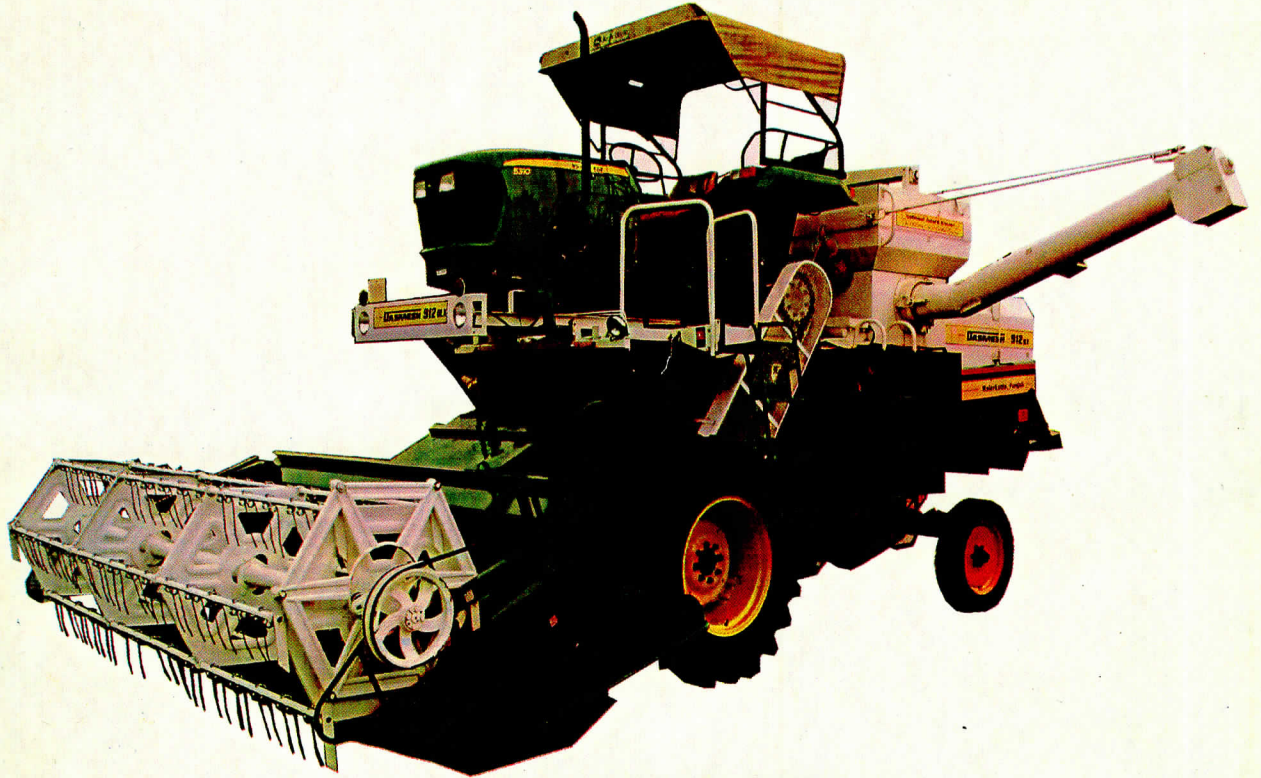


व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: COMB-217/2485/2020
माह/Month: July, 2020

THIS TEST REPORT VALID UP TO : 31st JULY, 2027



**DASMESH-912 DLX
TRACTOR MOUNTED 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

Northern Region Farm Machinery Training and Testing Institute

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14. NOISE LEVEL MEASUREMENT**14.1 Noise at bystander's position**

Date of test : 29.05.2020

Type of track : Concrete

Background noise level, dB (A) : 54.7

Location of microphone:

Height of microphone above ground level, m : 1.2

Distance of microphone from line of travel, m : 7.5

Atmospheric conditions:

Temperature, (°C) : 35.2

Pressure, (kPa) : 98.9

Relative humidity, (%) : 45.7

Wind velocity, (m/s) : 1.5 to 1.9

TEST DATA:

S. No.	Gear Used	Travelling Speed before acceleration (kmph)	Noise level, dB (A)	
			Silencer facing microphone	Silencer facing away from microphone
1.	A1	1.41	82	81
2.	A2	2.06	83	82
3.	A3	3.00	84	83
4.	B1	3.98	84	82
5.	B2	5.76	85	84
6.	B3	8.42	86	84
7.	C1	9.35	84	83
8.	C2	12.89	85	83
	C3	20.00	87	85

14.2 Noise at operator's ear level

Date of test : 29.05.2020

Type of track : In actual field condition

Background noise level, dB(A) : 55.2

Height of microphone from the foot board, mm : 1290

Atmospheric conditions:

Temperature, (°C) : 36.2

Pressure, (kPa) : 98.9

Relative humidity, (%) : 45.7

Wind velocity, (m/s) : 1.6 TO 2.3

TEST DATA:

Maximum noise level observed dB(A) : 97

15. FIELD TEST

15.1 Combine harvester was operated in field for 27.98 and 27.60 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 & IV respectively.

The crop parameters recorded during the test for all crops are as under:-

Crop Parameters

Sl. No.	Parameters		Observations	
			Wheat	Paddy
1.	Average plant height, cm	:	75 to 104	86 to 108
2.	Average number of tillers/m ²	:	247 to 291	199 to 304
3.	Average length of ear head, cm	:	7 to 11	16 to 27
4.	Average straw/grain ratio	:	0.9 to 1.1	1.4 to 2.1
5.	Average moisture, %			
	- Grain	:	8.5 to 10.7	12.5 to 14.5
	- Straw	:	7.8 to 9.4	67.4 to 68.7

The results of field performance test of wheat and paddy crops 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	Collect able losses (%) (Max.)	Non-collect able losses (%) (Max.)	Total proces sing losses (%) (Max.)	Thresh ing efficie ncy (%) (Min.)	Cleani ng efficie ncy (%) (Min.)	Grain breaka ge in main tank (%)	Forwa rd speed (kmp h)	Area cover ed (ha/h)	Fuel consumption		Grain out put (kg/h)	Crop throu gh-put (t/h)
									(l/h)	(l/ha)		
1	2	3	4	5	6	7	8	9	10	11	12	13
WHEAT												
HD 2967	2.7	1.4	2.9	99.1	96.2	1.64 to 2.16	1.86 to 2.03	0.432 to 0.554	4.10 to 5.97	8.07 to 12.66	2450.84 to 2888.20	4.91 to 5.96
PADDY												
Sehbhagi Dhana	2.1	2.2	2.5	98.5	96.3	0.52 to 1.34	1.21 to 1.29	0.265 to 0.297	5.28 to 5.92	17.79 to 22.33	1057.66 to 1457.90	2.98 to 4.30
PUSA 1121	2.3	1.9	2.6	98.5	96.5	0.69 to 0.92	1.31 to 1.91	0.304 to 0.476	5.92 to 6.25	13.11 to 19.46	1559.76 to 2469.63	4.63 to 6.02

SUMMARY OF FIELD PERFORMANCE OF CHOPPER CUM SPREADER

Uniformity of straw speed, CV (percent)	16.6
Weight mean size of chopped straw, cm	8.8

15.2

Unloading of grain

The time to unload the grain tank ranged from 40 to 65 second in wheat operation & 61 to 104 seconds in Paddy 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 REPAIR

No noticeable defect observed

17. INSPECTION AND ASSESSMENT OF WEAR**17.1 Steering system**Visual condition of the components : No noticeable defect observed.
of complete steering assembly.**17.2 Chains, sprockets and belts**Visual condition of the components : No noticeable defect observed.
of complete assembly**17.3 Bearings**Visual condition of the components : No noticeable defect observed.
of complete assembly**17.4 Wear of rasp bar**

