

THIS TEST REPORT VALID UP TO : 31st DECEMBER, 2025



**DASMESH-966, 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

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[ISO 9001:2015 CERTIFIED]

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4.11 Lubricants:

Sl. No.	Particulars	As recommended by the manufacturer	As used during test
1	Primary Gear box	Not specified	Oil originally filled in the machine was not changed
2	Secondary Gear box	Not specified	
3	Rotor Hub	Not specified	M.P. grease
4	Propeller Shaft	Not specified	M.P. grease

5. RUNNING – IN

Run-in was not recommended by the applicant.

6. LABORATORY TEST**6.1 Hardness:** - The surface hardness of blade was recorded as under: -

Description	As per IS: 6690:1981 (HRC)	Hardness as observed (HRC)	Remarks
Edge portion	53 to 59	45.8	Does not conform
On shank portion	37 to 45	45.8	Does not conform

6.2 Chemical composition

The chemical composition of blades is tabulated as under:-

Constituents	As per IS: 6690-1981		Composition as observed (% of weight)	Remarks
	Carbon Steel	Silicon Manganese steel		
Carbon (C)	0.70 -0.85	0.50-0.60	0.3183	Does not conform
Silicon (Si)	0.10 -0.40	1.50-2.00	0.2896	Conforms
Manganese (Mn)	0.50 -1.0	0.50-1.00	1.0612	Does not conform
Sulphur (S)	0.05(max)	0.05(max)	0.0000	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.289	Conforms

7. FIELD PERFORMANCE TEST

The field tests of the implement comprising of wet land and dry land operation were conducted for 15.41 and 25.64 hours respectively to assess the performance of the implement. The performance of implement is reported in **Annexure-I & II** for wet land and dry land operations respectively.

Observations of field performance test are 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	L & T John Deere -5310	
2.	Gear used	L-1	L-1
3.	Type of soil (Refer IS:7926-1975)	Sandy loam	
4.	Average soil moisture (%)	-	1.7 to 3.7
5.	Average depth of standing water (cm)	10.73 to 11.17	-
6.	Bulk density of soil (g/cc)	-	0.2 to 0.6
7.	Average speed of operation (kmph)	2.01 to 2.19	2.07 to 2.18
8.	Avg. travel reduction /Avg. wheel slip (%)	-3.68 to 0.14	1.19 to 1.28
9.	Average depth of puddle/ Average depth of cut (cm)	6.7 to 7.4	6.8 to 8.4
10.	Avg. working width (cm)	-	261 to 269
11.	Area covered (ha/h)	-	0.492 to 0.542
12.	Time required for one ha (h)	-	1.84 to 2.12
13.	Field efficiency (%)	-	77.1 to 88.7
14.	Puddling index (%)	75.2 to 77.3	-
15.	Fuel consumption		
		l/h	5.85 to 7.01
		l/ha	-
16.	Average PTO power utilized (kW)	15.79	

7.1 Dry land operation**7.1.1 Quality of work**

- i) The depth of puddle was recorded as 6.7 to 7.4 cm.
- ii) The puddling index was recorded as 75.2 to 77.3 %.

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

- i) The rate of work was recorded as 0.492 to 0.542 ha/h, and the speed of operation varies from 2.07 to 2.18 kmph.
- ii) The time required to cover one hectare was recorded as 1.84 to 2.12 h.

7.2.2 Quality of work

- i) The depth of operation was recorded as 6.8 to 8.4 cm.
- ii) Average working width was observed as 261 to 269 cm.
- iii) Field efficiency was observed as 77.1 to 88.7 %.

7.3 Labour requirement

In all, two skilled operators are needed to ensure continuous operation of machine 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 41.05 hr. of operation (g)	Difference of weight (g)	Percentage of wear (%) after 41.05 hr.	Percentage of wear on hour basis (%)
1.	1031	998	33	3.20	0.07
2.	1015	980	35	3.44	0.08
3.	1012	975	37	3.65	0.09
4.	1052	1021	31	2.96	0.07
5.	1047	1015	32	3.05	0.07
6.	1061	1023	38	3.58	0.08
7.	1026	993	33	3.21	0.08
8.	1053	1027	26	2.46	0.06
9.	1058	1031	27	2.55	0.06
10.	1019	990	29	2.84	0.07
11.	1049	1017	32	3.05	0.08

8. EFFECTIVENESS OF SEALINGS

After completion of wet land operation for 17.6 hours respectively, the implement 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)	Yes

9. EASE OF OPERATION & ADJUSTMENTS

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

10. DEFECTS, BREAKDOWN AND REPAIRS

No any noticeable defect or breakdowns were observed during the field test.

11. COMMENTS AND RECOMMENDATIONS

11.1 The labeling plate MUST be provided on machine with following information:-

- Make
- Model
- Year of manufacturer

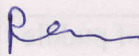
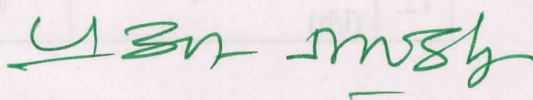
- Working width
- Recommended tractor power (KW)
- Manufacturer's address

- 11.2 The specifications of implement hitch, does not conform in toto to the 4468 (Part-1)-1997. Hence, it is recommended that implement should be provided with the hitch conforming to relevant Indian Standards.
- 11.3 Dimensions of PIC of implement do not conform in toto to IS: 4931-1995 and therefore, it should be looked in to for corrective action.
- 11.4 Hardness of the blade does not conform to IS: 6690:1981. This needs to be looked into for corrective action at production level.
- 11.5 The chemical composition blade does not conform to as per IS: 6690-1981. This needs to be looked into for corrective action at production level.
- 11.6 The recommended grade of lubrication for primary and secondary gear box should be specified on rotavator.
- 11.7 The material of the blade is not specified. It **MUST** be specified.
- 11.8 **Technical literature:-**

Operator manual cum parts catalogue was provided with machine during test.
It is recommended to provide service manual of machine.

- (i) The operator manual should be updated as per IS 8132-1999.

TESTING AUTHORITY

R. K. NEMA SENIOR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report compiled by V.S. Shinde, Senior Technical Assistant.

12. APPLICANT'S COMMENTS

Para No	Our reference	Applicant's comments
12.1	11.1 to 11.6	We will follow the recommendations at our production level in future.