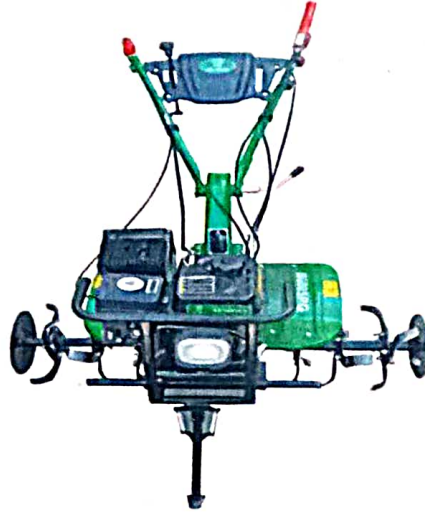




THIS TEST REPORT IS VALID UPTO 31.12.2027



SSG005PG SS GOLD
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

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

विश्वनाथ चारिआलि, जिला-विश्वनाथ (असम)

BISWANATH CHARIALI: BISWANATH: ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

| | | |
|----------------|----------------------------------|-------------------------|
| Machine 81/452 | SSG005PG SS GOLD POWER WEEDER | COMMERCIAL (INITIAL) |
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1. SCOPE OF TEST

The scope of test was limited to check and assess the following:

- 1.1 Specification and other data furnished by the applicant.
- 1.2 Engine performance test
- 1.3 Vibration Measurement
- 1.4 Noise measurement
- 1.5 Air cleaner oil pull over test
- 1.6 Hardness & chemical composition
- 1.7 Field performance
- 1.8 Wear analysis of rotor blades
- 1.9 Ease of operation and adjustments
- 1.10 Defects, breakdowns and repairs

2. METHOD OF SELECTION

As per Govt. of India, OM No. 13-1/2021-M&T (I&P), dated 03.02.2022, the selection of sample for test was exempted. Hence, the machine was directly submitted by the applicant at this Institute for test.

3. TEST CODE AND PROCEDURE

There is no Indian standard/test code available for testing of self-propelled power weeder as such. The guidelines, however, have been taken from the following:

- | | |
|----------------------------------|---|
| IS 9935 : 2002 (Reaffirmed 2012) | : Power Tiller - Test code |
| IS 9980 : 1999 (Reaffirmed 2004) | : Guidelines for field performance and haulage tests of power tillers |
| IS: 7347-1974 (Reaffirmed 2006) | : Specification for Performance of Small Size Spark Ignition Engines |
| IS 1976 : 1976 (Reaffirmed 2009) | : Specification for Rotary paddy weeder, manually operated |
| IS 6690 : 1981 (Reaffirmed 2012) | : Specification for Blades for Rotavator for Power Tillers |

4. SPECIFICATIONS

- 4.1 General:**
- | | |
|----------------------------------|--|
| Make | : SS GOLD |
| Model | : SSG005PG |
| Name and address of manufacturer | : Chongqing Senci Wugu Agricultural Machinery Import & Export Co. Ltd. No.8, Longfei Road, Dongcheng Street, Tongliang Town, Chongqing, CHINA |

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Name and address of applicant : **Supreme Sales Agency**
33/1, Netaji Subhas Road, Room No. 323
3rd Floor Marshal House,
Kolkata, West Bengal-700001

Name of machine : Power weeder
Type of machine : Self propelled, Walk behind
Working size of machine (mm) : 1140
Year of manufacture : 2022
Serial no. of machine : SSGOLD005PG220330024

4.2 Details of prime mover:

Make : **Not Specified**
Model : W170F
Type : 4 stroke, Single cylinder, Air cooled
Year of manufacture : **Not Specified**
Serial Number : SSGGOLD005PG220330008
Country of origin : **CHINA**
Recommended high idle speed (rpm) : 3550±50
Recommended low idle speed (rpm) : 1400±100
Recommended rated speed (rpm) : 3400
Rated power observed (kW) : **1.23**
Rated power declared by the applicant (kW) : **4.5**

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11.2 Chemical composition of rotor blades :

| Constituents | As per IS 6690:1981 (Reaffirmed 2012) | | Composition as observed (% by weight) | Remarks |
|-----------------|--|--------------------------------|--|-------------------|
| | Carbon Steel (%) | Silicon Manganese Steel (%) | | |
| Carbon (C) | 0.70 -0.85 | 0.50-0.60 | 0.724 | Conforms |
| Silicon (Si) | 0.10 -0.40 | 1.50-2.00 | 0.703 | Does not conforms |
| Manganese (Mn) | 0.50 -1.0 | 0.50-1.00 | 1.084 | Does not conforms |
| Sulphur (S) | 0.05(max) | 0.05(max) | 0.003 | Conforms |
| Phosphorous (P) | 0.05(max) | 0.05(max) | 0.010 | Conforms |

