

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



संख्या/No.: MISC/NERFMTTI, B. Chariali/
05/05/553
माह / Month: November 2025

THIS TEST REPORT IS VALID UPTO 30.11.2032



CCK, CCK-GC430-P, 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]

Name and address of the applicant : CHAVAN AND COMPANY, Room No 8, D/6, Siddhivinayak Society, Sector 8, Sanpada, Navi Mumbai, Thane, Maharashtra – 400705

Make : CCK

Model : CCK-GC430-P

Serial No. : 2025-00002

Type : Engine operated

Type of cutting attachment : Nylon rope and straight blade

Year of manufacture : 2025

Country of origin : CHINA

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



4.2 Constructional details:

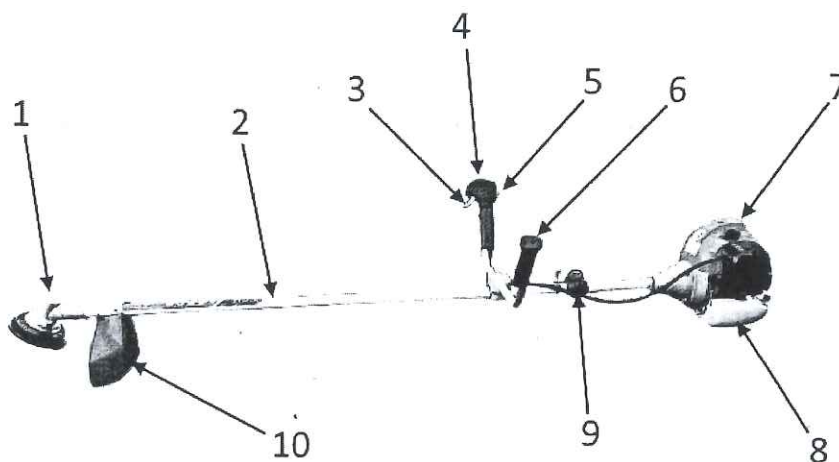


Fig. 1: BRUSH CUTTER, MODEL:CCK-GC430-P

Keywords:

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

SUMMARY OF FIELD PERFORMANCE TEST

Sr. No.	Parameters	Grass/weeds cutting with nylon rope	Bush cutting with straight blade
1	Field Condition	Level	
2	Thickness of stem of Grass/Bush at cutting height (mm)	1.87 to 2.86	14.83 to 17.47
3	Number of Grass/Bush per m ²	108 to 139	101 to 116
4	Height of Grass/Bush (mm)	196.6 to 220.0	1886.6 to 1930.0
5	Mass of Grass/Bush cut (kg/h)	153.85 to 197.86	475.10 to 484.80
6	Mass of Grass/Bush cut (kg/ha)	3140 to 3880	7920 to 12760
7	Rate of work (ha/h)	0.049 to 0.051	0.038 to 0.060
8	Time required for one hectare (h)	19.61 to 20.41	16.67 to 26.32
9	Fuel consumption:		
	-l/h	0.99 to 1.00	1.44 to 1.46
	-l/ha	19.41 to 20.41	24.34 to 37.90

12.1 Grass/Weeds cutting using nylon rope:**12.1.1 Rate of work:**

The area of cut was recorded as 0.049 to 0.051 ha/h.

Time required for one hectare was recorded as 19.61 to 20.41 hours.

Mass of weeds cut was 153.85 to 197.86 kg/h.

12.1.2 Fuel consumption:

Fuel consumption was observed as 0.99 to 1.00 l/h and 19.41 to 20.41 l/ha.

12.2 Bush cutting using straight blade:**12.2.1 Rate of work:**

The area of cut was recorded 0.038 to 0.060 ha/h.

Time required for one hectare was recorded as 16.67 to 26.32 hours.

Mass of weeds cut was 475.10 to 484.80 kg/h.

12.2.2 Fuel consumption:

Fuel consumption was observed as 1.44 to 1.46 l/h and 24.34 to 37.90 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.

**13. EASE OF OPERATION AND ADJUSTMENTS**

No 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.

15. COMPONENTS/ASSEMBLY INSPECTION

The Engine was dismantled after 36.3 hours of operation.

