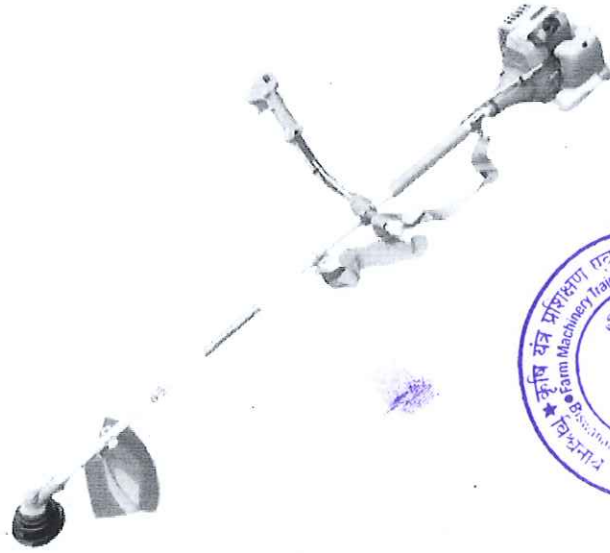


THIS TEST REPORT IS VALID UPTO – NA (INCOMPLETE REPORT)



SAMSON, SAM-252BC, BRUSH CUTTER



भारत सरकार

GOVERNMENT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE AND 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

बिश्वनाथ चारिआलि, जिला - बिश्वनाथ(असम)

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

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

Machine 149/523	SAMSON, SAM-252BC BRUSH CUTTER	COMMERCIAL (INITIAL)
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Name and Address of Applicant : M/s.GREEN FIELD MATERIAL HANDLING PVT. LTD., Plot No. N-49/1, MIDC, ADDL. Ambernath Indl. Area, Anand Nagar, Ambernath (E), Dist. – Thane, Maharashtra – 421 506

Make : SAMSON

Model : SAM-252BC

Serial No. : 5213

Type : Engine operated

Type of cutting attachment : Nylon rope and circular blade

Year of manufacture : 2024

Country of origin : CHINA

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



#### 4.2 Constructional details:

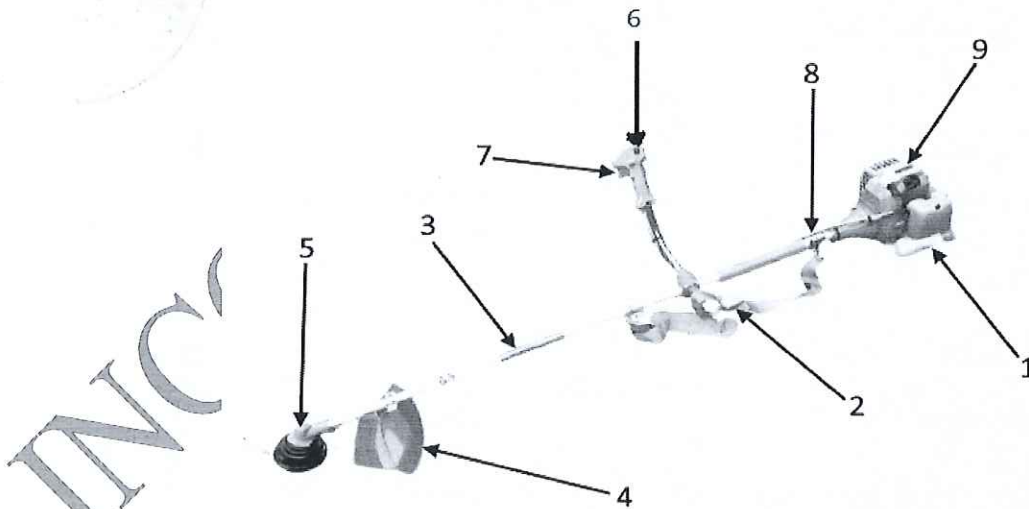


Fig. 1: BRUSH CUTTER, MODEL: SAM-252BC

#### Keywords:

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

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**SUMMARY OF FIELD PERFORMANCE TEST**

Sr. No.	Parameters	Grass/weeds cutting with nylon rope	Bush cutting with circular blade
1	Field Condition	Level	
2	Thickness of stem of Grass/Bush at cutting height (mm)	2.6 to 3.3	8.9 to 11.2
3	Number of Grass/Bush per m <sup>2</sup>	177 to 186	24 to 48
4	Height of Grass/Bush (mm)	530 to 560	1522 to 1834
5	Mass of Grass/Bush cut (kg/h)	254.5 to 264.8	908.6 to 1211.5
6	Mass of Grass/Bush cut (kg/ha)	4480 to 5120	21580 to 28300
7	Rate of work (ha/h)	0.050 to 0.059	0.041 to 0.043
8	Time required for one hectare (h)	16.9 to 20.1	23.4 to 24.5
9	Fuel consumption:		
	-l/h	0.44 to 0.46	0.39 to 0.42
	-l/ha	7.44 to 9.26	9.34 to 9.98

**12.1 Grass/Weeds cutting using nylon rope:**

**12.1.1 Rate of work:**

The area of cut was recorded as 0.050 to 0.059 ha/h.  
Time required for one hectare was recorded as 16.9 to 20.1 hours.  
Mass of weeds cut was 254.5 to 264.8 kg/h.

