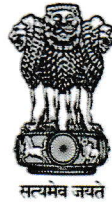




THIS TEST REPORT IS VALID UP TO 31.05.2028



SSG009D SS GOLD POWER WEEDER



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- शोणितपुर (असम)

BISWANATH CHARIALI: SONITPUR: ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

Machine 91/462	SS GOLD SSG009D POWER WEEDER	COMMERCIAL (INITIAL)
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4. SPECIFICATIONS

4.1 General:

Make	: SS GOLD
Model	: SSG009D
Name and address of manufacturer	: Chongqing Senci Wugu Agricultural Machinery Import & Export Co., Ltd. No.8 Longfei Road, Dongcheng Street, Tongliang Town, Chongqing, CHINA
Name and address of applicant	: Supreme Sales Agency 33/1, Netaji Subhas Road, Marshal House, Kolkata, West Bengal - 700001
Name of machine	: Power Weeder
Type of machine	: Self propelled, Walk behind
Working size of machine (mm)	: 1385
Year of manufacture	: 2022
Serial no. of machine	: SSG009D22040007

4.2 Details of prime mover:

Make	: China
Model	: 186 FA
Type	: 4 stroke, Single cylinder, Air cooled, Diesel Engine
Year of manufacture	: 2022
Serial Number	: Not Specified
Country of origin	: CHINA
Recommended high idle speed (rpm)	: 3500 ± 100
Recommended low idle speed (rpm)	: 1400 ± 200
Recommended rated speed (rpm)	: 3400
Maximum power observed (kW)	: 6.78

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10. AIR CLEANER OIL PULL OVER TEST

Date of test	:	24.02.2023
Range of atmospheric conditions :		
Temperature (°C)	:	20.7 to 22.6
Pressure (kPa)	:	100.4 to 100.6
Relative humidity (%)	:	72.3 to 75.6
Mass of oil before test (g)	:	46.12

Sl. No.	Position of Power Weeder	Loss of oil (g)	Oil pullover (%)
1	Parked on level ground	0.69	1.49
2	Tilted to 15° laterally with RHS up	1.22	2.65
3	Tilted to 15° laterally with LHS up	0.89	1.93
4	Tilted to 15° longitudinally with front end up	0.62	1.34
5	Tilted to 15° longitudinally with rear end up	0.55	1.19

11. LABORATORY TEST

11.1 Hardness of rotor blades :

The surface hardness of blade was recorded as under :

	As per IS 6690:1981 (Reaffirmed 2012)	As observed (HRC)	Remarks
At edge portion	56 ±3 HRC	39.9	Does not conform
At shank portion	37 to 45 HRC	38.8	Conforms

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	0.586	Conforms
Silicon (Si)	0.10 -0.40	1.50-2.00	0.260	Conforms
Manganese (Mn)	0.50 -1.0	0.50-1.00	0.776	Conforms
Sulphur (S)	0.05(max)	0.05(max)	0.020	Conforms
Phosphorous (P)	0.05(max)	0.05(max)	0.024	Conforms

12. FIELD PERFORMANCE TEST

The field tests were conducted for 28.19 hours of field operation for testing the said Power Weeder. The field tests were conducted at rated rpm of 3400. The detailed test results are represented in the Annexure and summarized in the ensuing table:

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Sl.No.	Parameters	Observations
1	Type of soil	: Light
2	Soil moisture (%)	: 8.3 to 10.6
3	Bulk density of soil (g/cc)	: 1.57 to 1.88
4	Forward Speed of operation (kmph)	: 0.957 to 1.03
5	Depth of cut (cm)	: 5.24 to 5.76
6	Width of cut (m)	: 1.49 to 1.50
7	Area covered (ha/h)	: 0.107 to 0.133
8	Time required for one ha (h)	: 7.52 to 9.35
9	Field efficiency (%)	: 73.79 to 86.15
10	Weeding efficiency (%)	: 83.21 to 87.31
11	Fuel consumption	
	l/h	: 0.900 to 1.00
	l/ha	: 6.81 to 8.42

12.1 Rate of work:

- Rate of work was recorded as 0.107 to 0.133 ha/h and the forward speed of operation was recorded from 0.957 to 1.03 kmph.
- Time required to cover one hectare was recorded as 7.52 to 9.35 h.

