

प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट
INITIAL COMMERCIAL TEST REPORT

संख्या/No. : T- 1787/2318/2023
माह/Month : October, 2023

Application Reference No. 28/2022-23/137

(यह परीक्षण रिपोर्ट 31/10/2028 तक वैध है / THIS TEST REPORT IS VALID UPTO 31/10/2028)



Make of Agricultural Tractor : INTERNATIONAL TRACTORS LIMITED,
Model : SONALIKA INTERNATIONAL
DI-30 BAAGBAN SUPER S1
Manufactured by : International Tractors Limited.
Vill. Chak Gujran, P.O. Piplanwala,
Jalandhar Road, Hoshiarpur- 146 022
(Punjab).



भारत सरकार

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

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS' WELFARE

(DEPARTMENT OF AGRICULTURE & FARMERS' WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) 466 445

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

TRACTOR NAGAR, BUDNI (M.P.) 466 445

(An ISO 9001:2015 Certified Institute)

E-mail: fmti-mp@nic.in

Web site: <http://www.fmttibudni.gov.in>

Telephone: 07564-299003

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IMPORTANT INFORMATION

The Government of India, Ministry of Agriculture and Farmers' Welfare has directed, vide a OM No. 13-17/2021-M&T(I&P) dated 28.07.2022, that since 15th August, 2022, only mandatory tests will be carried out on a tractor unless applicant has expressly requested for optional tests as well, mentioned in the above captioned OM.

In the instant case, there is no request from the applicant to carry out the optional tests hence only Mandatory Tests, as given below, have been conducted and reported in this report:-

1. PTO performance
2. Hydraulic performance
3. Drawbar performance
4. Brake performance

Month: October	Test Report No.: T-1787/2318/2023	Year: 2023
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TRACTOR NAGAR, BUDNI (MADHYA PRADESH) 466445, INDIA

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[C]	Tractor manufacturer's name and address	:	International Tractors Limited. Vill. Chak Gujran, P.O. Piplanwala, Jalandhar Road, Hoshiarpur- 146 022 (Punjab).
[C]	Submitted for test by (Applicant)	:	The Manufacturer
[C]	Selected for test by	:	The Ministry vide OM No. 13-17/2021 - M&T (I&P) dated 28.07.2022, has allowed the applicant to submit the test sample directly to the Institute without requiring any random selection for Initial Commercial Testing. Thus, the applicant directly submitted the test sample to the Institute for test.
[D]	Place of running-in	:	At manufacturer's works
[D]	Duration of running-in, (h):		
	-Engine	:	20
	-Transmission	:	20
[C]	Location of test	:	Government of India, Central Farm Machinery Training and Testing Institute, P.O. - Tractor Nagar, BUDNI - 466445 (M.P.), INDIA

1. SPECIFICATIONS OF TRACTOR

1.1 Identification:

1.1.1 Denomination

[C]	Make of tractor	:	INTERNATIONAL TRACTORS LIMITED
[C]	Model	:	SONALIKA INTERNATIONAL DI-30 BAAGBAN SUPER S1
[C]	Type	:	Rear Wheel Drive, Standard Agricultural Tractor.
[C]	Month & year of manufacture	:	02/23
[D]	Country of origin	:	India

1.1.2 Numbers:

[D]	1 st Serial No. or prototype	:	MZWSK1276837B
[C]	Serial No.	:	MZWSK1276837B

1.2 Engine:

[D]	Manufacturer's address	:	INTERNATIONAL TRACTORS LIMITED. Vill. Chak Gujran, P.O. Piplanwala, Jalandhar Road, Hoshiarpur- 146 022 (Punjab).
[C]	Make	:	INTERNATIONAL TRACTORS LIMITED
[C]	Model	:	2105DL
[C]	Type	:	Four stroke, naturally aspirated, liquid cooled, direct injection, diesel engine.
[C]	Serial No.	:	2105DL34B1263059F6

