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व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या / No. : Imp. 87/130
माह / Month : March, 2011



SHAKTI SKT-03 GL ROTAVATOR (TRACTOR-MOUNTED)

FMTTI (NER), LISKARY
ACC. NO. 1203
DATE 2/12/2011



सत्यमेव जयते

भारत सरकार
GOVT OF INDIA

कृषि मन्त्रालय

MINISTRY OF AGRICULTURE

कृषि एवं सहकारिता विभाग

DEPARTMENT OF AGRICULTURE AND COOPERATION

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:

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

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 is not known.

3. TEST PROCEDURES

- | | | |
|------|------------------------|--|
| i) | IS: 6690-2002 | : Specification for blades for rotavator for power tillers |
| ii) | IS: 4931-2004 | : Agricultural tractors-Rear Mounted PTO |
| iii) | IS: 4468 - 1997 (Pt-I) | : Agricultural wheeled Tractors- Rear Mounted three point linkage. |
| iv) | IS: 11531-2001 | : Test code for puddler |

4. SPECIFICATIONS**4.1 General:**

- | | | |
|-----------------|---|---|
| Manufacturer | : | M/s Pace Agro Pvt. Ltd.
401 - Ratan Esquire Building
14/143 Chunniganj
Kanpur (U.P.) - 208 001 |
| Name of machine | : | Rotavator |
| Type | : | Tractor-mounted , Gear drive |

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9. EASE OF OPERATION & ADJUSTMENTS

- 9.1 The propeller shaft has two telescopic sections, to shorten or lengthen the drive shaft.
- 9.2 Depth adjustment can be made by raising or lowering the skids.
- 9.3 The propeller shaft is provided with shear bolt for safety during overload.
- 9.4 Implement does not have provisions to vary rotor shaft speed to cater to different soil and moisture conditions.
- 9.5 Dipstick is not provided on the primary reduction gearbox for checking the level of lubricant.

10. DEFECTS, BREAKDOWNS AND REPAIRS

- 10.1 Backlash between the drive pinion and the bevel gear of primary reduction gear box was adjusted by inserting shims in between bevel gear and the taper roller bearing.
- 10.2 Excessive wear of universal joint of the propeller shaft at tractor PTO end was observed after 18.1 hours of operation. Universal joint was replaced with the new one.
- 10.3 Presence of mud and water was observed in the secondary reduction gearbox after completion of 41.7 hours of operation.




11. COMMENTS AND RECOMMENDATIONS

- 11.1 The specifications of implement hitch does not conform to the IS: 4468 (Pt-I)-1997. Hence, it is recommended that implement should be provided with the hitch conforming to relevant Indian standards.
- 11.2 The dimensions of splined end of input shaft and propeller shaft insert dimensions do not conform to IS: 4931-2004. This should be looked into for corrective action.
- 11.3 The grade and change period of oil used in gear boxes of rotavator, should be given in the printed literature and suitable sticker should also be pasted on rotavator.
- 11.4 No dipstick has been provided on the primary reduction gear box for checking the level of oil there into. This needs to be looked into for appropriate action.

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- 11.5 **Hardness and Chemical composition of rotor blades do not conform to relevant Indian Standards. This needs to be looked into for corrective action.**
- 11.6 Improper gear meshing was observed in between drive pinion and bevel gear of primary reduction gearbox. Suitable modification should be done for corrective action.
- 11.7 Presence of mud and water was observed in the secondary gearbox. Proper sealing therefore, must be provided.
- 11.8 Size of implement, power requirement, etc. should properly be indicated on the labeling plate.
- 11.9 It is recommended that arrangement for changing the rotor speed to suit various soils and moisture condition should be provided.
- 11.10 Adequacy of literature: It is recommended that operator's manual, service manual and spare parts catalogue should be provided in English, Hindi and other regional languages as per IS: 8132-2004.

TESTING AUTHORITY

H. L. YADAV AGRICULTURAL ENGINEER	
P. K. PANDEY SENIOR TEST ENGINEER	
M.K. VISHWAKARMA DIRECTOR	

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12. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant's comment
12.1	11.1	We will take corrective action in manufacturing.
12.2	11.2	We will take corrective action in manufacturing.
12.3	11.3	We will incorporate this information in our product literature & also provide sticker on the Rotavator.
12.4	11.4	Proper arrangement will be made for checking oil level.
12.5	11.5	Corrective action will be taken during manufacture of Rotavator.
12.6	11.6	Proper clearance will be maintained and checked during assembly of primary gear box.
12.7	11.7	Proper sealing will be provided while assembling of secondary gear box.
12.8	11.8	Necessary data shall be provided in the labeling plate.
12.9	11.9	Suitable arrangement shall be provided for changing rotor speed in the manufacture of Rotavator.
12.10	11.10	All required literature as recommended will be provided with the machine.