

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: ROTAVATOR-291/2530/2020  
माह/Month : September, 2020

**THIS TEST REPORT VALID UP TO : 30<sup>th</sup> SEPTEMBER, 2027**



**SONALIKA, SLPSSR-6 ROTAVATOR  
(TRACTOR MOUNTED)**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि, सहकारिता एवं किसान कल्याण विभाग

Department of Agriculture, Cooperation and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

Northern Region Farm Machinery Training and Testing Institute

ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001

Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001

[ISO 9001:2015 CERTIFIED]

Website: <http://nrfmtti.gov.in/>

E-mail: [fmti-nr@nic.in](mailto:fmti-nr@nic.in)

Tele./FAX: 01662-276984

**7. FIELD PERFORMANCE TEST**

The field tests of the rotavator comprising of Wet land and dry land operation were conducted for 10 and 27 hours respectively to assess the performance test is reported in **Annexure-I & III** for wet land and dry land operation respectively.

Observations of field performance test is summarized in the ensuing table:-

**Summary of Field Performance Test**

Sl. No.	Parameters/operations	Wet land operation (Puddling)	Dry land operation
I	II	III	IV
1.	Tractor used	International tractor Ltd. DI 745III	
2.	Gear used	L-2	
3.	Type of soil	Sandy loam	
4.	Average soil moisture (%)	--	15.03 to 19.23
5.	Average depth of standing water (cm)	5.00 to 7.11	--
6.	Bulk density of soil (g/cc)	--	1.658 to 1.712
7.	Average speed of operation (kmph)	3.09 to 3.22	3.19 to 3.41
8.	Avg. travel reduction (%)	--2.02 to -0.53	--
9.	Avg. wheel slip (%)	--	1.23 to 3.07
10.	Average depth of puddle (cm)	19.11 to 21.22	--
11.	Average depth of cut (cm)	--	11.14 to 12.63
12.	Avg. effective width (cm)	--	160 to 166
13.	Area covered (ha/h)	--	0.425 to 0.486
14.	Time required for one ha (h)	--	2.06 to 2.35
15.	Field efficiency (%)	--	80 to 88
16.	Puddling index (%)	83 to 89	--
17.	Fuel consumption		
		l/h	2.62 to 3.19
		l/ha	--
18.	Average PTO power utilized (kW)	NR	

**7.1 Wet Land operation**

**7.1.1** The tractor was fitted with half cage wheel on rear pneumatic traction wheel for conducting the puddling operation. The brief specification of half cage wheel is given in **Annexure-II**

**7.1.2 Quality of work**

- i) The depth of puddle was recorded as 19.11 to 21.22 cm.
- ii) The Puddling index was recorded as 83 to 89 %.

**7.2 Dry land operation****7.2.1 Rate of work**

- i) The rate of work was recorded as 0.425 to 0.486 ha/h, and the speed of operation varies from 3.19 to 3.14 Km/h.
- ii) The time required to cover one hectare was recorded as 2.06 to 2.35 h.



**7.2.2 Quality of work**

- i) The depth of operation was recorded as 11.14 to 12.63 cm.
- ii) Average effective width was observed as 160 to 166 cm.
- iii) Field efficiency was observed as 80 to 88 %.

**7.3 Labour requirement**

In all, two skilled operators are needed to ensure continuous operation of rotavator for day long period.

**7.4 Wear analysis (on mass basis)**

Wear of hatchet blades (on mass basis) was measured and recorded in ensuing table:

**Percentage wear of rotavator blades on mass basis**

Sl. No.	Initial mass of blade (g)	Mass of blade after 38.13 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 38.13 hr.	Percentage of wear on hour basis (%)
1.	1012.4	1006.7	5.7	0.56	0.01
2.	1016.1	1011.2	4.9	0.48	0.01
3.	1007.0	999.3	7.7	0.76	0.02
4.	1012.8	997.1	15.7	1.55	0.04
5.	986.3	980.2	6.1	0.62	0.02
6.	983.9	976.3	7.6	0.77	0.02
7.	990.7	979.4	11.3	1.14	0.03
8.	993.6	979.6	14.0	1.41	0.04

**8. EFFECTIVENESS OF SEALINGS**

After completion of wet land operation for 10 hours, the rotavator was dismantled for checking the effectiveness of sealing provided against ingress of dust, and water/mud in various sub-assemblies/components. The observations are given in ensuing table:-

Sl. No.	Location	Whether ingress of mud and/or water was observed (Yes/No)
1.	Primary reduction gear box	No
2.	Secondary reduction gear box	No
3.	Rotor assembly (hub)	No

**9. EASE OF OPERATION & ADJUSTMENTS**

No noticeable difficulty was observed during the operation and adjustment of rotavator.

**10. DEFECTS, BREAKDOWN AND REPAIRS**

No noticeable defect or breakdown was observed during the test.

**11. CRITICAL TECHNICAL SPECIFICATION**

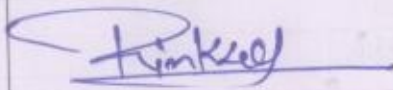
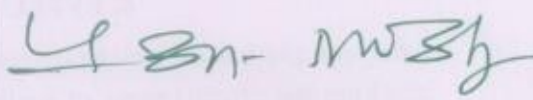
Deferred till 31.12.2020 vide Ministry O.M. No 13-13/2020 M&T, (I&P) dated 24.04.2020



**12. COMMENTS AND RECOMMENDATIONS**

- 12.1 The Dimension of three point linkage of implement does not conform, in toto, to the requirements of IS: 4468 (Part-1)-1997 and therefore, it may be looked into for corrective action.
- 12.2 The Dimensions of PIC of implement does not conform, in toto, to the requirements of IS: 4931-1995 and therefore, it may be looked into for corrective action.
- 12.3 The chemical composition of blades does not conform, in toto, to the requirements of IS: 6690-1981. This needs to be looked into for corrective action.
- 12.4 The hardness of blades does not conform in toto, to the requirements of IS: 6690-1981. This needs to be looked into for corrective action
- 12.5 The Model of the tractor is given as "DI 745 III" In the labeling plate of the tractor, whereas it is "Sonalika International DI-745 III power plus" in the Budni test report No. T-1143/1669/2018. **This is again a serious discrepancy** which needs for immediate corrective action.
- 12.6 **Technical literature:-**  
One booklet entitled "Service, Operating and Maintenance Manual cum Spare parts catalogue with warranty card" was provided for reference during test. The same, however, needs to be updated as per IS-8132-1999.

**TESTING AUTHORITY**

RINKU PRASAD GUPTA TECHNICAL ASSISTANT	
P. K. PANDEY DIRECTOR	

**13. APPLICANT'S COMMENTS**

Para No.	Our reference	Applicant comments
13.1	12.1	We will take care the same in our regular production/vendor end.
13.2	12.2	The dimension of PIC of implement will be improve at vender/production end as pre IS: 4931-1995.
13.3	12.3	The chemical composition of blades will be improve at vender/production end as pre IS: 6690-1981.
13.4	12.4	The hardness of blades will be improve at vender/production end as pre IS: 6690-1981.
13.5	12.6	Technical literature will be updated as per IS: 8132-1999.