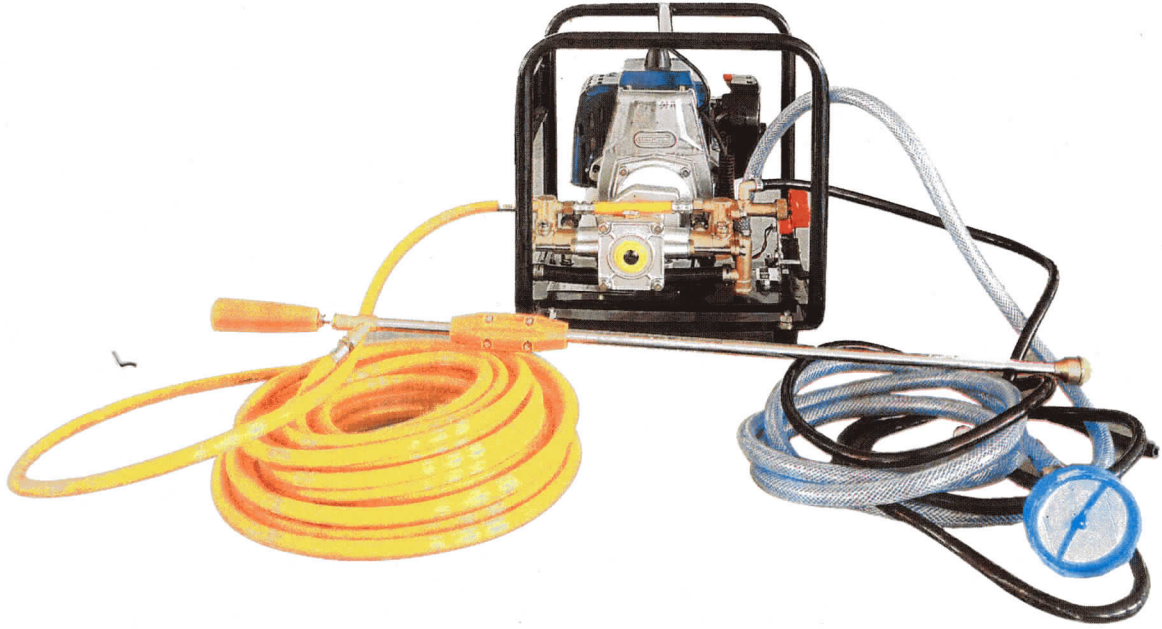


व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: PS-436/2531/2020
माह/Month: September, 2020

THIS TEST REPORT VALID UP TO : 30th SEPTEMBER, 2027



**ASPEE JONATHAN, PPS 35/2S
ENGINE OPERATED PORTABLE SPRAYER**



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

Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001

[ISO 9001:2015 CERTIFIED]

Website: <http://nrfmtti.gov.in/>

E-mail: fmti-nr@nic.in

Tele./FAX: 01662-276984

3. RUNNING-IN

Having regard to applicant request dated 02.09.2020, the sprayer was run-in for one hour.

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

1. Date of test : 11.09.2020
2. Atmospheric conditions :
 - a) Temperature : 38.7° C
 - b) Relative humidity : 42.5 %
 - c) Pressure : 97.7 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)
6628	4	1	7700	NIL	7672.5	7672.5	0.05
		2	7600				
		3	7670				
		4	7720				
6578	8	1	6900	NIL	6785.0	6785.0	0.09
		2	6810				
		3	6790				
		4	6640				
5780	13	1	6800	NIL	6772.5	6772.5	0.15
		2	6750				
		3	6750				
		4	6790				
5288	18	1	5750	NIL	5702.5	5702.5	0.17
		2	5670				
		3	5740				
		4	5650				

Minimum discharge rate = 5702.5 ml/min at 18 kg/cm²
 Maximum discharge rate = 7672.5 ml/min at 4 kg/cm²
 Discharge at rated pressure = 6785.0 ml/min at 8 kg/cm²

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

Date : 23.09.2020
 Rated pressure, kg/cm² : 8
 Engine speed corresponding to rated pressure (rpm) : 6625
 Theoretical cubic capacity of pump, ml : 7750.08
 Actual volume at rated pressure, ml : 6807.50
 Volumetric efficiency, % : 87.84



6. 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 1.1 kW.

7. 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/ declared in the manual have been endorsed.

S.No.	Parameter		Declaration
i	Engine Type	:	Single cylinder, 2 stroke, air cooled, Petrol engine.
ii	Bore,(mm)	:	35
iii	Stroke (mm)	:	36
iv	Displacement,(cc)	:	35
v	Net power out put	:	1.1 kW @ 6500 rpm
vi	Max Torque	:	1.6 Nm
Vii	Compression ratio	:	8.2:1

8. PRESSURE ADJUSTMENT TEST
(Vide clause 8.7.1 of IS: 11313-2007)

1. Date of test : 11.09.2020
2. Atmospheric conditions :
 - a. Temperature : 38.7 °C
 - b. Relative humidity : 42.5 %
 - c. Pressure : 97.1 kPa
3. Data recorded

S. No.	Working pressure(kg/cm ²)	Fluctuation range (kg/cm ²)	Pressure drop (kg/cm ²)	Ratio
1.	4	NIL	NIL	--
2.	8	NIL	NIL	--
3.	13	NIL	NIL	--
4.	18	NIL	NIL	--

4. Resistance of pressure: Yes

9. TEST FOR HYDRAULIC SPRAY GUN

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

Date of test : 21.09.2020
Type of gun : Screw type

9.1 TEST FOR DISCHARGE RATE OF SPRAY GUN

The discharge rate for fine cone spray & jet spray pattern as 2600 ml/min & 3920 ml/min at the pressure of 600 kPa was declared by the applicant. The discharge rate corresponding to 600 kPa pressure was observed as under

- For fine cone spray pattern : 3637.5 ml/min
- For jet spray pattern : 4062.5 ml/min

Remarks: The observed discharge rate for fine cone spray pattern was not within limit specified by the relevant Code/Standards.