1.2.1 Cylinders:

[C]	Number/disposition	:	Two, vertical
[D]	Bore / Stroke, (mm)	:	105 / 118
[D]	Capacity, cm ³	:	2044
[D]	Compression ratio	:	18.5 (±0.2) : 1
[D]	Arrangement of valves	:	Overhead
[D]	Cylinder liners	:	Wet, replaceable
[D]	Type of combustion chamber	:	Direct injection, re-entrant

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3.4 BRAKE TEST

3.4.1 Service brake:

3.4.1.1 Cold brake test:

Date of test(s) : 26.09.2023
 Type of Track : Concrete
 Maximum attainable speed, (kmph):
 - Without ballast : 26.97

		At maximum attainable speed			
unballasted tractor	Braking device control force, (N)	414	380	340	270
	Mean deceleration, (m/sec ²)	3.10	3.02	2.81	2.50
	Stopping distance, (m)	9.05	9.30	10.00	11.23
	At 25 kmph travel speed				
	Braking device control force, (N)	414	380	340	270
	Mean deceleration, (m/ sec ²)	3.10	3.02	2.81	2.50
	Stopping distance, (m)	7.77	7.99	8.59	9.65

3.4.1.2 Brake fade test:

		At maximum attainable speed			
unballasted tractor	Braking device control force, (N)	431	380	340	303
	Mean deceleration, (m/sec ²)	3.01	2.88	2.62	2.50
	Stopping distance, (m)	9.32	9.75	10.70	11.23
	At 25 kmph travel speed				
	Braking device control force, (N)	431	380	340	303
	Mean deceleration, (m/ sec ²)	3.01	2.88	2.62	2.50
	Stopping distance, (m)	8.00	8.37	9.19	9.65

Maximum deviation of tractor from its original course, (m) : None
 Abnormal vibration : None
 The brakes were heated by : Self braking

3.4.2 Parking brake test:

Particulars	18 percent slope		12 percent slope with trailer of 0.84 tonnes.	
	Up	Down	Up	Down
Braking device control force, (N)	267	297	325	350
Efficacy of parking brake	-----Effective-----			

Remark: The applicant has not recommended any ballasting for road test. Hence, the brake fade test was conducted in with unballasted condition only.

4. OPTIONAL TEST RESULTS

As the applicant has not applied for any optional tests, therefore no optional tests was conducted.

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5. REPAIRS

S. No.	Adjustment/Defect/Breakdown and Repair	Tractor run hours
5.1	During hydraulic performance test of lifting capacity at coupled frame leakage of hydraulic oil was noticed from secondary delivery pipe of hydraulic system. Upon which applicant vide letter No. nil dated 03.10.2023 has requested for inspection and brazing of crack found on hydraulic oil secondary delivery pipe (Part No.10053161AB), which was allowed. This defect was considered as 'Major defect Mj-21' but to be treated as 'Minor defect' as per Note 1 below Annexure – B of IS: 12207 – 2022 as the same pipe was refitted after repair and lifting capacity test at coupled frame was conducted.	27.5

6. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

- 6.1 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: 12207-2022 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: 12207-2022	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
MANDATORY TESTS: (As per Ministry's Office Memorandum No. 13-17/2021-M&T (I&P) dated 28th of July, 2022).						
6.1.1	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.	17.5 (D)	17.9	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	17.5 (D)	17.7	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% max.	285 (D)	284	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	$\pm 8\%$	112 (D)	112.4	Yes
e)	Back-up torque, percent	Evaluative	12% min.	12 (D) 12 (R)	39.8	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 natural ambient/high ambient condition should not exceed the declaration.	132 (D)	102	Yes

