

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: Powerweeder-110/2668/2021  
माह/ Month: February, 2021

THIS TEST REPORT VALID UP TO : 28<sup>th</sup> February, 2026



**ASPEE JONATHAN, CHS35/4S/TW  
SIDEPACK POWER WEEDER**



भारत सरकार  
Government of India  
कृषि एवं किसान कल्याण मंत्रालय  
Ministry of Agriculture and Farmers Welfare  
कृषि, सहकारिता एवं किसान कल्याण विभाग  
Department of Agriculture, Cooperation and Farmers Welfare  
उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान  
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9. **HARDNESS & CHEMICAL COMPOSITION OF BLADES:** Hardness & chemical analysis of primary element of the blade were carried out as per IS: 6690 -1981. The details of same as given in table 3 & 4.

9.1 **Table 3 : Hardness of blades**

|                  | Requirement as per IS: 6690-1981 (HRC) | Hardness (HRC) as observed | Remarks          |
|------------------|--|----------------------------|------------------|
| At edge portion  | 56±3                                   | 10 (Average)               | Does not conform |
| At shank portion | 37 to 45                               | 11.4 (Average)             | Does not conform |

9.2 **Table 4 : Chemical analysis of rotary blade**

| Elements    | Requirements as per IS: 6690-1981 (%) | As observed (%) | Remarks          |
|-------------|---------------------------------------|-----------------|------------------|
| 1.          | 2.                                    | 3.              | 4.               |
| Carbon      | 0.50 to 0.60                          | 0.1003          | Does not conform |
| Manganese   | 0.50 to 1.00                          | 0.2239          | Does not conform |
| Silicon     | 1.50 to 2.00                          | 0.1242          | Does not conform |
| Phosphorous | 0.05 (Max.)                           | 0.0110          | Conforms         |
| Sulphur     | 0.05 (Max.)                           | 0.0395          | Conforms         |

10. **RUNING IN**

In the agreement with applicant's representative the Power weeder was run-in for 0.50 hour before the actual test. All the fastness was checked tightened thereafter.

11. **FIELD TEST**

The field tests under dry land condition were conducted for 29.68. During the field tests engine speed was adjusted to the rated 6500 rpm. In all, 5 tests trials were conducted in sandy loam soil at the NRFMTTI farm, Hisar. The summary of the field test for dry land operation is represented in table-3.

**Crop parameters**

- i) Type of weed - Seasonal weeds (Portulaca grass)  
ii) Height of weed, cm - 4 to 5.5

**Table 5: SUMMARY OF FIELD PERFORMANCE TEST**

| Sl. No. | Parameter                          | Range          |
|---------|------------------------------------|----------------|
| i)      | Type of soil                       | Sandy loam     |
| ii)     | Average Soil moisture, %           | 12 to 16       |
| iii)    | Average Bulk density of soil, g/cc | 1.530 to 1.810 |
| iv)     | Average Speed of operation, kmph   | 0.59 to 0.61   |
| v)      | Average depth of cut (cm)          | 4.44 to 5.44   |
| vi)     | Average Width of cut, m            | 0.25 to 0.28   |
| vii)    | Average Area covered, ha/h         | 0.012 to 0.016 |
| viii)   | Average Time required for one ha   | 62.50 to 82.64 |
| ix)     | Average Fuel consumption           |                |
|         | l/h                                | 0.400 to 0.600 |
|         | l/ha                               | 25 to 47.62    |

|     |                                |   |          |
|-----|--------------------------------|---|----------|
| x)  | Average Weeding efficiency (%) | : | 77 to 87 |
| xi) | Average Field efficiency (%)   | : | 75 to 82 |

## 12. ADJUSTMENT, DEFECTS, BREAKDOWNS & REPAIR

No noticeable breakdown occurred during test.

## 13. COMPONENTS/ASSEMBLY INSPECTION AND ASSESSMENT OF WEAR

### 13.1 Wear of blades:

#### 13.1.1 Mass basis:

The wear of the rotary weeder blades was measured after 30.18 hrs. of field operation and the observations are as under:

| Sl. No. | Initial mass (g) | mass after 30.18 hrs.(g) | Loss of mass (g) | Percent wear (%) | Percent wear per hour |
|---------|------------------|--------------------------|------------------|------------------|-----------------------|
| 1       | 1173.0           | 1155.20                  | 17.8             | 1.52             | 0.05                  |
| 2       | 1169.7           | 1142.9                   | 26.8             | 2.29             | 0.08                  |

## 14. CRITICAL TECHNICAL SPECIFICATIONS

Deferred till 31.03.2021 vide Ministry O.M. No. 13-13/2020-M&T(I&P) dated 22.12.2020.

## 15. COMMENTS & RECOMMENDATIONS

### 15.1 Mechanical vibration

The amplitude of mechanical vibration marked as (\*) on the relevant chapter, are on drastically higher side. It is not just directly concerned with operator's health, safety and comfort, but also adversely affect the useful life of the components. In view of above, this deserved to be given top priority for corrective action.

15.2 The chemical composition of blades does not conform in toto, to the requirements of IS: 6690-1981. This needs to be looked into for corrective action.

15.3 The hardness of blades does not conform to the requirements of IS: 6690-1981. This needs to be looked into for corrective action.

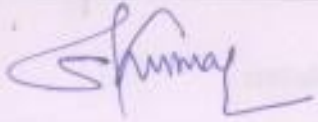
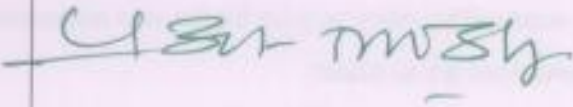
15.4 Pertinent instructions are not mentioned. It **MUST** be mentioned.

15.5 The observed serial no. EATT027 as per labeling plate against serial no. CHS35/4S/TW-021 as per specification. It **MUST** be looked into for corrective action.

**16. TECHNICAL LITERATURE**

One booklet entitled "Instruction manual" was provided for reference during test. The same, however, needs to be updated as per IS-8132-1999.

**TESTING AUTHORITY**

|                                       |  |
|---------------------------------------|--|
| SANJAY KUMAR<br>AGRICULTURAL ENGINEER |  |
| P. K. PANDEY<br>DIRECTOR              |  |

Draft test report compiled by Girdhari Lal, Technician

**17. APPLICANT'S COMMENTS**

| Para No. | Our reference                 | Applicant comments  |
|----------|-------------------------------|---------------------|
| 17.1     | 15.1, 15.2, 15.3, 15.4 & 15.5 | We will do needful. |

