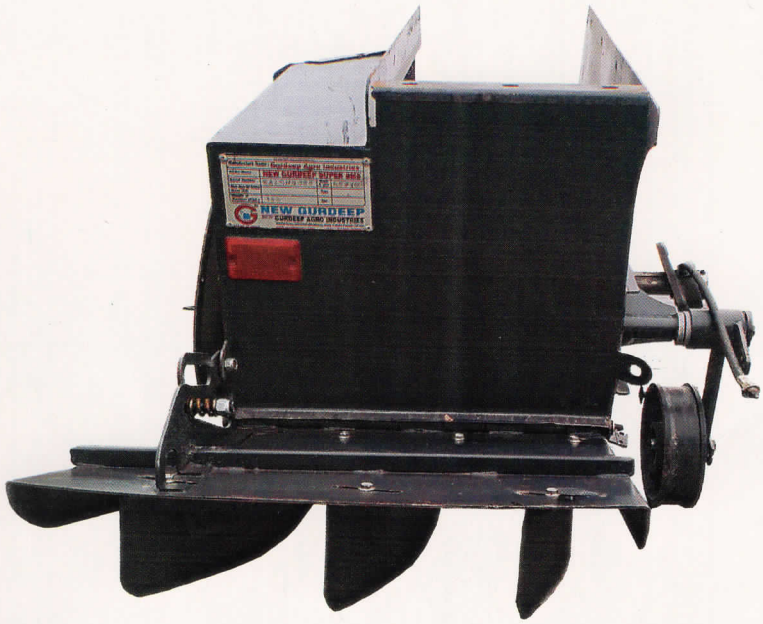
व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: COMP-153/2392/2019**
माह/**Month: December, 2019**

THIS TEST REPORT VALID UP TO : 31th DECEMBER, 2026



NEW GURDEEP SUPER SMS, FITTED ON CLAAS CROP TIGER 40 C260 SELF-PROPELLED COMBINE HARVESTER

सत्यमेव जयते

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
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4. ROTOR BALANCNING TEST

	Date of test	:	16.12.2019
	Make and model of Rotor balancing machine	:	PROTEQ and H - 1 K
	Mass of the job (kg)	:	44.4
	Service speed of the job rpm	:	1960
	ISO balancing grade	:	G 16
	Balancing speed rpm	:	1960

S.No.	**Particulars**	As permissible	As observed	Remark
	Unbalance weight (Left side plane) (g)	20.86	8.02	Balanced
	Unbalance weight (Right side plane) (g)	20.86	0.92	Balanced

	Unbalance angle (**Left side plane**) (degree)	122.92
	Unbalance angle (**Right side plane**) (degree)	325.62

5. FIELD PERFORMANCE TEST

5.1 The SMS fitted on Class Crop tiger 40 C 260 combine harvester was operation in the paddy fiel for 5.60 hrs, to assess (a) performance of SMS and, (b) performance of combine harvester wit SMS.

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

Crop Parameters

Sl. No.	**Parameters**		**Observations**
1.	Average plant height, cm	:	111 to 120
2.	Average number of tillers/m^2	:	229 to 260
3.	Average length of ear head, cm	:	26 to 32
4.	Average straw/grain ratio	:	3.2
5.	Average moisture, %		
	- Grain	:	15.4
	- Straw	:	61.8

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

Table : 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 through-put (t/h)
									(l/ha)	(l/ha)		
1	2	3	4	5	6	7	8	9	10	11	12	13
PADDY												
Pusa 44	2.1	0.5	2.3	98.8	97.0	0.90	1.64	0.236	8.47	35.88	1916.41	8.01

SUMMARY OF FIELD PERFORMANCE OF SMS

Uniformity of straw spread, CV, (percent)	**20.9**
Weighted mean size of chopped straw, cm	10.5

6. DEFECTS, ADJUSTMENTS, BREAKDOWNS AND REPAIRS

No noticeable defect observed

7. SUMMARY OF OBSERVATIONS

7.1 Field test

7.1.1	Performance of SMS with Class Crop tiger 40 C 260 Combine Harvester	
1	Uniformity of straw spread, CV, (percent)	20.9
2	Weighted mean size of chopped strew, cm	10.5

7.1.2 Performance of Class Crop tiger 40 C 260 combine harvester with Gurdeep Super SMS

S. No	Parameters	Observations
1.	Speed of operation (kmph)	1.64
2.	Area covered (ha/h)	0.236
3.	Fuel consumption: - (l/h) - (l/ha)	 8.47 35.88
4.	Crop throughput (tonne/h)	8.01
5.	Grain breakage in main grain outlet (%)	0.90
6.	Header losses (%)	0.32
7.	Total non-collectable losses (%)	0.5

	vi)	**Break down (critical, major & minor)**			
Sr. No.	Category of breakdowns	Category (Evaluative/ Non evaluative)	Requirements as per IS 15806:2018	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

