

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: COMP-195/2598/2020  
माह/Month : November, 2020

**THIS TEST REPORT VALID UP TO : 30<sup>th</sup> NOVEMBER, 2027**



**GURU NANAK SUPER SMS, FITTED ON MALKIT 997,  
SELF- PROPELLED COMBINE HARVESTER**



भारत सरकार  
Government of India  
कृषि एवं किसान कल्याण मंत्रालय  
Ministry of Agriculture and Farmers Welfare  
कृषि, सहकारिता एवं किसान कल्याण विभाग  
Department of Agriculture, Cooperation and Farmers Welfare  
उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान  
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## 4. ROTOR BALANCING TEST

Date of test	:	18.11.2020
Make and model of Rotor balancing machine	:	PROTEQ and H - 1 K
Mass of the job ( kg)	:	72.82
Service speed of the job rpm	:	1868
ISO balancing grade	:	G 16
Balancing speed rpm	:	1868

S.No.	Particulars	As permissible	As observed	Remark
	Unbalance weight(Left side plane) (g)	35.89	5.96	Balanced
	Unbalance weight (Right side plane) (g)	35.89	46.14	Unbalanced

Unbalance angle (Left side plane) (degree)	178.79
Unbalance angle (Right side plane) (degree)	357.04

## 5. FIELD TEST

- 5.1 The SMS fitted on Malkit-997 combine harvester was operation in the paddy field for 5 hrs, to assess (a) performance of SMS and, (b) performance of combine harvester with SMS.

The crop parameters recorded during the test were as under:-

## Crop Parameters

Sl. No.	Parameters	Observations
1.	Average plant height, cm	86 to 88
2.	Average number of tillers/m <sup>2</sup>	206 to 230
3.	Average length of ear head, cm	23 to 25
4.	Average straw/grain ratio	1.6
5.	Average moisture, %	
	- Grain	13.4
	- Straw	64.7

The results of field performance test of Paddy crop harvesting are summarised in Table - 5 and presented in detail in Appendix - II to V.

**Table- 5 : SUMMARY OF LOSSES & EFFICIENCIES OBSERVED DURING FIELD PERFORMANCE TEST.**

Crop variety	Collectable losses (%)	Non-collectable losses (%)	Total processing losses (%)	Threshing efficiency (%)	Cleaning efficiency (%)	Grain breakage in main grain tank (%)	Forward speed (kmph)	Area covered (ha/h)	Fuel consumption		Grain output (kg/h)	Crop throughput (t/h)
									(l/h)	(l/ha)		
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>PADDY</b>												
28 P 67	1.7	0.4	2.0	98.9	96.8	0.68	1.52	0.433	9.00	20.71	3742.81	9.61

**SUMMARY OF FIELD PERFORMANCE OF SMS**

Uniformity of straw spread, CV, (percent)	17.4
Weighted mean size of chopped straw, cm	13.9

**6. DEFECTS, ADJUSTMENTS, BREAKDOWNS AND REPAIRS**

No noticeable defect observed

**7. SUMMARY OF OBSERVATIONS****7.1 Field test**

<b>7.1.1 Performance of SMS with Malkit-997 Combine Harvester</b>		
1	Uniformity of straw spread, CV, (percent)	17.4
2	Weighted mean size of chopped straw, cm	13.9

**7.1.2 Performance of Malkit-997 Combine harvester with Guru Nanak Super SMS**

S. No	Parameters	Observations
1.	Range of average speed of operation (kmph)	1.52
2.	Range of average area covered (ha/h)	0.433
3.	Maximum average fuel consumption: - (l/h) - (l/ha)	9.00 20.71
4.	Crop throughput (tonne/h)	9.61
5.	Grain breakage in main grain outlet (%)	0.68
6.	Header losses (%)	0.14
7.	Total non-collectable losses (%)	0.4
8.	Total collectable losses (%) (un threshed + broken from main outlet)	1.7
9.	Total processing losses (%)	2.0
10.	Threshing efficiency (%)	98.9
11.	Cleaning efficiency (%)	96.8

**9. CRITICAL TECHNICAL SPECIFICATIONS**

Deferred till 31.12.2020 vide Ministry O.M. No 13-13/2020 M&T, (I&P) dated 24.04.2020.

**10. COMMENTS AND RECOMMENDATIONS**

- 10.1 Field performance test**  
No noticeable defect observed during field test.
- 10.2** Applicant has recommended Malkit-997 combine harvester for SMS field testing. This is vital information and therefore the same must be inscribed in labelling plate also for the guidance of users.
- 10.3 Ease of operation and safety provision**  
No noticeable difficulties observed during field test.
- 10.4** The labelling plate **MUST** be riveted on the machine with following information.
- 1) Name and address of manufacture.
  - 2) Country of origin
  - 3) Make
  - 4) Model
  - 5) Year of manufacture
  - 6) Serial Number
  - 7) Type
  - 8) Size
  - 9) Required size of prime mover (kW)
  - 10) Weight of the machine (kgs)
  - 11) Make and Model of Combine Harvester
- 10.5** The SMS rotor shaft is unbalanced. It **MUST** be looked into for corrective action.
- 10.6** The hardness of flail & fixed blade of SMS does not conform. It should be looked into.

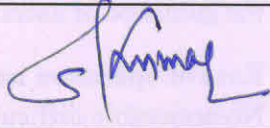
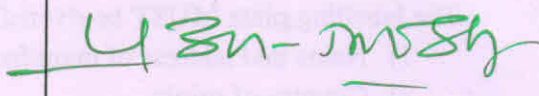
**10.7 Literature supplied with the machine**

No technical literature provided by the applicant during the test.

The following literature therefore, MUST be provided as per IS:8132-1999 for guidance of users.

- I) Operator Manual
- II) Service Manual
- III) Part's Catalogue

**TESTING AUTHORITY**

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report compiled by C. Veeranjanyulu, Sr. Technician

**11. APPLICANT'S COMMENTS**

No comments received from the applicant.

