

व्यावसायिक परीक्षण रिपोर्ट

संख्या/ No.: Power weed-181/3050/2023

FIRST BATCH TEST REPORT (INCOMPLETE)

माह/ Month: July, 2023



MAHAN, MBP-160,  
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](mailto:fmti-nr@nic.in)

Tele./FAX: 01662-276984

**11. RUNING - IN**

The Power weeder was run-in for 0.17 and 1.00 hours at 1600 no load engine rpm and at 3600 no load rated engine rpm respectively before field performance test as recommended by the applicant. All the fasteners were checked tightened thereafter.

**12. FIELD TEST**

The field tests under dry land condition were conducted for 26.60 h. The field tests were conducted at the rated 3600 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-4.

**Crop parameters**

- i) Type of weed - Seasonal weeds  
ii) Height of weed, cm - 8 to 11

**Table 4: SUMMARY OF FIELD PERFORMANCE TEST**

Sr. no.	Parameter		Range
i)	Type of soil	:	Sandy loam
ii)	Soil moisture, %	:	6.20 to 8.50
iii)	Bulk density of soil, g/cc	:	1.25 to 1.28
iv)	Speed of operation, kmph	:	1.45 to 1.79
v)	Depth of cut, cm	:	4.60 to 6.37
vi)	Width of cut, m	:	0.79 to 0.85
vii)	Area covered, ha/h	:	0.105 to 0.118
viii)	Time required for one ha	:	8.47 to 9.52
ix)	Fuel consumption		
		l/h :	0.79 to 1.10
		l/ha :	6.69 to 10.47
x)	Weeding efficiency, %	:	86.62 to 87.71
xi)	Field efficiency, %	:	83.69 to 87.40

**13. ADJUSTMENT, DEFECTS, BREAKDOWNS & REPAIR**

*This machine named MAHAN, MBP-160, power weeder was submitted at this institute "to test only with the tilling device attached therewith in the dry land operation, that too, in the broad day light with sufficient visibility". However, during the one hour warm up air cleaner oil pull over test, the engine exhaust emitted white and blue smoke. The company representative was given opportunity to rectify the issue but in vain. Thus, the applicant decided to withdraw the test sample from testing vide letter No. MNAGRO/20230418-1 dated 18.04.2023. Hence this INCOMPLETE TEST REPORT.*

**14. COMPONENTS/ASSEMBLY INSPECTION AND ASSESSMENT OF WEAR****14.1 Wear of blades:****14.1.1 Mass basis:**

The wear of the rotary weeder blades was measured after 27.77 hours of field operation and the observations are as under





15.19	Color of machine				
	Engine	:	Silver	Silver	No change
	Main drive cover	:	Yellow	Yellow	No change
	Transmission system	:	Black	Black	No change
	Rotary drive cover	:	Grey	Grey	No change
	Fuel tank	:	White	White	No change
	Handle bar	:	Grey	Grey	No change

## 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 deserved to be given top priority for corrective action.

### 16.2 The engine was observed with white and blue smoke during the air cleaner oil pull over test. This needs to be looked into for corrective action.

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

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

16.5 Thickness of rotor blade does not meet the requirement as per **Critical Technical Specification**. This needs to be looked into for corrective action.

16.6 The material of rotor shaft does not conform to the requirement of **Critical Technical Specification**. This needs to be looked into for corrective action.

16.7 The labeling plate provided on the power weeder does not meet the requirement as per the **Critical Technical Specification**. This needs to be looked into for corrective action.

16.8 This machine named MAHAN, MBP-160, power weeder was submitted at this institute "to test only with the tilling device attached therewith in the dry land operation, that too, in the broad day light with sufficient visibility". However, during the one hour warm up air cleaner oil pull over test, the engine exhaust emitted white and blue smoke. The company representative was given opportunity to rectify the issue but in vain. Thus, the applicant decided to withdraw the test sample from testing vide letter No. MNAGRO/20230418-1 dated 18.04.2023. Hence this **INCOMPLETE TEST REPORT**.




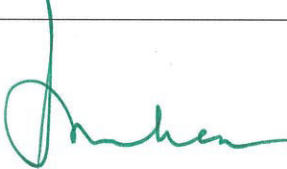
**17. TECHNICAL LITERATURE**

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	 05.07.2023

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

**18. APPLICANT'S COMMENT**

Para No.	Our reference	Applicant's comment
18.1	16.1, 16.3, 16.4, 16.5, 16.6 & 16.7	Noted the same and we will take corrective actions and very soon a better available solution will be implemented in future production.