Sr. No.	Mass of rasp bar before test (g)	Mass of rasp bar after 27.98 h test (g)	Wear (%) by weight
1	5266.2	5220.0	0.88
2	5094.0	5060.0	0.67
3	5235.0	5200.0	0.67
4	2223.0	5190.0	0.63

17.5 Wear of the peg teeth

The wear of the peg teeth of the threshing cylinder and concave was measured. The percentage wear on mass basis was computed and the results are given below:

Sl. No.	Original mass before test (g)	Mass after 27.60 h of test (g)	Percent wear by weight (%)
a)	Peg teeth of threshing cylinder		
1.	230.8	229.5	0.56
2.	225.7	224.1	0.71
3	226.8	225.6	0.53
4	224.4	223.0	0.62
5	227.3	226.0	0.57
6	220.2	218.5	0.77
7.	225.5	223.7	0.80
8.	225.2	223.9	0.58
9.	214.5	231.5	0.47
10.	226.6	225.0	0.71
11.	223.9	222.6	0.58
12.	223.2	221.1	0.90
b)	Peg teeth of concave		
1	232.6	231.2	0.60
2.	228.4	226.2	0.96
3	232.8	230.1	1.16

4	226.4	224.6	0.80
5	226.4	222.5	0.67
6	230.8	228.9	0.82
7	227.3	225.7	0.70
8	225.0	222.9	0.93

18. SUMMARY OF OBSERVATIONS

18.1 Tractor P.T.O. Performance Test: (Refer tractor test report No T-1054/1579/2016, December, 2016 issued by C.F.M.T & T.I Budni)

18.2 Field test

18.2.1 Summary of field tests

The results of the field test are summarized below:-

S. No	Parameters	Observed range	
		Wheat harvesting	Paddy harvesting
1.	Range of average speed of operation (kmph)	1.86 to 2.03	1.21 to 1.91
2.	Range of average area covered (ha/h)	0.432 to 0.554	0.265 to 0.476
3.	Maximum average fuel consumption: - (l/h) - (l/ha)	4.10 to 5.97 8.07 to 12.66	5.28 to 6.47 13.11 to 22.33
4.	Range of average crop throughput (tonne/h)	4.91 to 5.96	2.98 to 6.02
5.	Reported average grain breakage in main grain outlet (%)	2.16	1.34
6.	Reported average header losses (%)	1.28	1.72
7.	Reported average total non-collectable losses (%)	1.4	2.2
8.	Reported average total collectable losses (%) (un threshed + broken from main outlet)	2.7	2.3
9.	Reported average total processing losses (%)	2.9	2.6
10.	Reported average threshing efficiency (%)	99.1	98.5
11.	Reported average cleaning efficiency (%)	96.2	96.3
	Performance of straw chopper cum spreader		
12.	Uniformity of straw spread, CV (Percent)	--	16.6
13.	Weighted mean size of chopped straw cm	--	8.8

18.3 Conformity to Indian Standard

- | | | |
|-------|---|-------------------------------------|
| (i) | IS: 6025-1982 (Reaffirmed 2014)-Specification for :
knife section for harvesting machine. | Does not conform
in toto |
| (ii) | IS: 6024-1983 (Reaffirmed 2014)-Specification for :
guards for harvesting machines. | Does not conform
in toto |
| (iii) | IS: 10378-1982 (Reaffirmed 2016)-Specification of :
knife back for harvesting machine. | Does not conform
in toto |
| | IS: 6283 (Part II)-2007(Reaffirmed 2014)-Tractors and :
machinery for agriculture and forestry-symbol for
operator controls and other displays. | Does not conform
in toto |



1	2	3	4	5	6	7
f)	Max. Operating temperature, °C i) Engine oil ii) Coolant	Evaluative	135 118	Should not exceeds the declared value	123 96	Conforms
i)	Lubrication oil consumption, g/kWh	Evaluative	Not exceeding 1 % of SFC at maximum power high ambient	Nil	0.37	Conforms

