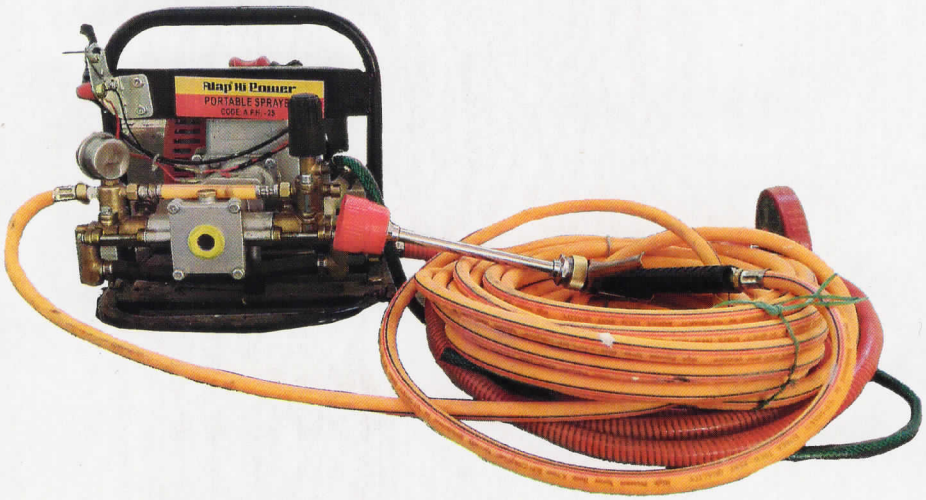
O/C

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: PS-393/2311/2019**
माह/**Month : April, 2019**

THIS TEST REPORT VALID UP TO : 30th APRIL, 2026



ALAP, APH-2S
ENGINE OPERATED PORTABLE POWER SPRAYER

सत्यमेव जयते

भारत सरकार
Government of India
कृषि एवं किसान कल्याण मंत्रालय
Ministry of Agriculture and Farmers Welfare
कृषि, सहकारिता एवं किसान कल्याण विभाग
Department of Agriculture, Cooperation and Farmers Welfare
उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
Northern Region Farm Machinery Training and Testing Institute
ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001
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[ISO 9001:2015 CERTIFIED]

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3. TEST FOR DISCHARGE RATE OF PUMP
[vide Clause 8.3 of IS- 11313: 2007]

1. Date of test : 13.03.2019
2. Atmospheric conditions :
   a) Temperature : 26 °C
   b) Relative humidity : 39 %
   c) Pressure : 98.9 kPa
3. Data recorded

Speed of engine (rpm)	Working pressure (kg/cm^2)	Test No.	Delivery from the discharge line (ml/min)	Overflow (ml/min)	Average delivery from the discharge line (ml/min)	Discharge rate of pump (ml/min)	Hydraulic Power (kW)
6670	10	1	7490	Nil	7387.5	7387.5	0.12
		2	7330				
		3	7480				
		4	7250				
6493	11.7	1	7180	Nil	7130	7130	0.14
		2	7100				
		3	7120				
		4	7120				
6388	13.3	1	6960	Nil	6950	6950	0.15
		2	6940				
		3	6950				
		4	6950				
6308	15	1	6900	Nil	6897.5	6897.5	0.17
		2	6910				
		3	6870				
		4	6910				

Minimum discharge rate = 6897.5 ml/min at 15 kg/cm^2
Maximum discharge rate = 7387.5 ml/min at 10 kg/cm^2
Discharge at rated pressure = 7387.5 ml/min at 10 kg/cm^2

4. TEST FOR VOLUMETRIC EFFICIENCY OF PUMP
[vide clause 8.4 of IS: 11313-2007]

Rated pressure, kg/cm^2	:	10
Engine speed corresponding to rated pressure, (rpm)	:	6503
Theoretical cubic capacity of pump	:	7625.13
Actual volume at rated pressure, ml	:	7127.50
Volumetric efficiency, %	:	93

Remarks: - The high idle engine speed had to be set @ 7300 rpm against declared high idle 7500 to obtain rated pressure at rated rpm of pump.

5. POWER REQUIREMENT

During the pump operation from minimum to maximum pressure range the max. hydraulic power was observed as 0.17 kW against the declared net power output of engine as 0.75 kW.

6. ENGINE PERFORMANCE TEST

In pursuance of Ministry's order No. 7-23/2011-M&T (I&P) dated 20.04.2011 the engine performance test has not been conducted and the specifications/performance as specified by the applicant have been endorsed.

S.No.	Parameter		Declaration
i	Engine Type	:	Single cylinder two stroke air cooled spark ignition engine.
ii	Bore,(mm)	:	33
iii	Stroke (mm)	:	30
iv	Displacement,(cc)`	:	26
v	Net power out put	:	0.75 kW @ 6500 rpm
vi	Max Torque	:	1.1 Nm@6000

7. PRESSURE ADJUSTMENT TEST

1. Date of test : 13.03.2019
2. Atmospheric conditions :
   a. Temperature : 26 °C
   b. Relative humidity : 39 %
   c. Pressure : 98.9 kPa
3. Data recorded

S. No.	Working pressure(kg/cm^2)	Fluctuation range (kg/cm^2)	Pressure drop (kg/cm^2)	Ratio
1.	10	NIL	NIL	--
2.	11.7	NIL	NIL	--
3.	13.3	NIL	NIL	--
4.	15	NIL	NIL	--