9.2 TEST FOR SPRAY ANGLE OF SPRAY GUN

The spray angle for fine cone spray pattern at a pressure of 600 kPa was declared as 72 degree by the applicant. The spray angle corresponding to 600 kPa pressure was observed as 71.9 degree.

9.3 STRENGTH OF GUN

Sr. No	Details	Condition
1	Condition of nozzle tip	Closed
2	Hydraulic pressure	1500 kPa
3	Duration of pressure	5 Minute
4	Result	No leak, crack or burst of gun was observed during test

9.4 SPRAY GUN DESIGNATION : Marked as AG-72C 2600 J3920

9.5 MARKING

Manufacturer's name or recognized : Aspee-AG/003M
trade mark

Batch or code number : XAO

9.6 ENDURANCE TEST OF GUN (Vide clause E 3.6 of IS:3652-1995)

- Date : 11.09.2020 to 19.09.2020.
- Total running time (h) : 48
- Quantity of liquid collected and spray angle observed during endurance test.

S. No.	Collection	Discharge rate ml/min		Spray angle, degree
		Fine cone spray pattern	Jet spray pattern	
a	First collection	3612.5	3992.5	71.9
b	Second collection	3660.0	4090.0	69.1
c	Third collection	3702.5	4105.0	70.5
d	fourth collection	3692.5	4112.5	71.2
e	Fifth collection	3627.5	4132.5	69.8
f	Sixth collection	3560.0	4075.0	68.4
g	Seventh collection	3577.5	4030.0	70.8
h	Eighth collection	3597.5	4110.0	69.8

Remarks- (i) Percentage variation of discharge at cone spray pattern from first to last collection, 0.41 %.

(ii) Percentage variation of discharge at jet spray pattern from first to last collection, 2.94 %.

(iii) Percentage variation in spray angle of gun at cone spray pattern, 2.92 %.

18. COMMENTS AND RECOMMENDATIONS

- 18.1 The engaged threaded length of outlet port does not meet the requirement of relevant Indian Standard. It **MUST** be looked into.
- 18.2 The necessary tools are not provided. It **MUST** be provided.
- 18.3 The strainer in nozzle is not provided. It may be considered for providing.
- 18.4 The discharge rate for fine cone spray pattern of gun at a pressure of 600 kPa does not conform to the requirement of IS: 3652-1995. It **MUST** be looked into.
- 18.5 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.
- 18.6 Through a pressure regulator provided but that was not in working condition therefore its conformity to IS: 11313-2007 could not be ascertained. It **MUST** be looked into for corrective action.
- 18.7 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.
- 18.8 At rated pressure of 8 Kg/cm², the pump discharge was observed as 6785 ml/min. against the minimum requirement of 8000.0 ml/min. This **MUST** be examined.
- 18.9 Country of origin of pump is not specified. It should be specified.
- 18.10 The thickness of the wall of barrel of the gun does not meet the requirements of Indian Standard. It **MUST** be looked into.
- 18.11 The diameter of connecting rod of the gun does not meet the requirement of Indian Standard. It **MUST** be looked into.
- 18.12 The engine serial No. mentioned as WKV1003016 in the labeling plate provided on the sprayer. However, the engine serial No. embossed as WK1003016 on the engine casing. It may be looked into for corrective action.
- 18.13 Applicant has mentioned the make of the sprayer as "Aspee Jonathan" in labeling plate of sprayer as well as in the specification sheet. However, the make of sprayer mentioned as "ASPEE-India" in the application form. This is a serious discrepancy. It may be looked into for corrective action.

19. TECHNICAL LITERATURE


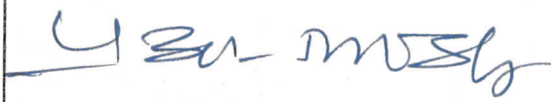
The following literatures are provided with sprayer for guidance to the user.

- i) Instruction manual.

However, the manual of sprayer should be updated as per IS: 8132-1999.



TESTING AUTHORITY

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY DIRECTOR	

20. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant's Comments
20.1	18.1, 18.4 & 18.6	Noted, we will do needful in regular production
20.2	18.2	Noted, we will provide
20.3	18.3	Noted, we will provide in regular production.
20.4	18.5 & 18.8	Noted
20.5	18.7	Noted, we will provide in regular production according to IS: 11313-2007
20.6	18.9	Noted, we will specified in regular production.
20.7	18.10 & 18.11	Noted, we will improve in regular production.
20.8	18.12	Noted, we will take care in regular production.
20.9	18.13	Noted, It is mistake done in application form. Make of the sprayer is ASPEE JONATHAN

