



THIS TEST REPORT IS VALID UPTO 28.02.2031



SAI AGRO EQUIPMENT 7000SAI
POWER WEEDER



सत्यमेव जयते

भारत सरकार

GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

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DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

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NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

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[AN ISO 9001:2015 CERTIFIED INSTITUTION]

Machine 114/485	SAI AGRO EQUIPMENT 7000SAI POWER WEEDER	COMMERCIAL (INITIAL)
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4. SPECIFICATIONS

4.1 General:

Make	: SAI AGRO EQUIPMENT
Model	: 7000SAI
Name and address of manufacturer	: Chongqing Haofa Machinery Manufacturing Co., Ltd. , Sanjiao Town, Yongchuan District, Chongqing (Sanjiao Industrial Park, Yongchua High Tech Zone. Chongqing), China
Name and address of applicant	: Prakash Kumar Sethy Swampatna. Kendujhar-758030, Odisha
Name of machine	: Power weeder
Type of machine	: Self propelled, Walk behind
Working size of machine (mm)	: 1070
Year of manufacture	: 2023
Serial no. of machine	: A2212128258

4.2 Details of prime mover:

Make	: RATO
Model	: R210
Type	: 4 stroke, Single cylinder, Air cooled, Spark Ignition
Year of manufacture	: 2023
Serial Number	: A2212128258
Country of origin (apa)	: CHINA
Recommended high idle speed (rpm)	: 3800 ± 100
Recommended low idle speed (rpm)	: 1600 ± 100
Recommended rated speed (rpm)	: 3600
Rated power observed (kW)	: 3.84
Rated power declared (apa) (kW)	: 5.50



Machine 114/485	SAI AGRO EQUIPMENT 7000SAI POWER WEEDER	COMMERCIAL (INITIAL)
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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	0.406	Does not conform
Silicon (Si)	0.10 -0.40	1.50-2.00	0.252	Conforms
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.873	Conforms
Sulphur (S)	0.05(max)	0.05(max)	0.011	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.017	Conforms

12. FIELD PERFORMANCE TEST

The field tests were conducted for 25.5 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 (%)	: 9.43 to 10.13
3	Bulk density of soil (g/cc)	: 1.47 to 1.50
4	Forward Speed of operation (kmph)	: 1.04 to 1.14
5	Depth of cut (cm)	: 5.60 to 5.73
6	Width of cut (m)	: 1.08 to 1.09
7	Area covered (ha/h)	: 0.079 to 0.093
8	Time required for one ha (h)	: 10.75 to 12.66
9	Field efficiency (%)	: 70.54 to 75.61
10	Weeding efficiency (%)	: 69.57 to 77.63
11	Fuel consumption	
		l/h : 1.03 to 1.29
		l/ha : 11.83 to 16.33

12.1 Rate of work

- Rate of work was recorded as 0.079 to 0.093 ha/h and the forward speed of operation varied from 1.04 to 1.14 kmph.
- Time required to cover one hectare was recorded as 10.75 to 12.66 h.

12.2 Quality of work:

- Depth of cut was recorded as 5.60 to 5.73 cm.
- Working width was observed as 1.08 to 1.09 m.
- Field efficiency was found as 70.54 to 75.61 %.
- Weeding efficiency was found as 69.57 to 77.63 %.





Machine 114/485	SAI AGRO EQUIPMENT 7000SAI POWER WEEDER	COMMERCIAL (INITIAL)
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- 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 3.84 kW against declared value of 5.5 kW by the manufacturer. This should be looked into for corrective action.
- 16.2 The specific fuel consumption (SFC) in rating test of engine was observed as 394.6 g/kWh against declared value of 305 g/kWh by the manufacturer which exceeded by more than 5 percent of that declared by the manufacturer and hence does not fulfill the requirement of IS 7347-1974 (Amended 2011). This should be looked into for corrective action.
- 16.3 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.
- 16.4 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.
- 16.5 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.
- 16.6 Machine maneuverability while taking turns during field operation was not comfortable. It shall be looked into for ease of operation for the operator.
- 16.7 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.**
- 16.8 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.
- 16.9 Working width of the machine & type of engine (Petrol/Diesel) should be provided on the labeling plate of the machine. This should be looked into for corrective action.

Machine 114/485	SAI AGRO EQUIPMENT 7000SAI POWER WEEDER	COMMERCIAL (INITIAL)
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16.10 The mentioned value of rated power 7.5 hp of engine on the labeling plate of the machine was not matching with the observed value of 5.12 hp during engine test. This should be looked into for corrective action.

16.11 **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 Khagendra Bora**
Sr. Technical Assistant

17. APPLICANT'S COMMENTS

Para No	Our Reference	Applicant's Comments
17.1	16.1 to 16.11	We will take necessary step with your recommendations in future production.

