

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: PS-454/2571/2020
माह/Month: November, 2020

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



**SKYTEC, ST-767
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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xv)	Hose	Synthetic rubber, P.V.C	PVC	Conforms
xvi)	Tank	Galvanized iron, Brass, Fiber glass reinforced plastics, plastics	Plastic	Conforms
xvii)	Pipe for agitator	Galvanized iron, Brass, PVC	PVC	Conforms
xviii)	Piston (bucket) screw	Brass, stainless steel	Not applicable	--
xix)	Crank case	Aluminum alloy	Not applicable	--
xx)	Roller pump body	Nickel resistant cast iron	Not applicable	--
xxi)	Roller pump and plate	Nickel resistant cast iron	Not applicable	--
xxii)	Roller pump rotor	Nickel resistant cast iron	Not applicable	--
xxiii)	Piston pump crank shaft	Carbon steel	A quadrant gear driven by drive shaft of gear box mounted on plunger rod.	--
xxiv)	Pump inlet port end fitting	Brass	Brass	Conforms
xxv)	Piston rod guide	Brass, Aluminum alloy, Gunmetal, Nylon	Not applicable	--
xxvi)	Connecting rod	Carbon steel	N.A.	--
xxvii)	Gudgeon pin	Carbon steel	N.A.	--
xxviii)	Big end bearing	Steel coated with tin base white metal	Not applicable	--
xxix)	Small end bush	Gunmetal	Not applicable	--
xxx)	The material used for different components shall be declared by the manufacturer all the components mentioned in the table-I may not be present in a particular sprayer.		Declared by the applicant	Conforms

3. TEST FOR DISCHARGE RATE OF PUMP

[vide Clause 8.3 of IS- 11313: 2007]

1. Date of test : 25/11/2020
2. Atmospheric conditions :
 - a) Temperature : 21° C
 - b) Relative humidity : 49 %
 - c) Pressure : 99.2 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)
5887	10	1.	6520	NIL	6510.0	6510.0	0.11
		2.	6480				
		3.	6540				
		4.	6500				

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5582	12	1.	6250	NIL	6275.0	6275.0	0.13
		2.	6300				
		3.	6290				
		4.	6260				
5415	14	1.	5830	NIL	5850.0	5850.0	0.14
		2.	5890				
		3.	5810				
		4.	5870				
5315	16	1.	5700	NIL	5715.0	5715.0	0.15
		2.	5750				
		3.	5690				
		4.	5720				

Minimum discharge rate = 5715.0 ml/min at 16 kg/cm²
Maximum discharge rate = 6510.0 ml/min at 10 kg/cm²
Discharge at rated pressure = 6510.0 ml/min at 10 kg/cm²

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

Date : 25.11.2020
 Rated pressure, kg/cm² : 10
 Engine speed corresponding to rated pressure (rpm) : 5880
 Theoretical cubic capacity of pump, ml : 6881.76
 Actual volume at rated pressure, ml : 6475.00
 Volumetric efficiency, % : 94.1

5. 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 0.65 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/ 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)	: 33
iii	Stroke (mm)	: 30
iv	Displacement,(cc)	: 26
v	Net power out put	: 0.65 kW @ 6500 rpm
vi	Max Torque	: 1.1 Nm @ 6000 rpm

17. COMMENTS AND RECOMMENDATIONS

- 17.1 The strainer in nozzle is not provided. It may be considered for providing.
- 17.2 The serial number and year of manufacture is not specified. It **MUST** be looked into.
- 17.3 The serial number and compression ratio of engine is not specified. It **MUST** be looked into.
- 17.4 The manufacturing year, serial number and country of origin is not specified. It **MUST** be looked into.
- 17.5 The discharge rate for 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.
- 17.6 The spray angle 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.
- 17.7 The discharge rate for 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.
- 17.8 At rated pressure of 10 Kg/cm² the pump discharge was observed as 6510 ml/min. against the minimum requirement of 8000.0 ml/min. This **MUST** be examined.
- 17.9 The pressure gauge with full scale reading is 100 bar provided, thus it does not conform to requirement of IS:11313-2007. It **MUST** be looked into.
- 17.10 The spray nozzle is not designated and marked by its identification mark the identification mark as specified by relevant Indian standard. It **MUST** be looked into.
- 17.11 The diameter of connecting rod of the gun does not meet the requirement of Indian standard. It **MUST** be looked into.
- 17.12 The spray gun is not designated and marked by its identification mark, the identification mark as specified by relevant Indian standard. It **MUST** be looked into.
- 17.13 The necessary tools are not provided. It **MUST** be looked into.
- 17.14 The make and Model of sprayer, engine and pump all are given as "SKYTEC, ST-767". For the sake of clarity this may be looked into for necessary amendment.
- 17.15 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


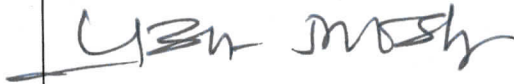


18. TECHNICAL LITERATURE

One leaflet entitled "Knapsack Power Sprayer operator's manual " has been provided. The same, however, does not indicate the make and model of the sprayer it is related to. It amount to not providing the relevant literature.

It is therefore recommended that the literature be brought out as per IS: 8132-1999.

TESTING AUTHORITY

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY DIRECTOR	

19. APPLICANT'S COMMENTS

"We will inform all your recommendations to our manufacturer to make all possible and necessary changes for our future products"

