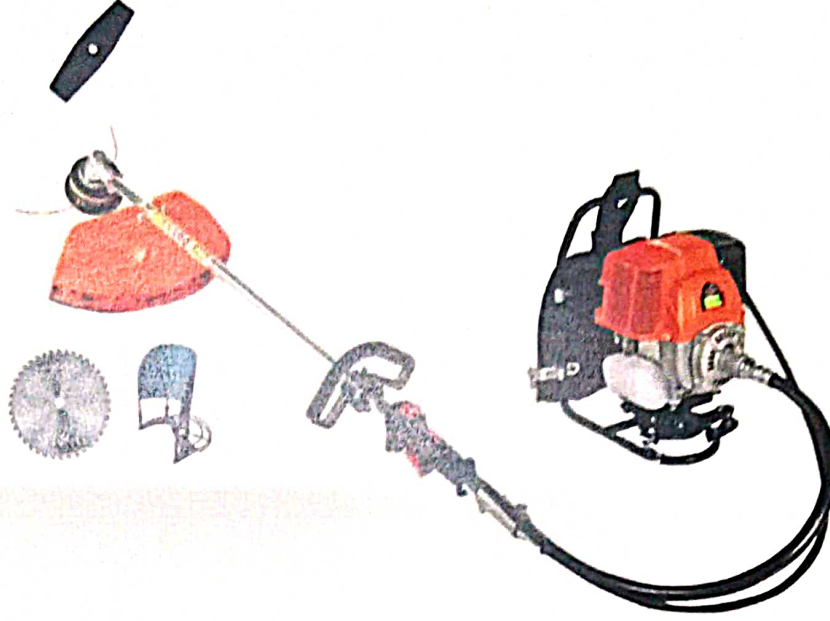


THIS TEST REPORT IS VALID UPTO 31.03.2027



MHASWADKAR BRUSH CUTTER
Model: BAM139BP



सत्यमेव जयते

भारत सरकार

GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

उत्तर पूर्व क्षेत्र कृषि यंत्र परीक्षण एवं प्रशिक्षण संस्थान

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1. SCOPE OF TEST

1.1 LABORATORY TEST

- a) Checking of specifications
- b) Mechanical vibration measurement
- c) Noise measurement
- d) Wear assessment of critical components
- e) 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 test sample was selected by the testing authority through random selection. The following test samples were presented by the applicant during the random selection at Applicant's site.

Serial No. of test sample	Remarks
BM139BP011, BM139BP027, BM139BP043, BM139BP055, BM139BP093, BM139BP099, BM139BP168, BM139BP172, BM139BP203, BM139BP205, BM139BP189, BM139BP123, BM139BP145, BM139BP107, BM139BP102, BM139BP080, BM139BP076, BM139BP056, BM139BP040, BM139BP005	Out of 20 samples Sl. No. BM139BP189 was randomly selected.

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 safety wears such as hand gloves, goggles, protective cloth (apron), ear plug etc. were **not provided** during operation of this machine.

5. SPECIFICATIONS

5.1 General

Name of the Machine : Brush Cutter

Name and address of the manufacturer	: Yongkang Vauban Trade Co., Ltd. 4 th floor, 9-3 Jiuding Road, Economic Development Zone, Yongkang City, Zhejiang Province, China
Name & Address of Applicant/Importer	: M/s Mhaswadkar Autolines Pvt. Ltd., 283/3/1B, Karanje, New Radhika Road, Satara 415 001, Maharashtra
Model	: BAM139BP
Serial No.	: BM139BP189
Type	: Engine operated machine
Type of cutting attachment	: Nylon rope, straight blade and circular blade
Year of manufacture (apa)	: 2021
Country of origin	: CHINA
Suitability (apa)	: Cutting of weeds, bushes, grasses and harvesting paddy crop



