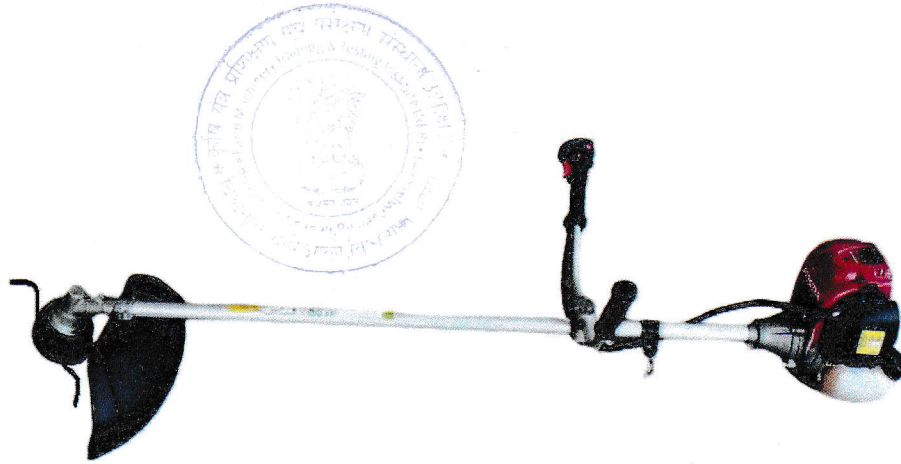




THIS TEST REPORT IS VALID UPTO 31.08.2028



FOGGERS INDIA PVT. LTD. SUDARSHAN WEED CUTTER 35 HONDA
BRUSH CUTTER



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- शोणितपुर (असम)

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[AN ISO 9001:2015 CERTIFIED INSTITUTION]

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1. SCOPE OF TEST**1.1 LABORATORY TEST**

- a) Checking of specifications
- b) Mechanical vibration measurement
- c) Noise measurement
- d) Wear assessment of critical components
- e) Engine performance test

1.2 FIELD TEST

- a) Rate of work
- b) Quality of work
- c) Labour requirement
- d) Adequacy of prime mover power
- e) Ease of operation, adjustment & safety provisions
- f) 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 brush cutter as such. However, for engine performance test, IS 7347-1974 (Amended 2011) was referred.

4. SPECIFICATIONS**4.1 General**

Name of the Machine	: Brush Cutter
Name and address of the Manufacturer	: Thai Honda Manufacturing Co. Ltd. , 410 Thanon liao Khlong Lam Ko Phai, Lam Prathew, Lat Krabang, Bangkok, Thailand-10520
Name & Address of Applicant	: M/s Foggers India Pvt. Ltd. , 313, 3 rd Floor, Grohitam Premises, Plot No. 14B, Sector – 19, Near Mathadi Bhavan, Vashi, Navi Mumbai- 400705
Model	: Sudarshan Weed Cutter 35 Honda

Make : Foggers India Pvt. Ltd.

Serial No. : PWT-004300

Type : Engine operated

Type of cutting attachment : Nylon rope and straight blade

Year of manufacture : 2021

Country of origin : **THAILAND**

Type of crops/bush recommended : All kinds of weeds/bushes.

4.2 Constructional details :

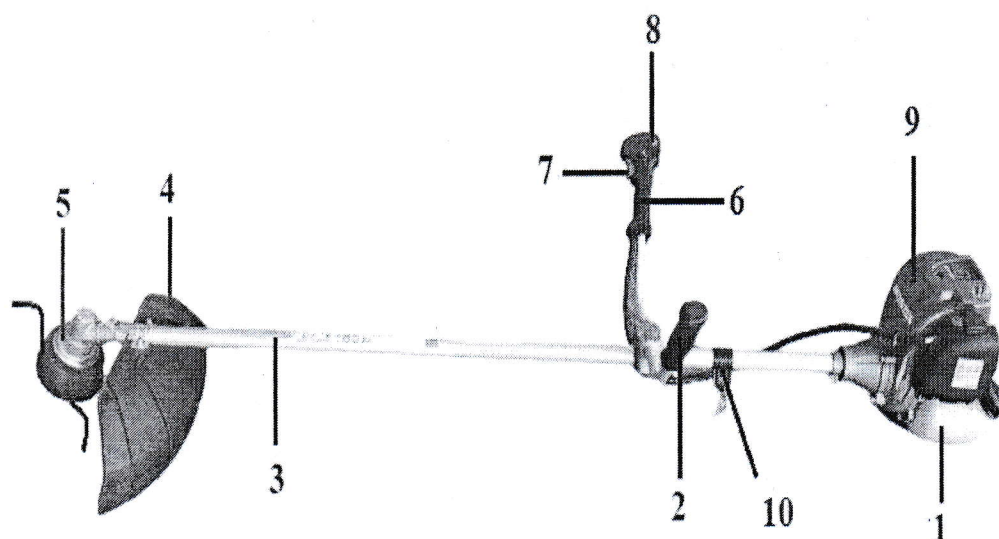


Fig. 1 : BRUSH CUTTER, MODEL: SUDARSHAN WEED CUTTER 35 HONDA

Keywords:

- | | |
|----------------------------|-----------------------------------|
| 1. Fuel tank | 6. RHS handle |
| 2. LHS handle | 7. Throttle cum clutch trigger |
| 3. Transmission cover pipe | 8. Engine stopping switch |
| 4. Deflector | 9. Engine |
| 5. Gear case | 10. Connection for Shoulder strap |

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10. HARDNESS AND CHEMICAL COMPOSITION

10.1 Hardness of Straight blade

Sl. No.	Hardness as per IS: 6025 – 1982 (HRC)	Hardness as measured (HRC)	Remarks
1	48 to 58	40.0	Does not Conform

10.2 Chemical composition of Straight Blade:

The results of chemical analysis test of straight blade were as under.

