

THIS TEST REPORT IS VALID UPTO 31.10.2028



ALAP APW-100PB 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

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

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Machine 103/474	ALAP APW-100PB POWER WEEDER	COMMERCIAL (INITIAL)
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4. SPECIFICATIONS

4.1 General:

Make	: ALAP
Model	: APW-100PB
Name and address of manufacturer	: Chongqing Shineray Agricultural Machinery Co., Ltd. , No.8 Shineray Road, Hangu Town, Gaoxin District, Chongqing, China
Name and address of applicant	: Almighty Agrotech Pvt. Ltd. , G-1934+G1935+G1934/1+G1935/1/1, Lodhika, G.I.D.C., Almighty Gate, Kalawad Road, Metoda-360021, Dist-Rajkot, Gujarat
Name of machine	: Power weeder
Type of machine	: Self propelled, Walk behind
Working size of machine (mm)	: 788
Year of manufacture	: 2022
Serial no. of machine	: 2207402070

4.2 Details of prime mover:

Make	: Not Specified
Model	: APW-170F
Type	: 4 stroke, Single cylinder, Air cooled, Spark Ignition
Year of manufacture	: 2022
Serial Number	: 2207107987
Country of origin	: CHINA
Recommended high idle speed (rpm)	: 3800 ± 100
Recommended low idle speed (rpm)	: 1400 ± 100
Recommended rated speed (rpm)	: 3500
Rated power observed (kW)	: 3.94
Rated power declared (apa) (kW)	: 4.20

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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	0.524	Conforms
Silicon (Si)	0.10 -0.40	1.50-2.00	0.657	Does not conform
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.879	Conforms
Sulphur (S)	0.05(max)	0.05(max)	0.011	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.019	Conforms

12. FIELD PERFORMANCE TEST

The field tests were conducted for 25.17 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated speed of 3500 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 (%)	:	9.10 to 11.07	
3	Bulk density of soil (g/cc)	:	1.59 to 1.66	
4	Forward Speed of operation (kmph)	:	1.01 to 1.16	
5	Depth of cut (cm)	:	5.40 to 5.73	
6	Width of cut (m)	:	0.710 to 0.744	
7	Area covered (ha/h)	:	0.054 to 0.063	
8	Time required for one ha (h)	:	15.87 to 18.52	
9	Field efficiency (%)	:	70.73 to 78.75	
10	Weeding efficiency (%)	:	69.68 to 75.72	
11	Fuel consumption			
		l/h	:	0.858 to 1.09
		l/ha	:	14.47 to 18.79

12.1 Rate of work:

- Rate of work was recorded as 0.054 to 0.063 ha/h and the forward speed of operation varied from 1.01 to 1.16 kmph.
- Time required to cover one hectare was recorded as 15.87 to 18.52 h.

12.2 Quality of work:

- Depth of cut was recorded as 5.40 to 5.73 cm.
- Working width was observed as 0.710 to 0.744 m.
- Field efficiency was found as 70.73 to 78.75 %.
- Weeding efficiency was found as 69.68 to 75.72 %.



- 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 specific fuel consumption (SFC) in rating test of engine was observed as 362.0 g/kWh against declared value of 295 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.
- 16.2 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.
- 16.3 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 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 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.**
- 16.7 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 depth has been mentioned as 100-250 mm on labeling plate of the machine. However, during field test it was observed as 54 to 57.3 mm only. This will misguide the farmers & other end users and shall be looked into for corrective action.
- 16.9 The mentioned model of engine on the labeling plate of the machine was not matching with the observed model name on engine. This should be looked into for corrective action.

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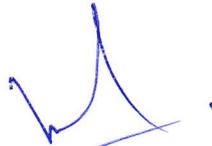
16.10 Adequacy of Literature

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 Khagendra Bora
Sr. Technical Assistant**

17. APPLICANT'S COMMENTS

Para No	Our Reference	Applicant's Comments
17.1	16.1 to 16.10	We inform our production & Assembly Department with immediate effect to take care the corrective action before dispatching the material from the factory to sales unit.

