RSR RETAIL PVT. LTD., HY-PW/135D
POWER WEEDER

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 9001:2008 COMPLIANT INSTITUTION]

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E-mail: fmti-nr@nic.in
Tele./FAX: 01662-276984
4.2 Noise at operator’s ear level

Date of test : 10.11.2016
Type of track : Concrete
Background noise level (dB(A)) : 50.5

Atmospheric conditions
Temperature (°C) : 33
Pressure (kpa) : 99.9
Relative humidity (%) : 21
Wind velocity (m/s) : 0.9 to 1.6
Observed noise level dB(A) : 92.9

5. AIR CLEANER OIL PULL OVER TEST

Date : 10.11.2016
Range of atmosphere condition
Temperature (°C) : 31
Relative humidity, (%) : 25 to 26
Pressure, (kPa) : 98.9 to 99.0

Mass of oil in the air cleaner assemblies when filled with recommended grade of oil 5% in excess than marked level (g) : 1126.9

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Position</th>
<th>Slope (degree)</th>
<th>Loss of oil (g)</th>
<th>Oil pull over %</th>
<th>Remarks if any</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Horizontal</td>
<td>0</td>
<td>2.8</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td>ii)</td>
<td>Tiled longitudinally with front end up</td>
<td>15</td>
<td>4.2</td>
<td>0.37*</td>
<td>Oil pull over marked (*) may be considered on higher side.</td>
</tr>
<tr>
<td>iii)</td>
<td>Tiled longitudinally with rear end up</td>
<td>15</td>
<td>2.6</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>iv)</td>
<td>Tiled laterally with right side up</td>
<td>15</td>
<td>2.3</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>v)</td>
<td>Tiled laterally with left side up</td>
<td>15</td>
<td>3.2</td>
<td>0.28*</td>
<td></td>
</tr>
</tbody>
</table>

6. FIELD TEST

The field tests consisting of dry land operation were conducted for 26.46 hours (including running in and field adjustment 1.16 hours). Field tests were conducted in sandy loam soil at the NRFMTTI, Hisar. The summary of the field test for dry land operation is summarized in table-5.

Field condition
i. Type of weed -- Seasonal Weed
ii. Height of weed, cm -- 2.0 to 6.7

Table-5: SUMMARY OF FIELD PERFORMANCE TEST

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Parameter</th>
<th>Sandy loam</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Type of soil</td>
<td>Sandy loam</td>
</tr>
<tr>
<td>ii)</td>
<td>Soil moisture, %</td>
<td>9 to 17</td>
</tr>
<tr>
<td>iii)</td>
<td>Bulk density of soil, g/c.c</td>
<td>1.32 to 1.71</td>
</tr>
<tr>
<td>iv)</td>
<td>Speed of operation, kmph</td>
<td>2.35 to 2.49</td>
</tr>
</tbody>
</table>
IMP-823/1975/2016

POWER WEEDER
RSR RETAIL PVT. LTD., HY-PW/135 D, COMMERCIAL
(INCOMPLETE)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>v)</td>
<td>Average depth of cut, cm</td>
<td>3.37 to 5.5</td>
</tr>
<tr>
<td>vi)</td>
<td>Width of cut, m</td>
<td>1.41 to 1.48</td>
</tr>
<tr>
<td>vii)</td>
<td>Area covered, ha/h</td>
<td>0.297 to 0.310</td>
</tr>
<tr>
<td>viii)</td>
<td>Time required for one ha</td>
<td>3.22 to 3.36</td>
</tr>
<tr>
<td>ix)</td>
<td>Fuel consumption</td>
<td>l/h: 1.017 to 1.370, l/ha: 3.31 to 3.73</td>
</tr>
<tr>
<td>x)</td>
<td>Weeding efficiency (%)</td>
<td>84.6 to 86.60</td>
</tr>
<tr>
<td>xi)</td>
<td>Field efficiency (%)</td>
<td>82.5 to 89.27</td>
</tr>
</tbody>
</table>

7. ADJUSTMENT, DEFECTS, BREAKDOWNS & REPAIR

Soon after the engine test was started, there was heavy smoke observed with excessive vibration of the engine. Upon the request of the applicant’s representative adjustment of valve clearance and injector pressure was allowed to be carried out as per declared value. Once again test was started but emission of heavy smoke along with excessive vibration persisted. Upon the request of representative of applicant the engine was again allowed to be checked, before resuming the test. This time also, shortly after the test was started engine stalled. Rocker arm screw was found broken. It was when the applicant requested to withdraw the machine from the test vide its letter dated 07.12.2016. Hence this INCOMPLETE TEST REPORT.

8. COMMENTS & RECOMMENDATIONS

8.1 Mechanical vibration
The amplitude of mechanical vibration marked as (*) on the relevant chapter, are on drastically higher side. It is not just directly concerned with operator’s health, safety and comfort, but also adversely affect the useful life of the components. In view of above, this deserved to be given top priority for corrective action.

8.2 Noise measurement
Noise at operator’s ear level and at bystander’s position was observed on higher side against warning and danger limit of 85 dB(A) and 90 dB(A) respectively as specified by ILO For continuous exposure of 8 hours per day. This calls for reduction in noise level to improve the operator’s comfort & safety.

8.3 Air cleaner oil pull over test
i) Oil pull over by the engine is on higher side, which adversely affects the engine performance and life. It MUST be looked into for corrective action.

8.4 Field test
No noticeable breakdown was observed during the field test.

8.5 Safety caution labels
Not provided on machine. It MUST be provided for operator’s safety.

8.6 Ease of operation and handling
Considerable amount of difficulties were faced while turning the machine at the end of row. It MUST be looked into to improve ease of operation by the operator.
8.7 Maintenance/service problems

i) Provision for draining of sediments/water from fuel tank is not provided. It should be provided for enhancing overall life of fuel system.

ii) Service schedule for air cleaner maintenance and oil change period for transmission oil are not provided. It MUST be provided to enable the operator for ensuring proper maintenance of the machine.

8.8 Miscellaneous

i) Prime mover year of manufacturer is not specified. It MUST be specified for the guidance of operator.

ii) Fuel injection pump make is not specified. It MUST be provided for the guidance of operator.

iii) Gear box model & grade of oil were not specified. It MUST be provided to enable the operator for ensuring proper maintenance of the machine.

iv) Spark arresting device is not provided in exhaust. It may be considered for providing.

v) The governor make, model is not specified. It MUST be provided for the guidance of operator.

vi) Grade of oil for rotor gear box was not specified. It MUST be provided to enable the operator for ensuring proper maintenance of the machine.

9. TECHNICAL LITERATURE


   The following literatures be brought out as per IS: 8132-1999.
   
   a) Service manual of power weeder and engine
   
   b) Spare parts catalogue

2. The safety instructions booklet, covering the ones provided in ‘Annexure A’ of Indian standard IS: 15925- 2015, be brought out.

TESTING AUTHORITY

R. K. NEMA
SENIOR AGRICULTURAL ENGINEER

P. K. PANDEY
DIRECTOR

10. APPLICANT’S COMMENTS

No comments received from applicant.