15.1 Engine:**Cylinder bore:**

Cylinder bore dia., mm						Max. permissible wear limit, mm
Top position		Middle position		Bottom position		
Thrust side	Non-thrust side	Thrust side	Non-thrust side	Thrust side	Non-thrust side	
40.04	40.03	40.03	40.03	40.03	40.02	40.30

Piston:

Piston dia., mm				Max. Permissible wear limit at skirt (mm)	Clearance between piston & cylinder liner at the skirt of the piston, mm	
Top (above top compression ring)		At skirt			As observed	Max. permissible limit (mm)
Thrust side	Non-thrust side	Thrust side	Non-thrust side			
39.75	39.76	39.95	*	Not specified	0.08	0.30

*Not recorded due to piston design

*Not recorded due to piston design constraints

Ring end gap:

Rings	Ring end gap, mm			Max. permissible end gap limit, mm
	Top	Middle	Bottom	
1 st comp. ring	0.45	0.45	0.45	1.0
2 nd comp. ring	0.55	0.55	0.55	
Oil ring	NA	NA	NA	

Ring side clearance:

Rings	Ring side clearance, mm	Max. permissible clearance limit, mm
1 st comp. ring	0.06	0.30
2 nd comp. ring	0.06	
Oil ring	*	

*Not recorded due to ring design constraints

Main bearings: 6202-2Nos. of ball bearings

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	0.10	NA	0.14
2	Ball bearing	NA			

Big end bearing:

Bearing No.	Clearance, mm		Max. permissible clearance limit, mm	
	Diametrical	Axial	Diametrical	Axial
1	Needle bearing	NR	0.15	0.70

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. 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	Straight blade/ nylon rope	Conforms
Circular blade				
3	Material of circular blade	Alloy steel	NA	--
4	No. of teeth on circular disc blade	50 - 100	NA	--
5	Root diameter / Overall diameter (mm)	200 - 270	NA	--
6	Thickness of disc (mm)	1.5 Min.	NA	--
7	Teeth thickness (mm)	2.0 Min.	NA	--
8	Hardness of blade, HRC	68 - 70	NA	--

FARM MACHINERY TRAINING & TESTING INSTITUTE (NER), B. CHARIALI, ASSAM
(THIS TEST REPORT IS VALID UP TO 30/11/2032)

Page 16 of 21

Straight blade


9	Material of straight blade	Alloy steel	Carbon steel	Does not conform
10	Diameter of straight blade (mm)	250 - 350	300.2	Conforms
11	Width at ends /at center (mm)	50 / 70, Min.	60.1/90.3	Conforms
12	Thickness of straight blade(mm)	1.5 Min.	2.2	Conforms

Nylon rope

13	Length of nylon rope(mm)	2000 - 4000	2000	Conforms
14	Diameter of nylon rope (mm)	2.5 to 4.0	2.5	Conforms
15	Type of engine	Compression ignition / Spark ignition	Spark ignition	Conforms
16	Starting method	Manual / recoil / self -starting	Recoil starting	Conforms
17	Type of clutch	Cone / Centrifugal	Centrifugal	Conforms
18	Type of gear drive	Bevel pinion	Bevel pinion	Conforms
19	Capacity of fuel tank (l)	1.0 (Min.)	1.3	Conforms
20	On /Off provision in fuel Supply system	Must be provided	Not provided	Does not conform
21	Provision for easy start of engine	Must be provided	Provided	Conforms
22	Provision for emergency stop of engine	Must be provided	Provided	Conforms
23	Provision for shield / cover to prevent flying of mud & stone from rotor	Must be provided	NA	--
24	Provision for Grass deflector at the rear of the cutting mechanism	Must be provided	Provided	Conforms
25	Provision for Pad with shoulder belt to dampen the vibration	Must be provided	Provided	Conforms
26	Provision for cover on exhaust	Must be provided	Provided	Conforms
27	Direction of exhaust emission away from operator	Must be provided	Provided	Conforms
28	Provision for safety kit (helmet, earplug, mask, hand gloves, safety protective cloth, safety shoes)	Must be provided	Provided	Conforms

FARM MACHINERY TRAINING & TESTING INSTITUTE (NER), B. CHARIALI, ASSAM
(THIS TEST REPORT IS VALID UP TO 30/11/2032)