5.2 Constructional details :

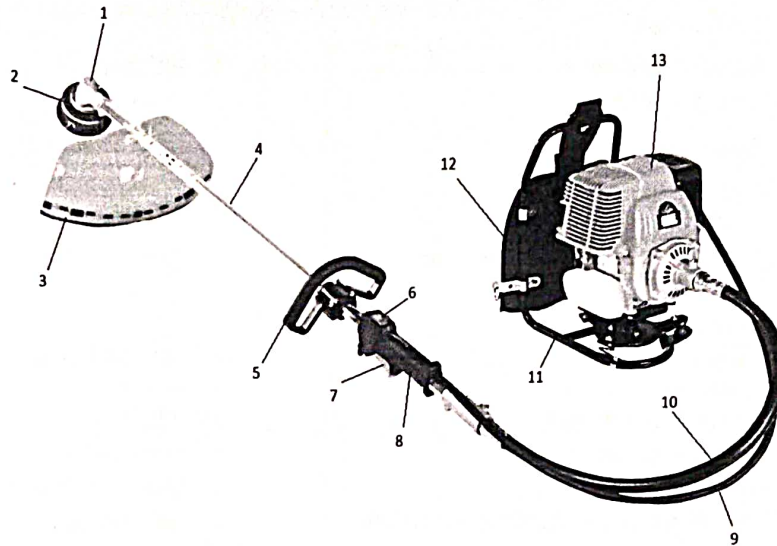


Fig. 1: MHASWADKAR BRUSH CUTTER, MODEL: BAM139BP

Keywords:

- | | |
|----------------------------------|---------------------------------|
| 1. Gear case | 7. Throttle cum clutch trigger |
| 2. Nylon rope cutting attachment | 8. Handle grip |
| 3. Deflector | 9. Accelerator cable |
| 4. Transmission cover pipe | 10. Flexible drive shaft cover |
| 5. Handle grip | 11. Engine mounting stand |
| 6. Engine stopping switch | 12. Cushion for operator's back |
| | 13. Engine |

5.3 Details of Prime Mover

Make	: Yongkang Vauban Trade Co., Ltd. Yongkang City, Zhejiang Province, China
Model (apa)	: BAM139F
Type	: Single cylinder, air cooled, vertical, four stroke, Spark ignition engine
Serial no.	: ZXDI210039
Year of manufacture (apa)	: 2021
Country of origin	: CHINA

FIELD PERFORMANCE TEST

ANNEXURE-I

Cutting attachment used : Circular blade
 Place of test : Village- Kusumbi, Dist. Satara, Maharashtra
 Usage : Paddy harvesting

Sr. No.	Parameters	Test trial	
		I	II
1	Date of test	22.12.2021	23.12.2021
2	Avg. grain moisture content (%)	16.0	15.8
3	Avg. straw moisture content (%)	61.6	61.7
4	Variety of paddy crop	Sweta	
5	Avg. plant height, cm	83.8	81.8
6	Avg. length of ear head, cm	18.7	19.4
7	Avg. No. of grains per ear head	187	190
8	No. of hills per m ²	30	30
9	No. of tillers per hill	10	10
10	Net test duration, h	6.10	4.05
11	Engine speed, rpm		
	High idle	8600	8650
	Rated	6000	6000
12	Avg. stubble height, cm	6.92	7.14
13	Avg. mass of crop per m ² , g	1736.0	1747.4
14	Avg. mass of grain per m ² , g	365.4	363.2
15	Straw-grain ratio	3.75	3.81
16	Actual are harvested, ha/h	0.018	0.017
17	Time required for one ha, h/ha	55.55	58.82
18	Mass of grain recovered, kg/ha	3639	3618
19	Losses (% of total grain yield)		
	Pre harvest loss, %	0.36	0.33
	Post harvest loss, %	0.41	0.39
20	Fuel consumption		
	l/h	0.623	0.642
	l/ha	34.61	37.76



FIELD PERFORMANCE TEST

Cutting attachment used : Nylon rope
Place of test : Village- Jambhalmure, Dist. Satara, Maharashtra
Usage : Weeds cutting

Sr. No.	Parameters	Test trial	
		I	II
1	Date of test	24.12.2021	24.12.2021
2	Net test duration, h	4.20	4.05
3	Avg. height of weeds, cm	56.8	54.8
4	Thickness of stem of weeds at cutting height, mm	1.1 to 2.0	
5	Avg. No. of weeds per m ²	467	457
6	Avg. mass of weeds per m ² , g	534.2	539.4
7	Engine speed, rpm		
	High idle	8650	8700
	Rated	6000	6000
8	Actual area cut, ha/h	0.046	0.046
9	Time required for one ha, h/ha	21.74	21.74
10	Mass of weeds cut		
	kg/h	218.04	224.48
	kg/ha	4740	4884
11	Fuel consumption		
	l/h	0.612	0.625
	l/ha	13.30	13.59

