व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (Initial)

एक कदम स्वच्छता की ओर

संख्या/No.: Th.06/363
माह / Month: March 2020

THIS TEST REPORT IS VALID UPTO 31/03/2027

SHUKLA INDUSTRIES, PADDY THRESHER MODEL: S.IND-0051

सत्यमेव जयते

भारत सरकार
GOVT OF INDIA
कृषि एवं किसान कल्याण मन्त्रालय
MINISTRY OF AGRICULTURE & FARMERS WELFARE
कृषि, सहकारिता एवं किसान कल्याण विभाग
DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE
उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान
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1. SCOPE OF TEST

The scope of test was to check and assess the following:

1.1 Laboratory Test:

- Checking of specification and other data furnished by the applicant.
- Checking of material, visual observation and provision for adjustment.

1.2 Field Test :

- Rate of work
- Quality of work
- Ease of operation and adjustments
- Labour requirement
- Defects, Breakdowns & Repairs.

2. METHOD OF SELECTION

The test sample was selected by the testing authority through random selection. The following test samples were presented by the applicant during the random selection at manufacturer's site.

Sl. No.	Serial No. of Test Sample	Remarks
1	**S.IND/20/PDT-01**	Out of 5 samples, S. No. 1 has been randomly selected
2	S.IND/20/PDT-02	
3	S.IND/20/PDT-03	
4	S.IND/20/PDT-04	
5	S.IND/20/PDT-05	

3. TEST CODE AND PROCEDURE

i. IS: 6284 – 1985 (Reaffirmed March, 2009) : Test Code for Power Thresher for Cereals

ii. IS: 9020 – 2002 (Reaffirmed March, 2012) : Power Threshers – Safety Requirements

iii. IS: 4931 - 1995 (Reaffirmed December, 1999) : Agricultural tractors - Rear Mounted PTO shaft (Types 1, 2 & 3)

4. SPECIFICATIONS

4.1 General:

Name and address of the manufacturer : **M/S. Shukla Industries Near Radha Swami Satsang, Old G.T.Road, P.O + PS: Sasaram, Dist : Rohtas, Bihar-821115**

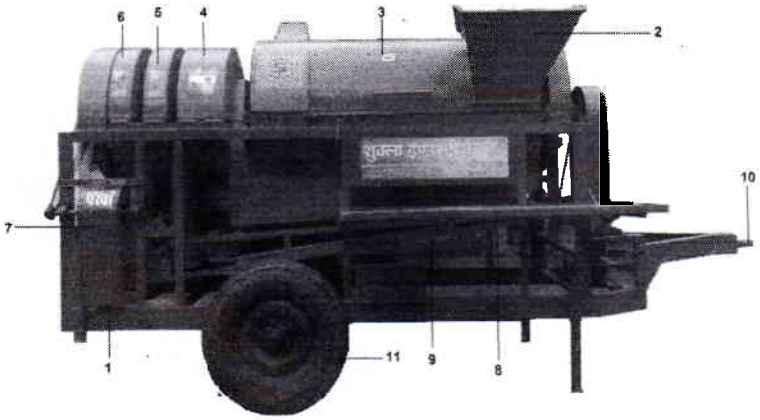
Name & Address of Applicant : **M/S. Shukla Industries Near Radha Swami Satsang, Old G.T.Road, P.O + PS: Sasaram, Dist : Rohtas, Bihar-821115**

Make	:	SHUKLA INDUSTRIES
Model	:	S.IND-0051
Type	:	Tractor PTO operated, Spike tooth
Size of thresher, mm (threshing length × diameter of cylinder without spikes / at tip of spikes)	:	1345 × 530 ϕ / 825 ϕ
Serial Number of machine	:	S.IND/20/PDT-01
Year of manufacture	:	2020/2021
Country of origin	:	India
Design Suitability	:	Paddy only
Type of prime mover	:	Tractor P.T.O. operated
Recommended power source, hp	:	35 HP & above.

4.2 Prime Mover Used:

Tractor	:	Mahindra 295 DI SUPER TURBO
Chassis No./ Engine no.	:	RPLT02012D9
Max. PTO Power, kW (Ps)	:	26.7(36.3)

4.3 Constructional Details (Refer Fig.1) :



1.	Frame	**7**	Sieve blower unit
2.	Feeding Chute	**8**	Feeder's platform
3.	Threshing cylinder top cover	**9**	Shaker unit
4	Bhusa blower-1 unit	**10**	Hitching hook
5	Bhusa blower-2 unit	**11**	Pneumatic wheel
6	Bhusa blower-3 unit		

Fig.1: SCHEMATIC VIEW OF SHUKLA INDUSTRIES PADDY THRESHER

Angle of sieves (degree)		
- Top sieve	By lifting or lowering the sieve unit with the help of threaded hangers	3.0 to 5.5
- Bottom sieve		35.3 to 9.2
Air flow of blower (m^3/min)		
- Bhusa outlet -1	Fixed	79.1
- Bhusa outlet -2	Fixed	33.5
- Bhusa outlet -3	Fixed	
- Sieve blower outlet	By opening/closing the gate	5.4

