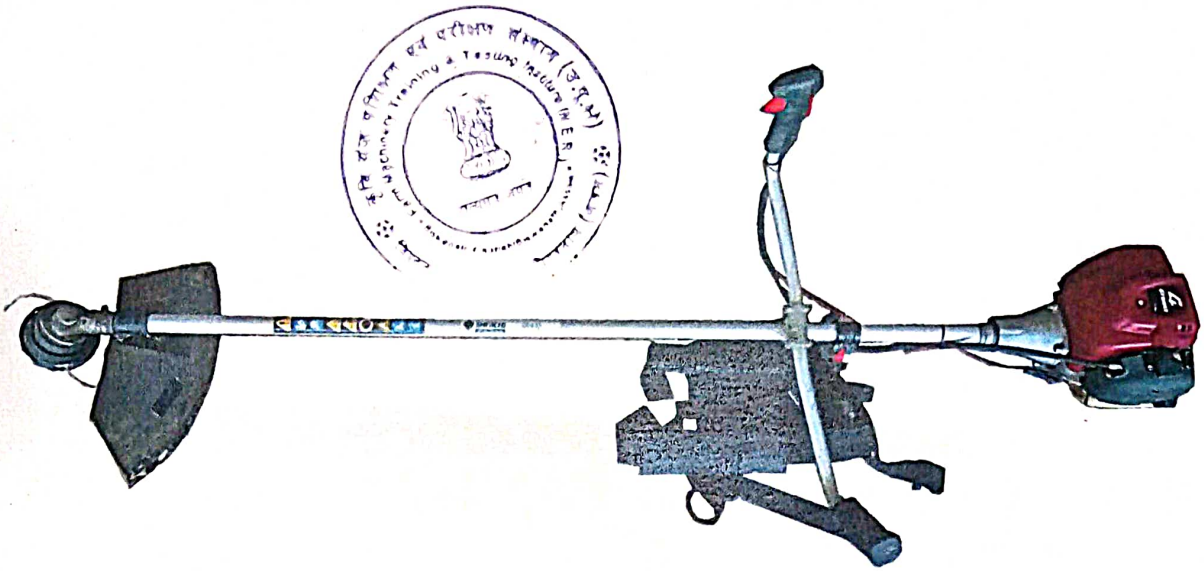
व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (Initial)

संख्या / No.: Machine 36/379
माह / Month: March, 2021

THIS TEST REPORT VALID UPTO 31/03/2026



SHRACHI BRUSH CUTTER, Model: SRBCCG435

सत्यमेव जयते

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
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1. SCOPE OF TEST

1.1 LABORATORY TEST

a) Checking of specification
b) Mechanical vibration measurement
c) Noise measurement
d) Engine performance test

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. For engine performance test, IS 7347-1974 was referred.

4. SAFETY WEARS

The following safety wears were provided as essential to be used during operation of this machine.

a) Hand gloves
b) Safety glass (goggles)
c) Protective cloth (apron)

5. SPECIFICATIONS

5.1 General:

Name of the Machine	:	Brush Cutter
Name and address of the manufacturer	:	M/s SHANDONG HUASHENG PESTICIDE MACHINERY CO. LTD.No. 1 Zhongtian Road, Hi-Tech Industrial Development Zone, Linyi City, Shandong, 276017, China
Name & Address of Applicant/Importer	:	**M/s BTL EPC LTD. (AGRO DIVISION)** 2, Jessore Road, Dum Dum, Kolkata- 700028, West Bengal, India
Make	:	M/s SHANDONG HUASHENG PESTICIDE MACHINERY CO. LTD. No. 1 Zhongtian Road, Hi-Tech Industrial Development Zone, Linyi City, Shandong, 276017, China
Model	:	SRBCCG435

Serial no. (apa)	:	NA
Type	:	Engine operated machine
Type of cutting attachment	:	Nylon rope
Year of manufacture (apa)	:	2017
Country of origin	:	China
Suitability (apa)	:	Cutting of weeds, bushes, grasses

5.2 Constructional details :

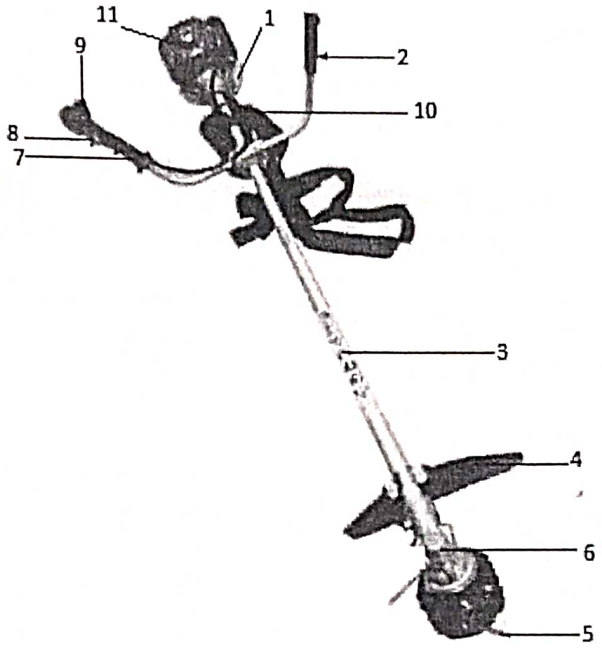

Fig. 1 : SHRACHI BRUSH CUTTER

Keywords:

1. Fuel tank
2. LHS handle
3. Frame pipe
4. Deflector
5. Rope
6. Gear case
7. RHS handle
8. Throttle cum clutch trigger
9. Engine stopping switch
10. Hook
11. Engine

5.3 Details of Prime Mover :

Make	:	M/s SHANDONG HUASHENG PESTICIDE MACHINERY CO. LTD., No. 1 Zhongtian Road, Hi-Tech Industrial Development Zone, Linyi City, Shandong, 276017, China
Model (apa)	:	140 FA
Type	:	Single cylinder, air cooled, vertical, four stroke,Spark ignition engine.
Serial no.	:	18B01Y0278L2
Year of manufacture (apa)	:	2017
Country of origin	:	China
Recommended high idle speed, rpm	:	8000 ± 100
Recommended low idle speed, rpm	:	3000 ± 100
Recommended rated speed, rpm	:	6500
Engine rated power observed, kW	:	0.53

11.1 SUMMARY OF FIELD PERFOMANCE TEST

S. No.	Parameters	Observations
1.	Average number of grass/weeds in one m^2	193 to 1395
2.	Average height of grass/weeds, cm	13.0 to 20.2
3.	Mass of grass/weed cut, kg/h	113 to 199.8
4.	Average speed of operation, km/h	0.194 to 0.334
5.	Rate of work, ha/h	0.026 to 0.045
6.	Time required for one hectare, h	22.17 to 38.31
7.	**Fuel consumption:**	
	-l/h	0.694 to 0.762
	-l/ha	16.67 to 28.96

11.2 Grass cut using Nylon rope :

11.2.1 Rate of work

a) The rate of work was recorded as 0.026 to 0.045 ha/h with operation speed of 0.194 to 0.334 kmph.

b) The time required to cover one hectare was recorded as 22.17 to 38.31 h.

11.2.2 Quality of work

Mass of weed cut was observed as 31.30 to 90.10kg/h.

11.2.3 Fuel consumption

Fuel consumption was observed as 0.694 to 0.762 l/h and 16.67 to 28.96 l/ha

11.3 Labour requirement :

An averagely built person can able to operate the brush cutter for forty minutes at a stretch. Hence, two operators are required for continuous operation.

11.4 Adequacy of power of prime mover :

The power of prime mover was found adequate.

12. EASE OF OPERATION, ADJUSTMENTS& SAFETY PROVISION

12.1 Fatigue was observed just after 40 minutes of operation of the Brush Cutter, mainly, due to mechanical vibration. The operator complained about pain in different parts of his body like wrist, shoulder and right side thigh, etc. during operation.

12.2 The strips provided of the backpack is very uncomfortable, Hence operator suffer pain in shoulder.

13. DEFECTS, BREAKDOWNS AND REPAIRS

No major breakdown was occurred during 27.29h of field operation.

14. COMPONENTS/ASSEMBLY INSPECTION

The brush cutter was dismantled after 27.29hours of field operation and 8.58 hours of engine test

14.2 Transmission system:

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

15. COMMENTS & RECOMMENDATIONS

15.1 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.

15.2 The amplitude of mechanical vibration at various assemblies viz. steering handle, engine cover and frame pipe is on higher side. This calls for dampening down of vibration to improve the operational comfort and service life of the components.

15.3 The specific fuel consumption as observed during engine test was exceeding by more than 5 percent as declared by the applicant which does not fulfil the requirement of IS 7347-1974. This should be looked into for corrective action.

15.4 During testing, Goggles and hand gloves were provided as safety devices. However, other safety devices viz. helmet, ear plug, mask, safety shoes etc. should necessarily be provided for the safety of operator.

15.5 The strips of the backpack were uncomfortable to the operator and felt pain in shoulder while operation. This should be looked into for improvement.

15.6 Some times during field operation low engine rpm (rpm drop) were observed. This should be looked into for improvement.

15.7 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.

15.8 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

(M.R. PATIL)	(S.G. PAWAR)	(J.P. MANDAL)
AGRICULTURAL ENGINEER	AGRICULTURAL ENGINEER	Sr. AGRICULTURAL ENGINEER

(K.K. NAGLE)
DIRECTOR

16. APPLICANT'S COMMENTS

Para no.	Our Reference	Comments
16.1	15.1	We would discuss the same issue with the manufacturer to improve on the same point.
16.2	15.2	We would discuss the same issue with the manufacturer to dampening down the vibration with required measures.
16.3	15.3	We should look into the same.
16.4	15.4	We have noted the same, and this should be looked into in future.
16.5	15.5	We would improve the same strip quality in future.
16.6	15.6	We will discuss the same with engine manufacturer for required development.
16.7	15.7	We have noted the same recommendation.
16.8	15.8	We have noted the same recommendation.