.	13.4 (D)	12.8	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	13.4 (D)	12.8	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	370 (D)	358	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	$\pm 8\%$	50 (D)	49.5	Yes
e)	Back-up torque, percent	Evaluative	12 percent, min.	12 % (D) 12 % (R) (Minimum)	21.6	Yes
f)	Maximum operating temperature ($^{\circ}$ 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)	124	Yes
	2) Coolant (liquid)	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.	120 (D)	113	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions	3.72 (R) (Maximum)	1.65	Yes
h)	Smoke level, (m^{-1})	Evaluative	Maximum light absorption coefficient of 3.25 per metre or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per	3.25 (R) (Maximum)	0.70 per meter	Yes

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			CMVR)			
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1	2	3	4	5	6	7
8.1.2 Drawbar performance:						
a)	Maximum drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without / standard ballast	Ballasting not recommended by the manufacturer		Not applicable
b)	Maximum drawbar pull with standard ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without / standard ballast	6.0 (D) 5.90 (R) (Minimum)	8.41	Yes
c)	Maximum drawbar power without ballast, or with standard ballast as the case may be, 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.	10.7 (D) 9.6 (R) Minimum	10.9	Yes
d)	Maximum transmission oil temperature (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	121 (D)	84	Yes
8.1.3 Power lift and hydraulic pump performance:						
a)	Maximum lifting capacity throughout the range of lift, (kN):					
	1) At hitch points	Evaluative	±10 percent	6.50 (D)	6.23	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	3.43 (D) 3.01(R) (Minimum)	3.62	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 minute, (mm)	Non-Evaluative	The observed value should not exceed 50 mm	50 (D) 50 (R) (Maximum)	00	Yes
8.1.4 Brake performance at 25 kmph:						
a)	Maximum stopping distance at a force, equal to or less than 600 N on brake pedal with standard ballasted, (m):					
	1) Cold brake	Evaluative	10	10 (R)	5.5	Yes
	2) Hot brake	Evaluative	10	10 (R)	5.6	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² (N)	Evaluative	600	600 (R)	350 to 390	Yes

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c)	Whether parking brake is effective at a force of 600 N at foot pedal(s) or 400 N at hand lever, N	Evaluative	Yes / No	Yes (R)	544	Yes
1	2	3	4	5	6	7
8.1.5	Noise measurement:					
a)	Maximum ambient noise emitted by the tractor dB(A)	Evaluative	As per CMVR	85 (R)	81	Yes
b)	Maximum noise at operator's ear level dB(A)	Evaluative	As per CMVR	96 (R)	95	Yes
8.1.6	Amplitude of mechanical vibrations at:					
	1) Left foot rest	Non-Evaluative	100 microns (max)	100 (R)	195	No
	2) Right foot rest		-do-		138	No
	3) Seat (with driver seated)		-do-		181	No
	4) Steering wheel		do-		149	No
8.1.7	Air cleaner oil pull over:					
	Maximum air cleaner oil pull over	Evaluative	0.25 % (max.)	Dry type air cleaner is fitted	Not applicable	
8.1.8	Haulage requirements:					
a)	Gross mass of the trailers, (tones):					
	1) Two wheel	Non-Evaluative	--	3.0 (D)	3.0	Yes
b)	Distance travelled / litre of fuel consumption, (km/l):					
	1) Two wheel	Non-Evaluative	--	6.0 to 7.0 (D)	5.27 to 5.67	No
c)	Fuel consumption (ml/km/tonne):					
	1) Two wheel	Non-Evaluative	--	45 to 60 (D)	58.83 to 63.27	No
8.1.9	Wetland cultivation :					
	1) Clutch assembly	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 ingresses of water and / or mud	Ingress of mud and water not found	Yes
	2) Brake housings					
	3) Front axle hubs					
	4) Engine Oil					
	5) Transmission Oil					
8.1.10	Safety features:					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pullies, silencer, hydraulics pipes (as per IS-12239 Part 2)	Meet the requirements	Yes	
b)	Lighting arrangement	Evaluative	As per CMVR	Meet the requirements	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)	Tractors rear track width is less than 1150 mm	Not applicable	

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d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	Meet the requirements	Yes
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1	2	3	4	5	6	7
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 requirements		Yes
f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS 12953 (As amended from time to time)	Meet the requirements		Yes
g)	Specifications of Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirements 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	7.36 kmph (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.	Not applicable		Not applicable

