



SONALIKA INTERNATIONAL, DI-47 RX 4WD TRACTOR



सत्यमेव जयते

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 AND FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

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T-1051/1576/2016

SONALIKA INTERNATIONAL DI 47 RX 4WD TRACTOR
Commercial (Initial)

Manufacturer	: M/s. International Tractors Limited Vill. Chak Gujran, P.O. Piplanwala, Jalandhar Road, Hoshiarpur – 146 022 (Punjab)
Test requested by (applicant)	: The manufacturer
Selected for test by	: Applicant
Place of running-in	: At manufacturer's works
Duration of said running-in (h):	
- Engine	: 35
- Transmission	: Nil
Method of Selection	: The tractor was submitted directly by the applicant for test. Hence method of selection is not known.

1. SPECIFICATIONS

1.1 Tractor:	
Make	: Sonalika International
Model	: DI-47 RX 4WD
Variants, if any	: None
Brand name	: Sonalika
Type	: Four Wheeled, Four Wheel Driven, General Purpose Agricultural Tractor.
Year of manufacture	: 2015
Chassis number	: BZVDU 468217S3
Country of Origin	: INDIA
1.2 Engine:	
Make	: International Tractors Ltd.
Model	: 3102 IL
Type	: Four stroke, naturally aspirated, liquid cooled, direct injection, diesel engine.
Serial number	: 3102 IL 43L 464985F5
Engine speed (Manufacturer's recommended production setting), (rpm) :	
- Maximum speed at no load, (rpm)	: 2200 to 2400
- Low idle speed, (rpm)	: 650 to 750
- Speed at max. torque, (rpm)	: 1100 to 1300
Rated speed, (rpm):	
- For PTO use	: 2100
- For drawbar use	: 2100
1.3 Cylinder & Cylinder Head:	
Numbers	: Three
Disposition	: Vertical, inline



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1	2	3	4
	I) The oil seal at PTO drive shaft of gear box (Pt No. 4B035026M2) was replaced with new one	Mn13	
	II) The PTO clutch plate was cleaned and dried.		
	III) transmission clutch plate (Pt No. 10028676) was replaced with new one.	Mj 8	
5.	The front tyres of the tractor were 50 to 60 % worn out when compared with new ones. Both the front tyres of the tractor were replaced with new one before drawbar test.	--	35.1
6.	After completion of above repair and replacement work, drawbar test was conducted and the maximum power recorded was found 0.82% less than the requirement of IS 12207: 2014. Hence, both the fuel filters (primary & secondary) were replaced with new one.	--	41.4
7.	During the preparation for field performance test, the nozzle of rear wheel tube (LHS) was broken due to excessive creeping of tyre over rim and replaced with new one.	--	66.9

16. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

16.1 Evaluative (mandatory) / Non-evaluation (Non-mandatory) parameter applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2014 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: 12207-2014	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: -5 / +10% for PTO power >26kW. -7.5/+10% for PTO power ≤ 26kW	30.52 (D)	30.6	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	30.52 (D)	30.6	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	+ 5%	272 (D)	255	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	168 (D)	172.4	Yes
e)	Back-up torque, percent	Non Evaluative	10 percent, min.	10 percent, min (R)	23.85	Yes