9. CRITICAL TECHNICAL SPECIFICATIONS

(Vide Ministry's communication F. No 9-1/2019 M&T (I &P) dated 20.08.2019)

Sl No.	Parameters	Specification	Observation	Remarks
Rotor				
1.	Rotor diameter, mm	165-170	166	Conforms
2.	No. of lugs on rotor in row	6	4 and 5	**Does not conform**
3.	No. of rows in periphery	4	4	Conforms
4.	Length of pivotal flail, mm	170-180	177.3	Conforms
5.	Width of flail, mm	50 ± 1	50.1	Conforms
6.	Thickness of flail, mm	5.0 (Min.)	5.0	Conforms
7.	No of flails in one set	2	2	Conforms
8.	Spacing between flails of one set, mm	35 (Max)	37.5	**Does not conform**
9.	Distance between adjacent flails units, mm	200±10	103	**Does not conform**
10.	No of rows/bars of serrated blades	1	1	Conforms
11.	No of serrated blades in row	20 (Min.)	9	**Does not conform**
12.	Spacing between serrated blades, mm	50 (Max.)	49	Conforms
13.	Overlapping of pivotal blade on serrated blade, mm	60 (Min.) (adjustable)	65	Conforms
Spreader				
14.	Total no of flaps	6 + 2 (side)	3+2	**Does not conform**
15.	Length of flaps, cm	38 (Min.)	38.5	Conforms
16.	Distance between flaps (left to right)	Adjustable	Adjustable	Conforms

17.	Spreader angle with horizontal, degree	Adjustable preferably downwards	Adjustable	Conforms
18.	Spreader angle with line of travel, degree	15 (Min.) (adjustable)	23° (Max.)	Conforms
19.	Spreader sheet thickness, mm	2.5-3.0	3.6	**Does not conform**
20.	SMS sheet thickness, mm	5.0 (Min.) for outer	3.6	**Does not conform**
21.	Rotor balancing	Should be dynamically balanced	Balanced	Conforms
22.	Rotor rpm	Min. 1600	1960	Conforms
23.	Fitting of SMS on combine harvester	Rigidly fixed to the combine chassis	Rigidly fixed	Conforms
24.	Fitting of power transmission system on combine harvester	Rigidly fixed to the combine chassis	Rigidly fixed	Conforms
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 Model Year of manufacturer, Serial number, Type Size required size of prime mover (kW), Weight of the machine (Kgs)	Type, Size and required size of Prime Mover (kW) are not specified	**Does not conform in toto**
26.	Literature	Operator manual, Service manual and Parts catalogue should be provided	Provided,	Conforms

10. COMMENTS AND RECOMMENDATIONS

10.1 **Uniformity of straw spread, Coefficient of Variation, (percent)** of Straw management system (SMS) **does not meet the requirement** of Indian standard.
IS 15806-2018. Since it is "Evaluative" parameter, **it must be looked into.**

10.2 **Ease of operation and safety provision**
No noticeable difficulties observed during operation of SMS.

10.3 No of lugs on rotor in a row **does not meet the requirement critical technical specification. It must be looked in to.**

10.4 Spacing between flails on one set **does not meet the requirement critical technical specification. It must be looked in to.**

10.5 Distance between adjacent flails of one set **does not meet the requirement critical technical specification. It must be looked in to.**

10.6 No. of fixed (serrated) blade in row **does not meet the requirement critical technical specification. It must be looked in to.**

10.7 Total number of flaps **does not meet the requirement critical technical specification. It must be looked in to.**

10.8 Spreader sheet thickness **does not meet the requirement critical technical specification. It must be looked in to.**

10.9 SMS sheet thickness **does not meet the requirement critical technical specification. It must be looked in to.**

10.10 Marking/Labelling of machine **does not meet the requirement critical technical specification. It must be looked in to.**

10.11 Applicant has recommended Claas Crop Tiger 40 C 260 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.

10.12 Material of SMS blade is not specified. It should be specified.

10.13 **Hardness**
The harness of fixed & flail blade of SMS does not conform to the requirement of IS 15806:2018. It MUST be looked into as it is evaluative requirement

10.14 Literature supplied with the machine

Operator manual cum Spare part's catalogue cum service manual provided during the test. However, the same need to be updated as per IS: 8132-1999.

TESTING AUTHORITY

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY **DIRECTOR**	

Test report compiled by C.Veeranjaneyulu, Senior Technician

11. APPLICANT'S COMMENTS

Para No	Our reference	Applicants comment's
11.1	10.1	This shall be looked into.
11.2	10.3 to 10.7	This aspect shall be looked into and implemented accordingly.
11.3	10.8 & 10.9	Thickness of SMS and spreader sheet shall be modified as per recommendation.
11.4	10.10	Marking/labelling of machine shall be done as per recommendation.
11.5	10.12	Details shall be given as required.
11.6	10.13	Hardness of fixed and flail blade of SMS shall be ensured as per requirement.
11.7	10.14	Operator manual cum Spare part's catalogue cum service manual provided shall be updated as per IS: 8132-1999