



THIS TEST REPORT IS VALID UPTO 29.02.2028



WM 1100C ELITE MAIJO
POWER WEEDER



सत्यमेव जयते

भारत सरकार
GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

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NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

विश्वनाथ चारिआलि, जिला- शोणितपुर (असम)

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[AN ISO 9001:2015 CERTIFIED INSTITUTION]

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Machine 85/456	WM 1100C ELITE MAIJO POWER WEEDER	COMMERCIAL (INITIAL)
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1. SCOPE OF TEST

The scope of test was limited to check and assess the following:

- 1.1 Specification and other data furnished by the applicant.
- 1.2 Engine performance
- 1.3 Vibration Measurement
- 1.4 Noise measurement
- 1.5 Air cleaner oil pull over
- 1.6 Hardness & chemical composition
- 1.7 Field performance
- 1.8 Wear analysis of rotor blades
- 1.9 Ease of operation and adjustments
- 1.10 Defects, breakdowns and repairs

2. METHOD OF SELECTION

As per Govt. of India, OM No. 13-1/2021-M&T (I&P), dated 03.02.2022, the selection of sample for test was exempted. Hence, the machine was directly submitted by the applicant at this Institute for test.

3. TEST CODE AND PROCEDURE

There is no Indian standard/test code available for testing of self-propelled power weeder as such. The guidelines, however, have been taken from the following:

IS 9935 : 2002 (Reaffirmed 2012)	: Power Tiller - Test code
IS 9980 : 1999 (Reaffirmed 2004)	: Guidelines for field performance and haulage tests of power tillers
IS: 7347-1974 (Reaffirmed 2006)	: Specification for Performance of Small Size Spark Ignition Engines.
IS 1976 : 1976 (Reaffirmed 2009)	: Specification for Rotary paddy weeder, manually operated
IS 6690 : 1981 (Reaffirmed 2012)	: Specification for Blades for Rotavator for Power Tillers

4. SPECIFICATIONS

4.1 General:	
Make	: Maijo
Model	: WM 1100C ELITE
Name and address of manufacturer	: Weima Agricultural Machinery Co. Ltd. Area B, Luohung Industry Zone, Jinnjgin District. Chongqing, CHINA

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Name and address of applicant : George Maijo Industries Pvt. Ltd. 2B,
Apex Plaza, 5, Nungambakkam High
Road, Chennai, Tamil Nadu, 600034

Name of machine : Power weeder

Type of machine : Self propelled, Walk behind

Working size of machine (mm) : 1160

Year of manufacture : 2021

Serial no. of machine : **Not Specified**

4.2 Details of prime mover:

Make : **Not specified**

Model : 170F224P12

Type : 4 stroke, Single cylinder, Air cooled, Petrol
Engine

Year of manufacture : Not Specified

Serial Number : WM2204179

Country of origin : **CHINA**

Recommended high idle speed (rpm) : 3840±100

Recommended low idle speed (rpm) : 1400

Recommended rated speed (rpm) : 3600

Rated power observed (kW) : **3.56**

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11.2 Chemical composition of rotor blades :

Constituents	As per IS 6690:1981 (Reaffirmed 2012)		Composition as observed (% by weight)	Remarks
	Carbon Steel (%)	Silicon Manganese Steel (%)		
Carbon (C)	0.70 -0.85	0.50-0.60	0.517	Conforms
Silicon (Si)	0.10 -0.40	1.50-2.00	0.676	Does not conform
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.837	Conforms
Sulphur (S)	0.05(max)	0.05(max)	0.004	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.014	Conforms

12. FIELD PERFORMANCE TEST

The field tests were conducted for 26.83 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated rpm of 3600. The detailed test results are represented in the Annexure and summarized in the ensuing table:

Sl.No.	Parameters	Observations
1	Type of soil	: Light
2	Soil moisture (%)	: 8.1 to 11.9
3	Bulk density of soil (g/cc)	: 1.55 to 1.63
4	Forward Speed of operation (kmph)	: 1.02 to 1.34
5	Depth of cut (cm)	: 4.80 to 6.93
6	Width of cut (m)	: 1.25 to 1.29
7	Area covered (ha/h)	: 0.114 to 0.131
8	Time required for one ha (h)	: 7.63 to 8.77
9	Field efficiency (%)	: 77.05 to 87.37
10	Weeding efficiency (%)	: 84.15 to 90.71
11	Fuel consumption	
		l/h : 1.00 to 1.17
		l/ha : 7.63 to 10.20

12.1 Rate of work:

- Rate of work was recorded as 0.114 to 0.131 ha/h and the forward speed of operation varied from 1.02 to 1.34 kmph.
- Time required to cover one hectare was recorded as 7.63 to 8.77 h.