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1	2		3	4	5	6	7
	2)	Coolant	Evaluative	Observed value should not exceed the declared value or boiling point of the coolant at radiator cap pressure whichever is lower. The boiling point of the coolant at radiator pressure shall be provided by the applicant.	118 (D)	91	Yes
g)	Engine oil consumption, (g/kWh)		Evaluative	Not exceeding 1% of SFC at max. Power under natural ambient conditions.	2.83 (R) Maximum	0.51	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 per meter (R) Maximum	0.26	Yes
6.1.2	Drawbar performance:						
a)	Max. drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)		Non Evaluative	Minimum 70% of static mass of tractor with ballast.	*	*	*
b)	Max. drawbar pull without ballasted 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.	9.4 (D) 10.37 (R) Minimum	12.08	Yes
c)	Maximum drawbar power without ballast/ 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.	13.1 (D) 14.3 (R) Minimum	16.3	Yes
d)	Maximum transmission oil temperature, (°C)		Evaluative	The declared value should not exceed the maximum value specified by oil company.	130 (D)	64	Yes
Applicant vide letter No. Nil dated 14.09.2023 has requested not to conduct the ballasted drawbar performance and ten hour test which was allowed as per the additional guidelines for testing of tractor as per new regime of testing of tractor vide OM no. 13-32/2023-M&T (I&P) (FTS-125476) dated 16.05.2023. Accordingly, only unballasted drawbar performance test was conducted.							
6.1.3	Power lift and hydraulic pump performance:						
a)	Maximum lifting capacity throughout the range of lift, (kN):						
	1)	At hitch points	Evaluative	Should not be less than 90% of declared value.	14 (D) 12.6 (R) Minimum	15.82	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.	10 (D) 4.21 (R) Minimum	13.83	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 Minutes, (mm)	Non Evaluative	The observed value should not exceed 50 mm.	50 (D) Maximum	40	Yes
6.1.4	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)	7.77	Yes
	2) Hot brake	Evaluative	10	10 (R)	8.00	Yes
b)	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
6.1.5	OPTIONAL TESTS: As the applicant has not applied for any optional tests, therefore no optional tests was conducted.					
6.1.6	Safety features :					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulic pipes [As per IS 12239 (Part 2)]	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	Non 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: 17231-2019 (As amended from time to time)	Does not meet the requirement		No
f)	Specifications of linkage drawbar	Non Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time)	Meets the requirement		Yes
g)	Specifications of swinging drawbar (wherever fitted)	Non Evaluative	Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time)	Not provided		Not applicable

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1	2	3	4	5	6	7	
h)	Audible warning signal on tractor	Evaluative	If tractor travel speed in reverse gear exceeds 20 kmph, an audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed.	Not fitted		Not applicable	
6.1.7	Labelling of tractors (Provision of labeling plate):						
	1) Make	Evaluative	Should conform to the requirements of CMVR along with maximum PTO Power in kW, specific fuel consumption (SFC) corresponding to maximum power in g/kWh and year of manufacture in numerical form. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 40px; text-align: center;">MM</td> <td style="width: 40px; text-align: center;">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	INTERNATIONAL TRACTORS LIMITED	Yes
MM	YY						
	2) Model	Evaluative		SONALIKA INTERNATIONAL DI-30 BAAGBAN SUPER S1	Yes		
	3) Month & Year of manufacture	Evaluative		02/23	Yes		
	4) Engine number	Evaluative		2105DL34B1263 059F6	Yes		
	5) Chassis number	Evaluative		MZWSK1276837 B	Yes		
	6) Maximum PTO power, (kW)	Evaluative		17.5	Yes		
	7) Specific fuel consumption, g/kWh	Evaluative	285	Yes			
6.1.8	Literature (Submission to test agency):						
(a)	Operator manual	Evaluative	The printed literature in booklet form should be provided as per IS 8132 and should submit along with the test sample.	Provided	Yes		
(b)	Parts Catalogue	Evaluative		Provided	Yes		
(c)	Workshop/ Service manual	Evaluative		Provided	Yes		
6.1.9	Fitment of Roll Over Protective Structures (ROPS):						
	For tractor having more than 1150 mm rear track width	Evaluative if fitted	ROPS should meet the requirement of IS:1182 or OECD code or equivalent International Standard	Not fitted	Not applicable		
6.1.10	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Yes		
6.1.11	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR	Not fitted	Not applicable		

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6.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2022):					
S. No.	Category of breakdowns	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2022	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.	None	Yes
3.	Minor	Evaluative	Not more than five and neither of them should be repetitive in nature.	One*	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.	One	Yes

*During hydraulic performance test of lifting capacity at coupled frame leakage of hydraulic oil was noticed from secondary delivery pipe of hydraulic system. Upon which applicant vide letter No. nil dated 03.10.2023 has requested for inspection and brazing of crack found on hydraulic oil secondary delivery pipe (Part No.10053161AB), which was allowed. This defect was considered as 'Major defect **Mj-21**' but to be treated as '**Minor defect**' as per Note 1 below Annexure – B of IS: 12207 – 2022 as the same pipe was refitted after repair and lifting capacity test at coupled frame was conducted.

