

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



**T & D, RANGER
LASER LAND LEVELER**



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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14. HARDNESS AND CHEMICAL COMPOSITION OF CRITICAL PARTS

14.1 The result of test of Hardness of blade is tabulated in Table-VII.

TABLE- VII

As per IS :9813:2002	Hardness observed (HB)	Remark
353 to 421 (HB)	255 (Average)	Does not conform

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	0.5782	Conforms
2.	Silicon (Si)	--	0.4029	--
3.	Manganese (Mn)	--	0.6678	--
4.	Sulphur (S)	--	0.0834	--
5.	Phosphorous (P)	--	0.0679	--

15. FIELD TEST

The field tests of 21 hours with 4 replications were conducted. The field performance observations are given in Annexure-I.

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

TABLE-IX: Summary of field performance

Sl. No.	Parameters	Observations
i)	Tractor used	Mahindra, -605DI-i 4WD DX Deluxe
ii)	Gear used	H-1
iii)	Type of soil	Sandy loam
iv)	Av. soil moisture, %	10.9 to 12.3
v)	Av. bulk density of soil, g/cc	Before operation After operation
		1.41 to 1.47 1.47 to 1.53
vi)	Av. area covered, ha/h	0.042 to 0.078
vii)	Av. time required for one hectare, h	12.82 to 23.81
viii)	Av. fuel consumption	
	- l/h	3.13 to 4.60
	- l/ha	40.13 to 92.00
ix)	Av-total volume of cut, m ³	96.45 to 146.85
x)	Av- total volume of fill, m ³	43.02 to 106.16
xi)	Av- total volume of earth work	m ³
		139.47 to 245.81
		(m ³ /h)
		41.01 to 43.58
		(m ³ /l)
		8.92 to 13.97
xii)	Leveling Index before operation, cm	7.42 to 10.47
xiii)	Leveling Index after operation, cm	0.57 to 0.74
xiv)	Draft requirement, kg Range (Average)	836

15.1 Rate of Work

15.1.1 The field capacity in sandy loam soil was recorded as 0.042 to 0.078 ha/h.

15.1.2 Av-total volume of cut 96.45 to 146.85 m³

15.1.3 Av- total volume of fill 43.02 to 106.16 m³

15.1.4	Av- total volume of earth work	m ³	139.47 to 245.81
		(m ³ /h)	41.01 to 43.58
		(m ³ /l)	8.92 to 13.97

15.1.5 The time required to cover one hectare area was recorded as 12.82 to 23.81 h.

15.2 Quality of work

Leveling Index before and after field operation was observed from 7.42 to 10.47 and 0.57 to 0.74 respectively.

15.3 Fuel Consumption:

- l/h : 3.13 to 4.60

l/ha : 40.13 to 92.00

16 CRITICAL TECHNICAL SPECIFICATIONS

Deferred till 31.03.2021 vide Ministry O.M. No 13-13/2020 M&T, (I&P) dated 22.12.2020

17. CONFORMITY TO INDIAN STANDARD

17.1 Table -X: Material for different components of leveler (As per IS: 9813-2002)			
S. No.	Components	Material(Requirements)	Observations
I	Frame	Mild steel	Mild steel
li	Strut hitch	Mild steel	Mild steel
lii	Hitch pin	Carbon steel	Carbon steel
Iv	Pitch adjusting screw	Carbon steel	N.A.
V	Mould board frame	Mild steel	Mild steel
Vi	Side plate	Mild steel	Mild steel
Vii	Mould board	Mild steel	Mild steel
viii	Scarifier	Carbon steel	N.A.
17.2 Other requirements: (As per IS: 9813-2002)			
S.N.	REQUIREMENTS	Observations	Conformity
i	The size of terracer shall be determined by the length, of blade plus the length of extension blade, if any, in meters. The nominal size of the terracer may be between 1.25 to 3.5 meter.	The size of terracer blade is 2.105 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.	Both upper and lower side beveling is 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.	Length of beveling- 28.2 mm	Does not Conform
		Thickness of beveling- 0.82	Does not Conform
iv	The corners of the square holes shall be slightly rounded.	Round hole provided	--

17.4	Marking and packing:		
	Marking- Each terracer shall be marked with: a) Manufacturer's name and trade-mark, if any. b) Size; and c) Batch or code number These particulars shall be stamped, embossed or engraved on metallic plate and rigidly fitted on a non-wearing part of terrace.	Not marked	Does not conform

18. SOUNDNESS OF CONSTRUCTION

No noticeable breakdown occurred during field test.

19. COMMENTS & RECOMMENDATION

- 19.1** The labeling plate **MUST** be riveted on the machine with following information
- i) Name and address of manufacture
 - ii) Country of origin
 - iii) Make
 - iv) Model
 - v) Year of manufacture
 - vi) Serial number
 - vii) Wt in kg
 - viii) Tractor kW/hp
- 19.2** The safety warnings, signs and pictograms are not provided on the machine. It should be provided for safety of the users.
- 19.3** The hardness of the soil cutting blade does not conform to the requirement of IS: 9813-2002. It Should be looked into for corrective action.
- 19.4** The length and thickness of beveling does not conform to the requirements of IS:9813-2002. It **MUST** be looked into for corrective action.

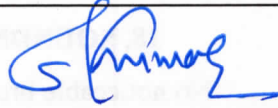

20 TECHNICAL LITERATURE

No technical literature provided by the applicant during the test.

The following literature, therefore, **MUST** be provided as per IS: 8132-1999 for guidance of users.

- i) Operator's manual
- ii) Service manual
- iii) Part's Catalogue

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

Draft test report compiled by C. Veeranjanyulu, Senior Technician

21. APPLICANT'S COMMENTS

No comments received from the applicant.

