ENGINE OPERATED KNAPSACK SPRAYER
AGRIMATE AMH-999A 4S-GX25

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

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

1. Date of test: 08.11.2017
2. Atmospheric conditions:
   a) Temperature: 29°C
   b) Relative humidity: 37%
   c) Pressure: 101.3 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</th>
<th>Average delivery from the discharge line (ml/min)</th>
<th>Discharge rate of pump (ml/min)</th>
<th>Power consumed by pump (kW)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>7</td>
<td>1</td>
<td>8200</td>
<td>Nil</td>
<td>8172.5</td>
<td>8172.5</td>
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<td></td>
<td>2</td>
<td>8180</td>
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<tr>
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<td>7830</td>
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</tr>
</tbody>
</table>

Minimum discharge rate = 7995.0 ml/min at 9 kg/cm²
Maximum discharge rate = 8172.5 ml/min at 7 kg/cm²
Discharge at rated pressure = 8172.5 ml/min at 7 kg/cm²

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

Rated pressure, kg/cm²: 7
Pump speed corresponding to rated speed of engine: 1896
Theoretical volume, ml: 4.48
Actual volume at rated speed and pressure, ml: 4.31
Volumetric efficiency, %: 96
PS-312/2069/2017

ENGINE OPERATED KNAPSACK SPRAYER
AGRIMATE AMH-999A-4S-GX 25 (COMMERCIAL)

Cl.10. MARKING AND PACKING
(CL.10 IS:11313-2007)

<table>
<thead>
<tr>
<th>Cl.10.1 Marking</th>
<th>Each sprayer shall be marked with the following particulars:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Manufacturer's name &amp; his registered trade mark, Sl. No. and batch or code No.</td>
</tr>
</tbody>
</table>

15. 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 : Does not conform in toto
     (Reaffirmed 2011)

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

16. COMMENTS AND RECOMMENDATIONS

16.1 The sprayer serial number is not specified. It MUST be specified.

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

16.3 The compression ratio of engine is not declared. It should be declared.

16.4 The spray gun is not designated and marked by identification mark. The identification mark as specified by relevant Indian Standard, MUST be provided.

16.5 The pump make, model & year of manufacture is not specified. It MUST be specified.

16.6 The thickness of the wall of the barrel and diameter of the connecting rod is less than the value specified in the relevant Indian Standard. It MUST be improved.

16.7 The spray nozzle is not designated and marked by its identification mark. The identification mark as specified by relevant Indian Standard, MUST be provided.
16.8 The strainer in nozzle is not provided. It **MUST** be provided.

16.9 The manufacture’s name or recognized trade make and batch or code number on nozzle is not provided. It **MUST** be provided.

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

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

16.12 The discharge rate for fine cone spray & 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.

16.13 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.

16.14 It was not possible to increase pressure by the pressure regulator valve. It **MUST** be looked into.

16.15 A suitable pressure gauge **MUST** be provided on sprayer as per the specifications specified by Indian standard.

16.16 The spray gun thickness of wall & connecting rod diameter does not meet the requirement of Indian standard. It **MUST** be looked into.

16.17 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

16.18 **Safety provision/safety wear**

   i) Safety instructions regarding handling poisonous agro-chemical safety precautions before, during and after spraying **MUST** be added in operator’s manual.