8.1.10	Labelling of tractors (Provision of labelling plate):					
	1) Make	Evaluative	Should conform to the requirements of CMVR along with maximum declared value of PTO power in kW and for month & year of manufacture in numerical MM YY Digit 01-12 in box No.1 for MM will represent the month and next two digit in the box No.2 for YY will represent the year of manufacturing	VST SHAKTI		Yes
	2) Model	Evaluative		MT 224-1D/AJAI-4W		Yes
	3) Month & Year of manufacture	Evaluative		09	19	Yes
	4) Engine number	Evaluative		BEAEJB025439		Yes
	5) Chassis number	Evaluative		BCDTJB079499		Yes
	6) Declaration of PTO power, kW	Evaluative		13.4		Yes
	7) Specific fuel consumption, g/kWh	Evaluative		370		Yes
8.1.11	Discard limit for:					
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by Manufacturer	73.95 (D)	72.971 to 73.012	Yes
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non-Evaluative		0.50 (D)	0.101 to 0.135	Yes
(c)	Piston diameter at skirt, (mm)	Non-Evaluative		72.50 (D)	72.877 to 72.903	Yes
(d)	Ring end gap (mm):					
	- Top comp. ring.	Evaluative	-do-	2.0 (D)	0.20	Yes
	- 2 nd comp. ring.		-do-	2.0 (D)	0.25 to 0.30	Yes
	- 3 rd Comp. ring		-do-	2.0 (D)	0.25 to 0.30	Yes
	- Oil ring.		-do-	2.0 (D)	0.20	Yes
(e)	Ring groove clearance (mm):					

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	-	Top comp. ring.	Evaluative	-do-	0.50 (D)	Tapered rings	Not applicable
	-	2 nd comp. ring.		-do-	0.50 (D)	0.068 to 0.069	Yes
	-	3 rd Comp. ring		-do-	0.50 (D)	0.050 to 0.052	Yes
	-	Oil ring.		-do-	0.50 (D)	0.045 to 0.050	Yes

1	2	3	4	5	6	7
(f)	Diametrical clearance of main bearings (mm):	Evaluative	-do-	0.40 (D)	0.085 to 0.136	Yes
(g)	Clearance of big end bearings, (mm):					
	- Diametrical	Evaluative	-do-	0.40 (D)	0.057 to 0.097	Yes
	- Axial	Evaluative	-do-	0.80 (D)	0.20	Yes
(h)	Crankshaft end float, mm	Evaluative	-do-	1.50 (D)	0.20	Yes
(j)	Clearance between king pin and bush, (mm)	Non-Evaluative	-do-	1.5 (D)	0.05 to 0.09	Yes
(k)	Clearance between center pin and bush, (mm)	Non-Evaluative	-do-	1.5 (D)	0.12 to 0.13	Yes

8.1.12	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
8.1.13	Fitment of Roll Over Protective Structure (ROPS): for tractors having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS:11821 or OECD code or equivalent International Standard	Provided	Not Fitted	Not Applicable
8.1.14	Standard accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Provided	Yes
8.1.15	Accessories (Optional)	Non Evaluative	Ballast weights if fitted should meet the requirement of CMVR.	Provided	Provided	Yes

8.2	CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2019):					
S. No.	Category of Breakdown	Category (Evaluative / Non-Evaluative)	Requirements as per IS: 12207-2019	As observed	Whether meets the requirement (Yes/No.)	

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1.	Critical breakdown	Evaluative	There is no 'critical breakdown' during the course of testing	None	Yes
2.	Major breakdowns	Evaluative	There are not more than 1 major breakdowns and neither of them is of repetitive nature	None	Yes
3.	Minor breakdowns	Evaluative	There are not more than 3 minor defects during the test and the frequency of each is not be more than two	Mn (Two Minor defect) as per note below Annex-B	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed five that is, (1 major + 3 minor) or 4 minor breakdowns	None	Yes

8.3 Salient Observations:

8.3.1 Laboratory tests:

8.3.1.1 PTO Performance:

- i) The maximum power was observed as **12.8 kW** against the declaration of **13.4 kW**, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power was measured as **358 g/kWh** against the declaration of **370 g/kWh**, which meets the requirement of IS: 12207-2019 with regard to tolerance limit
- iii) The maximum equivalent crankshaft torque was recorded as **49.5 Nm** against the declaration of **50.0 Nm**, which meets the requirement of IS: 12207-2019 with regard to tolerance limit
- iv) The backup torque was observed as **21.6 %**. which meets the requirement of IS: 12207-2019 with regard to tolerance limit

8.3.1.2 Hydraulic performance test:

Maximum lifting capacity throughout the range of lift at hitch point and standard frame was recorded as **6.23 kN & 3.62 kN** respectively against the declaration of **6.50 kN & 3.43 kN** respectively. Which meet the minimum requirement of IS: 12207-2019.

