

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



संख्या/No.: Machine 123/494
माह / Month: May 2024

AE copy

THIS TEST REPORT IS VALID UPTO 31.05.2031



MHASWADKAR AUTOLINES PVT. LTD. BAM105GE POWER WEEDER



सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

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DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

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4. SPECIFICATIONS

4.1 General:

Make	: Mhaswadkar Autolines Pvt. Ltd.
Model	: BAM105GE
Name and address of manufacturer	: M/s Chongqing Dinking Power Machinery Co. Ltd., Caojie Development Area, Industrial Park, Hechuan, Chongqing, CHINA
Name and address of applicant	: Mhaswadkar Autolines Pvt Ltd, 283/3/1B, Karanje, New Radhika Road, Satara, Maharastra- 415001, India
Name of the machine	: Power weeder
Type of machine	: Self propelled, Walk behind
Working size of machine (mm)	: 1410
Year of manufacture	: 2023
Serial no. of machine	: 106023112

4.2 Details of prime mover:

Make	: Not Specified
Model	: BAM270F
Type	: 4 stroke, Single cylinder, Air cooled, Spark Ignition engine
Year of manufacture	: 2023
Serial Number	: 2308251272
Country of origin	: CHINA
Recommended high idle speed (rpm)	: 3900 ± 50
Recommended low idle speed (rpm)	: 1700 ± 100
Recommended rated speed (rpm)	: 3600
Rated power observed (kW)	: 4.69
Rated power declared (apa) (kW)	: 6.2



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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	0.610	Does not conform
Silicon (Si)	0.10 -0.40	1.50-2.00	0.407	Does not conform
Manganese (Mn)	0.50 -1.0	0.50-1.00	1.105	Does not conform
Sulphur (S)	0.05(max)	0.05(max)	0.004	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.016	Conforms

12. FIELD PERFORMANCE TEST

The field tests were conducted for total of 26.00 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated speed of 3600 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 (%)	: 11.2 to 14.1
3	Bulk density of soil (g/cc)	: 1.50 to 1.68
4	Forward speed of operation (kmph)	: 1.56 to 1.63
5	Depth of cut (cm)	: 6.64 to 7.16
6	Width of cut (m)	: 1.43 to 1.44
7	Area covered (ha/h)	: 0.188 to 0.198
8	Time required for one ha (h)	: 5.05 to 5.32
9	Field efficiency (%)	: 83.70 to 84.61
10	Weeding efficiency (%)	: 83.49 to 84.72
11	Fuel consumption	: 1.45 to 1.62
		l/h : 1.45 to 1.62
		l/ha : 7.63 to 8.62

12.1 Rate of work

- Rate of work was recorded as 0.188 to 0.198 ha/h and the forward speed of operation varied from 1.56 to 1.63 kmph.
- Time required to cover one hectare was recorded as 5.05 to 5.32 hours.

12.2 Quality of work:

- Depth of cut was recorded as 6.64 to 7.16 cm.
- Working width was observed as 1.43 to 1.44 m.
- Field efficiency was found as 83.70 to 84.61 %.
- Weeding efficiency was recorded as 83.49 to 84.72 %.



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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
6.69	6.71	6.56	6.57	0.13	0.14	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 4.69 kW against declared value of 6.2 kW by the applicant/manufacturer. This should be looked into for corrective action.
- 16.2 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.
- 16.3 It was observed that during engine performance test, at full Load, engine speed was not stable at rated speed. This shall be looked into for corrective action.
- 16.4 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.
- 16.5 Machine maneuverability while taking turns during field operation was not comfortable. It shall be looked into for ease of operation for the operator.
- 16.6 Noise at operator's ear level was observed on higher side against danger limit of 90 dB(A) as specified by the 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.**

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- 16.7 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 machine components. In view of above, this deserves to be given top priority for corrective action.
- 16.8 Working width of the machine, type of engine (Petrol/Diesel) & manufacturer's name and address should be provided on the labeling plate of the machine. This should be looked into for corrective action.
- 16.9 The mentioned value of rated power of 6.0 kW of engine on the labeling plate of the machine was not matching with the observed value of 4.69 kW during engine test. This should be looked into for corrective action.

16.10 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 - Shri J. Bhon Singh, STA



17. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
17.1	16.1 to 16.10	We will take necessary action as per comments and recommendations in the test report for improvement in future production.