12.2 Quality of work:

- Depth of cut was recorded as 4.80 to 6.93 cm.
- Av. working width was observed as 1.25 to 1.29 m.
- Field efficiency was found as 77.05 to 87.37 %.
- Weeding efficiency was found as 84.15 to 90.71 %.



15.1.6 **Main bearing:** Two Nos. of ball bearing 6205 were used

Bearing No.	Diametrical clearance, (mm)	Crankshaft end float, (mm)	Max. permissible clearance limit,(mm)	
			Diametrical clearance	Crankshaft end float
1.	Ball bearing	0.20	NA	0.30
2.	Ball bearing			

15.1.7 **Valve guide clearance**

Valve guide diameter (mm)		Valve stem diameter (mm)		Valve guide clearance (mm)		Max. Permissible wear limit (mm)	
Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust
5.49	5.49	5.46	5.44	0.03	0.05	Not specified	Not specified

Valve, guide and timing gear:-

Any marked sign of overheating of valves	: None
Pitting of seat/faces of valves	: None
Any visual damage of teeth of timing gears	: None
Condition of ignition coil & magneto	: Normal



15.2 **Clutch:** No noticeable defects observed.

15.3 **Transmission gears:** No noticeable defects observed.

15.4 **Rotary drive unit:**

The rotary drive unit was dismantled and all the components were found in normal condition.

16. COMMENTS & RECOMMENDATIONS

16.1 The average rated power in rating test of engine was observed as 3.56 kW against declared value of 5.0 kW by the manufacturer. This should be looked into for corrective action.

16.2 It was observed that during engine performance test, at full Load, engine rpm was not stable at rated speed and it was fluctuated from 3589 to 3619 rpm. This shall be looked into for corrective action.

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- 16.3 Noise at operator's ear level was observed on higher side against warning limit of 85 dB (A) as specified by International Labour Organization (ILO) for continuous exposure of 8 hours per day. **This calls for reduction in noise level to improve the operator's comfort & safety.**
- 16.4 The amplitude of mechanical vibration marked as (*) was on drastically higher side and is directly concerned with operator's health, safety and comfort. Besides, it is also adversely affect the useful life of machine components. In view of above, this deserves to be given top priority for corrective action.
- 16.5 Power has been mentioned as 7.0 hp on the labeling plate of the machine. However, during engine rating test the power was observed as 4.84 hp only. **This shall be looked into for corrective action.**
- 16.6 Working depth has been mentioned as 150-300 mm on labeling plate of the machine. However, during field test it was observed as 48 to 69.3 mm only. **This will misguide the farmers & other end users and shall be looked into for corrective action.**
- 16.7 The hardness and chemical composition of rotary blades does not conform to the requirement of IS 6690:1981 (Reaffirmed 2012). This may be looked into for corrective action.
- 16.8 Machine maneuverability while taking turns at head land during field operation was not comfortable. It shall be looked into for ease of operation for the operator.
- 16.9 During initial inspection of the machine, oil leakage was observed from primary gear box front cover. On request of the applicant, primary gear box front cover was got welded and rectified. This shall be looked into for corrective action in future production.
- 16.10 There was no serial number mentioned on the machine. Advised to take necessary corrective action in this regarding.
- 16.11 The engine was not marked with Manufacturer name or trade-mark, Rated power, Rated speed and type of fuel used which does not fulfill the requirement of IS 7347-1974 (Amended 2011). This may be looked into.
- 16.12 Engine model as mentioned on the labeling plate of the machine was not matching with the observed model number on the engine. This shall be looked into for corrective action.
- 16.13 Labeling plate should be provided on the machine as per Indian Standard with all relevant information.

16.14 Adequacy of Literature

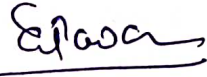
The following literature in English language was provided for reference during testing:


- Operator's/ Service manual
- Parts catalogue

It is recommended to bring out the manual in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY


(M.R. PATIL)
AGRICULTURAL ENGINEER


(S.G. PAWAR)
AGRICULTURAL ENGINEER


(Dr. P.P. RAO)
DIRECTOR

Draft test report compiled by - **Shri Khagendra Bora**
Sr. Technical Assistant

17. APPLICANTS COMMENTS

Para No	Our Reference	Applicants Comments
17.1	16.1	We will inform with our supplier and do the corrective measurements.
17.2	16.2	We will inform with our supplier and do the corrective measurements.