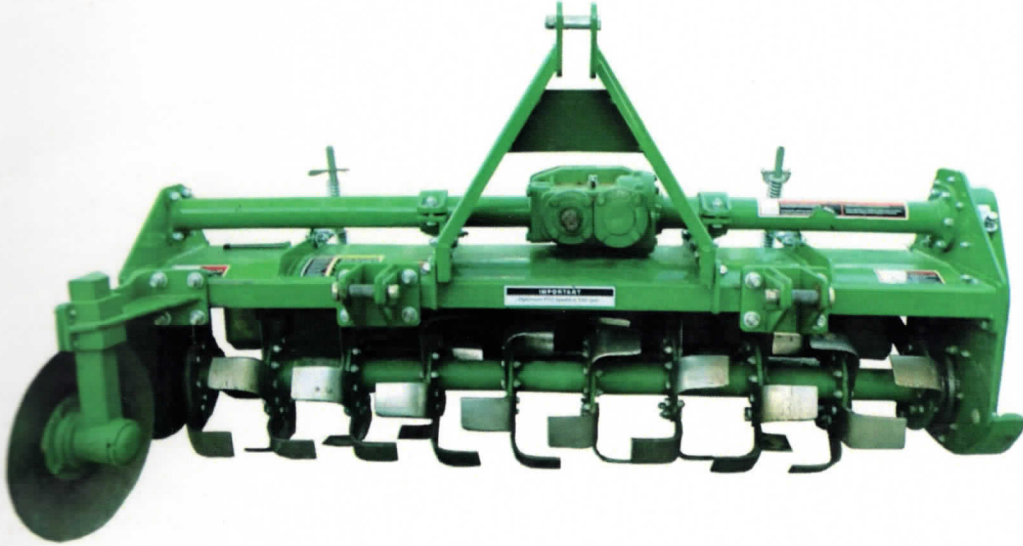


व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT



संख्या / No.: Imp.197/269  
माह / Month: December, 2016



**GREENSYSTEM ROTARY TILLER, Model: RT1036 (Gear Drive)  
(Tractor Operated)**



सत्यमेव जयते

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भारत सरकार

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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 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.

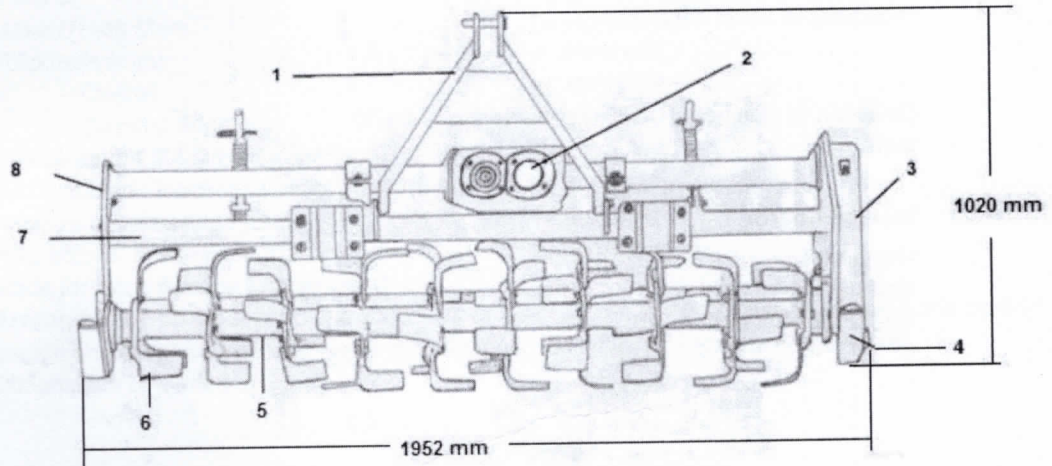
i)	IS: 6690-1981 (Reaffirmed in 2012)	:	Specifications of blades for rotavator for power tillers
ii)	IS: 4931 – 1995 (Reaffirmed in Mar 2009)	:	Agricultural Tractors-Rear Mounted PTO Shaft (Types 1, 2 & 3)
iii)	IS: 4468 – 1997 (Reaffirmed in Feb 2012)	:	Agricultural Wheeled Tractors- Rear Mounted Three 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	:	<b>M/s. Dasmesh Mechanical Works.</b> Vill: Langrian, Nabha-Malerkotla Road Dist.: Sangrur– 148 022 (Punjab)
Test requested by (Applicant)	:	<b>M/s. John Deere India Private Limited</b> Gat # 166 – 167 & 271 – 291, Off Pune-Nagar Road, Sanaswadi, Pune-411 208
Name of machine	:	Rotary Tiller
Make	:	GREENSYSTEM
Model	:	RT1036
Type	:	Gear Drive (Tractor Operated)

