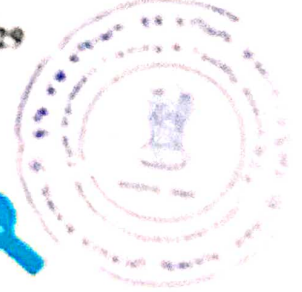
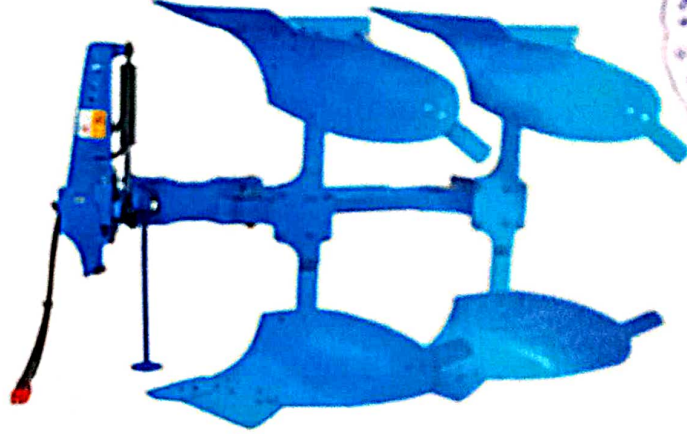


व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (INITIAL)



संख्या/No.: IMP. 321/431
माह / Month: JULY 2022

THIS TEST REPORT IS VALID UPTO 31.07.2029



BHUDEV ARCTIC 02
TWO BOTTOM HYDRAULIC REVERSIBLE M. B. PLOUGH
(Tractor Mounted)



सत्यमेव जयते

भारत सरकार

GOVT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE & FARMERS WELFARE

उत्तर पूर्व क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

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1. SCOPE OF TEST

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

- 1.1 Laboratory Test:**
- a) Checking of specifications
 - b) Hardness of soil engaging parts
 - c) Chemical analysis of critical components
 - d) Wear analysis of critical components
- 1.2 Field Test:**
- a) Rate of work
 - b) Quality of work
 - c) Ease of operation and adjustments
 - d) Labour requirement
 - e) Power requirement
 - f) Defects, Breakdowns & Repairs

2. METHOD OF SELECTION

As per Govt. of India, OM No. 13-1/2021-M&T (I&P), dated 03.02.2022, the selection of sample for test was exempted. Hence, the machine was directly submitted by the applicant at this Institute for test.

3. TEST PROCEDURE

The following codes were referred for testing of Two Bottom Hydraulic Reversible Mouldboard Plough

- i) IS: 6288:1971 (Reaffirmed Mar 1999) : Test code for Mould board ploughs.
- ii) IS: 10691:1983 (Reaffirmed Feb 2001) : Specification for Share for tractor-operated Mould board ploughs
- iii) IS: 4468 (Part I): 1997 (Reaffirmed Feb. 2012) : Agricultural wheeled tractors – Rear-mounted Three-Point Linkage: Part 1 Categories 1, 2, 3 & 4

4. SPECIFICATIONS

- 4.1 General:**
- Name and address of the manufacturer : M/s. Micro Laser Pvt. Ltd., Plot No-243, Sector No-10, PCNTDA, MIDC, Bhosari, Pimpri-Chinchwad, Maharashtra- 411026

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Test requested by (Applicant) : M/s. Micro Laser Pvt. Ltd., Plot No-243, Sector No-10, PCNTDA, MIDC, Bhosari, Pimpri- Chinchwad, Maharashtra- 411026

Name of machine : Two Bottom Hydraulic Reversible M.B. Plough

Make : BHUDEV

Model : ARCTIC 02

Serial Number of machine : MLPL 001

Size of implement (mm) : 2 x 320

Year of manufacture : 2022

Country of origin : India

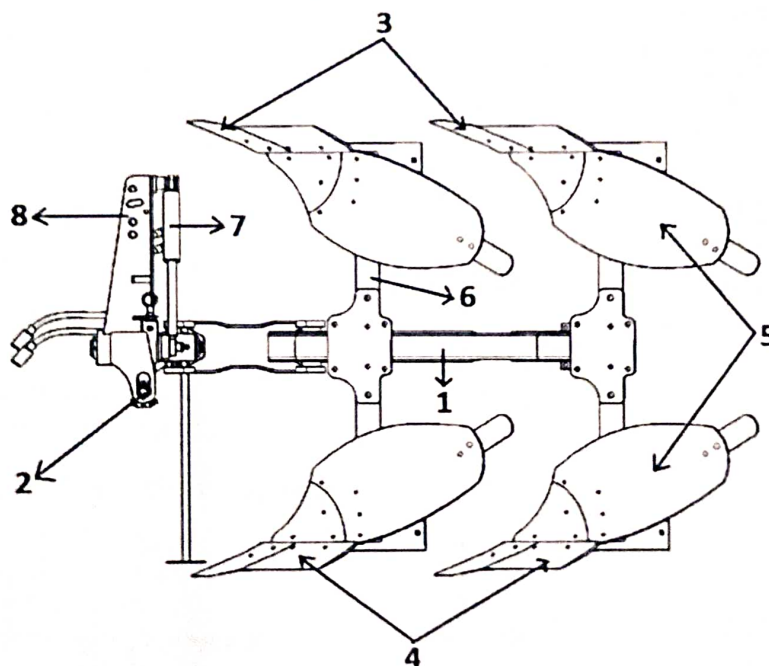
Power Source as recommended (hp) : 50&above

