



**THIS TEST REPORT IS VALID UPTO 31.7.2031**



**ALAP, APW-105P, POWER WEEDER**



**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**

**NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE**

**बिश्वनाथ चारिआलि, जिला - बिश्वनाथ (असम)**

**BISWANATH CHARIALI, DIST- BISWANATH, ASSAM, PIN - 784 176**

**[AN ISO 9001:2015 CERTIFIED INSTITUTION]**

## 4. SPECIFICATIONS

## 4.1 General:

Make	: ALAP
Model	: APW-105P
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+G-1935+G1934/1+G-1935/1/1, 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)	: 1190
Year of manufacture	: 2024
Serial no. of machine	: 2307400433

## 4.2 Details of prime mover:

Make	: Chongqing Shineray Agricultural Machinery Co. Ltd., CHINA
Model	: 177 F/P
Type	: 4 stroke, Single cylinder, Air cooled, Spark Ignition engine
Year of manufacture	: 2024
Serial Number	: 422676140
Country of origin	: CHINA
Recommended high idle speed (rpm)	: 3900 ± 100
Recommended low idle speed (rpm)	: 1500
Recommended rated speed (rpm)	: 3600
Rated power observed (kW)	: 6.34
Rated power declared (apa) (kW)	: 5.90



Sl.No.	Parameters	Observations
1	Type of soil	Light
2	Soil moisture (%)	11.3 to 13.1
3	Bulk density of soil (g/cc)	1.65 to 1.71
4	Forward Speed of operation (kmph)	1.74 to 1.87
5	Depth of cut (cm)	6.6 to 7.3
6	Width of cut (m)	1.19
7	Area covered (ha/h)	0.174 to 0.187
8	Time required for one ha (h)	5.35 to 5.75
9	Field efficiency (%)	83.33 to 84.61
10	Weeding efficiency (%)	83.9 to 84.6
11	Fuel consumption	
		l/h : 1.49 to 1.60
		l/ha : 8.01 to 8.65

**11.1 Rate of work**

- Rate of work was recorded as 0.174 to 0.187 ha/h and the forward speed of operation varied from 1.74 to 1.87 kmph.
- Time required to cover one hectare was recorded as 5.35 to 5.75 h.

**11.2 Quality of work:**

- Depth of cut was recorded as 6.6 to 7.3 cm.
- Working width was observed as 1.19 m.
- Field efficiency was found as 83.33 to 84.61 %.
- Weeding efficiency was recorded as 83.9 to 84.6 %.

**11.3 Adequacy of power of prime mover:**

The power of prime mover was found adequate.

**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 25.75 h	Per hour
L-1	370.66	355.96	14.70	3.96	0.15
L-2	363.63	352.88	10.75	2.96	0.11
L-3	361.82	351.98	9.84	2.72	0.10
L-4	377.47	365.60	11.87	3.14	0.12
R-1	359.19	346.25	12.94	3.60	0.14
R-2	375.84	369.21	6.63	1.76	0.07
R-3	363.31	353.21	10.10	2.78	0.11
R-4	369.41	358.01	11.40	3.09	0.12

The hourly rate of wear of blade on mass basis after field operations was recorded as 0.07 to 0.15 %.



Machine 130/501

ALAP, APW-105P  
POWER WEEDER

COMMERCIAL  
(INITIAL)

## 15. COMMENTS AND RECOMMENDATIONS

- 15.1 During components/ assembly inspection and assessment of wear, it was observed that maximum permissible wear limit of cylinder bore diameter, ring side clearance, ring end gap clearance and diametrical clearance of big end bearing exceeded the declared value by the manufacturer/applicant. This should be looked into for corrective action.
- 15.2 The engine was not marked with manufacturer's 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.
- 15.3 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.
- 15.4 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.
- 15.5 Machine maneuverability while taking turns during field operation was not comfortable. It shall be looked into for ease of operation for the operator.
- 15.6 Noise at operator's ear level was observed on higher side against warning limit of 85 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 and safety.**
- 15.7 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 affecting the useful life of machine components. In view of above, this deserves to be given top priority for corrective action.
- 15.8 Manufacturer's name and address has been wrongly mentioned on the labeling plate of the machine. This should be looked into for corrective action.
- 15.9 **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.

Machine 130/501	ALAP, APW-105P POWER WEEDER	COMMERCIAL (INITIAL)
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**TESTING AUTHORITY**

(M.R. PATIL)  
AGRICULTURAL ENGINEER

(P. KAMALABAI)  
DIRECTOR



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

**16. APPLICANT'S COMMENTS**

Para No.	Our Reference	Applicant's Comments
16.1	15.1 to 15.9	We will take necessary action as per comments and recommendations in the test report for improvement in the future production.