व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: COMB – 303/2975/2023**
माह/**Month: April, 2023**

THIS TEST REPORT VALID UP TO : 30th April, 2030

GARUD, GCT-60, SELF PROPELLED COMBINE HARVESTER (TRACK TYPE)

भारत सरकार
Government of India
कृषि एवं किसान कल्याण मंत्रालय
Ministry of Agriculture and Farmers Welfare
कृषि एवं किसान कल्याण विभाग
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15. FIELD TEST

15.1 The combine harvester was operated in field for 50.92 hours (excluding run in 2.12 h) for paddy harvesting. During the test, available varieties of crop were harvested to assess the field performance of combine with regard to quality of work, rate of work, fuel consumption, safety and soundness of construction etc. The crop and atmospheric conditions during field test are given in **Appendix - II**
The crop parameters recorded during the test for paddy crops is as under:-

Crop Parameters

Sr. no.	Parameters		Observations
			Paddy
1.	Plant height, cm	:	86 to 150
2.	Number of tillers/m^2	:	152 to 316
3.	Length of ear head, cm	:	10 to 28
4.	Straw/grain ratio	:	1.5 to 2.3
5.	Moisture, %:		
	- Grain	:	13.5 to 15.0
	- Straw	:	62.0 to 65.1

The summary of losses and efficiencies observed during field performance test with paddy crop is summarised in Table 4 and presented in detail in **Appendix – III**

TABLE-4: SUMMARY OF LOSSES & EFFICIENCIES OBSERVED IN FIELD PERFORMANCE TEST

Crop variety	Collectable losses (%) (Max.)	Non-collectable losses (%) (Max.)	Total processing losses (%) (Max.)	Threshing efficiency (%) (Min.)	Cleaning efficiency (%) (Min.)	Grain breakage in main tank (%) (Max)	Forward speed (kmph)	Area covered (ha/h)	Fuel consumption (l/h)	Fuel consumption (l/ha)	Grain out put (kg/h)	Crop through-put (t/h)
MTU-1010	2.27	0.58	2.37	98.8	96.6	0.70 to 1.07	1.82 to 2.21	0.234 to 0.285	9.07 to 9.92	33.13 to 39.58	1651 to 2571	4.50 to 7.76

15.2 Unloading of grains
The time to unload the grain tank ranged from 84 to 135 seconds in paddy operation.

15.3 Time required for daily maintenance
The average labour required for daily maintenance was approximately two man hours.

15.4 Harvesting of any other crop
Not done, as not recommended.

	iii)	Knife back should meet the requirement of IS:10378-1982	Non evaluative	The knife back shall be manufactured from Carbon Steel having minimum carbon content of 0.35 %	--	C=0.22	**Does not conform**

19.2 Acceptance criteria in case of Breakdowns/Defects as per clause 4.2 of IS:15806-2018

I. Break down (critical, major & minor)

Sr. No.	Category of breakdowns	Category (Evaluative/ Non evaluative)	Requirements as per OM	As observed	Whether meets the requirements (Yes/No)
1.	Critical	Evaluative	No critical breakdown	None	Yes
2.	Major	Evaluative	Not more than two and neither of them should be repetitive in nature	None	Yes
3.	Minor	Evaluative	Not more than five and frequency of each should not be more than two	None	Yes
4.	Total breakdown	Evaluative	In no case total no of (major + minor) breakdowns exceed five	None	Yes

20. COMMENTS AND RECOMMENDATIONS

20.1 Mechanical vibration

The amplitude of mechanical vibration of components marked as (*) in chapter 13 of this test report are observed to be on higher side. This calls for providing suitable remedial measures to dampen the vibration in order to improve the operational comfort and service life of various components & sub-assemblies.

20.2 Field performance test

(i) During field test, the sieve assembly drive belt got broken. It should be looked into for improvement in future production.

20.3 Ease of operation and safety provisions

(i) No noticeable difficulties observed during operation of combine harvester. However, the suspension and dampening of operator seat is not provided. It should be provided for the comfort of the operator.

20.4 Hardness and chemical composition

Hardness & chemical composition of knife blade is not within the limit specified in relevant Indian Standards. It should be looked into for corrective action at regular production level.

20.5 Literature supplied with the machine.

The following literatures are provided by the applicant during the test.

i) Operator/Service manual

ii) Spare parts catalogue

However, applicant should produce service manual and update operators manual as per IS: 8132-1999.

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN **DIRECTOR**	03.04.2023

The test report is compiled by: Er. Aman Garg

21. APPLICANT'S COMMENTS

Not specific comments received from the applicant.