

व्यावसायिक परीक्षण रिपोर्ट  
COMMERCIAL TEST REPORT

संख्या / No.: IMP-1069/3061/2023  
माह / Month: July, 2023

**THIS TEST REPORT VALID UP TO : 31<sup>st</sup> July, 2030**



**PUNNI, PUNNI-SPEED 844  
LASER LAND LEVELER**



भारत सरकार

**Government of India**

कृषि एवं किसान कल्याण मंत्रालय

**Ministry of Agriculture and Farmers Welfare**

कृषि एवं किसान कल्याण विभाग

**Department of Agriculture and Farmers Welfare**

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

**Northern Region Farm Machinery Training and Testing Institute**

ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001

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**[ISO 9001:2015 CERTIFIED]**

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3.	Manganese (Mn)	--	1.06	--
4.	Sulphur (S)	--	0.05	--
5.	Phosphorous (P)	--	0.02	--

**15. RUNNING-IN**

The laser land leveler was running-in for 1.1 hour prior to start of the test as per the recommendation of the applicant.

**16. FIELD TEST**

The field tests of 30.78 hours with 4 replications were conducted. The field performance observations are given in Annexure-I to V.

The summary of field performance test is given in Table-IX.

**Table-IX: Summary of field performance**

Sr. No.	Parameters	Observations
i)	Tractor used	Deutz Fahr, Agromaxx 4055E
ii)	Gear used	L-4
iii)	Type of soil	Sandy Loam
iv)	Soil moisture, %	9.00 to 13.00
v)	Bulk density of soil, g/cc	Before operation After operation
		1.36 to 1.40 1.40 to 1.52
vi)	Area covered, ha/h	0.068 to 0.203
vii)	Time required for one hectare, h	4.93 to 14.71
viii)	Fuel consumption	
		- l/h 3.24 to 5.22
		- l/ha 25.70 to 47.35
ix)	Total volume of cut, m <sup>3</sup>	40.89 to 124.80
x)	Total volume of fill, m <sup>3</sup>	25.15 to 74.42
xi)	Total volume of earth work	m <sup>3</sup> 66.17 to 177.50
		m <sup>3</sup> /h 10.76 to 36.08
		m <sup>3</sup> /l 3.28 to 6.91
xii)	Leveling Index before operation	1.19 to 4.67
xiii)	Leveling index after operation	0.17 to 0.29
xiv)	Draft requirement, kg	673.00

**16.1 Rate of Work**

**16.1.1** The field capacity in sandy loam soil was recorded as 0.068 to 0.203 ha/h.

**16.1.2** Total volume of cut 40.89 to 124.80 m<sup>3</sup>

**16.1.3** Total volume of fill 25.15 to 74.42 m<sup>3</sup>

**16.1.4** The time required to cover one hectare area was recorded as 4.93 to 14.71 h.

**16.2 Quality of work**

Leveling Index before and after field operation was observed from 1.19 to 4.67 and 0.17 to 0.29 respectively.





**16.3 Fuel Consumption:**

l/h : 3.24 to 5.22  
l/ha : 25.70 to 47.35

**16.4 Wear of blades:**

**16.4.1 Mass basis:**

The wear of the terracer blade was measured after 31.88 hrs. of field operation and the observations are as under:

Sr. No.	Initial mass (g)	Mass after 31.88 hrs. (g)	Loss of mass (g)	Percent wear (%)	Percent wear per hour
1.	20,220	20,180	40.0	0.20	0.01

**17. CONFORMITY TO INDIAN STANDARD**

17.1	Table -X: Material for different components of leveler (As per IS: 9813-2002)		
Sr. No.	Components	Material(Requirements)	Observations
i.	Frame	Mild steel	Mild steel
ii.	Hitch	Mild steel	Mild steel
iii.	Hitch pin	Carbon steel	Carbon steel
iv.	Pin adjusting screw	Carbon steel	N.A.
v.	Drag bucket frame	Mild steel	Mild steel
vi.	Side plate	Mild steel	Mild steel
vii.	Drag bucket	Mild steel	Mild steel
viii.	Scarifier	Carbon steel	N.A.

17.2	Other requirements: (As per IS: 9813-2002)		
Sr. No.	REQUIREMENTS	Observations	Conformity
i.	The size of terracer shall be determined by length of blade plus the length of extension blade if any, in meters. The nominal size of the terracer may be between 1.5 to 3.5 meter.	The size of terracer blade is 2.1 m.	Conforms
ii.	The beveling shall be done on lower side of the blade. Both the upper and lower sides of the blade may be beveled to make it reversible.	Provided	Conforms
iii.	The blade shall be beveled. The length of beveling may be 10 mm. The thickness of the edge shall be as far as possible uniform and may be between 1.5 to 3 mm.	Provided	Conforms
iv.	The corners of the square holes shall be slightly rounded.	Round hole is provided	Conforms
v.	The holes of the blade shall be provided with counter-sunk bolts of 10-mm size. As far as possible, the bolts should conform to grade M10 of IS:2609-1964 'Specification for couch bolts (M6 to M24). The bolt head should flush with the blade surface.	The bolts of size 39×11×1.5 mm are provided & its heads are flushed with the blade surface.	--



**20. COMMENTS & RECOMMENDATION****20.1 Rate of Work**

- i) The field capacity in sandy loam soil was recorded as 0.068 to 0.203 ha/h.
- ii) Total volume of cut 40.89 to 124.80 m<sup>3</sup>
- iii) Total volume of fill 25.15 to 74.42 m<sup>3</sup>
- iv) The time required to cover one hectare area was recorded as 4.93 to 14.71 h.

**20.2 Quality of work**

Leveling Index before and after field operation was observed from 1.19 to 4.67 and 0.17 to 0.29 respectively.

**20.3 Fuel Consumption:**

- i) l/h : 3.24 to 5.22
- ii) l/ha : 25.70 to 47.35


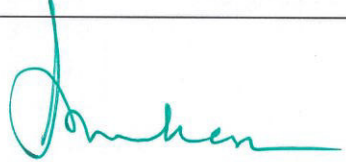
**20.4 The safety warnings, signs and pictograms are not provided on the machine. It should be provided for safety of the users.****21. TECHNICAL LITERATURE**

Following literature were submitted by applicant for reference during test.

- (i) Operator manual
- (ii) Parts catalogue
- (iii) Service manual

However, the manuals need to be updated as per IS: 8132-1999.

**TESTING AUTHORITY**

<b>Er. SANJAY KUMAR</b> <b>AGRICULTURAL ENGINEER</b>	
<b>Dr. MUKESH JAIN</b> <b>DIRECTOR</b>	 29.07.2023

The test report is compiled by Sh. Deny Hasnu, Sr. Technician

**22. APPLICANT'S COMMENTS**

No specific comments received from the applicant.