1	2	3	4	5	6	7
Maximum operating temperature (°C):						
1)	Engine oil	Non 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.	132 (D)	114	Yes
2)	Coolant (water)	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.	118 (D)	94	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. power under high ambient conditions	2.57 (R) 1% of SFC, max. (D)	0.38	Yes
h)	Smoke level	Evaluative	Maximum light absorption coefficient of 3.25 per metre or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR)	BOSCH No. 5.2	0.20 per meter	Yes
16.1.2 Drawbar performance :						
a)	Maximum drawbar pull with ballast corresponding to 15 percent wheel slip, (kN).	Non Evaluative	Minimum 65% of static mass of tractor with ballast	19.37 (D) 20.30(R) Minimum	26.49	Yes
b)	Maximum drawbar pull without ballast corresponding to 15 percent wheel slip, (kN).	Evaluative	Minimum 65% of static mass of tractor without ballast	14.80 (D) 15.75 (R) Minimum	20.68	Yes
c)	Maximum drawbar power without ballast (kW).	Evaluative	Minimum 80% of PTO power as referred in Sl. No. i) a) of PTO performance in case of tractors having total static mass >1500 kg. Minimum 75% of PTO power as referred in Sl. No. i) a) of PTO performance in case of light weight tractors. Minimum 75% of the engine power as referred in Sl. No. i) a) of PTO performance in case of tractors which do not have a PTO shaft.	24.41 (D) 24.5 (R) Minimum	24.7	Yes
d)	Maximum transmission oil temperature (°C)	Non Evaluative	The declared value should not exceed the maximum value specified by oil company.	130 (D)	81	Yes
16.1.3 Power lift and hydraulic pump performance :						
a)	Maximum lifting capacity throughout the range of lift, (kN):					
1)	At hitch points	Non Evaluative	[Tolerance of minus 10%]	12 (D)	14.12	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	8 (D) 7.2 (R) Minimum	12.01	Yes



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1	2	3	4	5	6	7
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)	10	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)	7.49	Yes
2)	Hot brake	Evaluative	10	10 (R)	7.67	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² , (N)	Evaluative	600	600 (R)	206 to 220	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 (R)	329	Yes
16.1.5	Noise measurement :					
a)	Maximum ambient noise emitted by the tractor, dB(A)	Evaluative	As per CMVR	88 (R)	83	Yes
b)	Maximum noise at operator's ear level, dB(A)	Evaluative	As per CMVR	96 (R)	93	Yes
16.1.6	Amplitude of mechanical vibrations at :					
1)	Left foot rest	Non Evaluative	100 microns (max)	100 (R)	120	NO
2)	Right foot rest			100 (R)	120	NO
3)	Seat (with driver seated)			100 (R)	130	NO
4)	Steering wheel			100 (R)	190	NO
16.1.7	Air cleaner:					
	Air cleaner oil pull over, (%)	Non Evaluative	0.25 % (maximum)	Dry type air cleaner is provided	NA	NA
16.1.8	Haulage requirements :					
a)	Gross mass of the trailers, (tones):					
1)	Two wheel	Non Evaluative	-	5.5 (D)	5.5	Yes
2)	Four wheel			6.0 (D)	6.0	Yes
b)	Distance travelled / litre of fuel consumption, (km/l):					
1)	Two wheel	Non Evaluative	-	4.5 to 6.0 (D)	4.22 to 4.26	No
2)	Four wheel			4.5 to 6.0 (D)	4.35 to 4.50	No
c)	Fuel consumption, (ml/km/tonne):					

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1	2	3	4	5	6	7
1)	Two wheel	Non Evaluative	-	28.0 to 38.0 (D)	42.6 to 43.0	No
2)	Four wheel		-	28.0 to 38.0 (D)	37.7 to 38.3	No
16.1.9	Wetland cultivation (Puddling Operation):					
	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	No ingress of water and/or	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 Part 2)	-	Meets the requirements	Yes
b)	Lighting arrangement	Evaluative	As per CMVR	-	Meets the requirements	Yes
c)	Seating requirements (Tractors having more than 1150 mm 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	Non Evaluative	Should meet the requirements of IS 4931 (as amended from time to time)	-	Meets the requirements	Yes
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS 4468 (Part 1) (as amended from time to time)	-	Meets the requirements	Yes
f)	Specifications of linkage drawbar	Non Evaluative	Should meet the requirements of IS 12953 (as amended from time to time)	-	Meets the requirements	Yes
	Specifications of swinging drawbar	Non Evaluative	Should meet the requirements of IS 12362 (Part 3) (as amended from time to time)	-	Not provided	NA
16.1.11	Labelling of tractors (Provision of labeling plate):					
1)	Make	Evaluative	Should conform to the requirements of CMVR	-	SONALIKA INTERNATIONAL	Yes
2)	Model	Evaluative		-	DI-47 RX 4WD	Yes
3)	Year of manufacture	Evaluative		-	2015	Yes
4)	Engine serial number	Evaluative		-	3102IL43L464985F5	Yes



