

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT



संख्या /No.: Equip.23/259
माह / Month: September, 2016



“STIHL, FS-3900” BRUSH CUTTER



भारत सरकार

GOVT OF INDIA

कृषि एवं किसान कल्याण मन्त्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

विश्वनाथ चारिअली, जिला-विश्वनाथ (असम)

BISWANATH CHARIALI :: BISWANATH :: ASSAM, PIN - 784 176

NERFMTTI, LIBRARY
T R. No. 2816
Date 24/11/16

Ph. No. 03715-222094

Website: <http://nerfmtti.nic.in>

Fax No: 03715-230358

E-Mail: fmti-ner@nic.in

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

- a) Checking of specification
- b) Mechanical vibration measurement
- c) Noise measurement
- d) Hardness and chemical analysis of critical components
- e) Wear analysis of critical components

1.2 FIELD TEST

- a) Rate of work
- b) Quality of work
- c) Labour requirement
- d) Adequacy of power of prime mover
- e) Ease of operation, adjustment & safety provisions
- f) Defects, breakdowns and repairs

2. METHOD OF SELECTION

The machine was directly submitted by the applicant for test at this institute. Hence method of selection was not known.

3. TEST CODE AND PROCEDURE

There is no Indian Standard Test Code available for testing of brush cutter as such. The guidelines, however, have, have been taken from the following:

i)	IS: 11467 – 1985, reaffirmed 2012	:	Test code for cereal harvesting machine
ii)	IS: 6025 – 1982, reaffirmed 2009	:	Specification for knife sections for harvesting machines

4. SPECIFICATIONS**4.1 General:**

Name and address of the manufacturer	:	M/s ANDREAS STIHL AG & Co. KG, Badstrasse 115,71336 Waiblingen, Germany.
Name and address of Supply and Assembly manufacturing plant	:	M/s ANDREAS STIHL POWER TOOLS LTD., CHINA
Test requested by Importer/Applicant	:	M/s Andreas STIHL Pvt. Ltd., Gut No. 53/1, Pune-Nashik Highway, Kuirili, Pune, Maharashtra, India- 410 501
Make	:	STIHL
Model	:	FS-3900
Serial no. (apa)	:	979265073
Type	:	Self propelled
Year of manufacture (apa)	:	2015
Country of origin	:	China
Suitability	:	Cleaning of the Bushes, Shrubs Weeds & Grasses

- 12.2 A clamp was fitted on the frame pipe by means of two allen screw for fitting the handle which can be fitted at any positions according to operators comfort. The handle can further twist towards or against the operator by means of four allen screw which lock the handle and the clamp.

13. DEFECTS, BREAKDOWNS AND REPAIRS

Defects/breakdowns	Progressive hours
Fuel overflow pipe line has been detached from the fuel pump bulb.	1.0
After dismantling it was observed that the insulation of the transmission shaft was melted.	21.49

14. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

14.1 Performance of brush cutter with 2-Teeth blade

14.1.1 Rate of work

- a) The rate of work was recorded as 0.016 to 0.028 ha/h with operation speed of 0.20 to 0.22 kmph.
b) The time required to cover one hectare was recorded as 35.71 to 62.50 h

14.1.2 Quality of work

Mass of weed cut was observed as 27 to 29 kg/h

14.1.3 Fuel consumption

Fuel consumption was observed as 0.82 to 0.92 l/h and 32.85 to 51.25 l/ha

14.2 Performance of brush cutter with Nylon rope

14.2.1 Rate of work

- a) The rate of work was recorded 0.029 to 0.035 ha/h with operation speed of 0.32 to 0.34 kmph.
b) The time required to cover one hectare was recorded as 28.57 to 34.48 h.

14.2.2 Quality of work

Mass of weed cut was observed as 31 to 48 kg/h

14.2.3 Fuel consumption

Fuel consumption was observed as 1.25 to 1.32 l/h and 37.71 to 43.10 l/ha

14.3 Labour requirement

An averagely built person can able to operate the brush cutter for thirty minutes at a stretch. As immense vibration causing fatigue, two operators are required for continuous operation.

- 14.4 The capacity of fuel tank is only 0.64 L, which does not appear to be adequate. This call for necessary modification

- 14.5 Noise at operator's ear level and bystander's level was observed on higher side against danger limits of 90 dB(A) as specified by ILO for continuous exposure of 8 hours per day. This calls for reduction in noise level to improve the operational comfort and safety.

- 14.6 The Amplitude of mechanical vibration at various assemblies marked with *in **Table no. 1** is on higher side. This calls for dampening down of vibration to improve the operational comfort and service life of the components.

14.7 During testing, Goggles and Earmuffs was provided as protective devices. All the necessary protective accessories, as mentioned in the instruction manual, like arm cover, gloves, leg protector, face shield, helmet, etc. was not provided. All these should necessarily be provided for the safety of operator.

14.8 No labeling plate indicating Year of manufacture, Power of prime mover, Specific fuel consumption, Rated speed of engine, Speed of cutting attachment, etc. has been provided on the machine. This may be looked into for necessary corrective action.

14.9 Adequacy of Literature

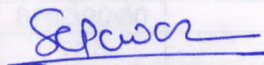
The following literatures covered with English was provided for reference during testing:

- Instruction manual
- Parts catalogue

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

TESTING AUTHORITY

Place of test	Assam
Type of crop	Grass
Attachments used	Nylon rope



S. G. PAWAR
AGRICULTURAL ENGINEER



K.K. NAGLE
DIRECTOR

Test conducted and report compiled by - Sh. Vithato Keyho & Sh. Rahul Prajapati

15. APPLICANT'S COMMENTS

One copy of draft test report was sent to the applicant for their comment. However, no relevant comments received within time regarding comments & recommendations.