

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: Comb-322/3035/2023
माह/Month: May, 2023

THIS TEST REPORT VALID UP TO : 31st May, 2030



**KSA, KSA 8500
SELF PROPELLED COMBINE HARVESTER**



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

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

Northern Region Farm Machinery Training and Testing Institute

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[ISO 9001:2015 CERTIFIED]

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Background noise level, dB(A) : 51.8

Location of microphone:Height of microphone above ground : 1.2
level, mDistance of microphone from line of : 7.5
travel, m**Atmospheric conditions:**

Temperature, °C : 34.8

Pressure, kPa : 98.7

Relative humidity, % : 45.7

Wind velocity, m/s : 0.9 to 1.3

TEST DATA:

Sr. No.	Gear used	Travelling speed before acceleration, kmph	Noise level, dB(A)	
			Silencer facing microphone	Silencer facing away from microphone
1	L1	2.22	82.2	80.2
2	L2	5.09	82.1	80.5
3	L3	12.48	81.9	80.8
4	H1	4.21	83.3	81.4
5	H2	9.76	83.0	81.4
6	H3	22.78	83.6	82.7

14.2 Noise at operator's ear level

Date of test : 15.02.2023

Type of track : Concrete

Background noise level, dB(A) : 51.8

Height of microphone from the foot : 1300
board, mm**Atmospheric conditions:**

Temperature, °C : 34.8

Pressure, kPa : 98.7

Relative humidity, % : 45.7

Wind velocity, m/s : 0.9 to 1.3

TEST DATA:

Maximum noise level observed, dB(A) : 95.7

15. FIELD TEST

- 15.1** Combine harvester was operated in field for 28.47 and 28.33 hours (excluding running-in of 1.00 and 2.05 hours) for wheat and paddy harvesting respectively. 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 & V** respectively. The crop parameters recorded during the test for all crops are as under:-



Crop parameters

Sr. No.	Parameters		Observations	
			Wheat	Paddy
1	Plant height, cm	:	95 to 110	93 to 120
2	Number of tillers/m ²	:	290 to 329	212 to 309
3	Length of ear head, cm	:	8 to 10	23 to 29
4	Straw/grain ratio, %	:	0.90 to 1.10	1.00 to 1.20
5	Moisture, %			
	- Grain	:	9.60 to 9.80	14.00 to 15.10
	- Straw	:	5.50 to 8.00	61.00 to 64.50

The results of field performance test of wheat and paddy crops harvesting are summarised in Table – 10 and presented in detail in **Appendix – II to V.**

Table-10: SUMMARY OF LOSSES & EFFICIENCIES OBSERVED DURING 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		Grain out put (kg/h)	Crop throughput (t/h)
									(l/h)	(l/ha)		
WHEAT												
HD-3086	1.70	0.30	1.80	99.30	97.80	1.03 to 1.10	1.61 to 1.87	0.436 to 0.514	6.53 to 6.96	13.10 to 15.94	1576 to 2147	3.30 to 4.03
PADDY												
ND-67	2.30	0.46	2.38	98.80	96.40	1.07 to 1.23	1.52 to 1.64	0.360 to 0.387	7.50 to 9.15	20.81 to 23.68	2251 to 3296	4.83 to 6.55
ND-53	2.10	0.18	2.19	99.00	97.00	0.98 to 1.07	1.52 to 1.69	0.352 to 0.403	8.33 to 8.91	22.12 to 23.70	2184 to 2981	4.57 to 6.46

Summary of field performance of chopper cum spreader

Uniformity of straw spread, CV, %	:	19.43
Weighted mean size of chopped straw, cm	:	8.24

15.2 Unloading of grains

The time to unload the grain tank ranged from 70 to 90 second in paddy operation & 67 to 96 seconds in wheat 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

16. DEFECTS, ADJUSTMENTS, BREAKDOWNS AND REPAIRS

No noticeable defect or breakdown was observed during test.

25.	Marking/labelling of machine	Labelling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make and Model, Year of manufacture, Serial number, Type, Size required, size of prime mover (kW), Weight of the machine (kg)	Provided	Conforms
26.	Literature	Operator manual, Service manual and Parts catalogue should be provided	Provided	Conforms

21. COMMENTS AND RECOMMENDATIONS

- 21.1** The amplitude of mechanical vibration of components marked as (*) in chapter 17 of this test report are observed 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.
- 21.2 Field performance test**
- 21.2.1** No noticeable defect was observed during field test.
- 21.3 Ease of operation and safety provision**
- 21.3.1** No noticeable difficulties were observed during operation of combine harvester.
- 21.4 Hardness and chemical composition**
- 21.4.1** Chemical composition of knife blade is not within the limits specified in IS: 6025-1982. It should be looked into for corrective action at regular production level.
- 21.4.2** Hardness of the knife guard does not conform to their relevant IS code. It should be looked into for improvement.
- 21.4.3** Hardness of the flail and fixed blade does not conform to their relevant IS code. It should be looked into for improvement.
- 21.5** The safety drive of grain tailing auger and tailing elevator auger is not provided. It should be looked into.



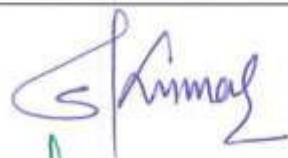
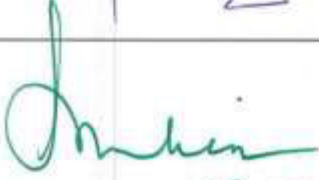
21.6 Literature supplied with the machine

The following literature was submitted by applicant during testing.

1. Operator & service manual of combine harvester
2. Operator manual of engine
3. Parts catalogue of combine harvester
4. Operator & service manual of SMS
5. Parts catalogue of SMS

However, the manual needs to be updated as per IS: 8132-1999

TESTING AUTHORITY

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 29.05.2023

Test report is compiled by Sh. Deny Hasnu, Senior Technician

22. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant comments
22.1	21.1	During regular production level we will improve the design to reduce the amplitude of mechanical vibration to conforms the IS.
22.2	21.4.1, 21.4.2 & 21.4.3	We will change the dimensions, hardness and chemical composition of those parts not conform to IS, so that hardness and chemical composition of all parts conforms to IS.
22.3	21.5	We will provide the safety drive to grain and tailing elevator.
22.4	21.6	We will update the manual as per the IS: 8132-1999.

