

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या/ No.: IMP-1030/2487/2020

माह/Month: July, 2020

**THIS TEST REPORT VALID UP TO : 31<sup>st</sup> July, 2027**



**SONALIKA, SLRP-2 TWO BOTTOM HYDRAULIC  
REVERSIBLE M.B. PLOUGH (TRACTOR MOUNTED)**



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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**7. FIELD PERFORMANCE TEST**

The field tests of the implement comprising of operation was conducted for 30.39 hours in different soil moisture conditions to assess the performance of the implement. The no load engine speed of tractor was maintained 1900 rpm and observations are summarized in Table-1.

Table-1

**SUMMARY OF FIELD PERFORMANCE TEST**

S. No.	Parameters	Range
1	Type of soil	Sandy loam
2	Soil bulk density, (g/cc)	1.508 to 1.637
3	Average soil moisture, (%)	7.65 to 16.83
4	Engine speed (rpm):	
	- No load	1900
	- On load	1750 to 1760
5	Average speed of operation, (km/h)	3.57 to 4.23
6	Average wheel slippage, (%)	8.71 to 10.02
7	Average depth of cut, (cm)	18.33 to 22.0
8	Average working width, (cm)	73 to 80
9	Area covered, (ha/h)	0.217 to 0.263
10	Average Time required to cover one hectare, (h)	3.8 to 4.6
11	Average Field efficiency, (%)	74.8 to 83.2
12	Average Fuel consumption	
	-l/h	4.83 to 5.90
	-l/ha	19.57 to 26.24
13	Average Implement draft, (kgf)	773
14	Average drawbar power requirement, (kW)	7.96

**7.1.1 Rate of work:**

- The average rate of work was observed 0.217 to 0.263 ha/h the average speed of operation varied between 3.57 to 4.23 km/h.
- The average time required for ploughing one hectare area was recorded as 3.80 to 4.60
- The average field efficiency of the implement was worked out as 74.8 to 83.2

**7.1.2 Quality of work:**

- The average depth of operation measured as 18.33 to 22.00
- The average working width of implement was measured 73.0 to 80.0 cm.

**7.1.3 Power Requirement:**

- The average draft requirement was observed 773kgf.
- Average drawbar power requirement was measured as 7.96 kW.

**7.1.4 Labour requirement:**

One skilled operator is needed to operate the tractor and the implement simultaneously.



**7.1.5 Wear analysis:****7.1.5.1 On Mass Basis:****7.1.5.1.1 Share Point:**

Sl. No.	Description	Initial mass (g)	Mass after 31.99 h of operation	Loss of mass (g)	Percentage of wear	
					After 31.99 h	Per h
1	Front (LHS)	2064.8	1930.6	134.2	6.50	0.20
2	Front (RHS)	2146.8	2049.9	96.6	4.51	0.14
3	Rear (LHS)	2073.2	1938.6	134.6	6.49	0.20
4	Rear (RHS)	2066.1	1924.5	141.6	6.85	0.21

**7.1.5.1.2 Share Nose Point:**

Sl. No.	Description	Initial mass (g)	Mass after 31.99 h of operation	Loss of mass (g)	Percentage of wear	
					After 31.99	Per h
1	Front (LHS)	3308.8	3074.8	234.0	7.07	0.22
2	Front (RHS)	3296.2	3156.8	139.4	4.23	0.13
3	Rear (LHS)	3315.2	3125.6	189.6	5.72	0.18
4	Rear (RHS)	3301.4	3153.2	148.2	4.49	0.14

**8. EASE OF OPERATION & ADJUSTMENTS**

No noticeable difficulty was observed during the operation and adjustment of Three Bottom Hydraulic Reversible Mould Board Plough.

**9. DEFECTS, BREAKDOWNS AND REPAIRS**

A shear bolt was broken & replace with new in the Two Bottom Hydraulic Reversible Mould Board Plough during the test.

**10. CRITICAL TECHNICAL SPECIFICATION**

Deferred till 31.12.2020 vide Ministry O.M. No 13-13/2020 M&T, (I&P) dated 24.04.2020

**11. COMMENTS & RECOMMENDATIONS**

- 11.1** The specifications of plough share does not conform fully to the requirements of IS: 10691- 1983. It should be looked into for corrective action.
- 11.2** The specification of implement hitch does not conform fully to the IS: 4468 (Pt-I)-1997. It is recommended that the same should be provided conforming to the relevant Indian Standards.
- 11.3** The chemical composition and hardness of share and share nose does not meet, in full to the requirement of IS: 10691-1983. This should be looked into for corrective action.

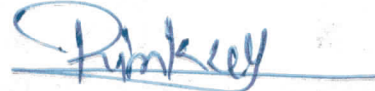
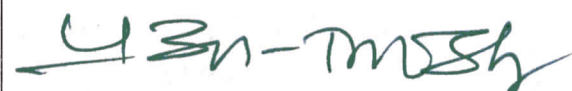
**11.4 Adequacy of literature:**

The following literature provided by the applicant during test

- i) Owner's manual
- ii) Parts catalogue

However, the Owner's manual needs to be updated as per IS: 8132-1999.

**TESTING AUTHORITY:**

RINKU PRASAD GUPTA TECHNICAL ASSISTANT	
P.K. PANDEY DIRECTOR	

Test report compiled by C.Veeranjaneyulu, Senior Technician

**12. APPLICANT'S COMMENTS**

Para No.	Our reference	Applicant's Comments
12.1	11.1	We will improve at production end, as per requirement of IS:10691-1983
12.2	11.2	We will improve at production end, as per requirement of IS:4468(Pt.-1)-1997.
12.3	11.3	We will improve at vendor/production end, as per requirement of IS: 10691-1983.

