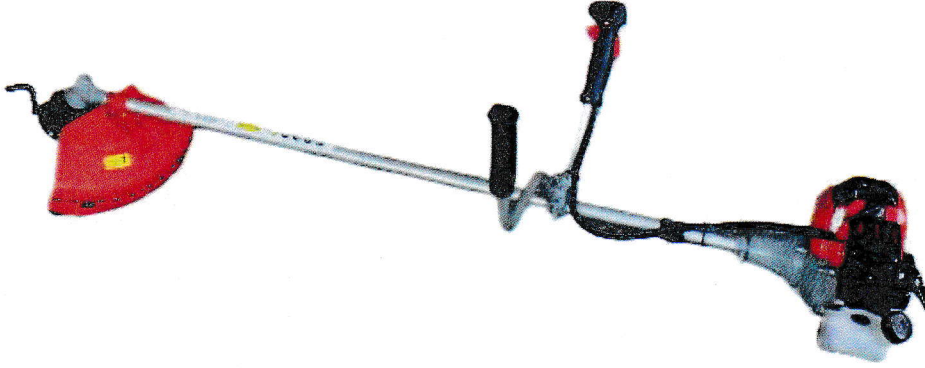
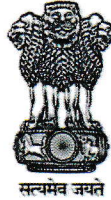


THIS TEST REPORT IS VALID UPTO 31.07.2028



MAIJO BC 520 DLX GEORGE MAIJO BRUSH CUTTER



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)

BISWANATH CHARIALI: SONITPUR: ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

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Machine 92/463	MAIJO BC 520 DLX GEORGE MAIJO BRUSH CUTTER	COMMERCIAL (INITIAL)
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1. SCOPE OF TEST

1.1 LABORATORY TEST

- Checking of specifications
- Mechanical vibration measurement
- Noise measurement
- Wear assessment of critical components
- Engine performance test

1.2 FIELD TEST

- Rate of work
- Quality of work
- Labour requirement
- Adequacy of prime mover power
- Ease of operation, adjustment & safety provisions
- 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	: M/s Shandong Bosheng Power Technology Co Ltd., I Xinhua Rd. Hit-Tech Industrial Development Zone, Linyi City, Shandong, China- 276017
Name & Address of Applicant	: M/s George Maijo Industries Pvt. Ltd., 2B, Apex Plaza, 5, Nungambakkam High Road, Chennai, Tamil Nadu, 600034
Model	: MAIJO BC 520 DLX

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Make : GEORGE MAIJO

Serial No. : 2201010292

Type : Engine Operated Machine

Type of cutting attachment : Nylon rope and straight blade

Year of manufacture : 2021

Country of origin : CHINA

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

4.2 Constructional details :

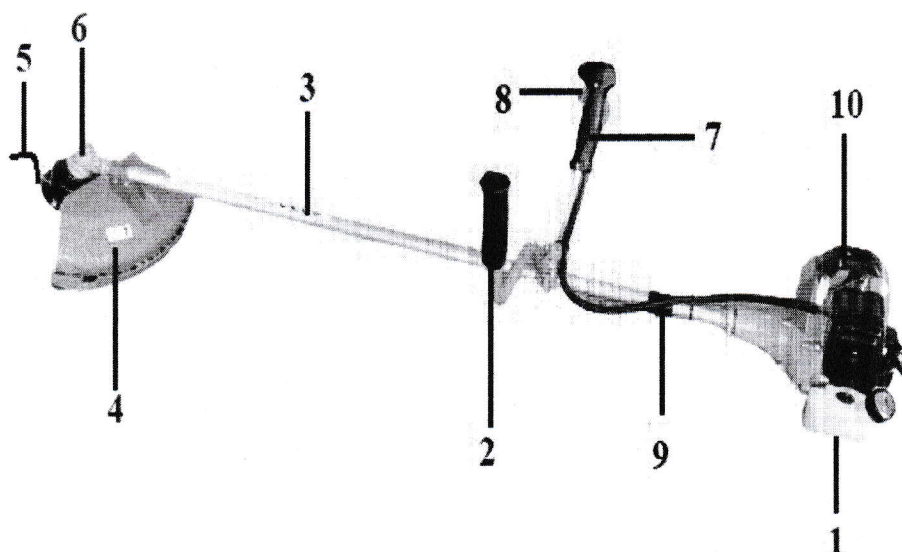


Fig. 1 : GEORGE MAIJO BRUSH CUTTER, MODEL: MAIJO BC 520 DLX

Keywords:

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

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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	41.7	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	0.467	Does not Conform
Manganese (Mn)	0.3 to 0.5	0.615	Does not Conform
Silicon (Si)	---	0.231	---
Sulphur (S)	---	0.009	---
Phosphorous (P)	---	0.014	---

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	10.80	258.07	255.5	2.57	0.996	0.09

12. FIELD PERFORMANCE TEST

Field tests were conducted for total of 26.43 hours duration. Grass/weeds cutting with nylon rope and bush cutting using straight blade attachments were carried out for 15.63 hours and 10.80 hours, respectively. A total of five test trials were conducted at rated speed of 6500 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)	1.85 to 2.36	11.02 to 14.04
3	Average number of Grass/Bush in 1m ²	243 to 1016	31 to 35

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1	2	3	4
4	Average height of Grasses/Bush (mm)	170.6 to 265.2	1271 to 1630
5	Mass of Grass/Bush cut (kg/h)	63.71 to 77.2	579.0 to 672.7
6	Mass of Grass/Bush cut (kg/ha)	2268.0 to 2858.8	32164 to 32652
7	Rate of work (ha/h)	0.027 to 0.028	0.018 to 0.021
8	Time required for one hectare (h)	35.71 to 37.03	48.54 to 55.55
9	Fuel consumption		
	-l/h	0.646 to 0.670	0.640 to 0.647
	-l/ha	23.07 to 24.58	31.40 to 35.55

12.1 Grass/Weeds cutting using nylon rope:

12.1.1 Rate of work

- The area of cut was recorded as 0.027 to 0.028 ha/h.
- Time required for one hectare was recorded as 35.71 to 37.03 hours.
- Mass of weeds cut was 63.71 to 77.2 kg/h.

12.1.2 Fuel consumption

- Fuel consumption was observed as 0.646 to 0.670 l/h and 23.07 to 24.58 l/ha.

12.2 Bush cutting using straight blade

12.2.1 Rate of work

- The area of cut was recorded as 0.018 to 0.021 ha/h.
- Time required for one hectare was recorded as 48.54 to 55.55 hours.
- Mass of bush cut was 579.0 to 672.7 kg/h.

12.2.2 Fuel consumption

- Fuel consumption was observed as 0.640 to 0.647 l/h and 31.40 to 35.55 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.

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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 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 0.54 kW against declared value of 1.4 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 1077 g/kWh against declared value of 589 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). 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.
- 16.7** Labeling plate along with machine details should be provided on the machine at suitable place as per Indian Standard.

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


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. APPLICANTS COMMENTS

Para No	Our Reference	Applicants Comments
1	2	3
17.1	16.1	We will take this point with our Supplier and will do the corrective actions.
17.2	16.2	We will take this point with our Supplier and will take necessary actions.
17.3	16.3	We will put a Sticker on back side of the engine and will fulfill the requirement.
17.4	16.4	We will take this point with our Supplier and will do the corrective actions.