

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: IMP-1042/2652/2021  
माह/Month : January, 2021

**THIS TEST REPORT VALID UP TO : 31<sup>st</sup> JANUARY, 2028**



**KISHAN KAI 001 (WHEEL MODEL) OFFSET DISC HARROW  
TRACTOR OPERATED (TRAILED TYPE)**



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. HARDNESS AND CHEMICAL COMPOSITION OF DISCS

4.1 The hardness of discs was determined. The results of hardness test are tabulated in Table-1.

Table-1

Sr. No.	Hardness		Remarks
	As per IS: 4366 (Part-I)-1985	As observed	
		Plain disc	
1	38 to 45 HRC	43.9	Conforms
2		45.0	
3		44.2	
4		44.0	

4.2 Chemical composition

Table-2

Constituents	As per IS: 9442-1980	Composition as observed (% of weight)	Remarks
		Plain disc	
Carbon (C)	0.70 to 0.80 ±0.04	0.4389	Does not conform
Silicon (Si)	0.10 to 0.40 ±0.03	0.3216	Conforms
Manganese (Mn)	0.60 to 1.00 ±0.04	0.9143	Conforms
Sulphur (S)	0.05 (max) +0.005	0.0360	Conforms
Phosphorous (P)	0.05 (max) +0.005	0.0235	Conforms

#### 5. FIELD PERFORMANCE TEST

The field tests was conducted for 26.22 hours in different soil moisture conditions to assess the performance of the implement with Farmtrac2.FT.60.G. Tractor

The no load engine speed of tractor was speed adjusted to 1645 rpm and observations are summarized in Table-3.

#### SUMMARY OF FIELD PERFORMANCE TEST

Table-3

Sr. No.	Parameters	Range
i)	Tractor used	Farmtrac 2.FT. 60. G
ii)	Gear used	H-1
iii)	Type of soil	Sandy loam
iv)	Average bulk density of soil (g/cc)	1.680 to 1.730
v)	Average soil moisture (%)	13.50 to 13.93
vi)	Average speed of operation (kmph)	6.48 to 7.14
vii)	Average wheel slippage (%)	7.7 to 14.98
viii)	Average depth of cut (cm)	12.28 to 13.78
ix)	Average width of cut (cm)	162 to 174
x)	Average area covered (ha/h)	0.896 to 1.042

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xi)	Average time required for one ha (h)	0.96 to 1.12
xii)	Average field efficiency (%)	82 to 88
xiii)	Average fuel consumption	
	- l/h	4.00 to 4.50
	- l/ha	3.84 to 4.91
xiv)	Average implement draft (kgf)	311
xv)	Average drawbar power used (kW)	5.58

#### Wear of discs

Sr. No.	Initial mass (g)	Final mass (g)	Loss of mass (g)	Percentage of wear	
				After 26.22 hr.	Per hour
Plain disc					
1.	9320	9120	200	2.15	0.08
2.	9180	9020	160	1.74	0.07
3.	9300	9020	280	3.01	0.11
4.	9080	8920	160	1.76	0.07
5.	9880	9040	840	8.50	0.30
6.	9220	8980	240	2.60	0.09
7.	9140	8960	180	1.97	0.08

The hourly percentage wear of discs on mass basis was recorded as 0.07 to 0.30 %.

#### 6. EASE OF OPERATION & ADJUSTMENTS

No noticeable difficulty was observed during the operation and adjustment of disc harrow.

#### 7. DEFECTS, BREAKDOWNS AND REPAIRS

No noticeable defect observed.

#### 8. CRITICAL TECHNICAL SPECIFICATION

Deferred till 31.03.2021 vide Ministry O.M. No 13-13/2020 M&T, (I&P) dated 22.12.2020.

#### 9. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATION

- 9.1 The specification of disc harrow does not conform, in full, to the requirement of IS:6635-1972. This should be looked into for corrective action.
- 9.2 The specification of plain spool does not conform, in full, to the requirements of IS:7230-1974. This should be looked into for corrective action.
- 9.3 The specification for agriculture tillage disc does not conform, in full, to the requirements of IS: 4366 (Part 1)-1985. This should be looked into for corrective action.
- 9.4 The scrapers are welded to the frame and arrangement for adjustment is not made. It should be provided.
- 9.5 The chemical composition of disc does not meet in full, to the requirement of IS:9442-1980. This should be looked into for corrective action.

9.6 The labeling plate should be provided with following information

- i) Make
- ii) Model
- iii) Serial Number
- iv) Year of manufacture
- v) Size of implement
- vi) Required size of prime mover (kW)
- vii) Name and address of manufacturer
- viii) country of origin
- (ix) Weight (kg)

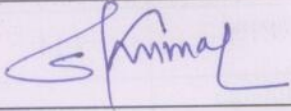
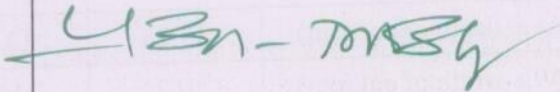
9.7 **Adequacy of literature**

No technical literature provided by the applicant during the test.  
The following literature, therefore, MUST be provided as per IS:8132-1999.

- i) Operator's manual
- ii) Service manual
- iii) Parts catalogue

9.8 The model name of implement as per labeling plate is KAI 001(Wheel Model), whereas in the application it is shown as 2020 (Harrow) Wheel harrow. This is misleading. It calls for necessary action.

#### TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report compiled by Girdhari Lal, Technician.

#### 10. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant's comments
10.1	9.1	We will take care the same in our regular production.
10.2	9.2	We will be take care the specification of plain spool for corrective action.
10.3	9.3	We will take care the same in our regular production.
10.4	9.4	The scrapers will be provide with adjustments on disc harrow.
10.5	9.5	The chemical composition of disc will be update as per IS: 9442-1980.
10.6	9.6	We will take care the same in our regular production.
10.7	9.7	We will updated technical literature as per recommendations.