

व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)

COMMERCIAL TEST REPORT (ICT)

संख्या/No: SPE/SRFMTTI,

ANANTAPUR/2025-26/06/06/1957

माह/Month: December, 2025

THIS TEST REPORT IS VALID UP TO 30.11.2032



KAIRA, GL-04K RICE TRANSPLANTER



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

दक्षिणी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

Southern Region Farm Machinery Training and Testing Institute


ट्रैक्टर नगर, गार्लदिन्ने-515 731, जिला: अनंतपुर (आं. प्र.)

Tractor Nagar, Garladinne-515 731, District: Anantapur (A.P.)

[An ISO 9001:2015 CERTIFIED INSTITUTE]

Website: <http://srfmtti.dacnet.nic.in/>

E-mail: fmti-sr@nic.in

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Manufacturer, (apa) : M/s Kaira Manufacturer Company Limited,
Room 1101, Building 7 (B1) No. 666
Nanlinzhong Rd, Nanxun District, Huzhou
City, Zhejiang Province, **China**.

Applicant : M/s Kaira Agricultural Machinery Private
Limited,
Plot No 16-19& 20a, Level 5 Tamarai Tech
Park, Thiru Vi Ka Industrial Estate , Guindy,
Chennai, Tamilnadu-600032.

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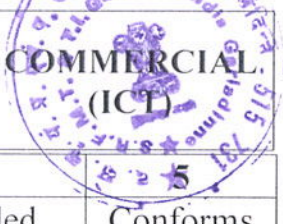
E-mail: fmti-sr@nic.in

Type of test : COMMERCIAL(ICT)
Period of test : October, 2025 to November, 2025
Test Report No. : SPE/SRFMTTI, ANANTAPUR/2025-26/06/06/1957
Month / Year of release : December, 2025

- i) The results reported in this report are observed values and no corrections have been applied for atmospheric and site conditions.
- ii) The data given in this report pertain to the particular machine directly submitted by applicant.
- iii) The results presented in this report do not, in any way, attribute to the durability of the machine.
- iv) This report should not be reproduced in part or full without prior permission of the Director, Southern Region Farm Machinery Training and Testing Institute, Garladinne, Anantapur (A.P.).
- v) This is a report on Commercial Test of Paddy transplanter named "KAIRA, GL-04K RICE TRANSPLANTER ". This report is valid up to 30.11.2032, Vide Ministry's O.M. No. 13-22/2020-M&T (I&P) dated 12.12.2023.

SELECTED CONVERSIONS

S. No	Units	Conversion Factor
1	Force	
	1 kgf	9.80665 N
		2.20462 lbf
2	Power	
	1 hp	1.01387 metric hp (Ps)
		745.7 W
	1 Ps	735.5 W
3	1 kW	1.35962 Ps
	Pressure	
	1 psi	6.895 kPa
	1 kgf/cm ²	98.067 kPa = 735.56 mm of Hg
	1 bar	100 kPa = 10 N/cm ²
	1 mm of Hg	1.3332 m-bar

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1	2	3	4	
16	Literature	Operator manual, service manual and parts catalogue should be provided	Provided	Conforms

17. SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

On the basis of tests conducted the performance has been summarized as Evaluative (mandatory)/ non-evaluative (non-mandatory) parameters applicable for Qualifying Minimum Performance Criteria as per **Clause-16 and 20 (table-2)** of **IS 18718:2024** for acceptance of the paddy transplanter for the purpose of subsidies/ institutional financing are summarized as under:

Sl. No.	Characteristics	Category (Evaluative /Non-Evaluative)	Requirements as per IS 18718:2024	Values declared by the applicant(D)/ requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
17.1	Engine performance (diesel/gasoline):					
a)	Maximum power under 2 h test, kW for diesel engine and equivalent test for gasoline engine	Evaluative	To be declared by the manufacturer with a tolerance of $\pm 10\%$	3.30(D)	3.14	Yes
b)	Power at rated engine speed, (kW)	Non-Evaluative	-do-	3.30(D)	3.14	Yes
c)	Specific fuel consumption corresponding to max. power, (g/kWh)	Evaluative	To be declared by the manufacturer with a tolerance of $+5\%$	420(D)	428	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Evaluative	To be declared by the manufacturer with a tolerance of $\pm 10\%$	11.0(D)	Not applicable	-

