



**INTERNATIONAL TRACTORS LIMITED,
SONALIKA INTERNATIONAL WORLDTRAC 60 RX 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, CO-OPERATION & FARMERS WELFARE, MECHANIZATION & TECHNOLOGY DIVISION)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

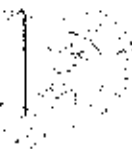
CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

(An ISO : 9001 - 2015 Certified Institute)

Tractor Nagar, Budni (M.P.) 466 445

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T- 1457/1984/2020	INTERNATIONAL TRACTORS LIMITED, SONALIKA INTERNATIONAL WORLDTRAC 60 RX TRACTOR- Commercial (Administrative Extension)
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2. ESSENTIAL TESTS

2.1. SPECIFICATIONS

The following are the brief specifications of the tractor. However, for detail specifications, the test report No. **T-1044/1569/2016** released in **October, 2016** should be referred.

The major features of Base model and Variant model are listed below:

S. No.	Parameters	Base Model	Variant Model
1.	Type of wheel drive	4 WD	2 WD
2.	Front axle	Live front axle (4WD) (Refer Annexure – II)	Adjustable front axle (2 WD) (Refer Annexure – II)
3.	Front wheel tyre make , size & ply rating	Samraat Allura, 9.5-24 & 8 PR	MRF, 7.50-16 & 8 PR
4.	Make & size of rim	Wheels India, W 8 x 24	SSWL 5.50 F x 16
5.	Mass of tractor [front/rear/total] (kgf)	1170/1780/2950	940/1605/2545

2.1.1 Tractor:

Make : International Tractors Limited
Model : Sonalika International Worldtrac 60 RX
Brand name : Sonalika
Type : Four wheeled, rear wheel driven, unit construction, General purpose, Agricultural Tractor
Month & Year of manufacture : 02 / 20
Chassis Serial number : BYDDH910565MS
Country of Origin : India

2.1.2 Engine:

Make : International Tractors Limited
Model : 4100FL
Type : Four stroke, liquid cooled, naturally aspirated, direct injection, diesel engine
Serial number : 4100FL04A902666F9
Engine speed (Manufacturer's recommended production setting)(rpm) :
 - Maximum speed at no load : 2350 to 2450
 - Low idle speed : 600 to 700
 - Speed at maximum torque : 1100 to 1300
Rated speed, (rpm):
 - For PTO use : 2200
 - For drawbar use : 2200

2.1.3 Cylinder & Cylinder Head:

Number : Four
Disposition : Vertical, Inline
Bore/stroke, (mm) : 100 / 118
Capacity as specified by the applicant, (cc) : 3/07

2.1.4 Fuel System:

Type of fuel feed system : Gravity and forced feed

2.1.4.1 Fuel feed pump:

Make : Bosch, India
Type : Plunger with hand primer
Model/Group combination No. : T002 A50 040, FP/KSG22AD105

T-1457/1984/2020

**INTERNATIONAL TRACTORS LIMITED,
SONALIKA INTERNATIONAL WORLDTRAC 60 RX TRACTOR-
Commercial (Administrative Extension)**

3. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

3.1 The performance results have been reproduced from 1st Batch test report No. T-1454/1981/2020 (July, 2020) and Variant Test report T-1044/1569/2016 (October, 2016) / On the basis of test conducted the performance results have been summarized as evaluative (mandatory) and non - evaluative (not mandatory) parameters applicable for Qualifying Minimum Performance Criteria as per clause-4 Table-1 of Indian Standard 12207: 2019 for acceptance of 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
3.1.1	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. 10% for PTO power and or engine ≤ 26 kW	36.3 (D)	36.8	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	36.3 (D)	36.8	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10%	265 (D)	273	Yes
d)	Maximum equivalent crankshaft torque, (Nm) (*)	Non Evaluative	+ 8%	210 (D)	206.0	Yes
e)	Back-up torque, percent (*)	Evaluative	12 percent, min.	12 % (D)	30.3	Yes
f)	Maximum operating temperature, ($^{\circ}$ C) (*)			12 % (R)		
	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.	132 (D)	130	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.	118 (D)	118	Yes
g)	Engine oil consumption, (g/kWh) (*)	Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions	2.85 (R) Maximum	0.16	Yes
h)	Smoke level, m (*)	Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hatridge value	3.25 (R)	0.16	Yes