**12.1.2 Fuel consumption:**

Fuel consumption was observed as 0.44 to 0.46 l/h and 7.44 to 9.26 l/ha.

**12.2 Bush cutting using circular blade:**

**12.2.1 Rate of work:**

The area of cut was recorded as 0.041 to 0.043 ha/h.  
Time required for one hectare was recorded as 23.4 to 24.5 hours.  
Mass of weeds cut was 908.6 to 1211.5 kg/h.

**12.2.2 Fuel consumption:**

Fuel consumption was observed as 0.39 to 0.42 l/h and 9.34 to 9.98 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 prime mover power:**

The power of the prime mover was found adequate.



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### 13. EASE OF OPERATION AND ADJUSTMENTS

Some difficulties were observed in operation and adjustment during the field test and engine test as mentioned at Para 14 below.

### 14. DEFECTS, BREAKDOWNS AND REPAIRS

1. During field test it was observed that after continuous operation of around 1 hour, engine was getting hot and suddenly stopped. After that the engine was not getting started immediately but after some time when engine got cold it started.
2. It was observed that engine speed was fluctuating during field performance test.
3. During engine performance test, prior to start of rating test when engine speed was set at high idle speed, it was observed that suddenly the speed got dropped and the engine was stopped running. After that the engine flywheel was not able to crank by the recoil starter. On request of the applicant and getting approval from the competent authority the engine was inspected and it was observed that the engine was seized.

### 15. CRITICAL TECHNICAL SPECIFICATIONS

(Vide Ministry's letter No. 13-9/2019-(M&T) (I&P)-Part dated 26.04.2019)


Sr. No.	Parameters	Specifications	Observation	Remarks
1	2	3	4	5
1	Type	Self-propelled, portable	Self-propelled, portable	Conforms
2	Type of cutting attachment	Circular disc / Straight blade / nylon rope	Circular disc / nylon rope	Conforms
<b>Circular blade</b>				
3	Material of circular/straight blade	Alloy steel	Alloy steel	Conforms
4	No. of teeth on circular disc blade	50 - 100	80	Conforms
5	Root diameter / Overall diameter (mm)	200 - 270	254	Conforms
6	Thickness of disc (mm)	1.5 Min.	1.27	<b>Does not conform</b>
7	Teeth thickness (mm)	2.0 Min.	2.2	Conforms
8	Hardness of blade, HRC	68 - 70	41	<b>Does not conform</b>
<b>Straight blade</b>				
9	Diameter of straight blade(mm)	250 - 350	NA	--
10	Width at ends /at center (mm)	50 / 70, Min.	NA	--

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1	2	3	4	5
11	Thickness of straight blade(mm)	1.5 Min.	NA	--
<b>Nylon rope</b>				
12	Length of nylon rope(mm)	2000 - 4000	2000	Conforms
13	Diameter of nylon rope(mm)	2.5 to 4.0	2.5	Conforms
14	Type of engine	Compression ignition / Spark ignition	Spark ignition	Conforms
15	Starting method	Manual / recoil / self-starting	Recoil starting	Conforms
16	Type of clutch	Cone / Centrifugal	Centrifugal	Conforms
17	Type of gear drive	Bevel pinion	Bevel pinion	Conforms
18	Capacity of fuel tank (l)	1.0 (Min.)	1.0	Conforms
19	On /Off provision in fuel Supply system	Must be provided	Not provided	<b>Does not conform</b>
20	Provision for easy start of engine	Must be provided	Provided	Conforms
21	Provision for emergency stop of engine	Must be provided	Provided	Conforms
22	Provision for shield / cover to prevent flying of mud & stone from rotor	Must be provided	NA	--
23	Provision for Grass deflector at the rear of the cutting mechanism	Must be provided	Provided	Conforms
24	Provision for Pad with shoulder belt to dampen the vibration	Must be provided	Provided	Conforms
25	Provision for cover on exhaust	Must be provided	Provided	Conforms
26	Direction of exhaust emission away from operator	Must be provided	Provided	Conforms
27	Provision for safety kit (helmet, earplug, mask, hand gloves, safety protective cloth, safety shoes)	Must be provided	Only hand gloves and safety glass were provided.	<b>Does not conform</b>



