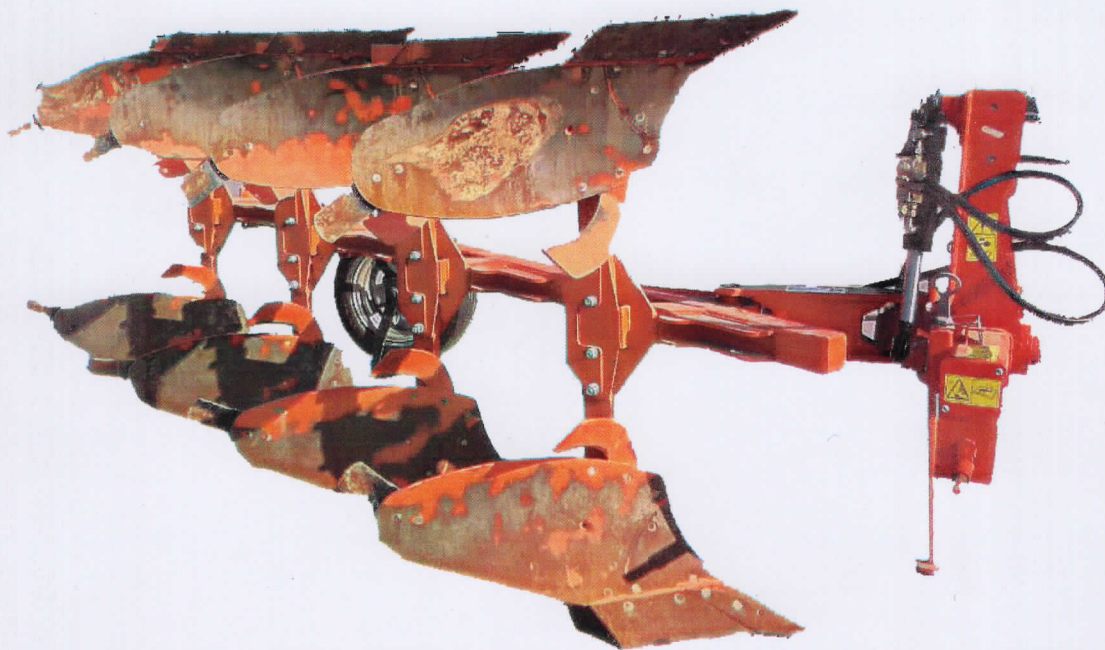


THIS TEST REPORT VALID UP TO : 31st JANUARY, 2027



**LANDFORCE, M4ARH, FOUR 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

Northern Region Farm Machinery Training and Testing Institute

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[ISO 9001:2015 CERTIFIED]

Website: <http://nrfmtti.gov.in/>

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Tele./FAX: 01662-276984

6.4.2 Chemical Analysis of Slip nose share :

Constituents	Chemical composition (%) as per IS: 10691-1983	Chemical composition as observed (%)	Conformity to IS
Carbon (C)	0.70 to 0.80	0.2526	Does not conform
Manganese (Mn)	0.50 to 0.80	0.5873	Conforms
Silicon (Si)	0.10 to 0.40 \pm 0.03	0.2666	Conforms
Phosphorous (P)	0.05 (max)	0.0213	Conforms
Sulphur (S)	0.05 (max)	0.0521	Does not conform

7. FIELD PERFORMANCE TEST

The field tests of the implement comprising of operation was conducted for 26.53 hours in different soil moisture conditions to assess the performance of the implement
The no load engine speed of tractor was maintained 2500 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)	1.550 to 1.691
3	Average soil moisture, (%)	18.8 to 20.7
4	Engine speed (rpm):	
	- No load	2500 to 2520
	- On load	2420 to 2450
5	Average speed of operation, (kmph)	3.44 to 4.40
6	Average wheel slippage, (%)	4.88 to 16.74
7	Average depth of cut, (cm)	18.18 to 23.95
8	Average working width, (cm)	122 to 126
9	Area covered, (ha/h)	0.360 to 0.480
10	Average Time required to cover one hectare, (h)	2.08 to 2.78
11	Average Field efficiency, (%)	83.14 to 90.05
12	Average Fuel consumption	
	-l/h	8.58 to 10.33
	-l/ha	17.85 to 28.71
13	Average Implement draft, (kgf)	907 to 984
14	Average drawbar power requirement, (kW)	9.2 to 11.2

