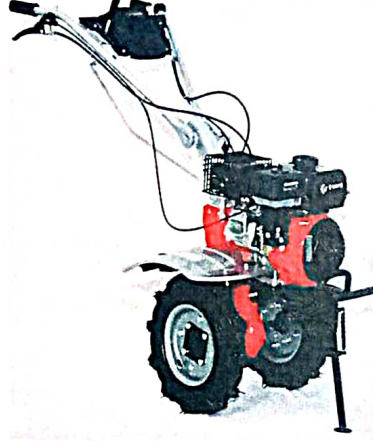


व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (Initial)



संख्या/No.: Machine 80/451
माह / Month: December 2022

INCOMPLETE REPORT



RK-PW-105P R K MANUFACTURES (WALSON) POWER WEEDER



सत्यमेव जयते

भारत सरकार
GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

विश्वनाथ चारिआलि, जिला-विश्वनाथ (असम)

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|----------------|---|-------------------------|
| Machine 80/451 | (INCOMPLETE REPORT) RK-PW-105P R K MANUFACTURES (WALSON) POWER WEEDER | COMMERCIAL (INITIAL) |
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1. SCOPE OF TEST

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

- 1.1 Specification and other data furnished by the applicant.
- 1.2 Engine performance test
- 1.3 Vibration Measurement
- 1.4 Noise measurement
- 1.5 Air cleaner oil pull over test
- 1.6 Hardness & chemical composition
- 1.7 Field performance
- 1.8 Wear analysis of rotor blades
- 1.9 Ease of operation and adjustments
- 1.10 Defects, breakdowns and repairs

2. METHOD OF SELECTION

As per Govt. of India, OM No. 13-1/2021-M&T (I&P), dated 03.02.2022, the selection of sample for test was exempted. Hence, the machine was directly submitted by the applicant at this Institute for test.

3. TEST CODE AND PROCEDURE

There is no Indian standard/test code available for testing of self-propelled power weeder as such. The guidelines, however, have been taken from the following:

- | | |
|----------------------------------|---|
| IS 9935 : 2002 (Reaffirmed 2012) | : Power Tiller - Test code |
| IS 9980 : 1999 (Reaffirmed 2004) | : Guidelines for field performance and haulage tests of power tillers |
| IS: 7347-1974 (Reaffirmed 2006) | : Specification for Performance of Small Size Spark Ignition Engines. |
| IS 1976 : 1976 (Reaffirmed 2009) | : Specification for Rotary paddy weeder, manually operated |
| IS 6690 : 1981 (Reaffirmed 2012) | : Specification for Blades for Rotavator for Power Tillers |

4. SPECIFICATION

- 4.1 **General:**

| | |
|----------------------------------|---|
| Make | : R.K.MANUFACTURES(WALSON) |
| Model | : RK-PW-105P |
| Name and address of manufacturer | : Chongqing Wanggeng Machinery Manufacturing Co., Ltd Add: Silong Village, Huilongba Town, Shapingba District, Chongqing City, China |

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Name and address of applicant : R.K.MANUFACTURES Nirmal Ind.,
 Survey no 30, Gopal hotel steet, opp
 Neptun cast, Vavdi, Rajkot, Gujrat-
 360004

Name of machine : Power weeder

Type of machine : Self propelled, Walk behind

Working size of machine (mm) : 1100

Year of manufacture : 2022

Serial no. of machine : WALSON0276NV

4.2 Details of prime mover:

Make : Not specified

Model : 170F/P

Type : 4 stroke, Single cylinder, Air cooled

Year of manufacture : Not Specified

Serial Number : WALSON276P

Country of origin : CHINA

Recommended high idle speed (rpm) : 3550 ± 50

Recommended low idle speed (rpm) : 1500

Recommended rated speed (rpm) : 3400

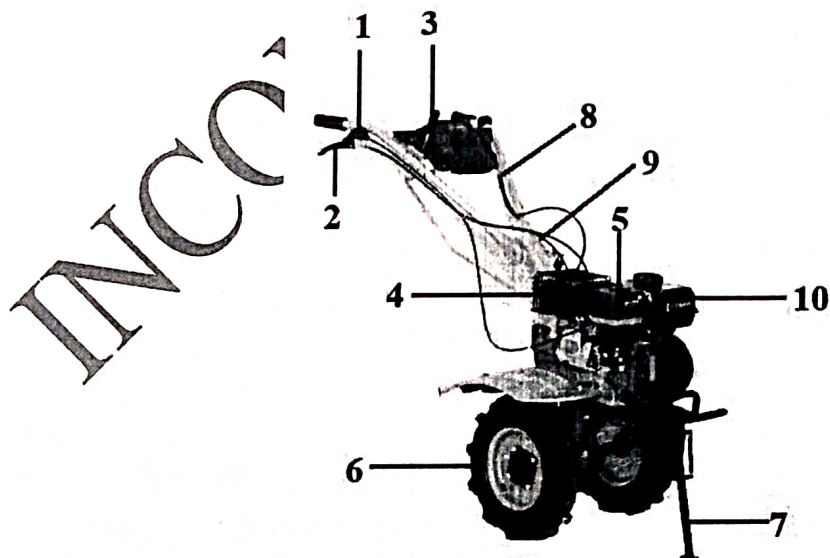


Fig.1 R.K.MANUFACTURES (WALSON) POWER WEEDER, MODEL: RK-PW-105P

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|----------------|---|-------------------------|
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12. FIELD PERFORMANCE TEST

