व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ **No.: COMP-169/2408/2019**
माह/**Month : December, 2019**

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

JASWANT SUPER SMS, FITTED ON PREET-987 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	:	17.12.2019
	Make and model of Rotor balancing machine	:	PROTEQ and H - 1 K
	Mass of the job (kg)	:	67.22
	Service speed of the job rpm	:	1936
	ISO balancing grade	:	G 16
	Balancing speed rpm	:	1936

S.No.	**Particulars**	As permissible	As observed	Remark
	Unbalance weight (Left side plane) (g)	31.97	3.8	Balanced
	Unbalance weight (Right side plane) (g)	31.97	25.38	Balanced

	Unbalance angle (**Left side plane**) (degree)	75.94
	Unbalance angle (**Right side plane**) (degree)	173.16

5. FIELD PERFORMANCE TEST

5.1 The SMS fitted on Preet-987combine harvester was operation in the paddy field for 5.55 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** Preet 987
1.	Average plant height, cm	:	93 to 100
2.	Average number of tillers/m^2	:	243 to 266
3.	Average length of ear head, cm	:	25 to 27
4.	Average straw/grain ratio	:	1.9
5.	Average moisture, %		
	- Grain	:	15.5
	- Straw	:	73.5

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 throughput (t/h)
									(l/h)	(l/ha)		
1	2	3	4	5	6	7	8	9	10	11	12	13
PADDY												
TL 1210	1.8	0.5	2.1	99.0	97.6	0.81	1.50	0.429	10.93	25.48	3633.42	10.58

SUMMARY OF FIELD PERFORMANCE OF SMS

Uniformity of straw spread, CV, (percent)	13.3
Weighted mean size of chopped straw, cm	9.0

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 Preet-987 Combine Harvester	
1	Uniformity of straw spread, CV, (percent)	13.3
2	Weighted mean size of chopped strew, cm	9.0

7.1.2 The performance of Preet-987combine harvester with Jaswant Super SMS

S. No	Parameters	Observations
1.	Speed of operation (kmph)	1.50
2.	Area covered (ha/h)	0.429
3.	Fuel consumption: - (l/h) - (l/ha)	 10.93 25.48
4.	Crop throughput (tonne/h)	10.58
5.	Grain breakage in main grain outlet (%)	0.81
6.	Header losses (%)	0.22
7.	Total non-collectable losses (%)	0.5

8.	Total collectable losses (%) (un threshed + broken from main outlet)	1.8
9.	Total processing losses (%)	2.1
10.	Threshing efficiency (%)	99.0
11.	Cleaning efficiency (%)	97.6

8. SELECTED PERFORMANCE AND OTHER CHARACTERISTICS AS PER IS: 15806:2018

S. No	Characteristics	Category (Evaluative/ Non evaluative)	Requirement Declaration	Tolerance	Observed	Remarks
1	2	3	4	5	6	7
8.1	Uniformity of straw spread, CV, (percent)	Evaluative	20 Max.	--	13.3	Conforms
8.2	Weighted mean size of chopped strew, cm	Evaluative	20 Max.	--	9.0	Conforms
8.3	Processing losses in rice (%)	Evaluative	Average 4%	Nil	2.1	Conforms
8.4	Threshing efficiency (%)	Evaluative	≥ 98 %	Nil	99.0	Conforms
8.5	Cleaning efficiency	Evaluative	≥ 96 %	Nil	97.6	Conforms
8.6	Grain Breakage in main grain tank	Evaluative	≤ 2.5 %	Nil	0.81	Conforms
8.7	Non-collectable losses	Evaluative	≤ 2.5 %	Nil	0.5	Conforms
	i) Material of blades for straw management System (SMS)	Non evaluative	The flail and fixed blades shall be manufactured from steel having the following chemical composition or such other composition as shall be agreed to between the supplier and the purchaser. a) Carbon 0.70 to 1.0 percent.	--	Flail blade C- 0.5667 Mn- 0.1320 Cr- 0.1642 Ni- 0.5116 Fixed blade C- 0.5630 Mn- 0.1420 Cr- 0.1611 Ni -0.5405	As the code itself accommodate the variation in chemical composition, there is little scope for declaration of conformity or otherwise

	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	6	Conforms
3.	No. of rows in periphery	4	4	Conforms
4.	Length of pivotal flail, mm	170-180	179.9	Conforms
5.	Width of flail, mm	50 ± 1	50.0	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)	37.4	**Does not conform**
9.	Distance between adjacent flails units, mm	200±10	204	Conforms
10.	No of rows/bars of serrated blades	1	1	Conforms
11.	No. of serrated blades in row	20 (Min.)	24	Conforms
12.	Spacing between serrated blades, mm	50 (Max.)	50	Conforms
13.	Overlapping of pivotal blade on serrated blade, mm	60 (Min.) (adjustable)	98	Conforms
Spreader				
14.	Total no of flaps	6 + 2 (side)	6+2	Conforms
15.	Length of flaps, cm	38 (Min.)	38.5	Conforms
16.	Distance between flaps (left to right)	Adjustable	Adjustable	Conforms

10. COMMENTS AND RECOMMENDATIONS

10.1 **Field performance test**

No noticeable defect observed during test

10.2 Spacing between flails of one set **does not meet the requirement of critical technical specification. It must be looked into.**

10.3 Marking/Labelling of machine **does not meet the requirement of critical technical specification. It must be looked into.**

10.4 Applicant has recommended Preet-987 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.

10.5 In the labelling plate manufacture has declared the weight of SMS as 285 kg, which is misleading. The actual weight was observed as 177 kg. It may be looked into.

10.6 **Ease of operation and safety provision**

No noticeable difficulties observed during operation of SMS.

10.6 **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

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

10.8 **Literature supplied with the machine**

Operator manual cum Service manual cum Part's catalogue 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	10.2	We will maintain the spacing of flails
11.2	10.3	We will also provided you the correct sample of labelling plate as per your norms
11.3	10.6	Ensure the compliance in future