

THIS TEST REPORT VALID UP TO : 31st August, 2029



**JAMNA, JAIMLLL-7,
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

Tractor Nagar, Sirsa Road, HISAR (Haryana)-125 001

[ISO 9001:2015 CERTIFIED]

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

E-mail: fmti-nr@nic.in

Tele./FAX: 01662-276984

14.2 Chemical composition**Table- VIII.**

Sr. No.	Material	Requirement as per IS:9813-2002	As observed	Remark
1.	Carbon (C)	0.4 to 0.7	0.30	Does not conform
2.	Silicon (Si)	--	0.27	--
3.	Manganese (Mn)	--	0.65	--
4.	Sulphur (S)	--	0.11	--
5.	Phosphorous (P)	--	0.02	--

15. RUNNING-IN

The laser land leveler was running-in 1.01 hour prior to start of the test as per the recommendation of the applicant.

16. FIELD TEST

The field tests of 25.45 hours with 3 replications were conducted. The field performance observations are given in Annexure-I to IV.

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

Table-IX: Summary of field performance

Sr. No.	Parameters	Observations	
i)	Tractor used	Swaraj-744 XT	
ii)	Gear used	H-1	
iii)	Type of soil	Sandy Loam	
iv)	Soil moisture, %	4.90 to 7.90	
v)	Bulk density of soil, g/cc	Before operation 1.43 to 1.62 After operation 1.40 to 1.59	
vi)	Area covered, ha/h	0.043 to 0.056	
vii)	Time required for one hectare, h	17.86 to 23.25	
viii)	Fuel consumption	- l/h	3.61 to 4.45
		- l/ha	64.00 to 103.20
ix)	Total volume of cut, m ³	79.13 to 127.67	
x)	Total volume of fill, m ³	77.58 to 153.05	
xi)	Total volume of earth work	m ³	156.72 to 277.03
		m ³ /h	35.37 to 48.86
		m ³ /l	8.98 to 12.03
xii)	Leveling Index before operation	7.99 to 11.72	
xiii)	Leveling index after operation	0.40 to 0.70	
xiv)	Draft requirement, kg	1143	

16.1 Rate of Work

16.1.1 The field capacity in sandy loam soil was recorded as 0.043 to 0.056 ha/h.

16.1.2 Total volume of cut 79.13 to 127.67 m³

16.1.3 Total volume of fill 77.58 to 153.05 m³

16.1.4 The time required to cover one hectare area was recorded as 17.86 to 23.25 h.

16.2 Quality of work

Leveling Index before and after field operation was observed from 7.99 to 11.72 and 0.40 to 0.70 respectively.

16.3 Fuel Consumption:

l/h : 3.61 to 4.45

l/ha : 64.00 to 103.20

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	Scarified	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 2.11 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 3.0 mm.	Provided	Conforms
iv	The corners of the square holes shall be slightly rounded.	Round hole 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 50.0 × 15.8 × 1.95 are provided & its heads are flushed with the blade surface.	--

19. SOUNDNESS OF CONSTRUCTION

No noticeable breakdown during 25.45 hours of field operation was observed.

20. COMMENTS & RECOMMENDATION

- 20.1** The safety warnings, signs and pictograms are not provided on the machine. It should be provided for safety of the users.
- 20.2** The hardness & chemical composition of the soil cutting blade do not meet the requirement of IS:9813-2002. This should be looked into.



21. TECHNICAL LITERATURE

Following literature was 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

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 30.08.2022

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

22. APPLICANT'S COMMENTS

We will comply with during our regular production of laser land leveler.