

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: POWER WEEDER - 175/3028/2023

माह/Month: May, 2023

THIS TEST REPORT VALID UP TO : 31st May, 2028



**TRISPAN, TPW900DB
POWER WEEDER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि एवं किसान कल्याण विभाग

Department of Agriculture and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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10. **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 is given in table 4 & 5.

10.1 **Table 4 : Hardness of blades**

	Requirement as per IS: 6690-1981 (HRC)	Hardness (HRC) as observed	Remarks
At edge portion	56±3	43.9 (Average)	Does not conform
At shank portion	37 to 45	40.4 (Average)	Conforms

10.2 **Table 5 : Chemical analysis of rotary blade**

Elements	Requirements as per IS: 6690-1981 (%)	As observed (%)	Remarks
Carbon	0.50 to 0.60	0.72	Does not conform
Manganese	0.50 to 1.00	0.64	Conforms
Silicon	1.50 to 2.00	1.34	Does not conform
Phosphorous	0.05 (Max.)	0.03	Conforms
Sulphur	0.05 (Max.)	0.04	Conforms

11. **RUNNING - IN**

The Power weeder was run-in for 1.03 hour before field performance test. All the fasteners were checked and tightened thereafter.

12. **FIELD TEST**

The field tests under dry land condition were conducted for 25.92 h. The field tests were conducted at the rated 3000 rpm. In all, 5 tests trials were conducted in sandy loam soil at NRFMTTI farm, Hisar. The summary of the field test for dry land operation is given in table-6.

Crop parameters

- i) Type of weed - Seasonal weeds
ii) Height of weed, cm - 9.0 to 18.9

Table 6: SUMMARY OF FIELD PERFORMANCE TEST

Sr. no.	Parameter	Range
i)	Type of soil	Sandy loam
ii)	Soil moisture, %	9.9 to 12.8
iii)	Bulk density of soil, g/cc	1.30 to 1.37
iv)	Speed of operation, kmph	2.09 to 2.23
v)	Depth of cut, cm	6.00 to 6.50
vi)	Width of cut, m	0.98 to 1.01
vii)	Area covered, ha/h	0.160 to 0.180
viii)	Time required for one ha, h/ha	5.56 to 6.25
ix)	Fuel consumption	
	l/h	0.77 to 0.88
	l/ha	4.63 to 5.00
x)	Weeding efficiency, %	88.19 to 90.21
xi)	Field efficiency, %	76.55 to 80.08

21.	Provision for easy start of engine	Must be provided	Provided	Conforms
22.	Provision for shield/cover to prevent flying of mud & stone from rotor	Must be provided	Provided	Conforms
23.	Depth control mechanism	Must be provided	Provided	Conforms
24.	Provision for transport wheels	Must be provided	Provided	Conforms
25.	Provision for cover on exhaust	Must be provided	Provided	Conforms
26.	Direction of exhaust emission away from operator	Must be provided	Provided	Conforms
27.	Marking/labeling machine	The labeling plate should be riveted on the body of machine having Name and address of manufacturer & Applicant, Country of origin, Make, Model, Year of manufacturer, Serial number, Engine number, Engine HP, rated rpm & SFC.	Partially meet the requirement	Partially conforms
28.	Literature	Operator manual, service manual and Parts catalogue should be provided.	Provided	Conforms

16. COMMENTS & RECOMMENDATIONS

16.1 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 deserve to be given top priority for corrective action.

16.2 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.

16.3 The hardness of blade does not conform in toto, to the requirement of IS:6690-1981. This needs to be looked into for corrective action.

16.4 The make of fuel injection pump and governor is not specified. It **MUST** be looked into.

16.5 Field performance

No noticeable defect was observed during field test.

The field area covered was 0.160 to 0.180 ha/hr.

The fuel consumption was observed as 0.77 to 0.88 l/hr and 4.63 to 5.00 l/ha.

The weeding efficiency was observed as 88.19% to 90.21% and the field efficiency was observed as 76.55 % to 80.08%.

16.6 The maximum power in two hour test was observed as 5.89 kW against declaration of 6.20 kW for full throttle setting under natural ambient condition.

16.7 The specific fuel consumption corresponding to maximum power at full throttle setting was recorded as 0.426 kg/kWh.


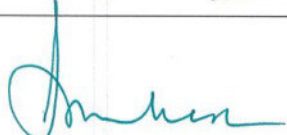
17. TECHNICAL LITERATURE

The following literatures are provided by the applicant.

- i) Operator manual
- ii) Spare parts manual
- iii) Owner's Manual of engine

However, the manuals needs to be updated as per IS: 8132-1999.

TESTING AUTHORITY

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 23.05.2023

18. APPLICANT'S COMMENTS

We will take corrective action in future products of Power weeder.