T- 1457/1984/2020	INTERNATIONAL TRACTORS LIMITED, SONALIKA INTERNATIONAL WORLDTRAC 60 RX TRACTOR- Commercial (Administrative Extension)
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1	2	3	4	5	6	7
3.1.2	Drawbar performance:					
a)	Max. drawbar pull with ballast corresponding to 15 percent wheel slip or 7 percent track slip, (kN) (*)	Non Evaluative	Minimum 70% of static mass with ballast	27.06 (D) 24.86 (R) Minimum	31.78	Yes
b)	Max drawbar pull with standard ballast corresponding to 15 percent wheel slip or 7 percent track slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without ballast or with standard ballast, as the case may be	17.47 (D) 17.26 (R) Minimum	21.98	Yes
c)	Maximum drawbar power with standard ballast as a 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.	29.0 (D) 29.0 (R) Minimum	32.0	Yes
d)	Maximum transmission oil temperature (°C) (*)	Evaluative	To be declared by the manufacturer.	130 (D)	109	Yes
3.1.3	Power lift and hydraulic pump performance : (*)					
a)	Maximum lifting capacity throughout the range of lift, (kN):					
	1) At hitch points	Evaluative	Tolerance of ± 10%	19.0 (D)	19.63	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	10.0 (D) 8.57 Minimum (R)	14.51	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) 50(R) Maximum	20	Yes
3.1.4	Brake performance at 25 kmph: (*)					
a)	Maximum stopping distance at a frame, equal to or less than 600 N on brake pedal with road ballast, (m):					
	1) Cold brake	Evaluative	10 m	10 (R)	7.44	Yes
	2) Hot brake	Evaluative	10 m	10 (R)	7.59	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² (N)	Evaluative	600 N	600 (R) Maximum	297 to 336	Yes
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	372	Yes

T- 1457/1984/2020	INTERNATIONAL TRACTORS LIMITED, SONALIKA INTERNATIONAL WORLDTRAC 60 RX TRACTOR- Commercial (Administrative Extension)
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1	2	3	4	5	6	7
3.1.5	Noise measurement : (*)					
a)	Maximum ambient noise emitted by the tractor dB(A)	Evaluative	88 dB (A) for >1.5 tonne GVW and 85 db (A) for <1.5 tonne GVW (as per CMVR)		84	Yes
b)	Maximum noise at operator's ear level dB(A)	Evaluative	96 (as per CMVR)		95	Yes
3.1.6	Amplitude of mechanical vibrations at: (*)					
	1) Left foot rest	Non Evaluative	100 microns (max)		70	Yes
	2) Right foot rest				40	Yes
	3) Seat (with driver seated)				60	Yes
	4) Steering wheel				120	No
3.1.7	Air cleaner oil pull over test : (*)					
	Maximum air cleaner pull over, (%)	Evaluative	0.25% (Max)		Dry type air cleaner is provided	Not applicable
3.1.8	Haulage requirements : (*)					
a)	Gross mass of the trailers, (tonnes):					
	Two wheel	Non Evaluative	To be specified by manufacturer	5.0	5.0	Yes
				6.0	6.0	Yes
b)	Distance travelled / litr of fuel consumption, (km/l):					
	Two wheel	Non Evaluative	-do-	4.5 to 6.0	3.73 to 3.76	No
				4.5 to 6.0	3.55 to 3.60	No
c)	Fuel consumption (ml/km/tonne):					
	Two wheel	Non Evaluative	-do-	28.0 to 38.0	53.2 to 53.7	No
				30.0 to 40.0	46.3 to 46.9	No
3.1.9	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 (R)	No ingress of water and / or mud was observed during ICI of Base Model tested vide test report no. T- 934/ 1452/ 2014 (September, 2014)	Yes
	1) Clutch assembly	-do-				
	2) Brake housings	-do-				
	3) Front axle hubs	-do-				
	4) Engine oil	-do-				
	5) Transmission oil	-do-				
3.1.10	Safety features :					
a)	Guards against moving and hot parts	Evaluative	Bolt 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 meets 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 meets the requirement	No
f)	Specifications of linkage/drawbar	Evaluative	Should meet the requirements of IS 12353 (As amended from time to time)		Meets the requirement	Yes