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1	2	3	4	5	6	7
	5) Chassis number	Evaluative		--	BZVDU468217S3	Yes
	6) Declaration of PTO power, (kW)	Evaluative		--	30.52	Yes
16.1.12	Discard limit for:					
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer and supported by printed literature.	102.346	102.05 to 102.06	Yes
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.45	0.160 to 0.180	Yes
(c)	Ring end gap (mm):					
	- Top comp. ring.	Evaluative	-do-	2.0	0.45 to 0.50	Yes
	- 2 nd comp. ring.		-do-	2.0	0.50 to 0.60	Yes
	- Oil ring.		-do-	2.0	0.70 to 0.75	Yes
(d)	Ring groove clearance (mm):					
	- Top comp. ring.	Evaluative	-do-	0.20	Taper rings	--
	- 2 nd comp. ring.		-do-	0.20	0.075 to 0.089	Yes
	- Oil ring.		-do-	0.20	0.047 to 0.053	Yes
(e)	Clearance of main bearings (mm):					
	- Diametrical clearance	Evaluative	-do-	0.20	0.062 to 0.120	Yes
	- Crankshaft end float	Evaluative	-do-	0.60	0.20	Yes
(f)	Clearance of big end bearings, (mm):					
	- Diametrical	Evaluative	-do-	0.20	0.100 to 0.144	Yes
	- Axial	Evaluative	-do-	0.60	0.25	Yes
(g)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	1.00	0.02 to 0.05	Yes
(h)	Clearance between center pin and bush, (mm)	Non Evaluative	-- do--	1.00	0.04 to 0.14	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

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15.1.14 CATEGORY OF BREAKDOWNS / DEFECTS :					
S. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2014	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.	One (Mj8)	Yes
3.	Minor	Evaluative	Not more than five and frequency of each should not be more than two.	Three (Mn7, Mn13 & Mn 13)	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed five, that is, (2 major + 3 minor) or 5 minor breakdowns.	Four (Mj8, Mn7, Mn13, Mn13)	Yes

15.2 Optional requirements as per Clause-4 (Table-2) of IS:12207-2014:				
S. No.	Characteristic	Requirements as per IS: 12207-2014	As observed	Whether meets the requirements (Yes/No.)
1	2	3	4	5
1.	Fitment of ROPS	With a provision for fitment of ROPS. If ROPS fitted it should meet the requirement of IS: 11821-1992.	Not provided ROPS not fitted	No Not applicable
2.	Accessories	Trailer hitch, front tow hook may be provided.	Provided	Yes

15.3 Conformity with following IS:

- i) Guide lines for declaration of power and specific fuel consumption and labeling of agricultural tractors (First revision) [IS 10273:1987 (Reaffirmed in March, 2009)] : Conforms
- ii) Agricultural tractors – Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS: 4931-1995 (Reaffirmed in March, 2009)] : Conforms
- iii) Agricultural wheeled tractors - Three-point linkage: Part 1 Categories 1, 2, 3 & 4 (Fourth Revision) [IS 4468 (Part-1):1997/ ISO 730-1:1994 (Reaffirmed in March, 2009)] : Conforms
- iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed in March, 2007)] : Conforms
- v) Agricultural tractors - Operator's seat technical requirement [IS 12343 –1998 (First revision) (Reaffirmed in March, 2009)] : **Does not conform**
- vi) Guide for safety & comfort of operator of agricultural tractors: Part 1 General requirements (first revision): [IS 12239 (PT-1) 1996 (Reaffirmed in February, 2012)/ISO 4254-1:1989] : **Does not conform**



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- vii) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays [IS: 6283 (Part-1) – 2006 (Reaffirmed in March, 2009) and IS: 6283 (Part-2)-2007 (Reaffirmed in March, 2009)]/ISO 3767-2:1991 : **Does not conform**
- viii) Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) [(IS 12239 (PT-2) 1999) (Re-affirmed in March, 2009)] : **Conforms**
- ix) Guide lines for location and operation of operator controls on agricultural tractors and machinery (first revision) (IS: 8133 – 1983) (Re-affirmed in March, 2009) : **Does not conform**
- x) Agricultural Tractor & Machinery Lighting device for travel on public roads (IS: 14683-1999) (Re-affirmed in March, 2009) : **Conforms**