8.3.1.3 Mechanical Vibration:

The amplitude of mechanical vibration on various assemblies / components marked as (*) in Chapter – 4.5 of this test report is on higher side. This calls for dampening down of vibrations especially on left & right foot rest, steering wheel and operator's seat to improve the operational comfort and service life of components.

8.3.1.4 Haulage Test:

- i) Distance travelled/litre of fuel consumption (**km/l**) was recorded as **5.27 to 5.67 km/l** against the declaration of **6.0 to 7.0 km/l**. Which does not meet the requirement of IS: 12207-2019 with regard to tolerance limit. This should be looked into for necessary corrective action.
- ii) Specific fuel consumption (**ml/km/ton**) was recorded as **58.83 to 63.27 ml/km/ton** against the declaration of **45 to 60 ml/km/ton**. Which does not meet the requirement of IS: 12207-2019 with regard to tolerance limit. This should be looked into for necessary corrective action.
- iii) During haulage test, the tractor on travelling upward the gear need to be shifted from H3 to H2. This shows that the recommended gross mass 3.0 tones for haulage is not found suitable with tractor power.

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8.3.1.4 Field Performance:

8.3.1.4.1 Dryland operation:

During the field test tractor with ploughing operation, abnormal sound was heard from the transmission (gearbox). On inspection, the following parts were found damaged. To rectify the breakdown, the manufacturer has repaired the following parts without change of component.

S.No.	Name of Parts	Parts Number	Quantity
1.	Ring snap (circlip lock)	18000600141	01
2.	Liner thrust (washer)	11351304011	01

The above breakdown has been categorized under minor two nos. defect (repair of ring snap & liner thrust) as per note -1 below the Annex-B of IS:12207-2019.

8.3.1.4.2 During the field test (ploughing operation) the forward speed of the tractor was observed 1.66 to 1.69 kmph in L-2 gear and which is not within the required range of 2.0 to 5.0 kmph as per IS: 9253-2013. L-3 gear is not suitable for ploughing due to high speed and non maintenance of uniform depth. Keeping in view for efficient performance of tractor, necessary action need to be taken up at production level.

8.3.1.4.3 Wetland cultivation (Puddling operation):

No ingress of mud and / or water was noticed during puddling operation of the tractor and meet the requirements of IS: 11082-1984 (Technical requirements of agricultural tractors for wetland operation). Therefore, the tractor is found as suitable for wetland operation (Puddling).

8.3.1.5 Three-point linkage:

The distance from end of power take-off to centre of lower hitch point (lower link in horizontal position) does not meet the requirement of IS 4468(Part-I):1997/ISO 730-1:1994 (Reaffirmed in Oct.,2017). This should be looked into for necessary corrective action.

8.3.1.6 Operator's work place:

Operator's work place meets the requirements of IS: 12239 (Part-1) 1996(Reaffirmed Oct., 2017), **except the following:**

- i) Hand holds for easy mounting and dismounting of operator
- ii) Provision of vertical retainers at both sides.
- iii) Provision of spark arresting device in the exhaust system.

8.3.1.7 Constructional requirement with regard to safety:

Constructional requirement with regard to safety meets the requirements of IS: 12239 (Part-2)-1999 (Reaffirmed in 2014), **except the following:**

- i) The working clearance around the position control & draft control lever is less than the minimum requirement.
- ii) PTO master shield may be provided.

8.3.1.8 Location of operator's controls with regard to safety:

Location of operator's controls with regard to safety meets the requirements of IS: 8133-1983 (Reaffirmed 2014), **except the following:**

- i) The fuel shut-off knob does not remain in stop position without the application of sustain manual effort.