T- 1457/1984/2020	INTERNATIONAL TRACTORS LIMITED, SONALIKA INTERNATIONAL WORLDTRAC 60 RX TRACTOR- Commercial (Administrative Extension)
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1	2	3	4	5	6	7
(g)	Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirements of IS 12362 (Part 3) (As amended from time to time)		Not fitted	Not applicable
(h)	1) Maximum traveling speed at rated engine speed in reverse gear, kmph	Evaluative	Should not exceed 20 kmph		25.27 kmph	Audible warning is provided
	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 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.		Provided (An audible warning signal on tractor is activated when RH4 gear is engaged)	Yes
3.1.11	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		International Tractors Limited	Yes
	2) Model	Evaluative			Sonalika International Worldtrac 60RX	Yes
	3) Month & Year of manufacture	Evaluative			02 / 20	Yes
	4) Engine number	Evaluative	MM YY Digit 01-12 in box No.1 for MM will represent the months & next two digits in box No.2 for YY will represent the year of manufacturing.		4100FL04A902666F9	Yes
	5) Chassis number	Evaluative			BYDDH910565MS	Yes
	6) Declaration of PTO power, (kW)	Evaluative			36.3	Yes
3.1.12	Discard limit for, (mm) : (*)					
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer and supported by the printed literature	100.3	100.041 to 100.077	Yes
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.45	0.142 to 0.155	Yes
(c)	Piston diameter at skirt, (mm)	Non Evaluative	-do-	99.6	99.917 to 99.928	Yes
(d)	Ring end gap (mm):					
	- 1 st comp. ring.	Evaluative	--do--	2.0	0.35 to 0.55	Yes
	- 2 nd comp. ring.		2.0	0.80 to 0.85	Yes	
- Oil ring.	2.0		0.60 to 0.70	Yes		
(e)	Ring groove clearance (mm):					
	- Top comp. ring.	Evaluative	-do-	--Tapered ring--		Not applicable
	- 2 nd comp. ring.		-do-	0.50	0.041 to 0.061	Yes
- Oil ring.	-do-		0.25	0.034 to 0.045	Yes	
(f)	Clearance of main bearings (mm):					
	- Diametrical clearance	Evaluative	-do-	0.35	0.110 to 0.160	Yes
	- Crankshaft end float	Evaluative	-do-	0.70	0.26	Yes
(g)	Clearance of big or small end bearings, (mm):					
	- Diametrical	Evaluative	-do-	0.35	0.109 to 0.142	Yes
	- Axial	Evaluative	-do-	1.00	0.25	Yes
(h)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	Not specified	0.06 to 0.102	---
(i)	Clearance between centre pin and bush, (mm)	Non Evaluative	-do-	1.0	0.08 to 0.26	Yes

T- 1457/1984/2020

**INTERNATIONAL TRACTORS LIMITED,
SONALIKA INTERNATIONAL WORLDTRAC 60 RX TRACTOR-
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1	2	3	4	5	6	7
3.1.13	Literature (Submission to test agency)					
(a)	Operator manual	Evaluative	The printed literature in booklet form should be provided as per IS 8132 & should submit along with the test sample	Provided	Provided	Yes
(b)	Parts Catalogue	Evaluative		Provided	Provided	Yes
(c)	Workshop / Service manual	Evaluative		Provided	Provided	Yes
3.1.14	Fitting of Roll Over Protective Structures (ROPS): for tractor having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS 11821 or OECD code or equivalent International standard	ROPS not fitted		Not applicable
3.1.15	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with the tractor.	Provided		Yes
3.1.16	Accessories (optional)	Non Evaluative	Ballast weights, if fitted, should meet the requirement of CMVR	Provided		Yes