Constituent	As per IS: 6025 – 1982 (%)	Composition As observed (% by weight)	Remarks
Carbon (C)	0.70 to 0.95	0.523	Does not Conform
Manganese (Mn)	0.3 to 0.5	0.619	Does not Conform
Silicon (Si)	---	0.227	---
Sulphur (S)	---	0.011	---
Phosphorous (P)	---	0.015	---

11. WEAR ANALYSIS OF CRITICAL COMPONENTS

Component	Duration of operation (h)	Initial mass (g)	Mass after operation (g)	Loss of mass (g)	Percentage of wear	Percentage of wear on hourly basis
Straight blade	15.65	222.0	220.5	1.5	0.68	0.04

12. FIELD PERFORMANCE TEST

Field tests were conducted for total of 26.38 hours duration. Grass/weeds cutting with nylon rope and bush cutting using straight blade attachments were carried out for 10.73 hours and 15.65 hours, respectively. A total of five test trials were conducted at rated speed of 7000 rpm. Detailed results of field tests are shown in ANNEXURE-I & II and summarized in the ensuing table. Details of the operator have been given in ANNEXURE-III.

SUMMARY OF FIELD PERFORMANCE TEST

Sl. No.	Parameters	Grass/weeds cutting	Bush cutting
1	2	3	4
1	Field Condition	Level	
2	Thickness of stem of Grasses/Bush at cutting height (mm)	2.28 to 3.08	6.32 to 27.76
3	Average number of Grass/Bush in 1m ²	247 to 447	16 to 22

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1	2	3	4
4	Average height of Grasses/Bush (mm)	158.4 to 159.0	1158.4 to 1846.0
5	Mass of Grass/Bush cut (kg/h)	75.78 to 105.52	151.0 to 409.46
6	Mass of Grass/Bush cut (kg/ha)	2444 to 3742	9320 to 14364
7	Rate of work (ha/h)	0.028 to 0.031	0.016 to 0.029
8	Time required for one hectare (h)	32.25 to 35.46	35.08 to 61.72
9	Fuel consumption		
	-l/h	0.506 to 0.509	0.545 to 0.563
	-l/ha	16.41 to 17.94	19.11 to 34.68

12.1 Grass/Weeds cutting using nylon rope

12.1.1 Rate of work

- The area of cut was recorded as 0.028 to 0.031 ha/h.
- Time required for one hectare was recorded as 32.25 to 35.46 hours.
- Mass of weeds cut was 75.78 to 105.52 kg/h.

12.1.2 Fuel consumption

- Fuel consumption was observed as 0.506 to 0.509 l/h and 16.41 to 17.94 l/ha.

12.2 Bush cutting using straight blade

12.2.1 Rate of work

- The area of cut was recorded as 0.016 to 0.029 ha/h.
- Time required for one hectare was recorded as 35.08 to 61.72 hours.
- Mass of bush cut was 151.0 to 409.46 kg/h.

12.2.2 Fuel consumption

- Fuel consumption was observed as 0.545 to 0.563 l/h and 19.11 to 34.68 l/ha.

12.3 Labour/operator requirement :

It was observed that an averagely built person can able to operate the brush cutter for 40 to 45 minutes at a stretch. Hence, two operators are required for continuous operation of the brush cutter.

12.4 Adequacy of power of prime mover :

The power of prime mover was found adequate.

13. EASE OF OPERATION AND ADJUSTMENTS

No noticeable difficulties were observed in operation and adjustment during the field test.

14. DEFECTS, BREAKDOWNS AND REPAIRS

No noticeable defect or breakdown was observed during test.

Big end bearing:

Bearing No.	Clearance (mm)		Max. permissible clearance limit (mm)	
	Diametrical	Axial	Diametrical	Axial
1	Needle bearing	--	NA	NA

Measurement of big end bearing clearance was not possible as the piston along with connecting rod was not detachable.

15.2 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

Transmission system:

All the gears of the transmission system were found in normal condition.

16. COMMENTS & RECOMMENDATIONS

- 16.1** The average rated power in rating test of engine was observed as 0.55 kW against declared value of 1.3 kW by the manufacturer. This should be looked into for corrective action.
- 16.2** The specific fuel consumption (SFC) in rating test of engine was observed as 650 g/kWh against declared value of 507 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** 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). Also, labeling plate/sticker should be provided on machine with details such as name of machine, engine rated speed & power, machine serial number, make & model etc. This may be looked into.
- 16.4** 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 operational comfort and safety.
- 16.5** The amplitude of mechanical vibration at various assemblies viz steering handle, engine cover and drive shaft cover pipe was on higher side. This calls for dampening down of vibration to improve the operational comfort and service life of the components.
- 16.6** The Hardness & Chemical composition of Straight blade does not conform to Indian Standard IS 6025:1982. This should be looked into for corrective action.

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16.7 As a safety wear, only hand gloves & goggles (safety glass) were provided with the machine. The applicant has strictly advised to provide the entire safety kit including helmet, Safety shoe, ear plug, mask etc. along with each machine for the safety of operator.

16.8 Provision for cushion material with shoulder belt to dampen the vibration at shoulders should be provided for comfort of the operator. This should be looked into.

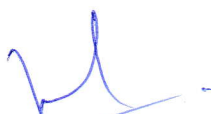
16.9 Adequacy of Literature

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. APPLICANT'S COMMENTS

Sr. No.	Page No. /Clause No.	Applicant's Comments
17.1	16.1 to 16.9	We will take necessary actions in future production.