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

स्वच्छ भारत
एक कदम स्वच्छता की ओर

संख्या/No.: Machine 38/398
माह / Month: March 2021

THIS TEST REPORT IS VALID UPTO 31.03.2026

ALAP POWER WEEDER
MODEL: APW-100PA

सत्यमेव जयते

भारत सरकार
GOVT OF INDIA
कृषि एवं किसान कल्याण मंत्रालय
MINISTRY OF AGRICULTURE & FARMERS WELFARE
कृषि, सहकारिता एवं किसान कल्याण विभाग
DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE
उत्तर पूर्व क्षेत्र कृषि यंत्र परीक्षण एवं प्रशिक्षण संस्थान
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1. SCOPE OF TEST

The scope of test was limited to check and assess the following:

1.1 Specification and other data furnished by the applicant.
1.2 Engine performance test
1.3 Amplitude of mechanical vibration
1.4 Noise measurement
1.5 Air cleaner oil pull over test
1.6 Hardness & chemical composition
1.7 Field performance
1.8 Wear analysis of rotor blades
1.9 Ease of operation and adjustments
1.10 Defects, breakdowns and repairs

2. METHOD OF SELECTION

As per Govt. of India, OM No. 13-13/2020-M&T (I&P), dated 10.09.2020, the random selection was exempted by Govt. of India. Hence, The machine was directly submitted for test by the applicant at this Institute.

3. TEST CODE/TEST PROCEDURE

There is no Indian standard/test code available for testing of self propelled power weeder as such. The guidelines, however, have been taken from the following:

IS 9935 : 2002 (Reaffirmed 2012)	:	Power Tiller - Test code
IS 9980 : 1999 (Reaffirmed 2004)	:	Guidelines for field performance and haulage tests of power tillers
IS: 7347-1974 (Reaffirmed 2006)	:	Specification for Performance of Small Size Spark Ignition Engines.
IS 1976 : 1976 (Reaffirmed 2009)	:	Specification for Rotary paddy weeder, manually operated
IS 6690 : 1981 (Reaffirmed 2012)	:	Specification for Blades for Rotavator for Power Tillers

4. SPECIFICATION

4.1 General:

Make	:	ALAP
Model	:	APW-100PA
Name and address of manufacturer	:	M/s. Chongqing Shineray Agricultural Machinery Co., Ltd., No. 8 Shineray Road, Hangu Town, Gaoxin District, Chongqing, **China.**
Name and address of applicant	:	M/s Almighty Agrotech Pvt. Ltd., G-1934/35,

Lodhika G.I.D.C., Almighty Gate, Kalawad Road, Metoda, Rajkot, Gujarat- 360021

Name of machine	:	Power weeder
Type of machine	:	Self propelled, Walk behind
Working size of machine, (mm)	:	890
Year of manufacture	:	2020
Serial no. of machine	:	PA 20 J 1001

4.2 Details of prime mover:

Manufacturer	:	M/s. Chongqing Shineray Agricultural Machinery Co., Ltd., No. 8 Shineray Road, Hangu Town, Gaoxin District, Chongqing, **China.**
Make	:	M/s. Chongqing Shineray Agricultural Machinery Co., Ltd., No. 8 Shineray Road, Hangu Town, Gaoxin District, Chongqing, **China.**
Model	:	APW-170F
Type	:	Single cylinder, four stroke, air cooled, Inclined, Spark ignition engine.
Year of manufacture	:	2020
Engine serial No.	:	2009101838
Recommended high idle speed, rpm	:	3600
Recommended low idle speed, rpm	:	1400
Recommended rated speed, rpm	:	3450 ± 50
Recommended rated speed for field, rpm	:	3450 ± 50
Rated power observed, kW	:	3.50 @ 3464 rpm
Country of origin	:	**China**

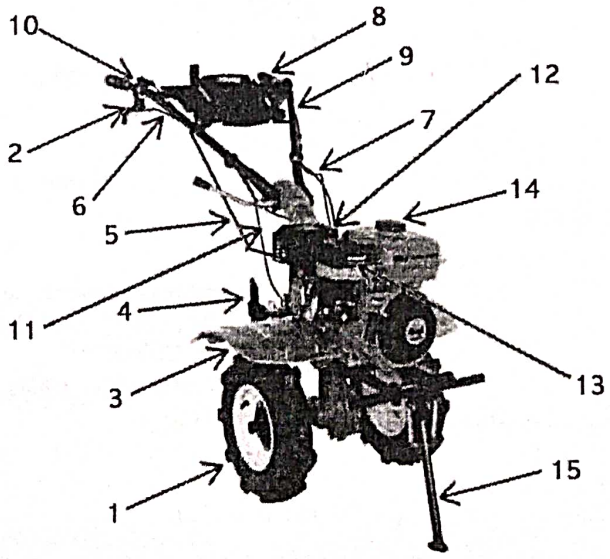

Fig.1 ALAP APW-100PA Power Weeder

KEYS:

1. Tyre
2. Reverse gear engaging/ disengaging lever
9. Handle bar
10. Throttle lever

11.2 Chemical composition of rotor blades :

The material of rotary blade was got analyzed from Geological and Metallurgical Laboratories, Bangalore for chemical composition. The results of chemical analysis test results are as under:

Constituents	As per IS 6690:1981 (Reaffirmed 2012)		Composition as observed (% of weight)	Remarks
	Carbon Steel (%)	Silico Manganese Steel (%)		
Carbon (C)	0.70 -0.85	0.50-0.60	0.51	Conforms
Silicon (Si)	0.10 -0.40	1.50-2.00	0.66	**Does not Conform**
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.87	Conforms
Sulphur (S)	0.05 (max)	0.05 (max)	0.008	Conforms
Phosphorous (P)	0.05 (max)	0.05 (max)	0.012	Conforms

12. FIELD PERFORMANCE TEST

The field tests were conducted for 25.22 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated rpm of 3450. 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 (%)	:	13 to 14.50
3	Bulk density of soil (g/cc)	:	1.54 to 1.69
4	Speed of operation (kmph)	:	0.94 to 1.38
5	Depth of cut (cm)	:	6.27 to 7.50
6	Width of cut (cm)	:	0.89 to 0.90
7	Area covered (ha/h)	:	0.065 to 0.101
8	Time required for one ha (h)	:	9.90 to 15.38
9	Field efficiency (%)	:	78.31 to 86.67
10	Weeding efficiency (%)	:	81.50 to 84.10
11	Fuel consumption		
	- l/h	:	1.06 to 1.17
	- l/ha	:	10.99 to 17.07

12.1 Rate of work

- Av. rate of work was recorded as 0.065 to 0.101 ha/h and the speed of operation vary from 0.94 to 1.38 kmph.
- Av. time required to cover one hectare was recorded as 9.90 to 15.38 hours.

12.2 Quality of work

- Av. depth of cut was recorded as 6.27 to 7.50 cm.
- Av. working width was observed as 0.89 to 0.90 m.
- Av. field efficiency was found as 78.31 to 86.67 %.
- Av. weeding efficiency was found as 81.50 to 84.10%.

	Pitting of seat/faces of valves	:	None
	Any visual damage to the teeth of timing gears	:	None
	Clearance between valve guide and valve stem (mm)		
	- Intake valve	:	NR
	- Exhaust valve	:	NR

15.2 Clutch:

Any marked wear in clutch friction plate	:	No
Condition of clutch release bearing.	:	Normal
Condition of pilot bearing	:	Normal
Condition of pressure plate	:	Normal
Presence of oil and water in clutch housing	:	None

15.3 Transmission gears:

All the Gears of the transmission system were found in normal condition.

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 Specific fuel consumption of engine corresponding to rated power as observed during te exceeds 5 % of that declared by the applicant/manufacturer. This does not fulfill t requirement of IS 7347-1974 and should be looked into for corrective action.

16.2 Rated power of the engine has been observed as 3.50 kW as against declaration of 3.0 k This may be looked into for corrective action.

16.3 The amplitude of mechanical vibration marked as (*) is on drastically higher side a is directly concerned with operator's health, safety and comfort. Besides, it is al adversely affect the useful life of the component in view of above this deserves to given top priority for corrective action.

16.4 Noise at operator's ear level was observed on higher side against warning limit of dB (A) as specified by ILO for continuous exposure of 8 hours per day. This calls f reduction in noise level to improve the operator's comfort & safety.

16.5 The hardness of rotary blades does not conform to the requirement of IS 6690:19 (Reaffirmed 2012).

16.6 The chemical composition of rotary blade with respect to silicon does not conform the requirement of IS 6690:1981 (Reaffirmed 2012).

16.7 Machine maneuverability while taking turns during field operation was not easy. It shall be looked into to improve ease of operation for the operator.

16.8 **Technical literature:**

Operator's manual, service manual and parts catalogue of the machine was supplied with the test sample for reference during the test. It is however, recommended that same may be revised and brought out in Hindi & other regional languages as per IS 8132:1999 (Reaffirmed 2004) for the sake of user & technical personnel.

TESTING AUTHORITY

(M.R. PATIL)
AGRICULTURAL ENGINEER

(J.P. MANDAL)
SENIOR AGRICULTURAL ENGINEER

(K.K. NAGLE)
DIRECTOR

17. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
16	16.1 to 16.8	With immediate Effects, we will inform to our Production Department to take care the Corrective Actions before dispatching material from the factory to sales unit.