16.4 Salient Observations:**16.4.1 Laboratory tests:****16.4.1.1 PTO Performance:**

- i) The maximum PTO power was observed as **30.6 kW** against the declaration of **30.5 kW** which meets the requirement of IS: 12207-2014 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power was recorded as observed as **255 g/kWh** against the declaration of **272 g/kWh**, which is within the tolerance limit of IS: 12207-2014.
- iii) The backup torque is **19.26 %**.
- iv) Initially, the maximum PTO power was recorded as 27.9 kW against the declaration of 30.52 kW, which was 8.58% less than the declaration and does not meet the evaluative requirements of IS 12207:2014. Hence air cleaner was cleaned and both the fuel filters (primary & secondary) were replaced with new one. This replacement was considered as pre-mature and should be looked into for necessary corrective action.
- v) During the parts load test at rated engine speed, the leakage of engine oil noticed from the engine sump. The gasket of engine sump (Pt No. 703002017B) was replaced with new one. The breakdown was categorized as **Mn7**. This should be looked into for necessary corrective action.
- vi) As the oil leakage was not stopped, clutch housing was checked and oil seal of gear box (Pt. No. 04070250068) was replaced with new one. The breakdown was counted under **Mn13**. This should be looked into for necessary corrective action

16.4.1.2 Drawbar performance:

- i) During the drawbar performance test with standard ballast condition, the maximum power recorded was 3.27% less than the evaluative requirement of IS 12207-2014. The clutch inspection window was opened and found 250 ml of transmission oil in the clutch housing. To rectify the defects the following parts were repaired/replaced with new ones having same specifications:



- a) Oil leakage from oil seal of PTO drive shaft of gearbox was observed and oil seal (Pt No. 4B035026M2) was replaced with new one. This defect categorized minor defect as **Mn13** as per IS 12207:2014.
- b) The PTO clutch plate was found completely wet due to presence of oil and it was cleaned and dried.
- c) The friction pads of transmission plate were worn out excessively. The transmission clutch plate (Pt No. 10028676) was replaced with new one. This defect categorized major defect as **Mj-8** as per IS 12207:2014.
- ii) The front tyres of the tractor were 50 to 60 % worn out when compared with new ones. Both the front tyres of the tractor were replaced with new one before drawbar test.
- iii) After completion of above repair and replacement work, drawbar test was conducted and the maximum power recorded was found 0.82% less than the requirement of IS 12207: 2014. Hence, both the fuel filters (primary & secondary) were replaced with new one.
- iv) The creeping of LHS & RHS tyre over rim was recorded as 40 & 50 mm, respectively during ten hours drawbar performance test. This should be looked into for necessary corrective action.

The above defects/breakdowns occurred during drawbar performance test of the tractor were considered pre-mature failure and calls for introduction of strict quality control measures at production level.

16.4.1.3 Hydraulic Performance:

Maximum tilt angle of mast from vertical was observed as 7.7 degrees only and therefore does not meet the minimum requirement of 10 degree as per IS: 12224-1987 (Reaffirmed in March, 2009). This should be looked into for necessary corrective action.

16.4.1.4 Mechanical Vibration:

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

16.4.1.5 Haulage requirements:

The distance travelled per liter & specific fuel consumption with two and four wheel trailer does not meet the specification submitted by the applicant. This should be looked into.

16.4.1.6 Operator's Seat:

The longitudinal distance from seat index point to the centre of differential lock pedal does not meet the requirement of IS: 12343-1998. This should be looked into for necessary corrective action.

16.4.2 Field performance test:

16.4.2.1 Wet land cultivation (Puddling operation):

No ingress of water/or mud in various assemblies/components was noticed during wetland cultivation of tractor. Hence, it meets the requirements of IS: 11082-1984 (technical requirements of agricultural tractors for wetland operation). The tractor is found suitable for wetland operation (Puddling).



