

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: Comb- 319/3032/2023

माह/Month: May, 2023

**THIS TEST REPORT VALID UP TO : 31<sup>st</sup> May, 2030**



**KARTAR 4000 SV  
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**

ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001

**Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001**

**[ISO 9001:2015 CERTIFIED]**

Website: <http://nrfmtti.gov.in/>

E-mail: [fmti-nr@nic.in](mailto:fmti-nr@nic.in)

Tele./FAX: 01662-276984

**Page 1 of 62**

## 14. FIELD TEST

14.1 Combine harvester was operated in field for 28.59 and 28.08 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                 | 96 to 106    | 90 to 128  |
| 2.      | Number of tillers/m <sup>2</sup> | 298 to 312   | 184 to 304 |
| 3.      | Length of ear head, cm           | 8 to 10      | 17 to 24   |
| 4.      | Straw/grain ratio                | 0.7          | 1.3 to 1.7 |
| 5.      | Moisture, %                      |              |            |
|         | - Grain                          | 9.4 to 9.6   | 13 to 18   |
|         | - Straw                          | 6.5 to 9.5   | 61 to 73   |

The results of field performance test of wheat and paddy crops harvesting are summarised in Table - 5 and presented in detail in Appendix – III, IV, VI & VII.

**Table-5: 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 |        | Urea consumption |        | Grain output (kg/h) | Crop throughput (t/h) |
|--------------|-------------------------------|-----------------------------------|------------------------------------|---------------------------------|--------------------------------|--|----------------------|---------------------|------------------|--------|------------------|--------|---------------------|-----------------------|
|              |                               |                                   |                                    |                                 |                                |  |                      |                     | (l/h)            | (l/ha) | (l/h)            | (l/ha) |                     |                       |
| <b>WHEAT</b> |                               |                                   |                                    |                                 |                                |  |                      |                     |                  |        |                  |        |                     |                       |
| HI-1633      | 1.74                          | 0.24                              | 1.78                               | 99.5                            | 97.60                          | 1.27                                   | 1.96                 | 0.593               | 7.91             | 12.66  | 0.07             | 0.11   | 2745                | 4.62                  |
|              |                               |                                   |                                    |                                 |                                |  |                      | 0.626               | 8.33             | 14.08  | 0.09             | 0.15   | 2831                | 4.79                  |
| <b>PADDY</b> |                               |                                   |                                    |                                 |                                |  |                      |                     |                  |        |                  |        |                     |                       |
| ND-53        | 1.23                          | 0.45                              | 1.34                               | 99.4                            | 98.2                           | 0.73                                   | 1.97                 | 0.558               | 7.75             | 13.88  | 0.09             | 0.15   | 4058                | 9.41                  |
|              |                               |                                   |                                    |                                 |                                |  | 2.01                 | 0.597               | 9.12             | 15.98  | 0.10             | 0.18   | 5546                | 13.01                 |

## 15. DEFECTS, ADJUSTMENTS, BREAKDOWNS AND REPAIRS

No noticeable defect or breakdown was observed during test.



|      |   |                |  |   |         |                  |
|------|---|----------------|--|---|---------|------------------|
| 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= 0.28 | Does not conform |
|------|---|----------------|--|---|---------|------------------|

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

## XI. Break down (critical, major &amp; 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                                     |

## 19. COMMENTS AND RECOMMENDATIONS

- 19.1 The amplitude of mechanical vibration of components marked as (\*) in chapter 13 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.
- 19.2 **Field performance test**
- 19.2.1 No noticeable defect was observed during field test.
- 19.3 **Ease of operation and safety provision**  
No noticeable difficulties observed during operation of combine harvester.
- 19.4 **Hardness and chemical composition**
- 19.4.1 **Hardness & chemical composition of knife blade, knife guard and knife back is not within the limits specified in the relevant standards. It should be looked into for corrective action at regular production level.**
- 19.4.2 **Hardness of the knife guard does not conform to their relevant IS code. It should be looked into for improvement.**



- 19.5 Individual brake pedals for LHS & RHS brake is not provided. It may be provided.
- 19.6 Height of Slow moving vehicle emblem (provided on combine harvester) from ground does not meet the requirement of CMVR. It **MUST** be looked into.



19.7 **Literature supplied with the machine**

The following literatures were supplied by the applicant

- i. Operator's manual for combine harvester
- ii. Operator's manual-Engine
- iii. Parts catalogue for combine harvester
- iv. Service manual for combine harvester

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

**TESTING AUTHORITY**

|   |  |
|---|--|
| Er. SANJAY KUMAR<br>AGRICULTURAL ENGINEER |                 |
| Dr. MUKESH JAIN<br>DIRECTOR               | <br>30.05.2023 |

20. **APPLICANT'S COMMENTS**

| Para No. | Our reference   | Applicant comments  |
|----------|-----------------|---|
| 20.1     | 19.1            | Appropriate actions and care will be taken in production to reduce the mechanical vibration.  |
| 20.2     | 19.4.1 & 19.4.2 | We will consider your recommendation and the material will be used conforming to IS: 6025-1982 & IS: 10378-1982 in future production. |
| 20.3     | 19.5            | Due to design limitation, this is not possible with this type of brake system.  |
| 20.4     | 19.6            | The height will be modified as per CMVR.  |

