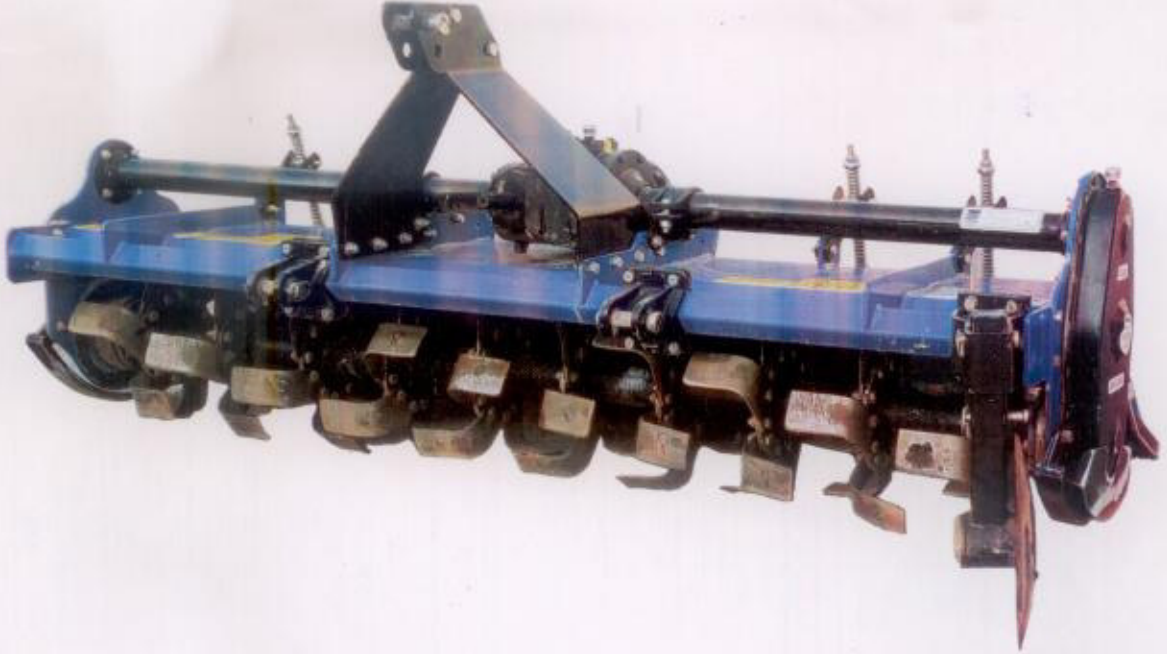


व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: ROTAVATOR-331/2686/2021

माह/Month: March, 2021

THIS TEST REPORT VALID UP TO : 31st March, 2028



**STEELBOY, SR 08, 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]

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Summary of Field Performance Test

Sl. No.	Parameters/operations	Dry land operation	Wet land operation (Puddling)
I	II	III	IV
1.	Tractor used	Swaraj-855 FE	
2.	Gear used	L-2	L-2
3.	Type of soil	Sandy loam	
4.	Average soil moisture (%)	17.5 to 19.2	--
5.	Average depth of standing water (cm)	--	14.9 to 16.7
6.	Bulk density of soil (g/cc)	1.550 to 1.930	--
7.	Average speed of operation (kmph)	2.62 to 2.70	2.57 to 2.59
8.	Avg. travel reduction (%)	--	-3.43 to -2.96
9.	Avg. wheel slip (%)	-1.28 to -.03	--
10.	Average depth of puddle (cm)	--	19.1 to 21.9
11.	Average depth of cut (cm)	11.5 to 12.2	--
12.	Avg. effective width (cm)	212 to 220	--
13.	Area covered (ha/h)	0.447 to 0.489	--
14.	Time required for one ha (h)	2.04 to 2.24	--
15.	Field efficiency (%)	77 to 84	--
16.	Puddling index (%)	--	76 to 84
17.	Fuel consumption	l/h	7.00 to 8.10
		l/ha	14.98 to 17.33
			--

7.1 Dry land operation

7.1.1 Rate of work

- i) The rate of work was recorded 0.447 to 0.489 ha/h, and the speed of operation varies from 2.62 to 2.70 kmph.
- ii) The time required to cover one hectare was recorded as 2.04 to 2.24 h

7.1.2 Quality of work

- i) The depth of operation was recorded as 11.5 to 12.2 cm.
- ii) Average effective width was observed as 212 to 220 cm.
- iii) Field efficiency was observed as 77 to 83%.

7.2 Wet Land operation

7.2.1 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-III

7.2.2 Quality of work

- i) The depth of puddle was recorded as 19.1 to 21.9 cm.
- ii) The puddling index was recorded as 76 to 84 %.

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 38.10 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 38.10 hr.	Percentage of wear on hour basis (%)
1.	1000.9	980.9	20	1.99	0.05
2.	1011.5	984.5	27	2.67	0.07
3.	1039.0	1012.4	26.6	2.56	0.07
4.	1034.2	1010.4	23.8	2.30	0.06
5.	994.8	969.7	25.1	2.52	0.07
6.	1007.3	986.0	21.3	2.11	0.06
7.	1016.3	989.4	26.9	2.65	0.07
8.	1026.0	998.2	27.8	2.71	0.07
9.	1033.0	996.9	36.1	3.49	0.09
10.	997.4	971.6	25.8	2.59	0.07

8. EFFECTIVENESS OF SEALINGS

After completion of wet land operation for 11 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

Oil was leak from secondary reduction gear box during dry land field test

11. CRITICAL TECHNICAL SPECIFICATION

Deferred till 31.03.2021 vide Ministry O.M. No 13-13/2020 M&T, (I&P) dated 22.12.2020.



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 Oil was leak from secondary reduction gear box during dry land field test. It **MUST** looked into for corrective action.
- 12.4 The grade of grease is not specified. It **MUST** be specified.
- 12.5 The stand is not provided. It **MUST** be provided.
- 12.6 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.
- 12.7 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.
- 12.8 The dimension of PIC yoke bore of implement does not conform, in toto, to the requirement of IS: 4931-1995 and therefore, it may be looked into for corrective action.
- 12.9 Provision to check oil level/ lubricant level in secondary reduction gear box is not provided. It **MUST** be provided.
- 12.10 The labeling plate should be provided on the machine with the following information.
- i) Name and address of manufacturer
 - ii) Country of origin
 - iii) Make
 - iv) Model
 - v) Year of manufacturing
 - vi) Serial number
 - vii) Type
 - viii) Size
 - ix) Required size of prime mover (kW)



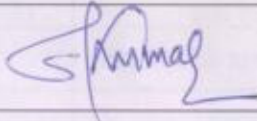
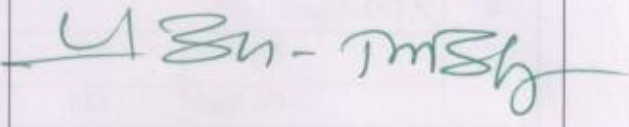
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STEELBOY SR08, ROTAVATOR
(TRACTOR MOUNTED) (COMMERCIAL)

12.11 Technical Literature:

One booklet entitled "operator manual, service manual, part catalogue" was provided for reference during test. The same, however, needs to be updated as per IS:8132-1999.

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report compiled by Girdhari Lal, Technician

13. APPLICANT'S COMMENTS

No Specific comment received from the applicant.