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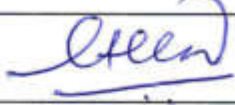
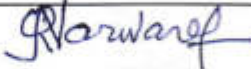
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- 16.5 Maintenance / Service Problems:**
No noticeable maintenance or service problem was observed during the test.
- 16.6 Recommendation with regard to safety on tractor:**
The following requirements, inter-alia, may be considered for incorporation on the tractor:
- Provision for spark arresting device in exhaust system.
 - Provision of PTO shaft master shield.
 - Longitudinal distance from seat index point to centre of differential lock pedal should be within the limit of easy handling of tractor.
 - There should be provision attach trailer brake valve
 - The provision for starting the engine unless the traction transmission is in neutral position or park position or the traction clutch is disengaged or the operator is in operator's seat (station) is not available.
 - The stop control knob is provided, but it does not remain in stop position.
 - The working clearance between draft control lever and mudguard should be sufficient for operating the lever
- 16.7 Adequacy of Literature supplied with machine:**
- 16.7.1** The following literature was supplied with the tractor for reference during the test:
- Operator's manual
 - Spare Parts Catalogue
 - Service manual
- 16.7.2** The printed literature supplied with the test sample is in English. The literature may be brought out as per IS: 8132-1999 (Reaffirmed in March, 2009) for the guidance of user and service personnel in national as well as other regional languages.

17. CITIZEN CHARTER

Time frame for Testing & Evaluation as per Citizen Charter	Duration of test	Whether the report is released within the time frame given in the Citizen Charter	Remark
10 Months	18 Months (June, 2015 to November, 2016)	No	Due to breakdowns in PTO and Drawbar performance.

TESTING AUTHORITY:

		
C. K. TIJARE AGRICULTURAL ENGINEER	C. V. CHIMOTE TEST ENGINEER	Y. K. RAO SENIOR AGRICULTURAL ENGINEER
 J.J.R. NARWARE DIRECTOR		



18. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
18.1	16.4.1.3, 16.4.1.4, 16.4.1.5, 16.4.1.6, 16.6 (ii), (iii), (iv), (v), (vi), (vii)	Observations will be studied & necessary action will be incorporated.

ANNEXURE - IBRIEF SPECIFICATION OF IMPLEMENTS USED DURING FIELD TEST

Sl. No.	Item	Disc Plough	Rotavator	Puddler
1.	Make	Sonalika	Escorts	ACE
2.	Type	Mounted	Mounted	Mounted
3.	No. of bottom / blades/discs	2	42 in 8 flanges	12 (6 in each gang)
4.	Type of bottom / blades/discs	Concave disc	Hatchet	Notched
5.	Size of bottom / blade/disc, (mm)	660 mm in diameter	67.3x270x7.4	500
6.	Spacing of bottom/blade/disc, (mm)	555	255	180
7.	Lower hitch point span, (mm)	760	805	835
8.	Mast height, (mm)	600	490	510
9.	Overall dimensions, (mm):			
	- Length	1940	1200	1020
	- Width	1040	2185	2070
	- Height	1220	1020	1050
10.	Gross mass, (kg)	280	515	305

ANNEXURE -IIBRIEF SPECIFICATION OF HALF CAGE WHEELS

Sl No.	Items	Specification
1.	Type	Half cage wheel
2.	Outer dia, (mm)	1800
3.	Width, (mm)	355
4.	No. and types of lugs	12, Straight lugs made of M.S. angle section welded to angle iron frame
5.	Size of angle section, (mm)	50 x 45 x 5
6.	Length of lug, (mm)	350
7.	Spacing of lug, (mm)	205
8.	Weight of each cage wheels, (kg)	100



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A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	--
2.	PTO performance test	12.88
3.	Power lift and hydraulic pump performance test	3.1
4.	Drawbar performance test	18.74
5.	Turning ability	0.4
6.	Location of centre of gravity	--
7.	Operator's field of vision	--
8.	Brake test	2.75
9.	Noise measurement	1.5
10.	Mechanical vibration test	0.75
11.	Theoretical speed test	1.42
B.	FIELD TEST:	
1.	Disc ploughing	10.75
2.	Rotavation	10.25
3.	Wetland cultivation (including water proof)	15
C.	HAULAGE TEST:	6.35
D.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	16.59
	TOTAL:	100.48