II. Brake performance at 24 km/h or maximum speed whichever is less

a)	Max. Stopping distance at a force equal to or less than 600 N on brake pedal (m)- (cold brake and hot brake)	Evaluative	As per requirement of CMVR	--	Cold 5.1 Hot 5.7	Conforms
b)	Max. Force exert on brake pedal to achieve declaration of 2.5 m/sec ²	Evaluative	≤ 600	--	Cold 230 Hot 240	Conforms
c)	Effectiveness of parking brake at a force of 600 N at foot pedal or 400 N at hand lever	Evaluative	As per requirement of CMVR	--	Effective	Conforms

III. Mechanical vibration

a)	Operator's platform	Non evaluative	120 µm max.	Nil	269	Does not conform
b)	Steering control wheel	Non evaluative	150 µm max.	Nil	234	Does not conform
c)	Seat with driver seated	Non evaluative	120 µm max.	Nil	223	Does not conform

IV. Air cleaner oil pull over

a)	Air cleaner oil pull over in % when tested in accordance with IS 8122 part (II) 2000	Evaluative	0.20 max.	Nil	Dry type air cleaner provided hence test is not applicable	Not applicable
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V. Noise measurement

a)	Max. ambient noise emitted by combine at by slanders position dB (A)	Evaluative	As per CMV Rules	Nil	87	Conforms
b)	Max. noise at operator's ear level dB (A)	Evaluative	As per CMVR	Nil	97	Conforms

21. COMMENTS AND RECOMMENDATIONS

- 21.1 Mechanical vibration**
The amplitude of mechanical vibration of components marked as (*) in chapter 12 of this 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 Safety provision**
i) Slip clutches at under shoot conveyer drive is not provided. It **MUST** be provided as per the requirement of IS 15806 : 2018
ii) The first aid box is not provided on machine. It **MUST** be provided.
- 21.3 Grain tank cover is not provided.** It **MUST** be provided as per the requirement of IS : 15806:2018
- 21.4** Cutter bar knife drive safety arrangement is not provided. It should be provided.
- 21.5** There is no provision for varying oscillation of sieve. It should be looked into.
- 21.6** There is no provision for varying blower speed. It should be provided.
- 21.7 Hardness and chemical composition**
i) **Hardness & chemical composition of knife blade and knife guard is not within the limits specified in their respective IS: 6025-1982. It should be looked into for corrective action at regular production level.**
ii) **The harness of fixed & flail blade of SMS does not conform to the requirement of IS 15806:2018. It should be looked into for corrective action at regular production level.**
- 21.8** Material of SMS blade and Bushes for flail blade is not specified. It **MUST** be specified as per the requirement of IS:15806-2018



21.9 Literature supplied with the machine

The following literature provided during the test

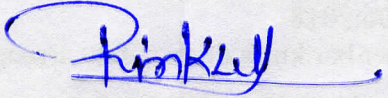
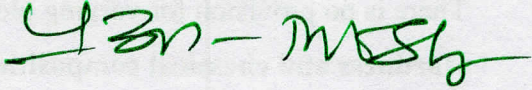
- i) Operator's manual
- ii) Parts catalogue for combine harvester.

The following literature should provided

- i) Operator manual of SMS
- ii) Service manual of SMS
- iii) Parts catalogue of SMS

However, the Operator manual should be updated as per IS: 8132-1999.

TESTING AUTHORITY

RINKU PRASAD GUPTA TECHNICAL ASSIATANT	
P. K. PANDEY DIRECTOR	

The test report compiled by C.Veeranjaneyulu, Senior Technician

22. APPLICANT'S COMMENTS

Para No	Our Reference	Applicant comment's
22.1	21.1	We will reduce mechanical vibration
22.2	21.3	We will covered grain tank in our next production
22.3	21.4	We will provide cutter bar knife drive safety arrangement
22.4	21.6	We will provide extra pulley for the blower speed varying
22.5	21.7 (i)	We will be fitted the knife blade according IS: 6025-1982 standard