4. Resistance of pressure: Yes

8. TEST FOR HYDRAULIC SPRAY GUN

[Vide Clause 7.3(b) of IS- 11313: 2007 & Annex E of IS- 3652; 1995]

Date of test : 13.03.2019

Type of gun : Trigger type

F-6.3	The screw thread shall be well formed and the crests of the threads shall be free from burrs or any other defects which may prevent free engagement.	Satisfactory	Conforms
F-11 Marking	Each nozzle shall be marked with following particulars:-		
	a) Manufacturer's name or recognized trade mark	**Not marked**	**Does not conform**
	b) Nozzle designation.	**Not marked**	**Does not conform**
	c) Batch or code number	**Not marked**	**Does not conform**
Cl.9			
Cl. 9.1	All the components of the sprayer shall be free from burrs, pits and other visual defects which may be detrimental for their use.	Nothing that may be detrimental for use was noticed	Conforms
Cl. 9.2	The exposed metallic parts shall have a protective coating to prevent surface deterioration.	Exposed metallic parts have the protective coating.	Conforms
Cl.10.	**MARKING AND PACKING (Cl.10 IS:11313-2007)**		
Cl.10.1 Marking	Each sprayer shall be marked with the following particulars :-		
a)	Manufacturer's name & his registered trade mark, Sl. No. and batch or code No.	Just a sticker on frame is provided with following information:- Alap Hi Power Portable Sprayer Code : A.P.H-2S	**Does not conform- in spirit and also in toto**

15. CONFORMITY TO INDIAN STANDARDS

i) IS:11313-2007 (Reaffirmed 2012)-Hydraulic power sprayer-specification : **Does not conform in toto**

ii) Spray nozzle and spray gun as per IS:3652-1995 (Reaffirmed 2011) : **Does not conform in toto**

iii) Hose and hose connection as per IS:10134-1994 : Conforms

iv) IS: 2643-2005-Pipe threads where pressure-tight joint are not made on the threads-dimensions, tolerance and designation : Conforms

v) IS: 7347-1974 (Reaffirmed 2006)-Specification for performance of small size spark ignition engines for agricultural water pumps, sprayers, tillers, reapers and other similar applications : **Could not be ascertained**

16. COMMENTS AND RECOMMENDATIONS

16.1 The manufacturing year and serial number of sprayer is not marked. It **MUST** be looked into.

16.2 The manufacturing year and serial number of pump is not specified. It **MUST** be looked into.

16.3 The thickness of wall of barrel does not meet the requirement of relevant code/Standard. It **MUST** be looked into.

16.4 The length of spray gun does not meet the meet the requirement of relevant code/Standard. It **MUST** be looked into.

16.5 The manufacture's name or recognized trade mark and batch or code number on nozzle is not provided. It **MUST** be provided.

16.6 The manufacture's name or recognized trade mark and batch or code number on spray gun is not provided. It **MUST** be provided.

16.7 The spray angle for fine cone spray pattern of gun at a pressure 600 kPa does not conform to the requirement of IS : 3562-1995. It **MUST** be looked into for further improvement.

16.8 The spray angle for fine cone spray pattern of nozzle at a pressure 300 kPa does not conform to the requirement of IS : 3562-1995. It **MUST** be looked into for further improvement.

16.9 The discharge rate for fine cone spray pattern and jet spray pattern of nozzle at a pressure of 300 kPa does not conform to the requirement of IS:3652-1995. It **MUST** be looked into.

16.10 The spray gun is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, **MUST** be provided.

16.11 The spray nozzle is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, **MUST** be provided.

16.12 The distance between the edge outside of trigger and pivot of trigger does not meet the requirement of relevant code/Standard. It **MUST** be looked into.

16.13 Though a pressure regulator provided but that was not in the working condition therefore its conformity IS: 11313-2007 could not be ascertained. It **MUST** be looked into for corrective action.

16.14 The pressure gauge with full scale reading of 100 bar is provided, thus it does not conform to requirement of IS: 11313-2007. It **MUST** be looked into.

16.15 The strainer in nozzle is not provided. It may be considered for providing.

16.16 The pump discharge at rated pressure was observed as 7387.5 ml/min. against the requirement of 8000 ml/min. It should be looked into.

16.17 A suitable labeling plate (not sticker) needs to be provided with ,inter alia ,following information:-

i. Manufacturer's name
ii. Make
iii. Model
iv. Month & year of manufacture
v. Rated speed
vi. Rated pressure
vii. Discharge rate
viii. Power rating of engine
ix. SFC of engine

16.18 Safety provision/safety wear

i) The safety instructions before, during and after spraying operation **MUST** be provided on sprayer.

17. TECHNICAL LITERATURE

The following literature are provided with the sprayer

i) Operator's service manual of sprayer with parts catalogue.
ii) Operator's manual of engine with parts catalogue.

The following literature **MUST** be provided with the sprayer.

iii) Operator's manual containing all the information including safety instructions before, during and spraying operation.
iv) Service manual of engine.

TESTING AUTHORITY

R. K. NEMA SENIOR AGRICULTURAL ENGINEER	
P. K. PANDEY **DIRECTOR**	

18. APPLICANT'S COMMENTS

No comments received from applicant