7.1.1 Rate of work:

- The average rate of work was observed 0.360 to 0.480 ha/h the average speed of operation varied between 3.44 to 4.40 kmph.
- The average time required for ploughing one hectare area was recorded as 2.08 to 2.78h.
- The average field efficiency of the implement was worked out as 83.14 to 90.05.

7.1.2 Quality of work:

- The average depth of operation measured as 18.18 to 23.95.
- The average working width of implement was measured 122 to 126 cm.



7.1.3 Power Requirement:

- The average draft requirement was observed 907 to 984 kgf.
- Average drawbar power requirement was measured as 9.2 to 11.2 kW.

7.1.4 Labour requirement:

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

7.1.5 Wear analysis:**7.1.5.2 On Mass Basis:****7.1.5.2.1 Share Point:**

Sl. No.	Description	Initial mass (g)	Mass after 26.53 h of operation	Loss of mass (g)	Percentage of wear	
					After 26.53 h	Per h
1	Front (LHS)	3042	2928.2	113.8	3.74	0.14
2	Front (RHS)	3034	2906.6	127.4	4.20	0.16
3	Rear (LHS)	3038	2971.5	66.5	2.19	0.08
4	Rear (RHS)	2994	2915.3	78.7	2.63	0.10

7.1.5.2.2 Share Nose Point:

Sl. No.	Description	Initial mass (g) 26.53	Mass after 26.53 h of operation	Loss of mass (g)	Percentage of wear	
					After 26.53h	Per h
1	Front (LHS)	2759	2676.4	82.6	2.99	0.11
2	Front (RHS)	2749	2683.8	65.2	2.37	0.09
3	Rear (LHS)	2673	2615.3	57.7	2.16	0.08
4	Rear (RHS)	2663	2591.9	71.1	2.67	0.10

8. EASE OF OPERATION & ADJUSTMENTS

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

9. DEFECTS, BREAKDOWNS AND REPAIRS

No noticeable defect occurred in the Four Bottom Hydraulic Reversible Mould Board Plough during the test.

10. CRITICAL TECHNICAL SPECIFICATION

(Vide Ministry's communication F. No 9-1/2019- M&T (I&P) dated 20.08.2019)


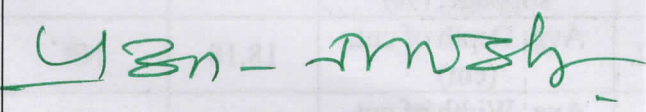
Sr. No	Parameters	Specifications	Observation	Remark
1.	Number of Bottoms	One/Two/Three/Four	Four	Conforms
2.	Working width (mm)	250(Min) per bottom	350	Conforms
3.	Under frame clearance, mm (adjustable)	550 (Min) up to 55 HP tractor 700 (Min) Above 55HP tractor	760 to 790	Conforms



11. COMMENTS & RECOMMENDATIONS

- 11.1 The specifications of plough share does not conform 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 (Part-I)-1997. It is recommended that the same should be provided conforming to the relevant Indian Standards.
- 11.3 The chemical composition 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 The hardness of plough share bar (slip nose share) **does not meet of requirement of critical technical specification. It must be looked in to.**
- 11.5 Vertical suction **does not meet the requirement of critical technical specification. It must be looked into.**
- 11.6 **Adequacy of literature:**
Operator & service manual with parts catalogue was provided for reference during the testing,
However, the operator manual needs to be updated as per IS: 8132-1999.

TESTING AUTHORITY:

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P.K. PANDEY DIRECTOR	

Test report compiled by C. Veeranjanyulu, Senior Technician

12. APPLICANT'S COMMENTS

We shall maintain the vertical suction within the stipulated range.

