

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: PS-437/2532/2020  
माह/Month : September, 2020

**THIS TEST REPORT VALID UP TO : 30<sup>th</sup> SEPTEMBER, 2027**



**ASPEE JONATHAN, KP 35/2S  
ENGINE OPERATED KNAPSACK 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

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## 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 : 10.09.2020
2. Atmospheric conditions :
  - a) Temperature : 34.7° C
  - b) Relative humidity : 38.4 %
  - c) Pressure : 97.9 kPa

## 3. Data recorded

Speed of engine (rpm)	Working pressure (kg/cm <sup>2</sup> )	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)
6583	8	1.	6850	NIL	6815.0	6815.0	0.09
		2.	6820				
		3.	6790				
		4.	6800				
5338	11.5	1.	5400	NIL	5412.5	5412.5	0.10
		2.	5380				
		3.	5450				
		4.	5420				
5093	14.5	1.	5100	NIL	5120.0	5120.0	0.12
		2.	5120				
		3.	5180				
		4.	5080				
4978	18	1.	5050	NIL	4987.5	4987.5	0.15
		2.	4990				
		3.	4930				
		4.	4980				

Minimum discharge rate = 4987.5 ml/min at 18 kg/cm<sup>2</sup>  
 Maximum discharge rate = 6815.0 ml/min at 8 kg/cm<sup>2</sup>  
 Discharge at rated pressure = 6815.0 ml/min at 8 kg/cm<sup>2</sup>

## 5. TEST FOR VOLUMETRIC EFFICIENCY OF PUMP

[vide clause 8.4 of IS: 11313-2007]

Date : 25.09.2020  
 Rated pressure, kg/cm<sup>2</sup> : 8  
 Engine speed corresponding to rated pressure (rpm) : 6525



Theoretical cubic capacity of pump, ml	:	7637.76
Actual volume at rated pressure, ml	:	6720.00
Volumetric efficiency, %	:	87.9

#### 6. POWER REQUIREMENT

During the pump operation from minimum to maximum pressure range, the max. hydraulic power was observed as 0.15 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)	: 26
iv	Displacement,(cc)	: 34.64
v	Net power out put	: 1.1 kW @ 6500 rpm
vi	Max Torque	: 1.16 Nm @ 4200 rpm

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

1. Date of test : 10.09.2020
2. Atmospheric conditions
  - a. Temperature : 34.7 °C
  - b. Relative humidity : 38.4 %
  - c. Pressure : 97.9 kPa
3. Data recorded

S. No.	Working pressure(kg/cm <sup>2</sup> )	Fluctuation range (kg/cm <sup>2</sup> )	Pressure drop (kg/cm <sup>2</sup> )	Ratio
1.	8	NIL	NIL	--
2.	11.5	NIL	NIL	--
3.	14.5	NIL	NIL	--
4.	18	NIL	NIL	--

4. Resistance of pressure: Yes



**18. COMMENTS AND RECOMMENDATIONS**

- 18.1 The engaged length of outlet port does not meet the requirement of relevant code/standard. It **MUST** be looked into.
- 18.2 The strainer in nozzle is not provided. It may be considered for providing.
- 18.3 The necessary tools are not provided. It **MUST** be provided.
- 18.4 The discharge rate for fine cone spray pattern and jet 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 of gun at a pressure of 600 kPa does not conform to the requirement of IS:3652-1995. It **MUST** be looked into.
- 18.6 At rated pressure of 8 Kg/cm<sup>2</sup> the pump discharge was observed as 6815.0 ml/min. against the minimum requirement of 8000.0 ml/min. This **MUST** be examined.
- 18.7 The pressure gauge with full scale reading 100 bar is provided, thus it does not conform to requirement of IS: 11313-2007. It **MUST** be looked into.
- 18.8 The thickness of the wall of barrel of the gun does not meet the requirements of Indian Standard. It **MUST** be looked into.
- 18.9 The diameter of connecting rod of the gun does not meet the requirement of Indian Standard. It **MUST** be looked into.


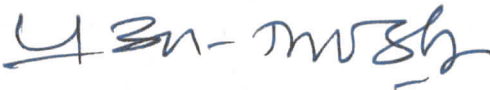
**19. TECHNICAL LITERATURE**

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, 18.5	Noted, we will do needful in regular production.
20.2	18.2, 18.6, 18.7, 18.8 & 18.9	Noted
20.3	18.3	We are providing the necessary tools with each equipment