8.4 Maintenance / Service problems:

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

8.5 Recommendation with regard to safety on tractor:

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

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- b) Service manual VST SHAKTI, MT 180D, VST SHAKTI, VT180D HS/JAI-4W, VST SHAKTI MT180/JAI-2W, VST SHAKTI, MT224-1D/AJAI-4W, VST SHAKTI, MT 224-1D/JAI-2W PLUS tractor models.
- c) Parts catalogue VST SHAKTI, MT 180D, VST SHAKTI, VT180D HS/JAI-4W, VST SHAKTI MT180/JAI-2W, VST SHAKTI, MT224-1D/AJAI-4W, VST SHAKTI, MT 224-1D/JAI-2W PLUS tractor models.


However, the steering oil grade & its change period has not been specified in the operator's manual. This should be looked into.

The result of the test carried out on Variant model "VST SHAKTI, MT 224-1D / AJAI - 4W" tractor have been compared with those on base model "VST SHAKTI, VT 180D HS/JAI-4W" tractor vide test report No. T- 1430/1957/2020 (March, 2020), Technical Extension report vide no. T- 1432/1959/2020 (March, 2020) & Technical Extension of "VST SHAKTI, MT 224-1D/AJAI-4W" bearing No. T- 1464/1991/2020 (August, 2020) and found within the limit, as specified in Indian Standard: 12207-2019.

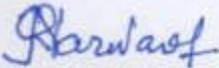
9. CITIZEN CHARTER

Duration of Test	Time frame for Testing & Evaluation as per Citizen Charter	Whether the Test Report is released within the time frame given in Citizen Charter	Remarks
06 Months (August, 2020 to January, 2021)	10 Months	Yes	--

TESTING AUTHORITY:


C.S. RAGHUWANSHI
AGRICULTURAL ENGINEER


C.V. CHIMOTE
TEST ENGINEER


J.J.R. NARWARE
DIRECTOR

The report compiled by: Shri Vithato Keyho, Senior Technical Assistant

10. APPLICANT'S COMMENTS

Para no.	Our reference	Comments
10.1	8.3.1.3, 8.3.1.4 (i), (ii), (iii), 8.3.1.4.2, 8.3.1.5, 8.3.1.6, 8.3.1.7, 8.3.1.8 & 8.5 & 8.6.1	Will be looked into & necessary corrective action will taken. Suggestions & recommendation will be incorporated for the quality of product & necessary corrective action will taken. This will be implemented immediately.

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ANNEXURE – I

BRIEF SPECIFICATION OF IMPLEMENTS USED DURING FIELD TEST

S.No.	Item	MB Plough	Rotavator
1.	Make	Mahindra	Mitsubishi
2.	Type	Mounted	Mounted
3.	No. of bottom/blades	Two	28, at a spacing of 45 mm fitted on a shaft through fasteners
4.	Type of bottom/blades	General Purpose	Hatchet shape
5.	Size of bottom/blades, (mm)	255	210 x 40 x 5
6.	Spacing of bottom/flanges, (mm)	170	80
7.	Lower hitch point span, (mm)	480	260
8.	Mast height, (mm)	375	220
9.	Overall dimensions, (mm):		
	- Length	1035	1480
	- Width	760	1250
	- Height	840	800
10.	Gross mass, (kg)	95	140

Annexure- II

BRIEF SPECIFICATION OF FULL CAGE WHEEL

S. No.	Items	Specifications
1.	Type	Half cage wheel made of M.S rod of 19.2 & 15.6mm diameter and M.S sheet lugs
2.	Diameter, (mm)	725
3.	Width, (mm)	250
4.	No. and types of lugs	08, Trapezoidal shape made of M.S sheet
5.	Size of angle section, (mm)	135 x 255 x 5.6
6.	Length of lugs, (mm)	250
7.	Spacing of lugs, (mm)	195
8.	Weight of each cage wheels (kg)	25

ANNEXURE – III

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	18.0
2.	PTO performance test	10.1
3.	Drawbar performance test	12.6
4.	Power lift and hydraulic pump performance test	1.3
5.	Turning ability	0.1
6.	Location of centre of gravity	0.1
7.	Brake test	1.0
8.	Noise measurement	1.3
9.	Mechanical vibration test	0.9
10.	Theoretical speed test	2.9
B.	FIELD TEST:	
1.	M. B. ploughing	11.5
2.	Rotavation	10.7
3.	Puddling	15.3
C.	HAULAGE TEST:	8.7
D.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	11.1
TOTAL:		105.6