

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: Machine:27/2654/2021
माह/Month : January, 2021

THIS TEST REPORT VALID UP TO : 31st January, 2026



**RALLI, RALLI BC-430S
BRUSH CUTTER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि, सहकारिता एवं किसान कल्याण विभाग

Department of Agriculture, Cooperation and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

Northern Region Farm Machinery Training and Testing Institute

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11.2 Chemical composition analysis:**11.2.1 Triangular blade:**

Constituents	As per IS: 6025-1982	Composition as observed (% of weight)	Remarks
Carbon (C)	0.70-0.95	0.3259	Does not conform
Manganese (Mn)	0.30 to 0.50	0.7894	Does not conform
Silicon (Si)	--	0.3752	--
Sulphur (S)	--	0.0303	--
Phosphorous (P)	--	0.0071	--

12. FIELD TEST

Field tests were conducted for 14.92 hours with triangular blade attachment and 12.46 hours with Nylon rope attachment. Detailed results of field tests are shown in Annexure-I & II and summarized in the ensuing table. Details about the operator are show in Annexure-III.

Sr. No.	Parameters	Seasonal Grass cutting	
		For triangular blade	For nylon rope
1	Field condition	Leveled	Leveled
2	Intensity of grass	Medium	Medium
3	Average number of grass/weed in 1 sq.m	89 to 175	207 to 212
4	Avg. height of grass/weed, cm	50 to 72	20 to 28
5	Avg. Diameter of grass/weed, mm	2.5 to 2.7	1.5
6	Avg. Mass of grass cut (kg/h)	41.00 to 60.40	4.60 to 17.00
7	Avg. area covered (Rate of work), ha/h	0.019 to 0.029	0.019 to 0.028
8	Avg. Time required for one hectare, h	34.48 to 52.63	35.71 to 52.63
9	Avg. Fuel consumption		
		l/h	0.96 to 1.00
		l/ha	34.48 to 52.63
			0.80
			28.57 to 42.11

12.1 Cutting using triangular blade**12.1.1 Rate of work**

- The average area covered (rate of work) was observed as 0.019 to 0.029 ha/h.
- Average time required for one hectare was observed as 34.48 to 52.63 hours.
- Average numbers of perennial weed in one square meter are was 89 to 175.
- Average mass of perennial weed cut was 41.00 to 60.40 kg/h.

12.1.2 Fuel consumption

Fuel consumption was observed as 0.96 to 1.00 l/h and 34.48 to 52.63 l/ha.

12.2 Cutting using nylon rope assembly**12.2.1 Rate of work**

- Average area covered (rate of work) was observed as 0.019 to 0.028 ha/h.
- Average time required for one hectare was observed as 35.71 to 52.63 h.
- Average mass of grass cut was observed as 4.60 to 17.00 kg/h.
- Average No. of grass stem in one m² area was 207 to 212

12.2.2 Fuel consumption

Average fuel consumption was observed as 0.80 l/h. and 28.57 to 42.11 l/ha.

12.3 Labor requirement

To ensure the cutting work without interruption, two operators are required to work alternates. Additionally, one more labour is needed gather the collected bush/weeds.

12.4 Adequacy of power of prime mover

The power of prime mover was found adequate.

12.5 Wear analysis of critical components

Component	Duration of operation (h)	Initial length/mass (mm/g)	Length/Mass after operation (mm/g)	Loss of length/mass (mm/g)	Percentage wear	Percentage wear on hour basis
Triangular blade	14.92	249.5	246.4	3.1	1.24	0.08
Nylon rope	12.46	4350	2150	2200	50.58	4.06

13. EASE OF OPERATION & ADJUSTMENTS

Fatigue was observed just after half an hour of operation of the brush cutter, mainly, due to excessive mechanical vibration and noise. The operator complained about pain in different parts of his body like wrist & shoulder etc during operation.

Work-Rest cycle for this brush cutter is observed on follows

30 minutes work – 10 minutes rest – 20 minutes work - 10 minutes rest – 20 minutes work -15 minutes rest & so on.

14. DEFECTS, BREAKDOWNS AND REPAIRS

No noticeable breakdowns were occurred during 27.38 hours of operation.

15. CRITICAL TECHNICAL SPECIFICATION

(Differed till 31.03.2021 Vide Ministry O.M No. 13-13/2020 M&T (I&P) dated 22.12.2020)

16. COMMENTS AND RECOMMENDATIONS

- 16.1** The amplitude of mechanical vibration marked as (*) on the relevant chapter, are on drastically higher side. It is not just directly concerned with operator's health, safety and comfort, but also adversely affects the useful life of the components. In view of above, this deserved to be given top priority for corrective action.
- 16.2** The chemical composition of blades does not conform, to the requirements of IS: 6025-1982. This needs to be looked into for corrective action.
- 16.3** Labeling plate should be riveted on machine with following information.
1. Name and address of manufacturer
 2. Name and address of applicant
 3. Country of origin
 4. Make
 5. Model
 6. Year of manufacturer
 7. Serial number
 8. Engine number
 9. Engine HP
 10. Rated rpm
 11. SFC

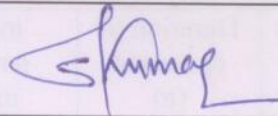
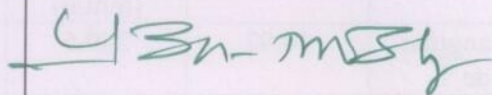
17. TECHNICAL LITERATURE

The User's Manual was provided by the applicant during the test.

The following literature, therefore, **MUST** be provided as per IS: 8132-1999 for guidance.

- i) Operator's manual
- ii) Service manual
- iii) Part's catalogue

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report compiled by, Deny Hasnu, Sr. Technician

18. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
18.1	16.1 & 16.2	Corrective action will be taken by our manufacturing unit.
18.2	16.3	Suitable name plate with required information shall be provided as per guidelines given at this point

