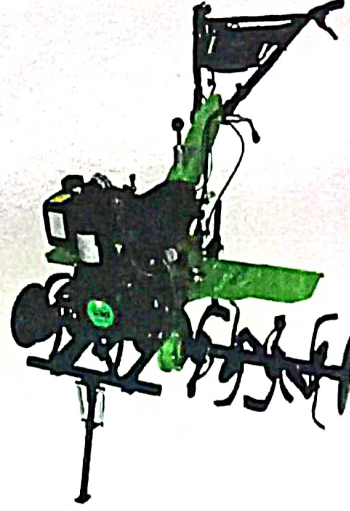


THIS TEST REPORT IS VALID UPTO 31.03.2026



ALAP POWER WEEDER  
MODEL: APW-105DEA



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

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

बिश्वनाथ चरियाली: बिश्वनाथ: असम, पिन-784 176

BISWANATH CHARIALI: BISWANATH: ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

Machine 39/399	 <b>ALAP POWER WEEDER</b> <b>Model: APW-105DEA</b>	COMMERCIAL (ICT)
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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<br>(Reaffirmed 2012) | : Power Tiller - Test code   |
| IS 12036:1995<br>(Reaffirmed 2004)  | : Agricultural tractors-test procedures-Power tests for power take-off |
| IS 9980 : 1999<br>(Reaffirmed 2004) | : Guidelines for field performance and haulage tests of power tillers  |
| IS 1976 : 1976<br>(Reaffirmed 2009) | : Specification for Rotary paddy weeder, manually operated             |
| IS 6690 : 1981<br>(Reaffirmed 2012) | : Specification for Blades for Rotavator for Power Tillers             |

### 4. SPECIFICATIONS

#### 4.1 General:

- |                                  |   |
|----------------------------------|---|
| Make                             | : ALAP  |
| Model                            | : APW-105DEA  |
| Name and address of manufacturer | : M/s. Chongqing Shineray Agricultural Machinery Co., Ltd., No. 8 Shineray Road, Hangu Town, Gaoxin District, Chongqing, <b>China</b> . |
| 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            |

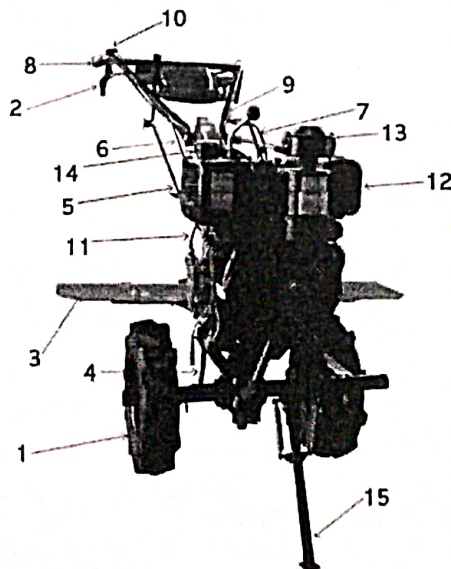
<b>Machine 39/399</b>	<b>ALAP POWER WEEDER Model: APW-105DEA</b>	<b>COMMERCIAL (ICT)</b>
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Name of machine : Power weeder  
 Type of machine : Self propelled, Walk behind  
 Working size of machine, (mm) : 1180  
 Year of manufacture : 2020  
 Serial no. of machine : DEA 20J 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. : 2009200591  
 Recommended high idle speed, rpm : 3600 (apa)  
 Recommended low idle speed, rpm : 1800 (apa)  
 Recommended rated speed, rpm : 3450 ± 50 (apa)  
 Recommended rated speed for field operation, rpm (apa) : 3450 ± 50  
 Max./Rated power observed, kW : 3.95 @ 3429 rpm  
 Country of origin : **China**



**Fig.1 ALAP Power Weeder, APW-105DEA**

- |   |                    |
|---|--------------------|
| 1. Tyre                                     | 9. Handle bar      |
| 2. Reverse gear engaging/ disengaging lever | 10. Throttle lever |
| 3. Rotary cover                             | 11. Throttle cable |
| 4. Depth adjustment bar                     | 12. Silencer       |
| 5. Gear Shift lever                         | 13. Air cleaner    |

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### 11.2 Chemical composition of rotor blades :

The material of rotary blade was got analyzed from Geological and Metallurgical Laboratory 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	<b>Does not Conform</b>
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 25.37 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)	: 1.50 to 1.57
4	Speed of operation (kmph)	: 0.93 to 1.23
5	Depth of cut (cm)	: 6.92 to 7.24
6	Width of cut (m)	: 1.18
7	Area covered (ha/h)	: 0.09 to 0.127
8	Time required for one ha (h)	: 7.87 to 11.11
9	Field efficiency (%)	: 81.07 to 89.72
10	Weeding efficiency (%)	: 79.90 to 82.99
11	Fuel consumption	- l/h : 0.719 to 0.773
		- l/ha : 5.99 to 8.47

#### 12.1 Rate of work

- Av. rate of work was recorded as 0.09 to 0.127 ha/h and the speed of operation vary from 0.93 to 1.23 kmph.
- Av. time required to cover one hectare was recorded as 7.87 to 11.11 hours.

#### 12.2 Quality of work

- Av. depth of cut was recorded as 6.92 to 7.24 cm.
- Av. working width was observed as 1.18 m.
- Av. field efficiency was found as 81.07 to 89.72%.
- Av. weeding efficiency was found as 79.90 to 82.99 %.

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<b>Valve, guides and timing</b>	<b>Observation</b>
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**gears:**

Any marked sign of overheating of valves	:	None
Pitting of seat/faces of valves	:	None

Any visual damage to the teeth of timing gears	:	None
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Clearance between valve guide and valve stem (mm)	:	
- Intake valve	:	0.07
- Exhaust valve	:	0.04



**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

**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 test was 307.4 g/kWh against the declared value of 280g/kWh. This should be looked into for corrective action.
- 16.2 Power at rated engine speed has been observed as 3.95 kW as against declaration of 3.5 kW. This may be looked into for corrective action.
- 16.3 Actual maximum torque could not be searched as the applicant had declared 11 Nm as maximum torque. Hence, further loading was not done and loading was restricted to 11 Nm as maximum torque. Therefore back-up torque also could not be identified.
- 16.4 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 the machine components. In view of the above, it should be looked into for corrective action.
- 16.5 Noise at operator's ear level was observed as 96.8 dB (A) which is on higher side against danger limit of 90 dB (A) as specified by 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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- 16.6 Maximum percentage of oil pull over (mass basis) was observed as 23.20 % against the specified limit of 0.25 % as per IS 13539:2008. It is on higher side. It should be looked into for corrective action.
- 16.7 The hardness of rotary blades does not conform to the requirement of IS 6690:1981 (Reaffirmed 2012).
- 16.8 The chemical composition of rotary blade with respect to silicon does not conform to the requirement of IS 6690:1981 (Reaffirmed 2012).
- 16.9 Machine maneuverability while taking turns during field operation was not easy. It shall be looked into to improve ease of operation for the operator.
- 16.10 **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 16.10	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.