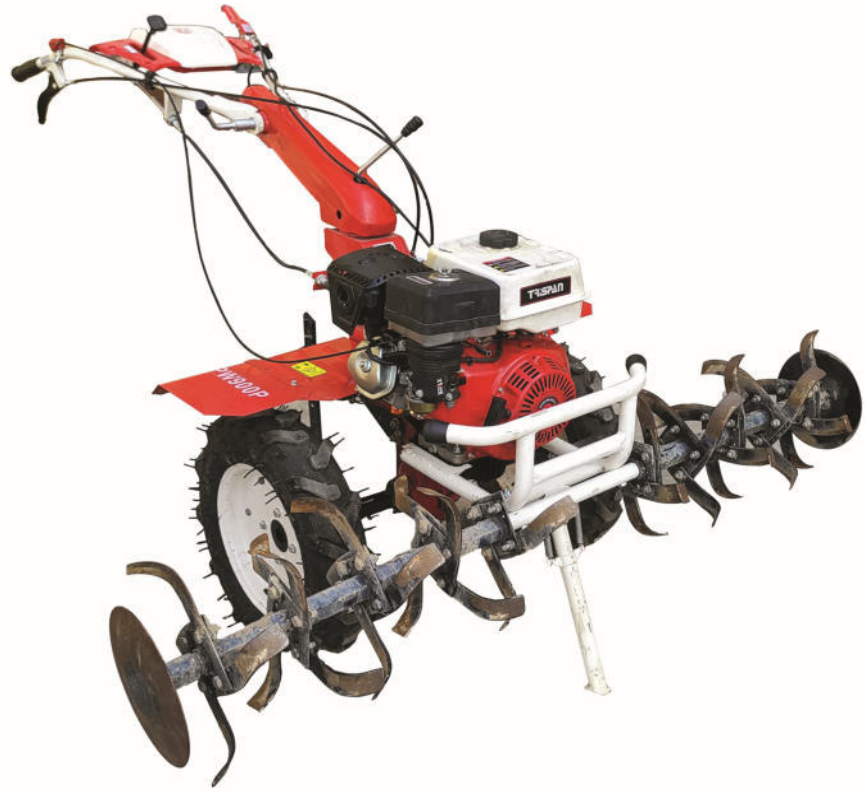
व्यावसायिक परीक्षण रिपोर्ट संख्या/ **No.: POWER WEEDER – 174/3027/2023**

COMMERCIAL TEST REPORT माह/**Month: May, 2023**

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



TRISPAN, TPW900P
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

Northern Region Farm Machinery Training and Testing Institute

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[ISO 9001:2015 CERTIFIED]

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11. RUNNING – IN

The power weeder was run-in for 1.08 hour before field performance test as recommended by the applicant. All the fasteners were checked and tightened thereafter.

12. FIELD TEST

The field tests under dry land condition were conducted for 25.67 hours. The field tests were conducted at rated speed 3000 rpm. In all, 5 tests trials were conducted in sandy loam soil at N.R.F.M.T.T.I farm, Hisar. The summary of the field test for dry land operation is given in table-4.

Crop parameters

i) Type of weed - Seasonal weeds
ii) Height of weed, cm - 9 to 18

Table 4: SUMMARY OF FIELD PERFORMANCE TEST

Sr. No.	Parameter		Range
i)	Type of soil	:	Sandy loam
ii)	Soil moisture, %	:	9.8 to 11.9
iii)	Bulk density of soil, g/cc	:	1.29 to 1.36
iv)	Speed of operation, kmph	:	3.10 to 3.45
v)	Depth of cut, cm	:	5.72 to 6.33
vi)	Width of cut, m	:	1.42 to 1.44
vii)	Area covered, ha/h	:	0.352 to 0.390
viii)	Time required for one ha	:	2.56 to 2.84
ix)	Fuel consumption		
	l/h	:	1.17 to 1.28
	l/ha	:	3.20 to 3.64
x)	Weeding efficiency, %	:	89.60 to 92.10
xi)	Field efficiency, %	:	78.00 to 81.81

13. ADJUSTMENT, DEFECTS, BREAKDOWNS & REPAIR

No noticeable defect/breakdown observed during test.

14. COMPONENTS/ASSEMBLY INSPECTION AND ASSESSMENT OF WEAR

14.1 Engine:

The engine and other assemblies were dismantled after 39.83 hours of engine operation.

14.1.1 Cylinder:

Cylinder bore dia. (mm)						
Top position		Middle position		Bottom position		Max. permissible wear limit
Thrust	Non-thrust	Thrust	Non-thrust	Thrust	Non-thrust	
77.07	77.02	77.05	77.01	77.05	77.01	77.30

10.	Types of flanges	Square/circular/rectangular	Square	Conforms
11.	Distance between consecutive flanges, mm	80 to 150	130	Conforms
12.	No. of blades in each flange	3-6	4	Conforms
13.	No. of rotor blade	12 (min.)	40	Conforms
14.	Thickness of rotor blade, mm	5 (min.)	5.40	Conforms
15.	Material of blade	Boron (28MnCrB5) / High carbon steel EN 42J	High carbon steel	Conforms
16.	Hardness of blade, HRC	38 (min.)	44.2 (Average)	Conforms
17.	Shape of rotor blade	C / J shape	J shape	Conforms
18.	Provision for handle height adjustment	Must be provided	Provided	Conforms
19.	Provision for handle rotation	Must be provided	Provided	Conforms
20.	Provision for emergency stop of engine	Must be provided	Provided	Conforms
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 provided	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 affects the useful life of the components. In view of above, this deserve to be given top priority for corrective action.

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

16.3 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.

16.4 Field performance

No noticeable defect was observed during field test.

The field area covered was 0.352 to 0.390 ha/hr.

The fuel consumption was observed as 1.17 to 1.28 l/hr and 3.20 to 3.64 l/ha.

The weeding efficiency was observed as 89.60 % to 92.10 % and the field efficiency was observed as 78.00 % to 81.81 %.

16.5 The maximum power in rating test was observed as 4.47 kW against declaration of 6.40 kW for full throttle setting under natural ambient condition.

16.6 The specific fuel consumption corresponding to maximum power at full throttle setting recorded as 0.375 kg/kWh.

17. TECHNICAL LITERATURE

The following literatures were provided by the applicant.

i) Operator manual
ii) Parts catalogue
iii) Service manual

However, the manual 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.

उ.क्षे.कृ.म.प्रशि.एवं.परी.सं. हिसार * N.R.F.M.T.&T.I., HISAR *