Page 17 of 21

MISC/NERFMTTI,B.Chariali/ 05/05/553		CCK, CCK-GC430-P BRUSH CUTTER	COMMERCIAL (INITIAL)	
29	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.	Name and address of manufacturer, Country of origin, Year of manufacture, Engine number, rated rpm, Engine number, Engine HP& SFC were not provided on the labeling sticker. Instead of labeling plate, a sticker was pasted on the machine.	Does not conform
30	Literature	Operator manual, Service manual and Parts catalogue should be provided.	Provided	Conforms

17. COMMENTS AND RECOMMENDATIONS

- 17.1 The average rated power in rating test of engine was observed as 0.58 kW against declared value of 1.25 kW by the applicant/manufacturer. This should be looked into for corrective action.
- 17.2 The specific fuel consumption (SFC) in rating test of engine was observed as 1292 g/kWh against declared value of 750 g/kWh by the applicant/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 2021). This should be looked into for corrective action.
- 17.3 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 2021). This should be looked into.
- 17.4 The hardness of straight blade does not conform to Indian Standard IS 6025-2024. This should be looked into for corrective action.
- 17.5 The labeling plate should be riveted on the body of machine having name and address of manufacturer, country of origin, year of manufacture, engine number, rated rpm, engine number, engine HP and SFC. This should be looked into.
- 17.6 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.
- 17.7 The amplitude of mechanical vibration at various assemblies viz. engine cover, steering handle and drive shaft cover pipe were on higher side. This calls for dampening down of vibration to improve the operational comfort and service life of the components.

MISC/NERFMTTI,B.Chariali/ 05/05/553	CCK, CCK-GC430-P BRUSH CUTTER	COMMERCIAL (INITIAL)
--	----------------------------------	-------------------------

- 17.8 **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. KAMALABAI)
DIRECTOR



Draft test report compiled by - Sh. D. Deori, Technical Assistant

18. APPLICANT'S COMMENTS

We have received your comments and recommendation. We will do the corrective action in future products.

ANNEXURE-I

FIELD PERFORMANCE TEST

Cutting attachment : Nylon rope (Tap and Go)
Place of test : NERFMTTI, Biswanath Chariali, Biswanath, Assam
Usage : Weeds/grass cutting

Sr. No.	Parameters	Test trial	
		I	II
1	Date of test	24.10.2025	27.10.2025
2	Net test duration (h)	7.50	7.53
3	Avg. height of weeds (mm)	220.0	196.6
4	Avg. thickness of stem of weeds at cutting height (mm)	2.86	1.87
5	Avg. No. of weeds per m ²	108	139
6	Avg. mass of weeds cut per m ² (g)	314	388
7	Actual area cut (ha/h)	0.049	0.051
8	Time required for one ha (h/ha)	20.41	19.61
9	Mass of weeds cut		
	kg/h	153.8	197.8
	kg/ha	3140	3880
10	Fuel consumption		
	l/h	1.00	0.99
	l/ha	20.41	19.41



ANNEXURE-II

FIELD PERFORMANCE TEST

Cutting attachment : Straight blade
Place of test : NERFMTTI, Biswanath Chariali, Biswanath, Assam
Usage : Bush cutting

Sr. No.	Parameters	Test trial	
		I	II
1	Date of test	28.10.2025	29.10.2025
2	Net test duration (h)	5.10	5.15
3	Avg. height of bush (mm)	1886.6	1930.0
4	Avg. thickness of stem of bush at cutting height (mm)	14.83	17.47
5	Avg. No. of bush per m ²	101	116
6	Avg. mass of bush cut per m ² (g)	792	1276
7	Actual area cut (ha/h)	0.060	0.038
8	Time required for one ha (h/ha)	16.67	26.32
9	Mass of bush cut		
	kg/h	475.10	484.80
	kg/ha	7920	12760
10	Fuel consumption		
	l/h	1.46	1.44
	l/ha	24.34	37.90



ANNEXURE-III

DETAILS OF OPERATORS

Operator	:	I	II	III	IV
Age, years	:	44	30	29	36
Height, cm	:	171	165	168	160
Weight, kg	:	64	62	58	66