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1	2	3	4	5
28	Marking /labeling of machine 	The labeling plate should be riveted on the body of machine having Name and address of manufacturer & Applicant, Country of origin, Make, Model, Year of manufacturer, Serial number, Engine number, Engine HP, rated rpm & SFC.	Only Make, Model, Serial Number & power was mentioned on the labeling sticker. Instead of labeling plate, a sticker was pasted on the machine.	<b>Does not conform</b>
29	Literature	Operator manual, Service manual and Parts catalogue should be provided.	Provided	Conforms

### 16. COMMENTS AND RECOMMENDATIONS

- 16.1 During field test it was observed that after continuous operation of around 1 hour, engine was getting hot and suddenly stopped. After that the engine was not getting started immediately but after some time when engine got cold it was getting started.
- 16.2 Also it was observed that engine speed was fluctuating during field performance test.
- 16.3 During engine performance test, prior to start of rating test when engine speed was set at high idle speed, it was observed that suddenly the speed got dropped and the engine was stopped running. After that the engine flywheel was not able to crank by the recoil starter. On request of the applicant and getting approval from the competent authority the engine was inspected and it was observed that the engine was seized. Due to which engine test could not be conducted and incomplete report has been prepared.
- 16.4 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 2021). This should be looked into.
- 16.5 The Hardness and Chemical composition of circular blade does not conform to Indian Standard IS 6025-2024. This should be looked into for corrective action.
- 16.6 The labeling plate should be riveted on the body of machine having name and address of the manufacturer, Country of origin, Make, Model, Year of manufacture, Serial number, Engine number, Engine HP, rated rpm and SFC. This should be looked into.
- 16.7 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 of operator.

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16.8 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.

16.9 As a safety wear, only hand gloves and safety glass were provided with the machine. The applicant is strictly advised to provide the entire safety kit including helmet, earplug, safety shoes, mask, protective cloth etc. along with each machine for the safety of operator.

**16.10 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: 8132-2023.

**TESTING AUTHORITY**

(M.R. PATIL)

**SENIOR AGRICULTURAL ENGINEER**



*P. K. B.*

(P. KAMALABAI)  
**DIRECTOR**

Draft test report compiled by - **Sh. Vithato Keyho, Sr. Technical Assistant**

**17. APPLICANT'S COMMENTS**

**Applicant's Comments**

We will inform to manufacturer to improve our engine quality we will do the necessary action on future products.

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ANNEXURE-I

FIELD PERFORMANCE TEST

Cutting attachment : Nylon rope  
 Place of test : NERFMTTI field, Biswanath Chariali, Assam  
 Usage : Weeds/grass cutting

Sr. No.	Parameters	Test trial		
		I	II	
1	Date of test	04.02.2025	05.02.2025	
2	Net test duration (h)	6.78	3.70	
3	Avg. height of weeds (mm)	560	530	
4	Thickness of stem of weeds at cutting height (mm)	3.3	2.6	
5	Avg. No. of weeds per m <sup>2</sup>	186	177	
6	Avg. mass of weeds cut per m <sup>2</sup> (g)	448	512	
7	Actual area cut (ha/h)	0.059	0.050	
8	Time required for one ha (h/ha)	16.9	20.1	
9	Mass of weeds cut			
		kg/h	264.8	254.5
		kg/ha	4480	5120
10	Fuel consumption			
		l/h	0.44	0.46
		l/ha	7.44	9.26





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ANNEXURE-II

FIELD PERFORMANCE TEST

Cutting attachment : Circular Blade  
Place of test : NERFMTTI field, Biswanath Chariali, Assam  
Usage : Bush cutting

Sr. No.	Parameters	Test trial		
		I	II	III
1	Date of test	05.02.2025	06.02.2025	07.02.2025
2	Net test duration (h)	2.48	7.32	6.07
3	Avg. height of bush (mm)	1522	1834	1692
4	Thickness of stem of bush at cutting height (mm)	11.2	10.7	8.9
5	Avg. No. of bush per m <sup>2</sup>	48	24	34
6	Avg. mass of bush cut per m <sup>2</sup> (g)	2158	2780	2830
7	Actual area cut (ha/h)	0.042	0.041	0.043
8	Time required for one ha (h/ha)	23.8	24.5	23.4
9	Mass of bush cut			
	kg/h	908.6	1134.0	1211.5
	kg/ha	21580	27800	28300
10	Fuel consumption			
	l/h	0.42	0.39	0.40
	l/ha	9.98	9.56	9.34



ANNEXURE-III

DETAILS OF OPERATORS

Operator	:	I	II	III	IV	V
Age, years	:	36	20	40	27	36
Height, cm	:	178	168	165	178	168
Weight, kg	:	78	62	55	88	65