

व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)  
COMMERCIAL TEST REPORT (Initial)



संख्या/No.: Machine 104/475  
माह / Month: November 2023



THIS TEST REPORT IS VALID UPTO 30.11.2028



SECHANAM AIW-07 POWER WEEDER



सत्यमेव जयते

भारत सरकार  
GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

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4. SPECIFICATIONS

4.1 General:

Make : SECHANAM  
 Model : AIW-07  
 Name and address of manufacturer : **Chongqing Senci Wugu Agriculture Machinery Import & Export Company Limited, Longfei Road, Dongchen Street, Tongliang District, Chongqing, China-402560**  
 Name and address of applicant : **Aquatix India, Madan Mohan Lane,1646/B, Near Binayak Steel, Gosala Road, Cuttack-753004, Odisha**  
 Name of machine : Power weeder  
 Type of machine : Self propelled, Walk behind  
 Working size of machine (mm) : 1050  
 Year of manufacture : 2022  
 Serial no. of machine : AIW-5219

4.2 Details of prime mover:

Make : Not Specified  
 Model : FC170F  
 Type : 4 stroke, Single cylinder, Air cooled, Spark Ignition  
 Year of manufacture : 2022  
 Serial Number : FC210901840  
 Country of origin (apa) : **CHINA**  
 Recommended high idle speed (rpm) : 3850 ± 100  
 Recommended low idle speed (rpm) : 1450 ± 50  
 Recommended rated speed (rpm) : 3600  
 Rated power observed (kW) : **3.71**  
 Rated power declared (apa) (kW) : 4.49

|                 |                                 |                         |
|-----------------|---------------------------------|-------------------------|
| Machine 104/475 | SECHANAM AIW-07<br>POWER WEEDER | COMMERCIAL<br>(INITIAL) |
|-----------------|---------------------------------|-------------------------|

**11.2 Chemical composition of rotor blades :**

| Constituents    | As per IS 6690:1981<br>(Reaffirmed 2012) |                                | Composition<br>as observed<br>(% by<br>weight) | Remarks                 |
|-----------------|--|--------------------------------|--|-------------------------|
|                 | Carbon Steel<br>(%)                      | Silicon Manganese<br>Steel (%) |  |                         |
| Carbon ( C )    | 0.70 -0.85                               | 0.50-0.60                      | 0.608  | <b>Does not conform</b> |
| Silicon (Si)    | 0.10 -0.40                               | 1.50-2.00                      | 0.279  | Conforms                |
| Manganese (Mn)  | 0.50 -1.0                                | 0.50-1.00                      | 0.788  | Conforms                |
| Sulphur (S)     | 0.05(max)                                | 0.05(max)                      | 0.016  | Conforms                |
| Phosphorous (P) | 0.05(max)                                | 0.05(max)                      | 0.020  | Conforms                |

**12. FIELD PERFORMANCE TEST**

The field tests were conducted for 25.34 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated speed of 3600 rpm. The detailed test results are represented in the Annexure and summarized in the ensuing table:

| Sl.No. | Parameters                        | Observations          |
|--------|-----------------------------------|-----------------------|
| 1      | Type of soil                      | : Light               |
| 2      | Soil moisture (%)                 | : 9.7 to 11.7         |
| 3      | Bulk density of soil (g/cc)       | : 1.58 to 1.65        |
| 4      | Forward Speed of operation (kmph) | : 0.98 to 1.19        |
| 5      | Depth of cut (cm)                 | : 5.47 to 5.80        |
| 6      | Width of cut (m)                  | : 1.09 to 1.11        |
| 7      | Area covered (ha/h)               | : 0.083 to 0.092      |
| 8      | Time required for one ha (h)      | : 10.87 to 12.05      |
| 9      | Field efficiency (%)              | : 71.32 to 82.88      |
| 10     | Weeding efficiency (%)            | : 68.42 to 75.60      |
| 11     | Fuel consumption                  |                       |
|        |                                   | l/h : 0.89 to 1.14    |
|        |                                   | l/ha : 10.39 to 12.39 |

**12.1 Rate of work**

- Rate of work was recorded as 0.083 to 0.092 ha/h and the forward speed of operation varied from 0.98 to 1.19 kmph.
- Time required to cover one hectare was recorded as 10.87 to 12.05 h.

**12.2 Quality of work:**

- Depth of cut was recorded as 5.47 to 5.80 cm.
- Working width was observed as 1.09 to 1.11 m.
- Field efficiency was found as 71.32 to 82.88 %.
- Weeding efficiency was found as 68.42 to 75.60 %.

|                 |                                 |                         |
|-----------------|---------------------------------|-------------------------|
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|-----------------|---------------------------------|-------------------------|

- 15.2 **Clutch:** No noticeable defects observed
- 15.3 **Transmission gears:** No noticeable defects observed
- 15.4 **Rotary drive unit:**  
The rotary drive unit was dismantled and all the components were found in normal condition.

### 16. COMMENTS & RECOMMENDATIONS

- 16.1 The average rated power in rating test of engine was observed as 3.71 kW against declared value of 4.49 kW by the manufacturer. This should be looked into for corrective action.
- 16.2 The engine was not marked with Manufacturer name or trade-mark, Rated power, Rated speed and type of fuel used which does not fulfill the requirement of IS 7347-1974 (Amended 2011). This may be looked into.
- 16.3 It was observed that during engine performance test, at full Load, engine speed was not stable at rated speed. This shall be looked into for corrective action.
- 16.4 The hardness and chemical composition of rotary blades does not conform to the requirement of IS 6690:1981 (Reaffirmed 2012). This may be looked into for corrective action.
- 16.5 Machine maneuverability while taking turns during field operation was not comfortable. It shall be looked into for ease of operation for the operator.
- 16.6 Noise at operator's ear level was observed on higher side against warning limit of 85 dB (A) as specified by International labour Organization (ILO) for continuous exposure of 8 hours per day. **This calls for reduction in noise level to improve the operator's comfort & safety.**
- 16.7 The amplitude of mechanical vibration marked as (\*) is on drastically higher side and is directly concerned with operator's health, safety and comfort. Besides, it is also adversely affect the useful life of machine components. In view of above, this deserves to be given top priority for corrective action.
- 16.8 Working width of the machine, type of engine (Petrol/Diesel) & manufacturer's address should be provided on the labeling plate of the machine. This should be looked into for corrective action.
- 16.9 The mentioned value of rated power 4.49 kW of engine on the labeling plate of the machine was not matching with the observed value of 3.71 kW during engine test. This should be looked into for corrective action.

16.10 On labeling plate, manufacturer's address has been mentioned wrongly. Also it has been mentioned as 'Make in India' which should be removed as the machine is imported. This should be looked into for corrective action.

16.11 **Adequacy of Literature**

The following literature in English language was provided for reference during testing:

- Operator's/ Service manual
- Parts catalogue

It is recommended to bring out the manual in Hindi and other vernacular languages as per IS: 8132-1999.

**TESTING AUTHORITY**

(M.R. PATIL)  
AGRICULTURAL ENGINEER

(Dr. P.P. RAO)  
DIRECTOR

Draft test report compiled by - **Shri Khagendra Bora**  
**Sr. Technical Assistant**

**17. APPLICANT'S COMMENTS**

| Para No | Our Reference | Applicant's Comments   |
|---------|---------------|--|
| 17.1    | 16.1 to 16.10 | Necessary precautionary measures will be taken during future products. |
| 17.2    | 16.11         | No comment offered by the applicant.                                   |