The field tests were conducted for 26.90 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated speed of 3400 rpm. The detailed test results are represented in the Annexure and summarized in the ensuing table:

| Sl.No. | Parameters | Observations |
|--------|-----------------------------------|------------------|
| 1 | Type of soil | : Light |
| 2 | Soil moisture (%) | : 7.3 to 8.5 |
| 3 | Bulk density of soil (g/cc) | : 1.53 to 1.56 |
| 4 | Forward Speed of operation (kmph) | : 0.59 to 0.74 |
| 5 | Depth of cut (cm) | : 5.26 to 6.03 |
| 6 | Width of cut (m) | : 1.10 |
| 7 | Area covered (ha/h) | : 0.049 to 0.069 |
| 8 | Time required for one ha (h) | : 14.49 to 20.40 |
| 9 | Field efficiency (%) | : 68.53 to 87.50 |
| 10 | Weeding efficiency (%) | : 76.59 to 80.83 |
| 11 | Fuel consumption | |
| | l/h | 0.773 to 0.880 |
| | l/ha | : 12.12 to 17.95 |

12.1 Rate of work:

- Rate of work was recorded as 0.049 to 0.069 ha/h and the forward speed of operation varied from 0.59 to 0.74 kmph.
- Time required to cover one hectare was recorded as 14.49 to 20.40 h.

12.2 Quality of work:

- Depth of cut was recorded as 5.26 to 6.03 cm.
- Av. working width was observed as 1.10 m.
- Field efficiency was found as 68.53 to 87.50 %.
- Weeding efficiency was found as 76.59 to 80.83 %

12.3 Adequacy of power of prime mover:

The power of prime mover was found adequate.

12.4 Wear Analysis of rotor blades:

| Sl. No | Initial mass (g) | Final mass (g) | Loss of mass (g) | Percentage wear of rotor blades | |
|--------|------------------|----------------|------------------|---------------------------------|----------|
| | | | | After 26.90 h | Per hour |
| L-1 | 317.5 | 310.5 | 7.0 | 2.20 | 0.08 |
| L-2 | 316.5 | 310.5 | 6.0 | 1.90 | 0.07 |
| L-3 | 325.0 | 317.0 | 8.0 | 2.46 | 0.09 |
| L-4 | 323.0 | 313.0 | 10.0 | 3.10 | 0.12 |

| | | | | |
|----------------|--|--|--|-------------------------|
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| | | | | | |
|-----|-------|-------|------|------|------|
| R-1 | 327.5 | 314.5 | 13.0 | 3.97 | 0.15 |
| R-2 | 326.5 | 310.0 | 16.5 | 5.05 | 0.19 |
| R-3 | 317.0 | 306.0 | 11.0 | 3.47 | 0.13 |
| R-4 | 318.0 | 307.0 | 11.0 | 3.46 | 0.13 |

The hourly rate of wear of blade on mass basis after field operations was recorded as 0.07 to 0.19 %

13. EASE OF OPERATION & ADJUSTMENTS

No difficulties were observed in operation and adjustment during the field test.

14. DEFECTS, BREAKDOWNS AND REPAIRS

During Engine Performance test at full load, engine speed was not stable at rated speed i.e. 3400 rpm and also engine lubricating oil temperature exceeded the maximum permissible engine oil temperature as declared by the manufacturer.

15. COMMENTS & RECOMMENDATIONS

- 15.1 Engine performance test could not be conducted as engine speed was not stable at rated speed of 3400 rpm and also engine lubricating oil temperature exceeded the maximum permissible engine oil temperature as declared by the manufacturer. Meanwhile the applicant has requested to withdraw his machine from testing, vide letter dated 02/12/2022.
- 15.2 The engine was not marked with Manufacturer name or trade-mark, Serial No of engine, Rated power, Rated speed, and type of fuel used which does not fulfill the requirement of IS 7347-1974 (Amended 2011). This may be looked into.
- 15.3 The hardness and chemical composition of rotary blades does not conform to the requirement of IS 6690:1981 (Reaffirmed 2012). This may be looked into for corrective action.
- 15.4 Noise at operator's ear level was observed on higher side against warning limit of 85 dB (A) as specified by International labour Organization (ILO) for continuous exposure of 8 hours per day. **This calls for reduction in noise level to improve the operator's comfort & safety.**
- 15.5 The amplitude of mechanical vibration marked as (*) is on drastically higher side and is directly concerned with operator's health, safety and comfort. Besides, it is also adversely affect the useful life of machine components. In view of above, this deserves to be given top priority for corrective action.
- 15.6 Labeling plate should be provided on the machine as per Indian Standard with all relevant information.

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15.7 The Information provided on labeling plate does not match with observed value, it presumes that the applicant has misguiding the farmers with wrong information.

15.8 Adequacy of Literature

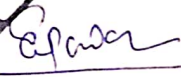
The following literature in English language was provided for reference during testing:

- Operator's/ Service manual
- Parts catalogue

It is recommended to bring out the manual in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY


(M.R. PATIL)
AGRICULTURAL ENGINEER


(S.G. PAWAR)
AGRICULTURAL ENGINEER


(Dr. P.P. RAO)
DIRECTOR

Draft test report compiled by - **Shri Khagendra Bora**
Sr. Technical Assistant

16. APPLICANTS COMMENTS

| Para No | Our Reference | Applicant's Comments |
|---------|---------------------|----------------------|
| 16.1 | Sl. No 15.1 to 15.8 | No Comment |