6.3 Conformity with following IS:

- i) Guidelines for declaration of power and specific fuel consumption and labeling of agricultural tractors (First revision) [IS:10273 -1987 (Reaffirmed Year 2019)] : **Conforms**
- ii) Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS:4931-1995 (Reaffirmed Year 2019)] : **Conforms**
- iii) Agricultural wheeled tractors – Rear mounted three-point linkage: Part 2 Categories 1, 2, 3 & 4 (fourth revision) [IS:17231-2019] : **Does not conform**
- iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed Year 2022)] : **Does not conform**
- v) Agricultural tractors- Operator's seat technical requirement [IS12343 - 2021] : **Does not conform**
- vi) Guide for safety & comfort of operator of agricultural tractors:Part 1 General requirements (first revision):[IS 12239 (Part 1) - 2018] : **Does not conform**
- vii) Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) (IS 12239 (Part 2) 1999) (Reaffirmed Year 2019)] : **Does not conform**
- viii) Guide lines for location and operation of operator controls on agricultural tractors and machinery [IS: 8133 - 2021] : **Does not conform**
- ix) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment - Symbols for operator controls and other displays Part2 Symbols for agricultural tractors and machinery [IS: 6283(Part-1) - 2006 (Reaffirmed Year 2019) and IS: 6283 (Part-2) – 2007 (Reaffirmed Year 2019)] : **Does not conform**
- x) Agricultural Tractors and Machinery-Lighting device for travel on public roads (IS:14683-1999) (Reaffirmed Year 2019)] : **Conforms**

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6.4 Salient Observations:

6.4.1 Laboratory tests:

6.4.1.1 PTO Performance Test:

- i) The applicant has specified the rated engine speed as 2100±25 rpm vide specification sheet. Later, the applicant vide letter No. nil dated 19.09.2023 has requested to consider the rated engine speed as 2100 rpm for the testing purpose wherever required , which was allowed. Accordingly, PTO performance test was conducted considering the rated engine speed as 2100 rpm.
- ii) During two hour max power test under natural ambient condition, fluctuation in engine speed from 2045 to 2060 rpm was observed. This should be looked into for necessary corrective action.
- iii) During two hour max power test under high ambient condition, fluctuation in engine speed from 2042 to 2057 rpm was observed. This should be looked into for necessary corrective action.
- iv) During the entire test under high ambient condition, it was observed that 50 ml of coolant was spilled out from the cooling system through the overflow pipe of radiator. This should be looked into for necessary corrective action.

6.4.1.2 Hydraulic performance test:

- i) During hydraulic performance test of lifting capacity at coupled frame leakage of hydraulic oil was noticed from secondary delivery pipe of hydraulic system. Upon which applicant vide letter No. nil dated 03.10.2023 has requested for inspection and brazing of crack found on hydraulic oil secondary delivery pipe (Part No.10053161AB), which was allowed. This defect was considered as 'Major defect **Mj-21**' but to be treated as '**Minor defect**' as per Note 1 below Annexure – B of IS: 12207 – 2022 as the same pipe was refitted after repair and lifting capacity test at coupled frame was conducted. This should be looked into for necessary corrective action.
- ii) During lifting capacity test at standard frame, the angle of rotation of mast was observed as 7.7 degrees over the full range of lift against the requirement of minimum 10.0 degrees, which does not meet the requirement of IS: 12224-1987. This should be looked into necessary corrective action

6.4.1.3 Operator's seat:

The following parameters do not meet the requirement of IS: 12343-2021.

