व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (Initial)

संख्या/No.: Machine 125/496
माह / Month: June 2024

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INCOMPLETE REPORT

MHASWADKAR, BAM06IC, POWER WEEDER

सत्यमेव जयते

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
उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान
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4. SPECIFICATIONS

4.1 General:

Make	:	MHASWADKAR
Model	:	BAM06IC
Name and address of the manufacturer	:	M/s Yongkang Vauban Trade Co. Ltd., 4th floor, 9-3 Jiuding Road, Economic Development Zone, Yongkang City, Zhejiang Province, **CHINA**
Name and address of the applicant	:	Mhaswadkar Autolines Pvt. Ltd., 283/3/1B, Karanje, New Radhika Road, Satara, Maharashtra- 415001
Name of machine	:	Power weeder
Type of machine	:	Self propelled, Walk behind
Country of origin	:	**CHINA**
Working size of machine (mm)	:	500
Year of manufacture	:	2022
Serial no. of machine	:	68IC230139

10.2 Chemical composition of rotor blades :

Constituents	As per IS 6690:1981 (Reaffirmed 2012)		Composition as observed (% by weight)	Remarks
	Carbon Steel (%)	Silico Manganese Steel (%)		
Carbon (C)	0.70 -0.85	0.50-0.60	0.766	Conforms
Silicon (Si)	0.10 -0.40	1.50-2.00	0.232	Conforms
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.336	**Does not conform**
Sulphur (S)	0.05(max)	0.05(max)	0.007	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.015	Conforms

11. FIELD PERFORMANCE TEST

The field tests were conducted for 26.00 hours of field operation for testing the said power weeder. The field tests were conducted at rated speed of 8500 rpm. 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 (%)	:	10.5 to 13.9
3	Bulk density of soil (g/cc)	:	1.59 to 1.65
4	Forward speed of operation (kmph)	:	1.73 to 1.85
5	Depth of cut (cm)	:	6.8 to 7.0
6	Width of cut (m)	:	0.501 to 0.502
7	Area covered (ha/h)	:	0.072 to 0.077
8	Time required for one ha (h)	:	12.99 to 13.89
9	Field efficiency (%)	:	81.52 to 83.91
10	Weeding efficiency (%)	:	82.62 to 84.23
11	Fuel consumption		
	l/h	:	0.86 to 1.04
	l/ha	:	11.75 to 13.51

11.1 Rate of work

- Rate of work was recorded as 0.072 to 0.077 ha/h and the forward speed of operation varied from 1.73 to 1.85 kmph.
- Time required to cover one hectare was recorded as 12.99 to 13.89 h.

11.2 Quality of work:

- Depth of cut was recorded as 6.8 to 7.0 cm.
- Working width was observed as 0.501 to 0.502 m.
- Field efficiency was found as 81.52 to 83.91%.
- Weeding efficiency was found as 82.62 to 84.23.

11.3 Adequacy of power of prime mover:

The power of prime mover was found adequate during field performance tests.

11.4 Wear Analysis of rotor blades:

Sl. No	Initial mass (g)	Final mass (g)	Loss of mass (g)	Percentage wear of rotor blades	
				After 26.00 h	Per hour
L-1	194.5	190.5	4.0	2.06	0.08
L-2	190.0	186.0	4.0	2.06	0.08
R-1	195.0	192.0	3.0	1.54	0.06
R-2	188.0	184.0	4.0	2.06	0.08

The hourly rate of wear of blade on mass basis after field operations was recorded as 0.06 to 0.08 %.

12. EASE OF OPERATION AND ADJUSTMENTS

No noticeable difficulties were observed in operation and adjustment during the field test.

13. DEFECTS, BREAKDOWNS AND REPAIRS

During engine performance test it was observed that high idle speed of 10000 rpm as recommended by the applicant was not obtained. Maximum speed of 9000 rpm was obtained, however engine was getting automatically stopped after achieving this speed. This issue was occurred few times and thereafter the engine was unable to start.

After inspecting the engine, it was found that piston, piston rings, piston ring grooves, cylinder liner and gudgeon pin were damaged.

14. COMMENTS & RECOMMENDATIONS

14.1 During engine performance test after some time it was observed that engine was unable to start and after inspecting the engine, it was found that, piston, piston rings, piston ring grooves, cylinder liner and gudgeon pin were damaged. Therefore engine test could not be conducted and incomplete test report has been issued. This should be looked into for improvement in engine quality.

14.2 It was observed that high idle speed of 10000 rpm as recommended by the applicant was not obtained during engine test. This should be looked into for corrective action.

14.3 It was observed that machine performance is satisfactory only if the weeds are less and height is small up to 15 cm.

14.4 Noise at operator's ear level was observed on higher side against danger limits of 90 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 operational comfort and safety.

14.5 The amplitude of mechanical vibration marked as (*) is 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 the component in view of above this deserves to be given top priority for corrective action.

14.6 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.

14.7 The engine was not marked with Manufacturer name or trade-mark, Rated power, Rated speed and type of fuel used which does not fulfil the requirement of IS 7347-1974 (Amended 2011). This may be looked into.

14.8 Name and address of the manufacturer should be mentioned on the machine labeling plate. This should be looked into for corrective action.

14.9 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

(DR. P.P. RAO)
DIRECTOR

Draft test report compiled by - **J. Bhon Singh, STA**