12. FIELD PERFORMANCE TEST

The field tests were conducted for 26.59 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated speed of 3400 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 (%) | 7.3 to 8.2 |
| 3 | Bulk density of soil (g/cc) | 1.54 to 1.59 |
| 4 | Forward Speed of operation (kmph) | 0.57 to 0.79 |
| 5 | Depth of cut (cm) | 5.80 to 6.20 |
| 6 | Width of cut (m) | 1.12 to 1.13 |
| 7 | Area covered (ha/h) | 0.053 to 0.068 |
| 8 | Time required for one ha (h) | 14.70 to 18.18 |
| 9 | Field efficiency (%) | 69.62 to 84.93 |
| 10 | Weeding efficiency (%) | 77.67 to 79.76 |
| 11 | Fuel consumption | |
| | l/h | 0.854 to 0.962 |
| | l/ha | 14.14 to 16.10 |

12.1 Rate of work:

- Rate of work was recorded as 0.053 to 0.068 ha/h and the forward speed of operation varied from 0.57 to 0.79 kmph.
- Time required to cover one hectare was recorded as 14.70 to 18.18 h.

12.2 Quality of work:

- Depth of cut was recorded as 5.80 to 6.20 cm.
- Av. working width was observed as 1.12 to 1.13 m.
- Field efficiency was found as 69.62 to 84.93 %.
- Weeding efficiency was found as 77.67 to 79.76 %

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15.1.7 Valve guide clearance

| Valve guide diameter (mm) | | Valve stem diameter (mm) | | Valve guide clearance (mm) | | Max. Permissible wear limit (mm) | |
|---------------------------|---------|--------------------------|---------|----------------------------|---------|----------------------------------|---------------|
| Inlet | Exhaust | Inlet | Exhaust | Inlet | Exhaust | Inlet | Exhaust |
| 5.50 | 5.51 | 5.47 | 5.47 | 0.03 | 0.04 | Not specified | Not specified |

Valve, guide and timing gear:-

| | |
|--|----------|
| Any marked sign of overheating of valves | : None |
| Pitting of seat/faces of valves | : None |
| Any visual damage of teeth of timing gears | : None |
| Condition of ignition coil & magneto | : Normal |

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 1.23 kW against declared value of 4.5 kW by the applicant. It is serious concern and seems to be the applicant is misguiding the end users like farmers & others etc.
- 16.2 The specific fuel consumption (SFC) in rating test of engine was observed as 471.2 g/kWh against declared value of 374.0 g/kWh by the manufacturer which exceeded by more than 5 percent of that declared by the manufacturer and hence does not fulfill the requirement of IS 7347-1974 (Amended 2011). This should be looked into for corrective action.
- 16.3 It was observed that during engine performance test, at full Load, engine rpm was not stable at rated speed. This shall be looked into for corrective action.
- 16.4 Oil leakage from main engine oil seal was observed during engine testing. This shall be looked into for quality improvement.

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- 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 Choking of weeds on rotor axle was observed repeatedly during field performance test. This shall be looked into for improvement.
- 16.7 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 shall be looked into.
- 16.8 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.
- 16.9 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.**
- 16.10 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.
- 16.11 Engine model and machine serial number as mentioned on the labeling plate of the machine was not matching with the observed number on the engine and machine, respectively. This shall be looked into for corrective action.
- 16.12 Big end bearing axial clearance was observed as 1.5 mm against 0.80 mm of maximum permissible wear limit as declared by the applicant. It should be looked into for corrective action.
- 16.13 Working depth has been mentioned as 150-300 mm on labeling plate of the machine. However, during field test it was observed as 58 to 62 mm. **declaring with vague data, treated as misguiding the farmers & other end users.**
- 16.14 Power has been mentioned as 7.0 hp on the labeling plate of the machine. However, during engine rating tests the power was observed as 1.68 hp. **This shall be looked into for corrective action.**

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16.15 Adequacy of Literature

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

- Operator's/ Service manual
- Parts catalogue

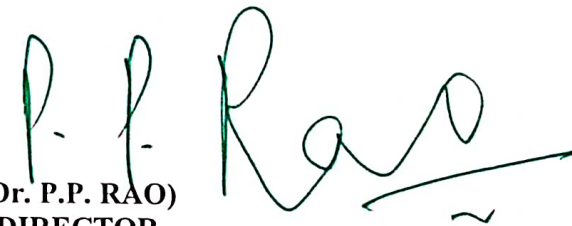
It is recommended to bring out the manual in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY




(M.R. PATIL)
AGRICULTURAL ENGINEER


(S.G. PAWAR)
AGRICULTURAL ENGINEER


(Dr. P.P. RAO)
DIRECTOR

Draft test report compiled by - **Shri Pankaj Sethi**
Technical Assistant

17. APPLICANTS COMMENTS

| Para No | Our Reference | Applicant's Comments |
|---------|---------------|--|
| 17.1 | 16.1 to 16.4 | We will take corrective action in future production. |
| 17.2 | 16.5 to 16.7 | We will be looked into for corrective action. |
| 17.3 | 16.8 | We will make changes in blade materials for our future products. |
| 17.4 | 16.9 to 16.10 | We will take corrective measure for reducing the vibration and noise of the machine. |
| 17.5 | 16.15 | We will modify the manual according to your suggestion. |