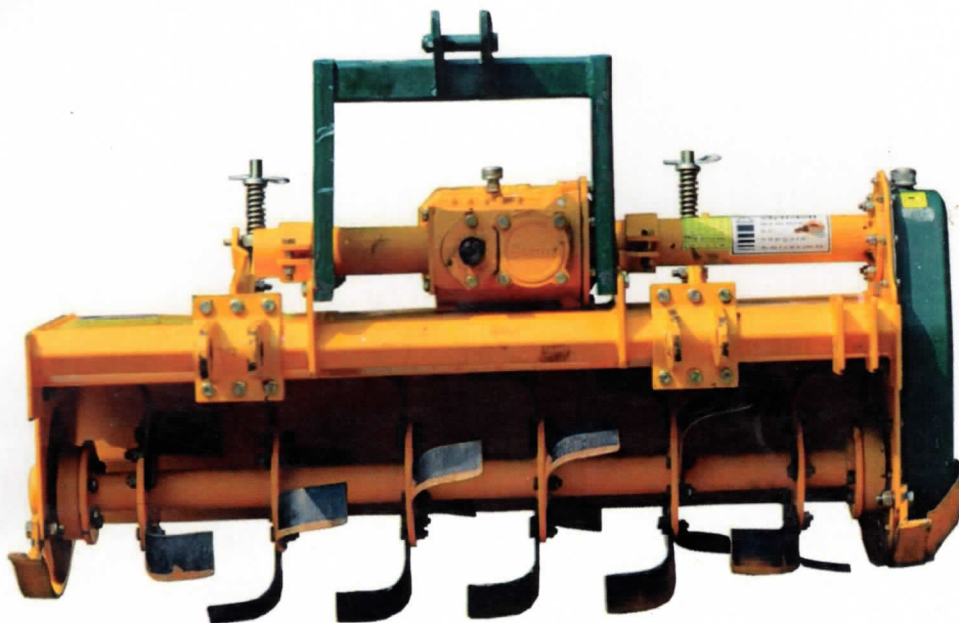


व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT



संख्या / No.: Imp. 206/278
माह / Month: February, 2017



**NEW SWAN ROTAVATOR, Model: NSML RT 100 (Gear Drive)
(Tractor Operated)**

NERFMTTI, LIBRARY

T R. No. 2936

Date- 25.04.17



सत्यमेव जयते

भारत सरकार

GOVT OF INDIA

कृषि एवं किसान कल्याण मन्त्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

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1. SCOPE OF TEST

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

1.1 Laboratory Test:

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

1.2 Field Test:

- a) Rate of work
- b) Quality of work
- c) Ease of operation, maintenance and adjustments
- d) Labour requirement
- e) Defects, Breakdowns & Repairs

2. METHOD OF SELECTION

The implement was directly submitted for test by the applicant at this Institute. Hence, the method of selection is not known.

3. TEST PROCEDURE

The following codes were referred for testing of Rotavator.

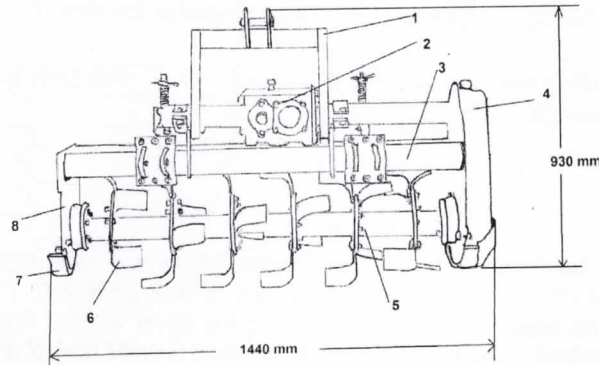
i)	IS: 6690-1981 (Reaffirmed in 2012)	:	Specifications of blades for rotavator for power tillers
ii)	IS: 4931 – 1995 (Reaffirmed in Mar 2009)	:	Agricultural Tractors-Rear Mounted PTO shaft (Types 1, 2 & 3)
iii)	IS: 4468 – 1997 (Reaffirmed in Feb 2012)	:	Agricultural Wheeled Tractors- Rear Mounted Three Point Linkage.
iv)	IS: 11531 – 1985 (Reaffirmed in Feb 2011)	:	Test code for puddler

4. SPECIFICATIONS**4.1 General:**

Name and address of the manufacturer	:	M/s. New Swan Multitech Limited. Village Raian, Kohara-Machiwara Road PO Heeran, Ludhiana-141 112 (Punjab)
Test requested by (Applicant)	:	M/s. New Swan Multitech Limited. C-124, Naraina Industrial Area. Phase-I, Road No. 12. New Delhi-110 027
Name of machine	:	Rotavator
Make	:	NEW SWAN
Model	:	NSML RT 100
Type	:	Gear Drive (Tractor Operated)