1	2	3	4	5	6	7
e)	Back up torque, %	Non- evaluative	5 % minimum	10.0 (D)	Not applicable	-
f)	Max. operating temperature (°C) :					
1)	- Engine oil	Evaluative	To be declared by the Manufacturer	150(D)	85	Yes
2)	Coolant/cylinder liner in case of air-cooled engine	Evaluative	-do-	300	242	Yes
g)	Lubricating Oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at maximum power under high ambient conditions	4.20 (D) Maximum	Not applicable	-
h)	Maximum coolant, (water) consumption, (% of total coolant capacity)	Evaluative	Coolant consumption should not exceed 25% of the total coolant capacity under high ambient condition.	NA	Not applicable as air cooled engine fitted	-
i)	Smoke level	Evaluative	Maximum light absorption coefficient of 3.25/m or Equivalent BOSCH No. 5.2 or 75 hat ridge value (as per CMVR)	NA	Not applicable	-
17.2	Parking brake:					
	Observation on rotation of at the slope of 18 percent, facing up and facing down	Evaluative	No rotation of drive wheels at a slope of 18% facing up and facing down	NA	Not applicable	-



1	2	3	4	5	6	7
17.3	Air cleaner oil pull over:					
	Maximum percentage of oil pull over (mass basis)	Evaluative	0.20 percent	NA	Not applicable (Dry type)	-
17.4	Noise level:					
a)	Maximum ambient noise emitted by the paddy transplanter, dB(A)	Evaluative	85	75	70	Yes
b)	Maximum noise at operator's ear level, dB (A)	Evaluative	96	96	87	Yes
17.5	Amplitude of mechanical vibration (microns):					
a)	Steering handle grips/ steering control wheel	Non-evaluative	100 μ , max	100	395	No
b)	Gear levers					
	Transmission	Non-evaluative	100 μ , max.	100	134	No
	Planting	Non-evaluative	100 μ , max.	100	126	No
c)	Clutch/brake lever(s)/pedal (s)	Non-evaluative	100 μ , max.	100	112	No
d)	Accelerator lever/knob	Non-evaluative	100 μ , max.	100	271	No
e)	Operators seat	Non-evaluative	100 μ , max.	NA	NA	-
f)	Foot rest	Non-evaluative	100 μ , max.	100	NA	-
17.6	Field requirements:					
a)	Variation in seedling trays consumption per hectare (%)	Non-evaluative	5 % Max	5%	-2.61 to 2.05	Conforms
b)	Variation in number of hills per meter of row length (%); and (km)	Evaluative	5 % Max+10 percent	5%	Nil	Yes

1	2	3	4	5	6	7
c)	Transplanting faults in 1m ² , (%):					
1)	Missed hills	Evaluative	5 % Max	5%	3.0	Yes
2)	Floating seedlings	Evaluative	3 % Max	3%	2.0	Yes
3)	Buried seedlings	Evaluative	2 % Max	2%	1.0	Yes
4)	Damaged seedlings	Evaluative	2 % Max	2%	1.0	Yes
5)	Total faults	Evaluative	10 % Max	10%	7.0	Yes
d)	Variation in number of seedlings per hill, %	Non-evaluative	15 % Max	15%	-5.62 to 6.01	Yes
e)	Variation in planting depth, %	Non-evaluative	15 % Max	15%	4.00	Yes
17.7	Effectiveness of sealings:					
a)	Engine oil;	Evaluative	The entry of mud/ water should not take place in components/ sub-assemblies.	Yes/No	No	Yes
b)	Hydraulic oil	Evaluative				Yes
c)	Transmission oil	Evaluative				Yes
d)	Clutch assembly	Evaluative				Yes
e)	Planting gear box oil	Evaluative				Yes
f)	Planting arms	Evaluative				Yes
17.8	Discard limit (mm):					
a)	Cylinder bore diameter	Evaluative	To be specified by the manufacturer in printed literature	66.25 (D)	66.00 to 66.03	Yes
b)	Piston clearance	Evaluative	-do-	0.35 (D)	0.09	Yes
c)	Ring end gap:					
	- 1 st Comp. Ring	Evaluative	-do-	1.50 (D)	0.20 to 0.22	Yes
	- 2 nd Comp. Ring	Evaluative	-do-	1.50 (D)	0.22 to 0.24	Yes
	- Oil ring	Evaluative	-do-	1.50 (D)	0.21 to 0.22	Yes
d)	Diametrical clearance of big end bearing;	Evaluative	-do-	0.25 (D)	0.07	Yes

