

व्यावसायिक परीक्षण रिपोर्ट

COMMERCIAL TEST REPORT (FIRST BATCH)

संख्या/ No.: PS-534/3065/2023

माह/Month: August, 2023

THIS TEST REPORT VALID UP TO : 31st August, 2028



**FARMAK, FM-908
ENGINE OPERATED KANPSACK SPRAYER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि एवं किसान कल्याण विभाग

Department of Agriculture 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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5. TEST FOR DISCHARGE RATE OF PUMP
[vide Clause 8.3 of IS- 11313: 2007]

1. Date of test : 02.06.2023
 2. Atmospheric conditions
 a) Temperature : 36.8 °C
 b) Relative humidity : 29.6 %
 c) Pressure : 97.9 kPa

3. Data recorded

Avg. 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)
5305	8.0	1	5160	Nil	5140.0	5140.0	0.07
		2	5140				
		3	5120				
		4	5140				
5215	10.0	1	3680	Nil	3615	3615.0	0.06
		2	3570				
		3	3620				
		4	3590				
5185	12.0	1	2650	Nil	2637.5	2637.5	0.05
		2	2600				
		3	2620				
		4	2680				
5115	14.0	1	2150	Nil	2155.0	2155.0	0.05
		2	2100				
		3	2200				
		4	2170				

Minimum discharge rate = 2155.0 ml/min at 14 kg/cm²
 Maximum discharge rate = 5140.0 ml/min at 8 kg/cm²
 Discharge at rated pressure = 5140.0 ml/min at 8 kg/cm²

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

Date : 02.06.2023
 Rated pressure, kg/cm² : 8
 Engine speed corresponding to rated pressure (rpm) : 5330
 Theoretical cubic capacity of pump, ml : 6238.08
 Actual volume at rated pressure, ml : 5175.0
 Volumetric efficiency, % : 82.96



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7. POWER REQUIREMENT

During the pump operation from minimum to maximum pressure range, the max. hydraulic power was observed as 0.07 kW against the declared net power output of engine as 0.72 kW.

8. ENGINE RATING TEST AND FUEL CONSUMPTION TEST

Date of test : 30.03.2023
 Type of dynamometer : Electrodyne
 Model of dynamometer : EC-4 kW
 Dynamometer constant : 9950

Sr. No.	Hours of the day	Load (%)	Load (Nm)	Engine speed (rpm)	Power (kW)	Fuel consumption			Specific energy (kWh/l)
						(kg/h)	(l/h)	Specific (g/kWh)	
	10.38	Test started							
1.	11.38	100	0.86	6989	0.63	0.256	0.345	407	1.80
2.	12.38	100	0.82	6997	0.60	0.255	0.344	424	1.70
3.	13.38	100	0.87	7005	0.64	0.256	0.345	401	1.80
4.	14.37	100	0.84	6990	0.62	0.254	0.342	413	1.80
5.	15.40	100	0.88	7001	0.64	0.264	0.356	409	1.80
6.	16.39	100	0.83	6995	0.61	0.264	0.356	434	1.70
7.	17.38	100	0.87	6999	0.64	0.261	0.352	409	1.80
8.	18.10	100	0.88	7003	0.64	0.257	0.347	400	1.90
	Avg.	100	0.86	6997	0.63	0.258	0.348	412	1.79
9.	18.43	110	0.95	6845	0.68	0.254	0.342	373	2.00
10.	18.53	75	0.65	7866	0.54	0.267	0.359	499	1.50
11.	19.04	50	0.43	8591	0.39	0.284	0.382	734	1.00
12.	19.14	25	0.22	8791	0.20	0.277	0.374	1364	0.50
13.	19.25	Unloaded	0.16	9011	0.15	0.264	0.355	1748	0.40

9. PRESSURE ADJUSTMENT TEST

(Vide clause 8.7.1 of IS: 11313-2007)

1. Date of test : 02.06.2023
 2. Atmospheric conditions
 a. Temperature : 36.8 °C
 b. Relative humidity : 29.6 %
 c. Pressure : 97.9 kPa

3. Data recorded

Sr. No.	Working pressure(kg/cm ²)	Fluctuation range (kg/cm ²)	Pressure drop (kg/cm ²)	Ratio
1.	8.0	NIL	NIL	--
2.	10.0	NIL	NIL	--
3.	12.0	NIL	NIL	--
4.	14.0	NIL	NIL	--

4. Resistance of different pressure: Yes



21. COMMENTS AND RECOMMENDATIONS

- 21.1 The ignition timing of engine is not specified. It **MUST** be looked into.
- 21.2 The pressure gauge with full scale reading of 120 bar is provided. Thus, it does not conform to requirement of IS:11313-2007. It **MUST** be looked into.
- 21.3 At rated pressure of 8 kg/cm², the pump discharge was observed as 5140.0 ml/min. against the minimum requirement of 8000.0 ml/min. This **MUST** be examined.
- 21.4 The discharge rate for jet spray pattern of nozzle at the pressure of 300 kPa does not conform to the requirement of IS:3652-1995. It **MUST** be looked into.
- 21.5 The spray nozzle is not designated and marked by its identification mark. The identification mark as specified by Indian Standard should be provided.
- 21.6 The discharge rate for jet spray pattern of gun at the pressure of 600 kPa does not conform to the requirement of IS:3652-1995. It **MUST** be looked into.
- 21.7 The spray gun is not designated and marked by its identification mark. Identification mark as specified by Indian standard should be provided.
- 21.8 The strainer in nozzle is not provided. It may be provided.
- 21.9 The diameter of connecting rod of spray gun does not meet the requirement of relevant code/standards. It **MUST** be looked into.
- 21.10 The safety wear for operator is not provided. It **MUST** be provided.
- 21.11 The necessary tools are not provided. It **MUST** be provided.
- 21.12 **Safety provision /safety wear.**
- (i) Safety instructions regarding handling poisonous agro-chemical before, during and after spraying operators should be provided on sprayer.

22. TECHNICAL LITERATURE

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

- i) Operator's manual
- ii) Service manual
- iii) Part's catalogue


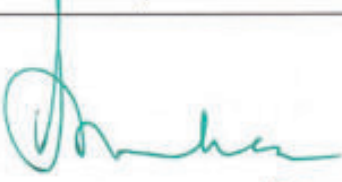
However, the manuals of sprayer need to be updated as per IS: 8132-1999



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Sr. No.	Parameters	Previous Sample (As per test report No. PS-181/1833/2016, April, 2016)	Present Sample
1	2	3	4
	Model	:	FM-908 with Honda GX-25
	MRP Rs.	:	19500 (Encl. of all takes)
	Quantity packed	:	One
	Month & Year of manufacturer	:	September, 2015
	Origin country	:	Not specified
	Grass/net weight, kg	:	12.5/10.5
23.2.3	Present Sample		
	Make	:	Shree Karthik Agro Industry
	Model	:	FM-908
	Serial no.	:	GCAIT-4498006
	Year of manufacturer	:	February-2023
	Engine make & model	:	Honda / GX-25
	Engine power rated, kW	:	0.72 kW @ 7000 rpm
	Manufacturer	:	Shree Karthik Agro Industry D. No. 5-12, Koilakuntla Road, Allagadda Distt. Kurnool-518543 (Andha Pradesh) Cell: 9505518222/217
23.2.4	Technical literature	:	Instruction manual & Operator manual, service owner's manual manual and parts list.

TESTING AUTHORITY

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 17.08.2023

The test report is compiled by Sh. Abhishek Chourey, MTS (Technical)

24. APPLICANT'S COMMENTS

We will take corrective action in our future production.

