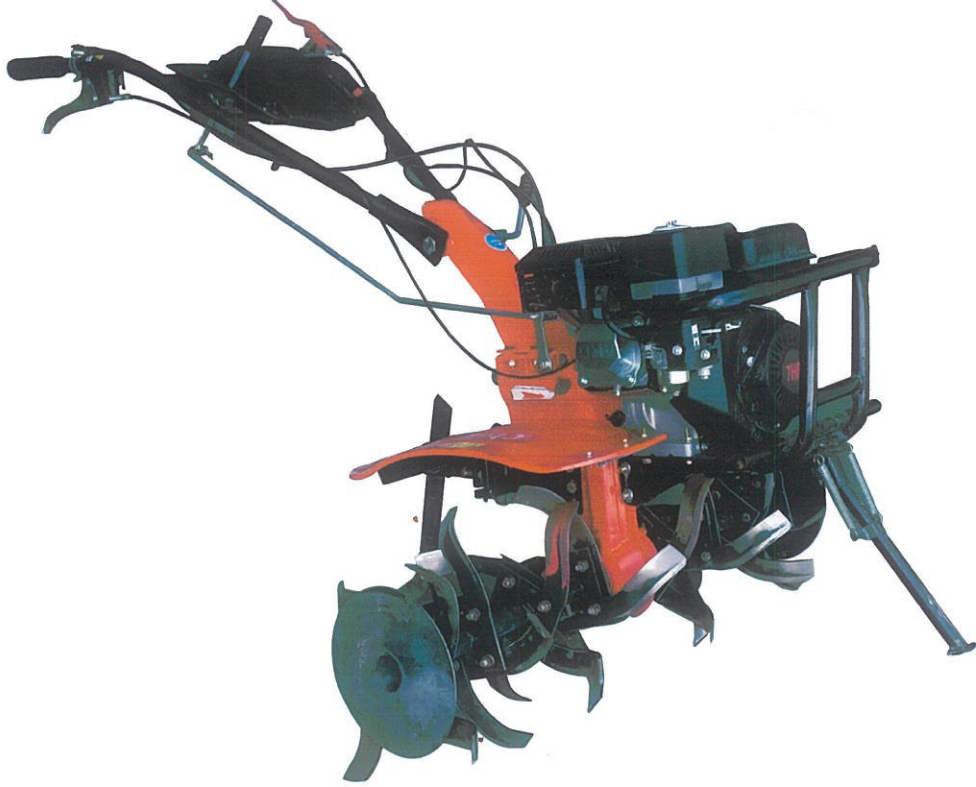


व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: Power weeder-187/3109/2023
माह/Month: November, 2023

THIS TEST REPORT VALID UP TO : 30th November, 2028



**CNE, CNE 1005
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

ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001

Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001

[ISO 9001:2015 CERTIFIED]

Website: <http://nrfmtti.gov.in/>

E-mail: fmti-nr@nic.in

Tele./FAX: 01662-276172

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11. RUNING - IN

The power weeder was run-in for 0.50 hour before field performance test. All the fasteners were checked tightened thereafter.

12. FIELD TEST

The field tests under dry land condition were conducted for 26.00 h. The field tests were conducted at the rated 3600 rpm. In all, 6 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-4.

Crop parameters

- i) Type of weed - Seasonal weeds
ii) Height of weed, cm - 15 to 29

Table 4: SUMMARY OF FIELD PERFORMANCE TEST

Sr. No.	Parameter		Range
i)	Type of soil	:	Sandy loam
ii)	Soil moisture, %	:	7.20 to 7.50
iii)	Bulk density of soil, g/cc	:	1.20 to 1.23
iv)	Speed of operation, kmph	:	1.22 to 1.25
v)	Depth of cut, cm	:	5.63 to 6.73
vi)	Width of cut, m	:	1.03 to 1.07
vii)	Area covered, ha/h	:	0.101 to 0.106
viii)	Time required for one ha	:	9.43 to 9.90
ix)	Fuel consumption		
		l/h :	0.90 to 1.07
		l/ha :	8.49 to 10.59
x)	Weeding efficiency, %	:	86.90 to 88.02
xi)	Field efficiency, %	:	78.91 to 80.62

