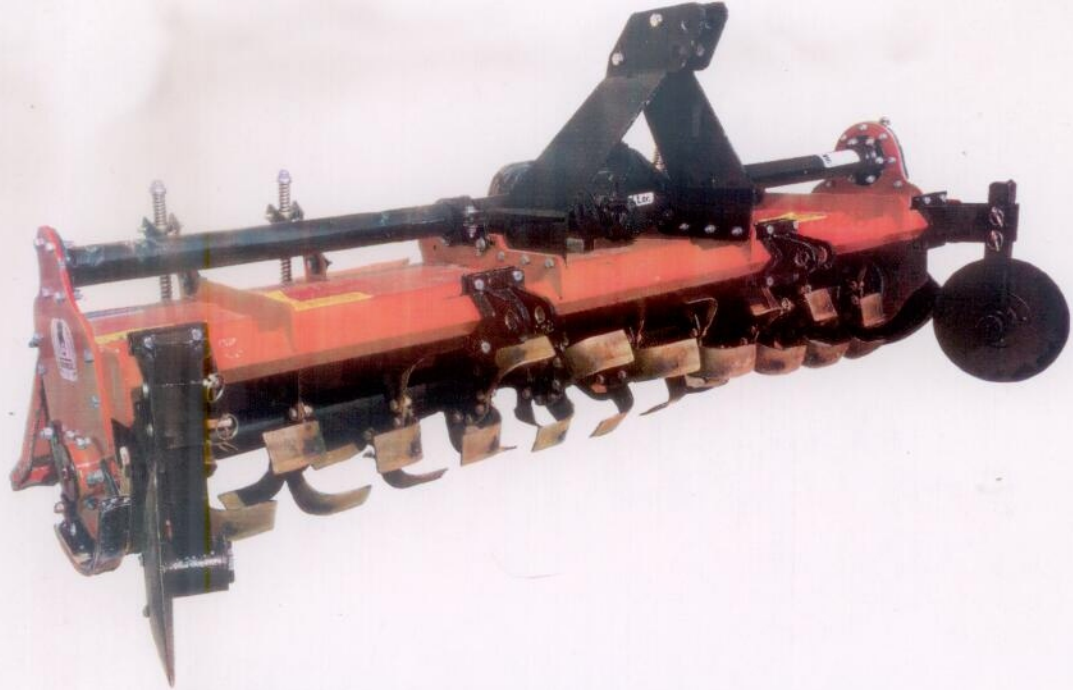


व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: ROTAVATOR-328/2658/2021
माह/Month : January, 2021

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



**AMBBER RT-08 FT, 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	CL-140	Oil originally filled in the rotavator was not changed
2	Secondary Gear box	CL-140	
3	Rotor Hub	Not specified	M.P. Grease
4	Propeller Shaft	Not specified	

5. RUNNING – IN

Rotavator was run in for 1.0 hour before field performance test.

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	54 to 55	Conforms
On shank portion	37 to 45	54 to 55	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	0.1186	Does not conform
Silicon (Si)	0.10 -0.40	1.50-2.00	0.4958	Does not conform
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.9115	Conforms
Sulphur (S)	0.05(max)	0.05(max)	0.0410	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.0236	Conforms

7. FIELD PERFORMANCE TEST

The field tests of the rotavator comprising of dry land and wet land operation were conducted for 26 and 11 hours respectively to assess the performance test is reported in **Annexure-I & II** for dry land and wet land operation respectively.

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

Summary of Field Performance Test

Sl. No.	Parameters/operations	Dry land operation	Wet land operation (Puddling)
I	II	III	IV
1.	Tractor used	New Holland NH 3630	
2.	Gear used	M-1	M-1
3.	Type of soil	Sandy loam	
4.	Average soil moisture (%)	7.50 to 11.25	--
5.	Average depth of standing water (cm)	--	10.72 to 11.67
6.	Bulk density of soil (g/cc)	1.420 to 1.670	--
7.	Average speed of operation (kmph)	2.49 to 2.50	2.19 to 2.36
8.	Avg. travel reduction (%)	--	-1.39 to 3.04
9.	Avg. wheel slip (%)	-1.46 to -1.06	--
10.	Average depth of puddle (cm)	--	18.11 to 22.33
11.	Average depth of cut (cm)	9.61 to 10.61	--
12.	Avg. effective width (cm)	223 to 224	--
13.	Area covered (ha/h)	0.432 to 0.451	--
14.	Time required for one ha (h)	2.22 to 2.31	--
15.	Field efficiency (%)	77 to 81	--
16.	Puddling index (%)	--	77 to 78
17.	Fuel consumption		
		l/h	3.20 to 4.50
		l/ha	7.09 to 11.55
			4.60 to 4.86
			--

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

- i) The rate of work was recorded 0.432 to 0.451 ha/h, and the speed of operation varies from 2.49 to 2.50 kmph.
- ii) The time required to cover one hectare was recorded as 2.22 to 2.31 h

7.1.2 Quality of work

- i) The depth of operation was recorded as 9.61 to 10.61 cm.
- ii) Average effective width was observed as 223 to 224 cm.
- iii) Field efficiency was observed as 77 to 81%.

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 18.11 to 22.3 cm.
- ii) The puddling index was recorded as 77 to 78 %.

7.3 Labour requirement

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

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 Provision against overload on P.T.O drive shaft is not provided. It **MUST** be provided.
- 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)



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

Para No.	Our reference	Applicant's comments
13.1	12.1	The dimension of three point linkage will be update as per IS: 4468(Part-1)-1997.
13.2	12.2	The dimension of PIC of implement will be take care for corrective action.
13.3	12.3	P.T.O drive shaft will be provided with safety provision.
13.4	12.4	The grade of grease will be update in operator manual.
13.5	12.5	The parking stand will be provided with machines in future dispatch to customers.
13.6	12.6	The hardness of blades will be take cover as per IS:6690-1981.
13.7	12.7	We will be take care the same at our production vendor end.
13.8	12.8	The dimension of PIC yoke bore of implement will be update as per IS: 4931-1995.
13.9	12.9	The oil check provision will be in future dispatch to customer.
13.10	12.10	The labeling plate will be update with above side information.
13.11	12.11	Technical Literature will be update as per IS: 8132-1999.

