COMMERCIAL TEST REPORT

THIS TEST REPORT VALID UP TO : 31st October, 2026

GREEN-KING, GKH-925, ENGINE OPERATED KNAPSACK SPRAYER

Government of India
Ministry of Agriculture and Farmers Welfare
Department of Agriculture, Cooperation and Farmers Welfare
Northern Region Farm Machinery Training and Testing Institute

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
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.

---

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

1. Date of test : 24.08.2019

2. Atmospheric conditions:
   a) Temperature : 38°C
   b) Relative humidity : 45%
   c) Pressure : 97.6 kPa

3. Data recorded

<table>
<thead>
<tr>
<th>Speed of engine (rpm)</th>
<th>Working pressure (kg/cm²)</th>
<th>Test No.</th>
<th>Delivery from the discharge line (ml/min)</th>
<th>Overflow (ml/min)</th>
<th>Average delivery from the discharge line (ml/min)</th>
<th>Discharge rate of pump (ml/min)</th>
<th>Hydraulic Power (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7313</td>
<td>10</td>
<td>1. 7870</td>
<td>Nil</td>
<td>7760.0</td>
<td>7760.0</td>
<td>0.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. 7700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. 7670</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. 7800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7178</td>
<td>12</td>
<td>1. 7470</td>
<td>Nil</td>
<td>7467.5</td>
<td>7467.5</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. 7450</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. 7460</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. 7490</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7005</td>
<td>14</td>
<td>1. 7320</td>
<td>Nil</td>
<td>7312.5</td>
<td>7312.5</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. 7300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. 7300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. 7290</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6870</td>
<td>16</td>
<td>1. 7220</td>
<td>Nil</td>
<td>7227.5</td>
<td>7227.5</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. 7240</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. 7200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. 7220</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Minimum discharge rate = 7227.5 ml/min at 16 kg/cm²
Maximum discharge rate = 7760.0 ml/min at 10 kg/cm²
Discharge at rated pressure = 7760.0 ml/min at 10 kg/cm²

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

Date : 23.09.2019
Rated pressure, kg/cm² : 10
GREEN-KING, GKH-925, ENGINE OPERATED KNAPSACK SPRAYER (COMMERCIAL)

Engine speed corresponding to rated pressure (rpm) : 6995
Theoretical cubic capacity of pump, ml : 7712.65
Actual volume at rated pressure, ml : 7427.5
Volumetric efficiency, % : 96

Remarks: - The high idle engine speed had to be set 8300 rpm against declared high idle 9000 rpm to obtain rated pressure at rated rpm of pump.

5. 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 0.72 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.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Parameter</th>
<th>Declaration</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Engine Type</td>
<td>Single cylinder 4 stroke air cooled spark ignition engine.</td>
</tr>
<tr>
<td>ii</td>
<td>Bore,(mm)</td>
<td>35</td>
</tr>
<tr>
<td>iii</td>
<td>Stroke (mm)</td>
<td>26</td>
</tr>
<tr>
<td>iv</td>
<td>Displacement,(cc)</td>
<td>25</td>
</tr>
<tr>
<td>v</td>
<td>Net power out put</td>
<td>0.72 kW @ 7000 rpm</td>
</tr>
<tr>
<td>vi</td>
<td>Max Torque</td>
<td>1.0 Nm @ 5000 rpm</td>
</tr>
</tbody>
</table>

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

1. Date of test : 24.08.2019
2. Atmospheric conditions :
   a. Temperature : 38 °C
   b. Relative humidity : 45%
   c. Pressure : 97.6 kPa
3. Data recorded

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Working pressure(㎏/cm²)</th>
<th>Fluctuation range (㎏/cm²)</th>
<th>Pressure drop (㎏/cm²)</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10</td>
<td>NIL</td>
<td>NIL</td>
<td>--</td>
</tr>
<tr>
<td>2.</td>
<td>12</td>
<td>NIL</td>
<td>NIL</td>
<td>--</td>
</tr>
<tr>
<td>3.</td>
<td>14</td>
<td>NIL</td>
<td>NIL</td>
<td>--</td>
</tr>
<tr>
<td>4.</td>
<td>16</td>
<td>NIL</td>
<td>NIL</td>
<td>--</td>
</tr>
</tbody>
</table>