Prime Mover Used:

Tractor : John Deere 5310 4WD

Chassis No./ Engine no. : 1PY5310ECLA049490/PY3029H143675

4.2 Constructional Details (Refer Fig.1):



KEYWORDS

- | | |
|----------------|-----------------------|
| 1. Main Frame | 5. Mould Board |
| 2. Cross shaft | 6. Standard |
| 3. Share nose | 7. Hydraulic cylinder |
| 4. Share | 8. Hitch Pyramid |

Fig.1:SCHEMATIC VIEW OF TWO BOTTOM HYDRAULIC REVERSIBLE M.B PLOUGH

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8. FIELD PERFORMANCE TEST

The implement was operated for 25.58 hr. for assessing its field performance. Total four trial were carried out and reported in Annexure and are summarized in ensuing Table. John Deere 5310 4WD tractor was used as prime -mover during field performance test.

Summary of Field Performance Test

Sl.No.	Parameters/Operations	Observations
1.	Gear used	A-2
2.	Type of soil	Light
3.	Av. soil moisture (%)	10.7 to 12.9
4.	Av. bulk density of soil (g/cc)	1.59 to 1.70
5.	Previous treatment	Nil
6.	Engine speed (rpm) :	
	- No load	2574 to 2578
	- On load	2455 to 2477
7.	Speed of operation (kmph)	2.70 to 2.85
8.	Av. wheel slip (%)	8.99 to 13.51
9.	Av. depth of cut (cm)	25.46 to 29.80
10.	Av. working width (cm)	60.0 to 63.4
11.	Area covered (ha/h)	0.1350 to 0.1598
12.	Time required for one ha (h)	6.25 to 7.40
13.	Field efficiency (%)	78.94 to 91.31
14.	Fuel consumption	
	-l/h	6.26 to 6.43
	-l/ha	40.18 to 46.32
15.	Av. Implement draft (kgf)	913 to 1113
16.	Drawbar Power requirement (kW)	6.86 to 8.79

8.1.1 Rate of work :

- a) The area covered was recorded as 0.1350 to 0.1598 ha/h at the average speed of operation from 2.70 to 2.85 kmph.
- b) The time required to cover one hectare area was recorded as 6.25 to 7.40 h.

8.1.2 Quality of work:

- a) The depth of cut was recorded as 25.46 to 29.80 cm.
- b) Average working width was observed as 60.0 to 63.4 cm.
- c) Field efficiency was observed as 78.94 to 91.31 %.

8.1.3 Power requirement:

The average draft of implement was recorded from 913 to 1113 kgf and Drawbar power requirement was calculated as 6.86 to 8.79 kW.

8.2 Labour requirement:

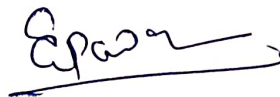
One skilled operator was needed to operate the tractor with the implement.

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11. COMMENTS AND RECOMMENDATIONS

- 11.1 The dimensions of the share and share nose of plough does not conforms to IS: 10691-1983. This should be looked into for corrective action for standardisation.
- 11.2 The dimension of hitch pyramid does not fully conform to IS: 4468-1997 (Part-1). Therefore, this should be looked into for corrective action.
- 11.3 The chemical composition in share was not within its range as per IS: 10691-1983. This is recommended to looked into for corrective action of standardisation.
- 11.4 The labelling plate should be provided as per the requirements of Indian Standard.
- 11.5 **Technical literature :**
Operator manual, service manual, parts manual covered in English was submitted along with the implements. However, it is recommended to bring out the same covered in Hindi and other vernacular languages as per IS: 8132-1999

TESTING AUTHORITY



(S.G.PAWAR)
AGRICULTURAL ENGINEER



(Dr. P.P. RAO)
DIRECTOR

Draft Test Report Compiled By -

Sh. Khagendra Bora,
Sr. Technical Assistant