- i) Width of operators seat has been measured as 390 mm against the minimum requirement of 450 mm.
- ii) Vertical distance from SIP to center to center of steering control wheel has been measured as 175 mm against the requirement of 265 to 385 mm.
- iii) Provision for adjustment of driver's mass has been specified as 50 to 120 kg against the requirement of 40 to 100 kg.
- iv) Vertical distance from SIP to center of accelerator pedal has been measured as 480 mm against the requirement of 230 to 460 mm.
- v) Longitudinal distance from SIP to center of accelerator pedal has been measured as 355 mm against the requirement of 410 to 720 mm .
- vi) Vertical distance from SIP from foot rest has been measured as 530 mm against the requirement of 450 to 520 mm.

Therefore, all of the above should be looked into for necessary corrective action.

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6.4.1.4 Operator's work place:

The following parameters does not meet the requirement of IS: 12239 (Part-I) 2018.

- i) Vertical retainer on inner side of clutch pedal was not provided
- ii) Width of footsteps has been measured as 160 mm against the minimum requirement of 200 mm.
- iii) Spark arresting device has not been provided in the exhaust system.
- iv) Master shield has not been provided.

Therefore, all of the above should be looked into for necessary corrective action.

6.4.1.5 Three point linkage:

The dimension viz. diameter of upper hitch points, lateral distance from lower hitch point to center line of tractor & distance from end of power take-off to center of lower hitch point (lower links in horizontal position) does not meet the requirements of IS:17231–2019. This should be looked into for corrective action.

7.4.1.6 PTO master shield:

PTO master shield has not been provided on tractor. This should be looked into for necessary corrective action.

6.5 Maintenance / Service Problems:

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

6.6 Recommendation with regard to safety on tractor:

- i) Identification of engine speed control, engine stop control, transmission control, parking brake lever by color has not been provided as per the requirement as laid down in Table - 5 of IS: 8133-2021.
- ii) The hand accelerator lever, when moved away from the operator (i.e. forward) decreases the engine speed, which does not meet the requirement as laid down in Table - 1 of IS: 8133-2021.
- iii) Color code on illuminated display has not been provided as per the requirement as laid down in IS: 6283 (Part 2): 2007.
- iv) Provision of safety against accidental start of engine does not provided
- v) Differential lock has not been provided.

Above parameters should be looked into for necessary corrective action.

6.7 Adequacy of Literature supplied with machine:

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

- a) Operator's Manual for ""Sonalika International DI-30 Baagban Super s1"" tractor model.
- b) Parts catalogue for ""Sonalika International DI-30 Baagban Super s1"" tractor model.
- c) Service manual for ""Sonalika International DI-30 Baagban Super s1"" tractor model.


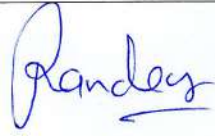

6.7.2 The operator manual may be brought out for the guidance of users and service personnel as per IS: 8132-1999 incorporating, inter alia, the following:

- i) Engine to PTO speed ratio given in the operator manual does not match with the ratio announced in the application.
- ii) Recommended gross mass of trailer for haulage operation.

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TEST CARRIED OUT AT C.F.M.T. & T.I., BUDNI (M.P.), INDIA

TESTING AUTHORITY

C.K. TIJARE AGRICULTURAL ENGINEER	
R.P. PANDEY SENIOR INSTRUMENTATION ENGINEER	
A. K. UPADHYAY DIRECTOR (I/C)	

Draft Test Report compiled by Dharmendra Kumar, Senior Technical Assistant.

7. APPLICANT'S COMMENTS

Para no.	Our reference	Applicant comments
7.1	6.4.1.1 (i),(ii), (iii) & (iv)	We will consider the observations for potential Improvements wherever required.
7.2	6.4.1.2 (i),(ii), (iii) & (iv)	

ANNEXURE-I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	Applicant has declared it to be conducted on their work place.
2.	PTO performance test	13.12
3.	Power lift and hydraulic pump performance test	4.09
4.	Drawbar performance test	3.77
5.	Brake performance test	1.25
6.	Nominal speed test	0.57
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test.	6.00
TOTAL:		28.8