व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: Powerweeder-113/2671/2021**
माह/**Month: February, 2021**

THIS TEST REPORT VALID UP TO : 28th February, 2026

ASPEE JONATHAN, CHB35/4S/TW
BACKPACK 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
Northern Region Farm Machinery Training and Testing Institute
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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	142.67 (HB)	**Does not conform**
At shank portion	37 to 45	142.67 (HB)	**Does not conform**

Remark: Hardness is not measureable in HRC scale, hence measured in HB.

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	0.0631	**Does not conform**
Manganese	0.50 to 1.00	0.1801	**Does not conform**
Silicon	1.50 to 2.00	0.0284	**Does not conform**
Phosphorous	0.05 (Max.)	0.0094	Conforms
Sulphur	0.05 (Max.)	0.0321	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 30.97. 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 (Chenopodium grass)
ii) Height of weed, cm - 4 to 6.5

Table 5: SUMMARY OF FIELD PERFORMANCE TEST

Sl. No.	Parameter		Range
i)	Type of soil	:	Sandy loam
ii)	Average Soil moisture, %	:	12 to 17.50
iii)	Average Bulk density of soil, g/cc	:	1.600 to 1.970
iv)	Average Speed of operation, kmph	:	0.58 to 0.61
v)	Average depth of cut (cm)	:	3.5 to 4.22
vi)	Average Width of cut, m	:	0.33 to 0.36
vii)	Average Area covered, ha/h	:	0.015 to 0.018

viii)	Average Time required for one ha	:	55.56 to 66.67
ix)	Average Fuel consumption		
	l/h	:	0.400 to 0.540
	l/ha	:	25 to 33.35
x)	Average Weeding efficiency (%)	:	75 to 88
xi)	Average Field efficiency (%)	:	71 to 86

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 31.47 hrs. of field operation and the observations are as under:

Sl. No.	Initial mass (g)	mass after 31.47 hrs.(g)	Loss of mass (g)	Percent wear (%)	Percent wear per hour
1	1478.70	1464.3	14.4	0.97	0.03
2	1485.5	1472.9	12.6	0.85	0.03

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.

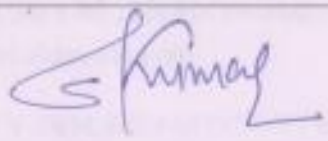
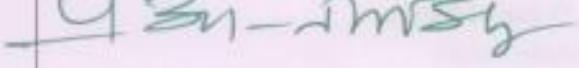
15.4 Pertinent instructions are not mentioned. It **MUST** be mentioned.

15.5 The observed serial no. GATT029 as per labeling plate against serial no. CHB35/4S/TW-021 as per specification. It **MUST** be looked into for corrective action.

16. TECHNICAL LITERATURE

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

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY **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.