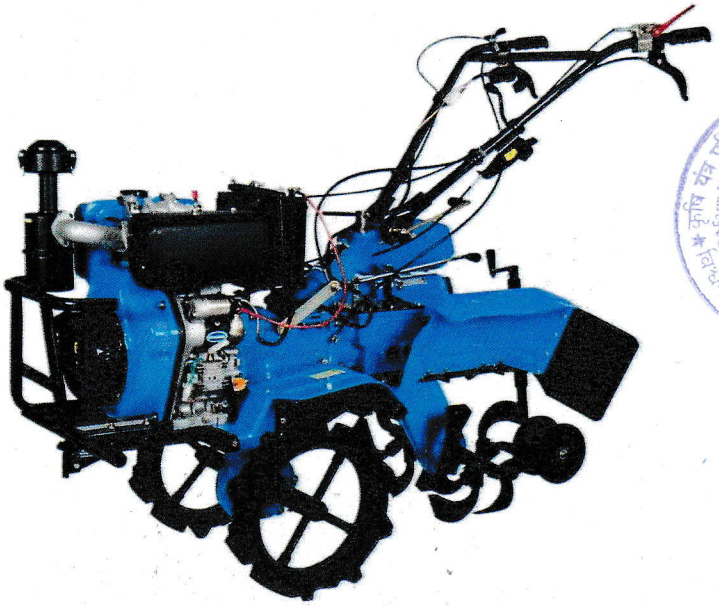
व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (Initial)

स्वच्छ भारत
एक कदम स्वच्छता की ओर

संख्या/No.: Machine 100/471
माह / Month: September 2023

THIS TEST REPORT IS VALID UPTO 30.09.2028



e-AGROCARE D-531-RT (F) POWER WEEDER

सत्यमेव जयते

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

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4. SPECIFICATIONS

4.1 General:

Make	:	e-AgroCare
Model	:	D-531-RT(F)
Name and address of manufacturer	:	**Chongqing Meiqi Industry Co. Ltd.,** Huixing town, 2 Baosheng East Road, Chongqing, China
Name and address of applicant	:	**e-AgroCare Machineries and Equipments Pvt. Ltd.,** D-45, 5-Star Industrial Area, Shendra, Aurangabad-431154, Maharashtra,
Name of machine	:	Power Weeder
Type of machine	:	Self propelled, Walk behind, Back Rotary
Working size of machine (mm)	:	850
Year of manufacture	:	2022
Serial no. of machine	:	EAC042211367

4.2 Details of prime mover:

Make	:	KAIAO
Model	:	186FA
Type	:	4 stroke, Single cylinder, Air cooled, Diesel Engine
Year of manufacture	:	2022
Serial Number	:	K2210000348
Country of origin	:	**CHINA**
Recommended high idle speed (rpm)	:	3250±100
Recommended low idle speed (rpm)	:	1400±50
Recommended rated speed (rpm)	:	3000
Maximum power observed (kW)	:	5.83
Maximum power declared (apa) (kW)	:	6.0

Sl .No.	Parameters		Observations
1	Type of soil	:	Medium
2	Soil moisture (%)	:	11.7 to 14.0
3	Bulk density of soil (g/cc)	:	1.56 to 1.67
4	Forward Speed of operation (kmph)	:	1.24 to 1.38
5	Depth of cut (cm)	:	5.50 to 6.07
6	Width of cut (m)	:	0.868 to 0.888
7	Area covered (ha/h)	:	0.089 to 0.104
8	Time required for one ha (h)	:	9.62 to 11.24
9	Field efficiency (%)	:	77.39 to 87.07
10	Weeding efficiency (%)	:	87.82 to 89.89
11	Fuel consumption		
	l/h	:	1.04 to 1.20
	l/ha	:	10.89 to 11.80

12.1 Rate of work:

- Rate of work was recorded as 0.089 to 0.104 ha/h and the forward speed of operation was recorded from 1.24 to 1.38 kmph.
- Time required to cover one hectare was recorded as 9.62 to 11.24 h.

12.2 Quality of work:

- Depth of cut was recorded as 5.50 to 6.07 cm.
- Working width was observed as 0.868 to 0.888 m.
- Field efficiency was found as 77.39 to 87.07 %.
- Weeding efficiency was found as 87.82 to 89.89 %.

12.3 Adequacy of power of prime mover:

The power of prime mover was found adequate.

12.4 Wear Analysis of rotor blades:

Blade No.	Initial mass(g)	Final mass (g)	Loss of mass (g)	Percentage wear of rotor blades	
				After 26.17 h	Per hour
L-1	360.0	357.5	2.5	0.69	0.03
L-2	340.0	338.0	2.0	0.59	0.02
L-3	360.0	358.0	2.0	0.56	0.02
R-1	360.0	357.5	2.5	0.69	0.03
R-2	340.0	338.5	1.5	0.44	0.02
R-3	340.0	337.5	2.5	0.74	0.03

The hourly rate of wear of blade on mass basis after field operations was recorded as 0.02 to 0.03%.

15.1.5 Big end bearing

Bearing no.	Dia of bearing (mm)	Dia of Crank pin (mm)	Clearance (mm)		Max. Permissible wear limit (mm)	
			Dimetrical	Axial	Dimetrical	Axial
1	40.10	40.02	0.08	0.40	0.25	0.80

Condition of bearing: Normal

15.1.6 Main bearing: One No. of ball bearing 6308 was used.

Bearing No.	Diametrical clearance, (mm)	Crankshaft end float, (mm)	Max. permissible clearance limit,(mm)	
			Diametrical clearance	Crankshaft end float
Bush bearing	0.06	0.06	Not specified	0.30

15.1.7 Valve guide clearance

Valve guide diameter (mm)		Valve stem diameter (mm)		Valve guide clearance (mm)		Max. Permissible wear limit (mm)	
Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust
6.98	6.98	6.96	6.95	0.02	0.03	Not specified	Not specified

Valve, guide and timing gear:-

Any marked sign of overheating of valves	:	None
Pitting of seat/faces of valves	:	Normal
Any visual damage to teeth of timing gears	:	None
Condition of ignition coil & magneto	:	Normal

15.2 Clutch: No noticeable defect was observed.

15.3 Transmission gears: No noticeable defect was observed.

15.4 Rotary drive unit:
The rotary drive unit was dismantled and all the components were found in normal condition.

16. COMMENTS & RECOMMENDATIONS

16.1 The specific fuel consumption (SFC) of engine corresponding to maximum power and at rated engine speed was recorded as 297.0 g/kWh under natural ambient condition against the declared value of 380 g/kWh by the manufacturer. This shall be looked into for corrective action

16.2 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 operator's comfort & safety.**

16.3 The amplitude of mechanical vibration marked as (*) is on drastically higher side and is directly concerned with operator's health, safety and comfort. Besides, it is also adversely affect the useful life of the component in view of above this deserves to be given top priority for corrective action.

16.4 The hardness and chemical composition of rotary blades does not conform to the requirement of IS 6690:1981 (Reaffirmed 2012). This may be looked into for corrective action.

16.5 During air cleaner oil pull over test percentage loss of oil was observed on higher side. It should be looked into for corrective action.

16.6 Tilling width has been mentioned as 1050 mm on labeling plate of the machine. However, during field test it was observed as 868 to 888 mm. It should be looked into for corrective action.

16.7 Machine maneuverability while taking turns during field operation was not comfortable. It shall be looked into for ease of operation for the operator.

16.8 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: 8132-1999.

TESTING AUTHORITY

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