ENGINE OPERATED POWER KNAPSACK SPRAYER
‘FARMAK FM-708’

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
(DEPARTMENT OF AGRICULTURE & COOPERATION)

NORTHERN REGION FARM MACHINERY TRAINING AND TESTING INSTITUTE TRACTOR NAGAR,
SIRSA ROAD, HISAR-125001 (HARYANA)

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E-mail: fmti-nr@nic.in
| Cl 5.16.1 | The exhaust outlet of the engine shall be so positioned that the smoke does not directly affect the operator or crop. A guard shall be provided on or near the exhaust pipe for the protection of the operator. | The engine and exhaust is opposite to the operator and not harmful exhaust pipe is covered with guard. | Conforms |
| Cl 5.17 | The fuel and chemical discharge controls shall be in easy access of the operator. | Easy accessible to the operator. | Conforms |
| Cl 5.18 | Air pressure chamber shall withstand the test prescribed in 8.7 with out any deformation or damage. | No damage found in air pressure chamber. | Conforms |

### PERFORMANCE REQUIREMENTS

**Cl 6.1**

**Discharge rate/Suction capacity**

- When tested in accordance with the method given in 8.3, the pump shall be capable of discharging/sucking a minimum of 8000 ml. water per minute at its rated speed and rated pressure.
- The pump is capable to discharge 8063 mil/min without gun at 7016 rpm of pump speed and 8.0 kg/cm² pressure.

**Cl 6.1.1**

- The discharge rate/suction capacity shall be declared by the manufacturer.
- 10 to 11 l/min declared in the manual of submitted by the manufacturer.

**Cl 6.2**

**Volumetric Efficiency**

- When determined in accordance with 8.4.1, the volumetric efficiency of the piston/plunger type pump shall minimum 80 percent.
- The volumetric efficiency is 97.92% which is specified limit.

**Cl 6.2.1**

- The volumetric efficiency requirement for roller vane type pump shall be minimum 80%
- Not applicable

**Cl 6.3**

**Power requirement**

- When tested in accordance with the method given in 8.5, pump shaft power requirement shall not be more than that of the value declared by the manufacturer.
- Maximum achievable pressure observed as 30 kg/cm² with gun against the declaration of 14.06 kg/cm².

**Cl 6.4**

**Maximum achievable pressure**

- When tested in accordance with the method given in 8.7, maximum achievable pressure shall not be less than that of the value declared by the manufacturer.
- Endurance test of 50 hrs. completed without any breakdown & the

**Cl 6.5**

**Endurance test**

- Sprayer shall withstand the test endurance test specified in 8.8 and the variation in Discharge rate between first and last observation shall not be more than ± 5

*Conforms*
6. **COMMENTS:-**

6.1 Engine operated power sprayer ‘FARMAK FM-708’ conforms all the clauses of IS: 11313-2007 except requirement specified in the following clause. These should be rectified and incorporated at manufacturing level:-


iii) The gun does not conform the requirement of IS:3652-1995 Clause E-6 For Marking. The make, Model, Serial No./Batch No. or Code No. Should be on marked gun.

iv) Cl. 10.1 IS:11313-2007-SI no. & Batch or code no. of sprayer is not provided.

6.2 The prime mover fitted in the sprayer manufactured by thai Honda manufacturing Co. Ltd. Thailand, model-GX25 petrol engine of 0.72 kW at rated speed of 7000 rpm. In pursuance of ministry’s order no. 7-23/2011-M&T (I&P) dated 20.04.2011 the engine performance test as per IS:7347/1974 has not been conducted and the performance parameters as specified by the applicant have been presumed taking into consideration that the engine manufacturing company is ISO-9001:2008 & ISO-14001:2004 certified company as is evident from the certificate registration no. 6610090007 issue date 21.05.2012 and 04104050086 dated 03.01.2014 respectively.

6.3 The labeling plate with Sr. No., Make, Model etc not provided on sprayer. It should be provided on each sprayer.

6.4 The safety signs and pictograms & notice should be provided on the machine.

6.5 Owner’s manual for Honda GX25 engine and parts catalogue of spraying system and Honda GX25 engine was provided during the test which found adequate where as the complete literature of sprayer brought up should be as per IS:8132-1992 and also be brought out in Hindi and other Indian languages.

**TESTING AUTHORITY**

<table>
<thead>
<tr>
<th>G.R. AMBALKAR</th>
<th>Agricultural Engineer</th>
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<tbody>
<tr>
<td>R.K. NEMA</td>
<td>Senior Agricultural Engineer</td>
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<tr>
<td>HIMAT SINGH</td>
<td>Director</td>
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</table>

Test report compiled by: Sh. Maan Singh, Sr. Technical Assistant

7. **APPLICANT’S COMMENTS**

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<tr>
<th>Para no.</th>
<th>Our Reference</th>
<th>Applicant’s Comments</th>
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<td>7.1</td>
<td>6.1 (i), (ii), (iii) &amp; (iv) 6.3, 6.4 &amp; 6.5</td>
<td>We will take corrective action at the time of production level for all your recommendations.</td>
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