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1	2	3	4	5	6	7
e)	Axial clearance of big end Bearing	Evaluative	-do-	0.80(D)	0.15	Yes
f)	Ring groove clearance:					
	- 1 st Comp. Ring	Evaluative	-do-	0.20(D)	0.05	Yes
	- 2 nd Comp. Ring	Evaluative	-do-	0.20(D)	0.06	Yes
	-Oil ring	Evaluative	-do-	0.20(D)	0.05	Yes
g)	Thickness of clutch lining;	Evaluative	-do-	Dog clutch	NA	-
h)	Diametrical clearance of main bearings and	Evaluative	-do-	NA	NA	-
i)	Axial clearance of main bearings.	Evaluative	-do-	0.50 (D)	0.15	Yes
17.9	Safety requirements:					
a)	Provision of guards on moving parts	Evaluative	---	Provided	Provided	Yes
b)	Location and direction of exhaust emission to be away from the operator stationary operation	Evaluative	-do-	Provided	Provided	Yes
c)	Covers on hot parts	Evaluative	-do-	Provided	Provided	Yes
d)	Provision of headlights	Non - evaluative	-do-	Provided	Provided	Yes
17.10	Literature (submission to test agency):					
	Operator manual	Evaluative	-do-	Provided	Provided	Yes
	Parts catalogue	Evaluative	-do-	Provided	Provided	Yes
	Workshop/service manual	Evaluative	-do-	Provided	Provided	Yes
17.11	Labelling of machine (provision of labelling plate):					
a)	Name of manufacturer	Evaluative	Metallic plate shall be welded/riveted permanently on the machine at place where it can be easily identified	Provided	Provided	Yes
b)	Country of origin	Evaluative		Provided	Provided	Yes
c)	Make	Evaluative		Provided	Provided	Yes
d)	Model	Evaluative		Provided	Provided	Yes
e)	Year of manufacture	Evaluative		Provided	Provided	Yes



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1	2	3	4	5	6	7
f)	Engine serial number	Evaluative	-do-	Provided	Provided	Yes
g)	Chassis serial number	Evaluative		Provided	Provided	Yes
h)	Size of machine	Evaluative		Provided	Provided	Yes
i)	Maximum engine power, kW	Evaluative		Provided	Provided	Yes
j)	Specific fuel consumption, g/kWh	Evaluative		Provided	Provided	Yes

17.12 Salient Observation:

17.12.1 Engine performance test:

- The maximum & rated power of the engine at 3600 rpm was observed as 3.14 kW against the declared value of 3.30 kW.
- Specific fuel consumption corresponding to max. power & rated power were observed as 428 g/kWh respectively against the declared value of 420 g/kWh.

17.12.2 Field test:

The transplanter was operated in varying field conditions for a total period of 26.0 hours for transplanting BPT-5204 variety of paddy seedlings. The results are summarized as under:

- ❖ Av. forward speed of operation was observed as 2.68 to 2.76 kmph.
- ❖ Av. Area covered was recorded as 0.233 to 0.250 ha/h.
- ❖ Av. Depth of transplanting was recorded as 4.8 to 5.2 cm.
- ❖ The Spacing between rows was recorded as 30 cm.
- ❖ Av. Number of plants per hill was recorded as 9.7 to 10.9.
- ❖ Av. Spacing between hills was recorded as 21.1 to 21.4 cm.
- ❖ Av. Total number of hills in 10 m row length was recorded as 48.0 to 48.4.
- ❖ The av. number of hills per sq. m. was recorded as 20.
- ❖ The av. percentage of missed hills was recorded as Nil to 1.0.
- ❖ The av. percentage of floating seedlings was recorded as Nil to 1.0.
- ❖ The av. percentage of buried seedlings was recorded as Nil to 1.0.
- ❖ Av. percentage of damaged seedling was recorded as Nil to 1.0.
- ❖ The total percentage of transplanting faults was recorded as 1.0 to 2.0.
- ❖ The consumption of nursery trays was recorded as 210 to 220 numbers per hectare.
- ❖ The hourly fuel consumption was recorded as 0.86 to 0.96 l/h and fuel required for planting of one hectare area was recorded as 3.69 to 3.84.

- The quality of work was observed as smooth during entire transplanting operation. The overall performance of the machine was found satisfactory.

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17.13 Components/assembly inspection:

17.13.1 The transplanter and engine were dismantled after 37.67 hours of operation, respectively and wear of critical components were observed within the limits.

17.13.2 The main gear box, planting box, planting arm drive mechanism and bearings were dismantled after completion of field operation and found in satisfactory working condition.

17.14 Safety provisions:

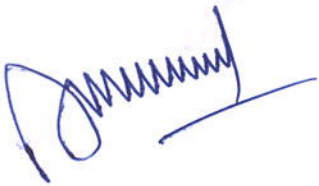


The machine is provided with various safety provisions while working in the field or moving on the road as mentioned in the **clause 5.10** of this test report

17.15 The notations for all controls, Instrument panel, labelling plate and safety provisions are written on the machine in English language. This should be in bilingual for sake of Indian farmers/users.

17.16 Technical literature:

Operator's manual, technical manual and parts catalogue of Rice Transplanter and engine in separate booklet were supplied with the Rice Transplanter for reference during the test in English only. It is however, recommended that same may be revised in Hindi and other regional languages as per IS 8132 :1999 (Reaffirmed 2004) for the sake of user & technical personnels.

TESTING AUTHORITY

 Er. PRAMOD YADAV AGRICULTURAL ENGINEER	 Er. Y.K. RAO SENIOR AGRICULTURAL ENGINEER
 Dr. P.P. RAO DIRECTOR	