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 40.72 hours of engine operation.					
14.1.1	Cylinder :					
Cylinder bore diameter, mm						
Top Position		Middle position		Bottom Position		Max. permissible wear limit
Thrust	Non-thrust	Thrust	Non-thrust	Thrust	Non-thrust	
70.03	70.02	70.03	70.01	70.02	70.01	
						68.40



14.6 Wear of blades:**14.6.1 Mass basis:**

The wear of the rotary weeder blades was measured after 26.50 hrs. of field operation and the observations are as under:

Sr. No.	Initial mass, g	Mass after 26.50 hrs., g	Loss of mass, g	Percent wear, %	Percent wear per hour
1	306.9	304.5	2.10	0.86	0.03
2	316.2	313.2	2.30	0.73	0.03
3	300.9	298.9	2.00	0.66	0.02
4	304.8	302.9	1.90	0.62	0.02
5	307.5	305.8	1.70	0.55	0.02
6	292.9	291.0	1.90	0.65	0.02
7	301.2	299.6	1.60	0.53	0.02
8	296.5	294.3	2.20	0.74	0.03

15. CRITICAL TECHNICAL SPECIFICATIONS

(Vide Ministry's communication F. No. 9-1/2019-M&T (I&P) Dated 20.08.2019)

Sr. No.	Parameters	Specifications	Observed	Remarks
1.	Type	Self-propelled, walk behind	Self propelled, walk behind type	Conforms
2.	Working width, mm	300 - 1500	1090	Conforms
3.	Type of engine	Compression/Spark ignition	Spark ignition	Conforms
4.	Starting method	Manual/recoil/self-starting	Recoil	Conforms
5.	Type of clutch	Dry/Wet	Wet	Conforms
6.	Type of primary gear box	Sliding/Constant mesh or combination of both	Sliding mesh	Conforms
7.	Type of secondary gear box	Gear type, chain & sprocket type	Gear type	Conforms
8.	Material for rotor shaft	SAE 1045 (CRS) / EN8 / EN9	EN9	Conforms
9.	No. of flanges	4 - 10	8	Conforms
10.	Types of flanges	Square/circular/rectangular	Square	Conforms
11.	Distance between consecutive flanges, mm	80 to 150	125	Conforms
12.	No. of blades in each flange	3 - 6	04	Conforms
13.	No. of rotor blade	12 (Min.)	32	Conforms
14.	Thickness of rotor blade, mm	5 (Min.)	5	Conforms

15.	Material of blade	Boron (28MnCrB5) / High carbon steel of Grade EN42J	Boron	Conforms
16.	Hardness of blade, HRC	38 (Min.)	43.38 (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	Optional	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	Optional	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.	Provided	Conforms
28.	Literature	Operator manual, service manual and Parts catalogue should be provided.	Provided	Conforms



16. COMMENTS & RECOMMENDATIONS**16.1 Engine rating test**

- i) The average rated power in rating test of engine was observed as 3.76 kW against manufacturer declared power of 4.0 kW at 3600 rpm.
- ii) Specific fuel consumption (SFC) at average rated power in rating test was observed as 318 g/kWh. The manufacturer has not declared specific fuel consumption. It must be declared.

16.2 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 deserved to be given top priority for corrective action.

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

16.4 The make & model name of governor is not specified. It **MUST** be specified.

16.5 The spark arresting device on exhaust system of engine is not provided. It **MUST** be looked into.

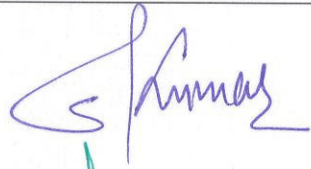
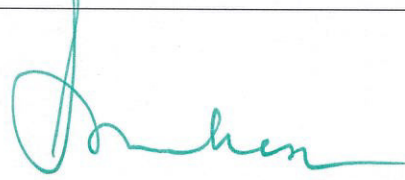
17. TECHNICAL LITERATURE

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	 28.11.2023

The test report is compiled by Sh. Deny Hasnu, Senior Technician

18. APPLICANT'S COMMENTS

No specific comments received from the applicant

