

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: PS-441/2558/2020
माह/Month: October, 2020

THIS TEST REPORT VALID UP TO : 31st October, 2027



**ASPEE JONATHAN, KP 35/4S
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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[ISO 9001:2015 CERTIFIED]

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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 : 11.09.2020
 2. Atmospheric conditions :
 a) Temperature : 35.7 ° C
 b) Relative humidity : 34.0 %
 c) Pressure : 98.0 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)
6410	8	1.	7300	NIL	7260.0	7260.0	0.09
		2.	7240				
		3.	7220				
		4.	7280				
6315	11.5	1.	6920	NIL	6910.0	6910.0	0.13
		2.	6880				
		3.	6900				
		4.	6940				
6205	14.5	1.	6700	NIL	6710.0	6710.0	0.16
		2.	6720				
		3.	6680				
		4.	6740				
5982	18	1.	6400	NIL	6430.0	6430.0	0.19
		2.	6440				
		3.	6430				
		4.	6450				

Minimum discharge rate = 6430.0 ml/min at 18 kg/cm²
 Maximum discharge rate = 7260.0 ml/min at 8 kg/cm²
 Discharge at rated pressure = 7260.0 ml/min at 8 kg/cm²

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

Date : 25.09.2020
 Rated pressure, kg/cm² : 8
 Engine speed corresponding to rated pressure (rpm) : 6360



Theoretical cubic capacity of pump, ml	:	7443.38
Actual volume at rated pressure, ml	:	7232.0
Volumetric efficiency, %	:	97.2

6. POWER REQUIREMENT

During the pump operation from minimum to maximum pressure range, the max. hydraulic power was observed as 0.19 kW against the declared net power output of engine as 0.85 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, 4 stroke, air cooled, Petrol engine.
ii	Bore,(mm)	:	35
iii	Stroke (mm)	:	30
iv	Displacement,(cc)	:	35.8
v	Net power out put	:	0.85 kW @ 6500 rpm
vi	Max Torque	:	1.4 Nm @ 4000 rpm

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 : 35.7 °C
 - b. Relative humidity : 34.0 %
 - c. Pressure : 98.0 kPa
3. Data recorded

S. No.	Working pressure(kg/cm ²)	Fluctuation range (kg/cm ²)	Pressure drop (kg/cm ²)	Ratio
1.	8.0	NIL	NIL	--
2.	11.5	NIL	NIL	--
3.	14.5	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	:	22.09.2020
Type of gun	:	Screw type

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 discharge rate for fine cone spray pattern and jet spray of nozzle at a pressure of 300 kPa does not conform to the requirement of IS: 3652-1995. It **MUST** be looked into.
- 18.4 At rated pressure of 8 Kg/cm² the pump discharge was observed as 7260.0 ml/min. against the minimum requirement of 8000.0 ml/min. This **MUST** be examined.
- 18.5 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.
- 18.6 The necessary tools are not provided. It **MUST** be provided.
- 18.7 The thickness of the wall of barrel of the gun does not meet the requirements of Indian Standard. It **MUST** be looked into.
- 18.8 The diameter of connecting rod of the gun does not meet the requirement of India 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, manual of sprayer needs to 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	Applicants comment's
20.1	18.1, 18.3, 18.4, 18.5 & 18.6	Noted, We will do needful in regular production.
20.2	18.2, 18.7 & 18.8	Noted