FIELD PERFORMANCE TEST

Cutting attachment used : Straight blade
Place of test : Village- Jambhalmure, Dist. Satara, Maharashtra
Usage : Bush cutting

Sr. No.	Parameters	Test trial	
		I	II
1	Date of test	25.12.2021	25.12.2021
2	Net test duration, h	4.15	3.15
3	Avg. height of bush, m	1.88	1.90
4	Thickness of stem of bush at cutting height, mm	8.9 to 11.2	7.8 to 10.2
5	Avg. No. of bush per m ²	31	29
6	Avg. mass of bush per m ² , g	3185.4	3001.6
7	Engine speed, rpm		
	High idle	8700	8700
	Rated	6000	6000
8	Actual area cut, ha/h	0.031	0.033
9	Time required for one ha, h/ha	32.05	30.30
10	Mass of bush cut		
	kg/h	864.67	871.99
	kg/ha	27714	26424
11	Fuel consumption		
	l/h	0.740	0.725
	l/ha	23.72	21.97



Ring end gap:

Rings	Ring end gap, mm			Max. permissible end gap limit, mm
	Top	Middle	Bottom	
1 st comp. ring	0.20	0.20	0.20	1.0
2 nd comp. ring	0.25	0.25	0.25	
Oil ring	*	*	*	

*not recorded due to ring design constraints

Ring side clearance:

Rings	Ring side clearance, mm	Max. permissible clearance limit, mm
1 st comp. ring	0.05	0.30
2 nd comp. ring	0.05	
Oil ring	*	

*not recorded due to ring design constraints

Main bearings: 6201LU and 6002 2RS

Bearing No.	Type of bearing	Diametrical clearance, mm	Crankshaft end float, mm	Max. permissible clearance limit, mm	
				Diametrical clearance	Crankshaft end float
1	Ball bearing	NA	0.02	NA	0.3
2	Ball bearing	NA		NA	0.3

Big end bearing:

Bearing No.	Clearance, mm		Max. permissible clearance limit, mm	
	Diametrical	Axial	Diametrical	Axial
1	Needle bearing	--	0.146	1.10

Measurement of big end bearing clearance was not possible as the piston along with connecting rod was not detachable.

16.2 Transmission system:


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

17. COMMENTS & RECOMMENDATIONS

- 17.1 During engine test, it was observed that engine was not sustaining at full load at rated rpm of 6000 as declared initially. Hence, applicant re-declared rated rpm as 6500±500. This should be looked into for corrective action.
- 17.2 During test, the recommended high idle and low idle engine rpm were not observed as declared by the applicant initially. This should be looked into for corrective action.
- 17.3 Noise at operator's ear 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.

- 17.4 The amplitude of mechanical vibration at various assemblies viz. steering handle, engine cover and transmission cover pipe was on higher side. This calls for dampening down of vibration to improve the operational comfort and service life of the components.
- 17.5 The specific fuel consumption at rated power as observed during engine test was exceeded by more than 5 percent as declared by the applicant which does not fulfill the requirement of IS 7347-1974. This should be looked into for corrective action.
- 17.6 The power mentioned on the machine labeling sticker was 1.5 kW. However, the rated power observed during test was 0.53 kW. This should be looked into for corrective action.
- 17.7 Safety wears viz. goggles, hand gloves, ear plug, mask, safety shoes etc. were not provided. It is recommended that safety wears should necessarily be provided for the safety of operator.
- 17.8 Sometimes clogging of crop and weeds at cutter blade was observed during paddy harvesting operation with circular blade attachment. This should be looked into for improvement.
- 17.9 **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


(J.P. MANDAL)
Sr. AGRICULTURAL ENGINEER


(K.K. NAGLE)
DIRECTOR

18. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
18.1	17.1	We will take corrective improvements in future products.
18.2	17.2	We will take corrective improvements in future products.
18.3	17.3	The suggestion is noted & company would work on the same to bring down the noise level at operator's ear level.
18.4	17.4	The suggestion is noted & company would work on the same to bring down the amplitude of mechanical vibration.
18.5	17.5	We will take corrective improvements in future products.
18.6	17.6	We will take corrective improvements in future products.
18.7	17.7	The suggestion is noted & company will provide the safety wears to the operator.
18.8	17.8	We will take corrective improvements in future products for blade improvements.