8.2 Lubricating points :

S. No.	Location	No. of grease cups/nipples	Recommended lubricant	Lubricating schedule
1	Main shaft bearings	1/ 3	Not recommended	**Not Provided**
2	Sieve Blower shaft bearings	2 / 2	Not recommended	**Not Provided**
3	Shaking mechanism	4 / 6	Not recommended	**Not Provided**
4	PIC of thresher	0 / 2	Not recommended	**Not Provided**
5	Propeller shaft	2 / 2	Not recommended	**Not Provided**

8.3 Provision was made for lubrication in all moving components and arrangements for tensioning all drive belts were also provided.

8.4 No major difficulty was observed during the operation of the thresher.

9. DEFECTS, BREAKDOWNS AND REPAIRS

9.1 No breakdown was occurred during 29.06 hour of operation.

10. SUMMARY OF OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

10.1 Performance of the thresher:

The detailed performance results of machine are given in **Annexure- II** and are summarized in **Table-1**. The performance of machine is also represented graphically in **Fig. 6.** The performance of the machine at optimum capacity is summarized below.

PERFORMANCE AT OPTIMUM INPUT CAPACITY

Crop	Optimum Capacity				Grain losses (%)			Efficiencies (%)	
	Input		Output		Broken	Blown	Spilled	Cleaning	Threshing
	Kg/h	Kg/l	Kg/h	Kg/l					
Paddy	3020	686	1525	347	0.00	0.006	0.001	96.17	99.65

10.1.1 Rate of work

The capacity of machine depends upon the skill of feeder. The optimum input capacity & grain output of the thresher were recorded as 3020 & 1525 kg/h respectively. Input & output

capacity per liter fuel consumed was recorded as 686 & 347 kg/l respectively.

10.1.2 Quality of work

- The percentage of broken grain was recorded as 0.00 %, which is normal.
- The percentage of blown grain was recorded as 0.006%. This is considered normal.
- The percentage of sieve loss was recorded as 0.001%.
- The threshing efficiency of the machine was recorded as 99.65 %, which is normal.
- **The cleaning efficiency was recorded as 96.17 %, which is at lower side as per relevant Indian standard. This calls for suitable corrective action.**

10.2 Fuel consumption

Fuel consumption of prime mover during the no-load test of thresher was recorded as 1.90 l/h, whereas, fuel consumption of prime mover during the test at optimum input capacity was recorded as 4.40 l/h.

10.3 Labour requirement

Manpower requirement for threshing Paddy crop was assessed as 7 numbers. for continuous operation of the machine

10.4 Wear Analysis

The percentage wear of threshing drum spikes on mass basis and dimension basis were recorded as 0.02 to 0.06 and 0.04 to 0.09 respectively, which are considered normal.

10.5 The specification of feeding chute does not conform to the IS: 9020-2002 (Reaffirmed2012). It should be provided as per the specification laid down in the said code.

10.6 The height of feeding chute from feeder's platform was measured as 1085 mm, which is considered as normal for feeder.

10.7 Provision was not made for adjusting concave clearance and sieve clearance This should be looked into for corrective action.

10.8 Due to high input capacity of the thresher and unsuitable location of feeding platform, difficulty was observed in continuous feeding of crop into the thresher at a uniform rate, which calls for modification in design of feeding chute or automatic feeding mechanism may be provided in future production.

10.9 Suitable guards/covers around the propeller shaft should be provided as per the requirement of IS: 9020-2002 (Reaffirmed 2012) to prevent accidental hazards.

10.10 Dimensions of PIC & PIC yoke of thresher does not conform to IS: 4931-1995 and it should be looked into for corrective action.

10.11 The machine was provided with minimum cautionary notices as per IS: 9020-2002 (Reaffirmed 2012).

10.12 Labeling of the Thresher

A labeling plate was provided on the thresher as per IS: 9020-2002 (Reaffirmed 2012),

10.13 An engraved plate with the following information should be provided on the machine.

- Recommended lubricants and lubricating schedule.
- Recommended speeds and settings of various systems
- Recommended tyre inflation pressure

The same parameters may also be incorporated in the operator-cum-service manual.

10.14 Adequacy of literature:

Operator cum Service Manual & Parts Catalogue was provided along with the machine during the course of testing. It is further recommended to bring out these manuals in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY

(M.R. PATIL)
AGRICULTURAL ENGINEER

(J.P. MANDAL)
SENIOR AGRICULTURAL ENGINEER

(K.K. NAGLE)
DIRECTOR

Draft test report compiled by - **Shri Khagendra Bora, STA**

11. APPLICANT'S COMMENTS

Para No	Our Reference	Applicants Comments
11.1	10.5	We look into this matter in future product.
11.2	10.9	Well provided it in future product.
11.3	10.10	We will look into it for making changes.