Serial Number of machine : 1PYRT10LCGF000113  
 Size : 1694 x 425  $\Phi$   
 Year of manufacture : 2016  
 Made : INDIA  
 Power Source as recommended (hp) : 45-55  
 Power source used during the test : Swaraj 855 FE Tractor (Refer Annexure-III)

#### 4.2 Constructional Details (Refer Fig.1):



#### KEYWORDS:

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

Fig.1: **SCHEMATIC VIEW OF GREENSYSTEM; MODEL- RT1036, ROTAVATOR**

#### 4.2.1 Main Frame:

**Constructional Details:** It consisted of a square MS pipe of size 1780 x 60.3 x 60.3 mm welded with two nos. of cross member (MS plate) each of size 490 x 110 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 1780 x 480 (curved) x 6.1 mm. One MS hollow pipe of size 610 x 76.0  $\Phi$  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 840 x 76.0  $\Phi$  mm was welded and extended up to the RHS side plate.

Material : MS sheet, MS plate & MS pipe (square)  
 Dimensions of frame (mm) : 1800 x 490

#### 4.2.2 Side plates:

Number(s) : Two  
 Material : MS plate

#### Dimensions (mm):

- LHS : 620 x 499 (max.) x 8.3  
 - RHS : 580 x 490 (max.) x 8.3

**Method of fixing:** Both LHS and RHS is bolted to the main frame by means of 4 bolts of same size 43.2 x 11.8  $\Phi$  mm. Depth adjusting skids were bolted on each side plate. Secondary reduction gear box was 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. However the operator has to get down from the tractor in order to raise/lower the depth adjusting skids.No noticeable difficulty was observed during the operation and adjustment of Rotavator.

### **9. DEFECTS, BREAKDOWNS AND REPAIRS**

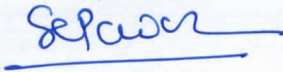
No breakdown was occurred during 42.38 h of dry land and wet land operation.

### **10.SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS**

- 10.1 The dimensions of PIC of the rotavator does not conform to IS:4931-1995.This should be looked into for corrective action.
- 10.2 The diameter of upper linch pin hole and mast height does not conform to IS: 4468-1997. Therefore, it should be looked into for corrective action for standardization.
- 10.3 The hardness of the blade at the edge portion does not conform to IS 6690-1981. Hence, it is recommended to looked into for corrective action for standardization.
- 10.4 The chemical composition of the Rotavator blade does not conform to IS: 6690-1981. This should be looked into for corrective action for standardization.
- 10.5 The rate of work was recorded as 0.424 to 0.543 ha/h with operation speed of 3.19 to 3.81 kmph.
- 10.6 The depth of operation in dry land was recorded as 11 to 12 cm with soil moisture content of 10.9 to 15.6 % in Sandy soil. The depth of puddle was recorder as 25 to 33 cm.
- 10.7 The hourly rate of wear of blade on mass basis in Dry land & Wet land operations was recorded as 0.12 to 0.23 % and 0.03 to 0.06 % respectively.
- 10.8 The hourly rate of wear of blade on dimensional basis in Dry land &Wet land operations was recorded as 0.02 to 0.56 % and as 0.02 to 0.20 % respectively.
- 10.9 The parameters cited on the labeling plate was found unsatisfactory. Hence, It is recommended to specify make, type, model, serial no., size and power requirement of implement on the labeling plate.
- 10.10 No ingress of mud and/or water was found in primary and secondary reduction boxes after 42.38 h of operation, the sealing provided on different subassemblies were found effective.

**10.11 Technical literature:**

Parts Catalogue and technical specification in English was provided along with the machine during the course of testing. However, it is recommended to bring out operators manual and service manual covered with English, Hindi and other vernacular language as per IS 8132-1999.

**TESTING AUTHORITY**


**S. G. PAWAR**  
AGRICULTURAL ENGINEER



**K.K. NAGLE**  
DIRECTOR

Test conducted & Report compiled by -

Sh. Rahul Prajapati & Sh. Vithato Keyho

**11. APPLICANT'S COMMENTS**

Para No.	Our reference	Applicant's Comments
11.1	10.1	We agree with the recommendations on PIC and PIC Yoke bore of implement and will make necessary corrections to dimensions of implement to conform to IS: 4931-1995.
11.2	10.2	We agree with the recommendations and will provide implement hitch for Rotary Tiller conforming to Indian Standards IS: 4468-1997.
11.3	10.3	We agree with recommendations and rotor blades conforming to IS: 6690-1981 on hardness at edge portion.
11.4	10.4	We agree with recommendation and rotor blades confirming IS 6690-1981 on chemical composition for carbon and manganese content.
11.5	10.11	We agree with the recommendation and we will provide the booklet in Hindi and other vernacular languages conforming as per IS 8132-1997. Booklet will include tractor compatibility sheet.