4. Resistance of pressure: Yes

8. TEST FOR HYDRAULIC SPRAY GUN
[vide Clause 7.3(b) of IS-11313: 2007 & Annex E of IS-3652; 1995]

Date of test : 05.09.2019
Type of gun : Screw type

NORTHERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE, HISAR
[THIS REPORT VALID UP TO : 31st October 2026]
5. **Mass of spray gun, kg** | 1.6 (Max) | **Total mass of the gun is 0.368 kg** | **Conforms**
---|---|---|---
6. **Spray gun marking** | Manufacturer name or recognized trade mark, & batch or code number As per BIS code | **Not marked** | **Does not conform**
7. **Marking of nozzle** | Manufacture Name/Trade name, Batch or Code Number, Nozzle designation must be provided. As per BIS code | **Not marked** | **Does not conform**
8. **Pressure gauge** | Must be provided | **Provided** | **Conforms**
9. **Safety accessories** | Mask, hand gloves and safety goggles, Apron, Gum boots must be provided | Mask, hand gloves, ear protector and goggles is provided | **Does not conform in toto**
10. **Necessary tools & spares** | Spanners, set of gasket measuring jar should be provided | Spark plug spanner, Allen key and open spanner are provided. | **Does not conform in toto**
11. **Marking/Labeling of sprayer** | Must be riveted on the body of sprayer having name & address of manufacturer, month & Year of manufacture, Rated speed, Rated pressure, Discharge Rate, Power Rating of engine, SFC of engine | Just a sticker provided on Machine with following information:- Green King™ GK-H925 Powered By Honda | **Does not conform**
12. **Literature** | Operator manual, Service manual & parts catalogue should be provided, on One day training. | User Manual of sprayer with parts Catalogue and owner’s manual of Engine is provided | **Does not conform in toto**

### 16. CONFORMITY TO INDIAN STANDARDS

i) **IS:11313-2007 (Reaffirmed 2012)-Hydraulic power sprayer-specification** | Does not conform in toto

ii) **Spray nozzle and spray gun as per IS:3652-1995 (Reaffirmed 2011)** | Does not conform in toto

iii) **Hose and hose connection as per IS:10134-1994** | Conforms

iv) **IS: 2643-2005-Pipe threads where pressure-tight joint are not made on the threads-dimensions, tolerance and designation** | Conforms

v) **IS: 7347-1974 (Reaffirmed 2006)-Specification for performance of small size spark ignition engines for agricultural water pumps, sprayers, tillers, reapers and other similar applications** | Could not be ascertained

### 17. COMMENTS AND RECOMMENDATIONS

17.1 The sprayer year of manufacture is not specified. It should be specified.

17.2 The spray gun is not designated and marked by identification mark. The identification mark as specified by relevant Indian Standard. It **MUST** be specified.

17.3 The pump manufacturing year is not specified. It **MUST** be specified.
17.4 The spray nozzle is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, **MUST** be provided.

17.5 The strainer in nozzle is not provided. It may be considered for providing.

17.6 The manufacturer’s name or recognized trade mark and batch or code number on nozzle is not provided. It **MUST** be provided.

17.7 The manufacturer’s name or recognized trade mark and batch or code number is not marked on spray gun. It **MUST** be marked.

17.8 The diameter of connecting rod is less than the value specified in the relevant code/Standard. It **MUST** be improved.

17.9 The thickness of wall of barrel does not meet the requirement of relevant code/Standard. It **MUST** be improved.

17.10 The discharge rate for fine cone spray pattern and jet spray pattern of spray gun at pressure at 600 kPa does not conform to the requirement of IS: 3652-1995. It **MUST** be looked into.

17.11 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.

17.12 The spray angle for fine cone 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.

17.13 At rated pressure of 10 kg/cm² the pump discharge was observed as 7760 ml/min. against the minimum requirement of 8000.0 ml/min. This **MUST** be examined.

17.14 The pressure gauge with full scale reading 120 bar is provided, thus it does not conform to requirement of IS: 11313-2007. It **MUST** be looked into.

17.15 Though 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.

17.16 The engaged threaded length of outlet port does not meet the requirement of relevant code/Standard. It **MUST** be improved.

17.17 Necessary tools are not provided with sprayer. It **MUST** be provided.

17.18 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

17.19 Safety provision/safety wear
   i) Apron and gum boots **MUST** be added in safety wear.
   ii) Safety instructions regarding handling poisonous agro-chemical before, during and after spraying operations should be provided on sprayer.
18. TECHNICAL LITERATURE
The following literatures are provided with sprayer for guidance to the user.
   i) User manual of sprayer with parts catalogue.
   ii) Owner’s manual of engine.
The following literature MUST be provided with the sprayer.
   i) Service manual of sprayer.
However, user manual of sprayer need to be updated as per IS: 8132-1999.

TESTING AUTHORITY

R. K. NEMA
SENIOR AGRICULTURAL ENGINEER

P. K. PANDEY
DIRECTOR

19. APPLICANT'S COMMENTS
We have noted the comments and recommendation, we will inform the manufacturer to take the necessary action in future.