



Shakti Mahaan (SMR-6) Rotavator



सत्यमेव जयते

भारत सरकार
GOVT OF INDIA
कृषि मन्त्रालय

MINISTRY OF AGRICULTURE

कृषि एवं सहकारिता विभाग

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1. SCOPE OF TEST

The scope of test was to check and assess the following:

1.1 LABORATORY TEST:

- Checking of specifications
- Hardness of soil engaging parts (Rotavator blades)
- Chemical analysis of critical components (Rotavator blades)
- Wear analysis of critical components (Rotavator blades)

1.2 FIELD TEST:

- Rate of work
- Quality of work
- Ease of operation, maintenance and adjustments
- Labour requirement
- Defects, Breakdowns & Repairs

2. METHOD OF SELECTION

The implement was directly submitted by the applicant for test at this Institute, hence method of selection does not arise.

3. TEST PROCEDURES

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|-------------------------------|--|
| i) IS: 6690-2002 | : Specifications of blades for rotavator and power tillers |
| ii) IS: 4931 – 1995 | : Agricultural tractors-Rear Mounted PTO shaft |
| iii) IS: 4468 – 1997 (Part-1) | : Agricultural wheeled Tractors- Rear Mounted three point linkage. |
| iv) IS: 11531 – 2001 | : Test code for puddler |

4. SPECIFICATIONS**4.1 General:**

Manufacturer	: Shakti Mahaan Agro Industries Bye Pass Road, Sirhind Distt.-Fatehgarh Sahib Punjab-140406
Name of machine	: Rotavator
Make	: Shakti Mahaan Agro Industries
Model	: Shakti Mahaan SMR- 6
Type	: Tractor Mounted
Serial number	: Not Specified

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Year of manufacture : Not Specified
 Type of blade : Hatchet (L-shaped)
 Working width of implement (mm) : 1675
 Recommended power source : 40 to 50 hp
 Prime mover used during test : John Deere 5310 collar shift tractor

Constructional Details (Refer Fig.1):

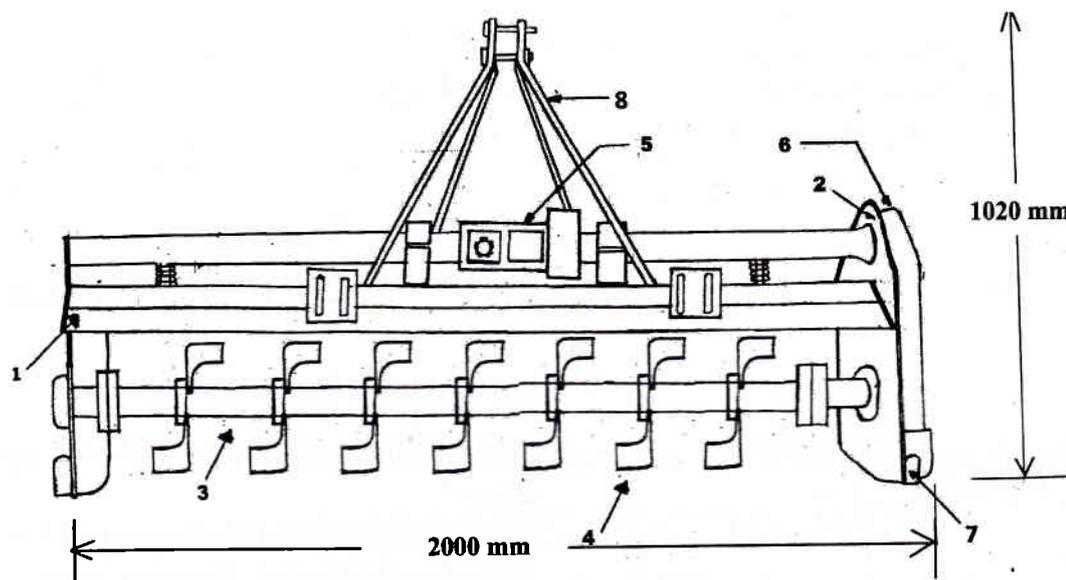


Fig.1: Shakti Mahaan SMR-6 Rotavator

KEYWORDS:

- | | |
|---------------------|---------------------------------|
| 1. Mainframe | 5. Primary reduction gear box |
| 2. Side plate width | 6. Secondary reduction gear box |
| 3. Rotor shaft | 7. Skid |
| 4. Rotor blade | 8. Hitch pyramid |

8. EFFECTIVENESS OF SEALINGS

After completion of dry & wet land operation for 25.5 and 16.4 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)	No

9. EASE OF OPERATION & ADJUSTMENTS

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

10. DEFECTS, BREAKDOWNS AND REPAIRS

No major difficulty was observed during 41.6 hours of operation. However, also right side rotor hub bearing found broken after the 19.2 hours of field test which was replaced with new one and the strength of MS bracket provided for lifting the Trailing Board is not found adequate and it was got bend due to vertical thrust .

11. COMMENTS AND RECOMMENDATIONS

- 11.1 The specifications of implement hitch, does not conform to IS: 4468 (Part-1)-1997. Hence, it is recommended that in view of the standardization, necessary improvements may be incorporated.
- 11.2 Dimensions of PIC and PIC yoke bore of implement, does not conform to IS: 4931-1995 and therefore, it should be looked into for corrective action.
- 11.3 Chemical composition of rotor blades does not conform to relevant Indian Standards. This needs to be looked into for corrective action.
- 11.4 Hardness of rotor blades does not conform to relevant Indian Standard. This needs to be looked into for corrective action at future production level.
- 11.5 Labeling plate is not provided with the implement . Hence, labeling plate along with the specifications such as-size of the implement, make & model, sl. no., year of manufacture and power requirement are to be provided in future production level.
- 11.6 During testing the trailing board holding bracket strength was not found adequate. Hence, it should be improved at production level to encounter the stress.
- 11.7 **Technical literature:**
Only one page of leaflet is provided with the implement. Hence, it is recommended to provide Owner's manual/Operator's manual and Parts list with the implement to refer by the operator and field personnel.

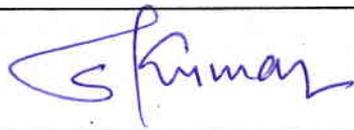
Also, it is recommended to bring out the manuals in Hindi and other vernacular languages as per IS: 8132-1999.

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12. APPLICANTS COMMENTS

No comments have been received from the applicant on this machine.

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
M. K. VISHWAKARMA DIRECTOR	

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