3.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per Clause 5.0 of IS:12207-2019) :					
S. No.	Category of breakdowns	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	None	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.	None	Yes

Remark (*) :- Data has been taken from 1st Batch Test report of Base Model of "International Tractors Limited, Sonalika international Worldtrac 60 RX 4WD" tested vide test report No. T-1454/1981/2020 released in July, 2020

3.3 Salient Observations:

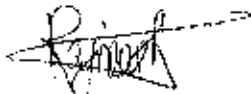
This tractor model meets the evaluative requirements of IS: 12207-2019.

T- 1457/1984/2020	INTERNATIONAL TRACTORS LIMITED, SONALIKA INTERNATIONAL WORLDTRAC 60 RX TRACTOR- Commercial (Administrative Extension)
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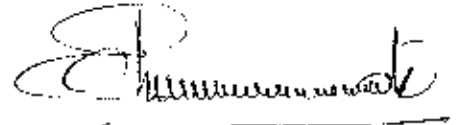
4. CITIZEN CHARTER

Time frame for Testing & Evaluation as per Citizen Charter	Duration of Test	Whether the Test Report is released within the time frame given in Citizen Charter	Remarks
10 Months	01 Month (February, 2020)	Yes	The audible warning was fitted by the manufacturer in July, 2020. Hence this report is delayed by 6 months from March, 2020 to July, 2020 for printing. This delay is due to COVID-19 & non supply of audible warning fitment by the manufacture.

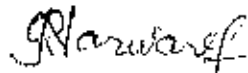
TESTING AUTHORITY:



RAJNEESH PATEL
AGRICULTURAL ENGINEER



C.V. CHIMOTE
TEST ENGINEER



J.J.R. NARWARE
DIRECTOR

This test report is compiled by Shri Dev Vrat Kumar, Senior Technical Assistant

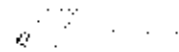
5. APPLICANT'S COMMENTS

--Nil--

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Government of India
कृषि एवं किसान कल्याण विभाग
Ministry of Agriculture and Farmers Welfare
कृषि, सहकार और किसान कल्याण विभाग
Department of Agriculture, Cooperation and Farmers Welfare
केन्द्रीय कृषि यशोवरी प्रशिक्षण एवं परीक्षण संस्थान
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(An ISO : 9001-2015 Certified Institute)

संज्ञक संख्या / File No. 2 50/2019-20/Tech.Ext./Test

दिनांक / Dated: 07/08/2020

प्रति / To.

✓ **Sh. Krishan Kumar Tiwari,**
HOD (R&D)
M/s. International Tractors Ltd.,
Village Chak Gurjan, P.O. Pipranwala-146022,
Jalandhar Road, Hoshiarpur

विषय / **Subject:** Administrative/Technical Extension of "**Sonalika International, WORLDTRAC 60 RX**" Tractor - Release of final test report – regarding.

प्रति / Sir,

Please refer to your letter no R&D/F-18/108/WORLDTRAC 60 RX, dated 20/11/2019, on the subject cited above. In this connection, I am directed to enclosed herewith 20 copies of the test report on "**Sonalika International, WORLDTRAC 60 RX**" Tractor bearing No.T-1457/1984/2020, July, 2020 for your reference and record.

You are requested to acknowledge the receipt of the test report and to collect the test sample within one month, from the date of issue of this letter.

संलग्न / Enclosed : as above (20 Nos. final Test Report)

भवदीय / Yours faithfully,

(C. V. Chimote)
Test Engineer
For Director