12.2 Quality of work:

- Depth of cut was recorded as 5.24 to 5.76 cm.
- Working width was observed as 1.49 to 1.50 m.
- Field efficiency was found as 73.79 to 86.15 %.
- Weeding efficiency was found as 83.21 to 87.31 %.

12.3 Adequacy of power of prime mover:

The power of prime mover was found adequate.

12.4 Wear Analysis of rotor blades:

Blade No.	Initial mass(g)	Final mass (g)	Loss of mass (g)	Percentage wear of rotor blades	
				After 28.19 h	Per hour
L-1	287.0	275.0	12.0	4.18	0.15
L-2	284.5	276.0	8.5	2.99	0.11
L-3	265.5	257.0	8.5	3.20	0.11
L-4	287.0	276.5	10.5	3.66	0.13
L-5	292.5	281.5	11.0	3.76	0.13
R-1	298.5	291.5	7.0	2.35	0.08
R-2	299.5	292.0	7.5	2.50	0.09
R-3	303.0	296.5	6.5	2.15	0.08
R-4	299.0	290.0	9.0	3.01	0.11
R-5	300.0	291.5	8.5	2.83	0.10

The hourly rate of wear of blade on mass basis after field operations was recorded as 0.08 to 0.15%.

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16. COMMENTS & RECOMMENDATIONS

- 16.1 The maximum Power and rated power were observed as 6.78 kW and 5.78 kW under natural ambient condition against the declared value of 6.2 kW and 5.5 kW by the manufacturer.
- 16.2 Back up torque of engine was observed as 19.38 % against the declared value of 7% by the manufacturer.
- 16.3 The maximum torque was observed as 25.07 N-m against the declared value of 20.0 N-m. This shall be looked into for corrective action.
- 16.4 The specific fuel consumption (SFC) of engine corresponding to maximum power and at rated engine speed was recorded as 256 g/kWh and 271 g/kWh under natural ambient condition against the declared value of 320 g/kWh and 270 g/kWh by the manufacturer. This shall be looked into for corrective action.
- 16.5 During engine performance test (maximum power 2 hours test natural and high ambient condition) engine speed was not stable. This shall be looked into for corrective action.
- 16.6 Noise at operator's ear level was observed on higher side against danger limit of 90 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 the component in view of above this deserves to be given top priority for corrective action.
- 16.8 The hardness 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 During oil pull over test percentage loss of oil was observed on higher side. It should be looked into for corrective action.
- 16.10 Machine maneuverability while taking turns at head land during field operation was not comfortable. It shall be looked into for ease of operation for the operator.
- 16.11 Engine model number was wrongly mentioned on the labelling plate of the machine. This should be looked into for corrective action.
- 16.12 Abnormal sound was observed from recoil starter during Engine performance test (natural ambient condition). On request of the applicant recoil starter was changed with new one. This shall be looked into for improvement.
- 16.13 Depth adjusting holder welding was broken during field performance test. Same was repaired during field performance test. This shall be looked into for improvement.

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16.14 It was observed that head light assembly bracket was broken after completion of Air cleaner oil pull over test. This shall be looked into for quality improvement.

16.15 Working depth has been mentioned as 150-300 mm on labeling plate of the machine. However, during field test it was observed as 52.4 to 57.6 mm. Declaring with vague data, treated as misguiding the farmers & other end users. It should be looked into for corrective action.

16.16 Name plate/ labeling plate should be provided on the machine as per Indian Standard.

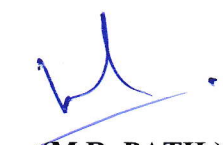
16.17 Adequacy of Literature

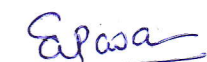
The following literature in English language was provided for reference during testing:


- 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 Khagendra Bora, Sr. Technical Assistant**

17. APPLICANTS COMMENTS

Para No	Our Reference	Applicants Comments
17.1	16.4 to 16.11	We will take corrective action in future production.
17.2	16.12 to 16.14	We will be looked into for improvement.
17.3	16.15	That is clerical error, we will take corrective action.
17.4	16.16	We will provide name plate/labelling plate as per Indian Standard.
17.5	16.17	We will modify the manual according to your suggestion.