Size (mm)	: 1180 x 445 Φ
Serial Number of machine	: NSML0021573
Year of manufacture	: 2016
Country of origin	: Not Provided
Power Source as recommended	: Not Provided
Power source used during the test	: Kubota, B2420

4.2 Constructional Details (Refer Fig.1):



KEYWORDS:

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

Fig.1: SCHEMATIC VIEW OF NEW SWAN RT 100 ROTAVATOR

4.2.1 Main Frame:

Constructional Details: It consisted of a square MS pipe of size 1254 x 50.5 x 50.5 mm welded with two nos. of cross member (MS plate) each of size 445 x 137.8 x 8.3 mm in RHS and LHS respectively. One MS sheet is welded over the rotor unit on the frame (top cover) of size 1254 x 390 (curved) x 3.9 mm. One MS hollow pipe of size 410 x 73.8 Φ mm was fitted to the LHS plate extending from the LHS of the primary reduction gear box. In the RHS of primary reduction gear box one more MS hollow pipe of size 260 x 73.8 Φ mm was welded and other end is fitted to the main frame.

Material	: MS sheet, MS plate & MS pipe (square)
Dimensions of frame (mm)	: 1270 x 445

4.2.2 Side plates:

Number(s)	: Two
Material	: MS plate

Dimensions (mm):

- LHS	: 600 x 355 (max.) x 6.4
- RHS	: 408 x 355 (max.) x 6.4

Method of fixing: The LHS of the side plate is bolted to the main frame by means of 4 nos. of bolts, the RHS plate is also bolted to the main frame by means of 5 nos. of bolts. The dimensions of bolts are 30 x 9.8 mm. One skid is bolted on each side plate. Secondary reduction gear box is fitted on the LHS plate.

8. EASE OF OPERATION & ADJUSTMENTS

The operator can easily adjust and control the implement from operator's seat in the field as the adjustments are within the easy reach of operator. No noticeable difficulty was observed during the operation and adjustment of rotavator.

9. DEFECTS, BREAKDOWNS AND REPAIRS

No breakdown was occurred during 41.4 h of dry land and wet land operation.

10. SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

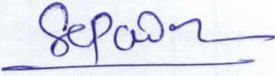

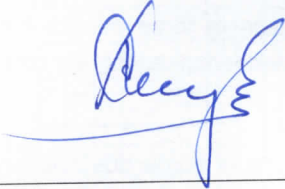
- 10.1 The dimensions of PIC and PIC yoke bore does not conform to IS:4931-1995. This should be looked into for corrective action.
- 10.2 The dimension of three point linkage does not conform to IS: 4468-1997. Therefore, it is recommended to looked into for corrective action for standardization.
- 10.3 The hardness of blade does not conform to IS: 6690-1981. This should be looked into for corrective action for standardization.
- 10.4 The rate of work was recorded as 0.259 to 0.307 ha/h with operation speed of 2.76 to 3.12 kmph
- 10.5 The depth of puddle was recorder as 17 to 21 cm. The depth of operation in dry land was recorded as 8 to 10 cm with soil moisture content of 10.4 to 23.2 % in Sandy soil.
- 10.6 The hourly rate of wear of blade on mass basis in Dry land and Wetland operations was recorded as 0.05 to 0.08 % and 0.02 to 0.04 % respectively.
- 10.7 The hourly rate of wear of blade on dimensional basis in Dry land and Wet land operations was recorded as 0.02 to 0.16 % and 0.01 to 0.10 % respectively.
- 10.8 Type, model, serial no. and year of manufacture was indicated on the labeling plate. However, it is recommended to specify size and power requirement of the implement.

10.9 No ingress of mud and/or water was found in primary and secondary reduction boxes after 41.4 h of Dry land and Wet land operations and the sealing provided on different subassemblies were found effective.

10.10 Technical literature:

No literature such as Operators manual, Service manual, Parts Catalogue, etc. were provided along with the machine during the course of testing.

TESTING AUTHORITY

<p style="text-align: center;">S. G. PAWAR AGRICULTURAL ENGINEER</p>	
<p style="text-align: center;">A.K. UPADHYAY SENOIR AGRICULTURAL ENGINEER</p>	
<p style="text-align: center;">K.K. NAGLE DIRECTOR</p>	

Test conducted & Report compiled by -

Sh. Rahul Prajapathi & Sh. Vithato Keyho

11. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant's Comments
11.1	10.1	For further production we shall take appropriate action to improve the same as per IS:4931-1995 in future.
11.2	10.2	For further production we shall take appropriate action to improve the same as per IS:4468-1997 in future.
11.3	10.3	Review the same ensure to comply the requirement of blade as per IS:6690-1981 in future.
11.4	10.8	As per recommendation of size & power on labeling plate we implement this in future production.
11.5	10.10	Same is in process & we shall ensure to provide the same for further supplies both technical literature.