व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: IMP-1040/2628/2020
माह/Month: December, 2020

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

LANDFORCE, LFLL 1207
LASER LAND LEVELER

सत्यमेव जयते

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
ट्रैक्टर नगर, सिरसा रोड, हिसार, (हरियाणा) - 125 001
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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)	249 (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	0.3851	**Does not conform**
2.	Silicon (Si)	--	0.4017	--
3.	Manganese (Mn)	--	0.5699	--
4.	Sulphur (S)	--	0.0583	--
5.	Phosphorous (P)	--	0.0479	--

15. FIELD TEST

The field tests of 22 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		John Deere 5310
ii)	Gear used		B-2
iii)	Type of soil		Sandy loam
iv)	Av. soil moisture, %		15.7 to 23.5
v)	Av. bulk density of soil, g/cc	Before operation After operation	 1.81 to 1.94 1.87 to 1.97
vi)	Av. area covered, ha/h		0.050 to 0.084
vii)	Av. time required for one hectare, h		11.90 to 20.16
viii)	Av. fuel consumption		
	- l/h		3.67 to 4.60
	- l/ha		54.74 to 73.99
ix)	Av-total volume of cut, m^3		50.12 to 107.42
x)	Av- total volume of fill, m^3		17.68 to 119.67
xi)	Av- total volume of earth work	m^3	68.11 to 227.10
		(m^3 /h)	18.07 to 63.08
		(m^3 /l)	4.20 to 14.02
xii)	Leveling Index before operation, cm		3.38 to 9.82
xiii)	Leveling Index after operation, cm		0.31 to 0.57
xiv)	Draft requirement, kg Range (Average)		423 to 560

15.1 Rate of Work

15.1.1 The field capacity in sandy loam soil was recorded as 0.050 to 0.084 ha/h.

15.1.2 Av-total volume of cut 50.12 to 107.42 m^3

15.1.3 Av- total volume of fill 17.68 to 119.67 m^3

15.1.4	Av- total volume of earth work	m^3	68.11 to 227.10
		(m^3 /h)	18.07 to 63.08
		(m^3 /l)	4.20 to 14.02

15.1.5 The time required to cover one hectare area was recorded as 11.90 to 20.16 h.

15.2 Quality of work

Leveling Index before and after field operation was observed from 3.38 to 9.82 and 0.31 to 0.57 respectively.

15.3 Fuel Consumption:

- l/h : 3.67 to 4.60
  l/ha : 54.74 to 73.99

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

15.1 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
Ii	Strut Hitch	Mild steel	Mild steel
Iii	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.

16.2 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 2.087 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.	Length of bevel: 24.7, mm	**Does not conform**
		Thickness of bevel edge: 2.1, mm	Conforms
iv	The corners of the square holes shall be slightly rounded.	Round hole provided	--
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. The bolt head should flush with the blade surface.	The bolts of size 30 x 12.3 x 2.5 are provided & its heads are flush with the blade surface.	--
vi	The blade shall be free from cracks and should be reasonably free from flaws, such as seams, scales and pits.	The blade is free from cracks and flaws, such as seams, scales and pits.	Conforms

19. COMMENTS & RECOMMENDATION

19.1 The labeling plate is not riveted. It **MUST** be riveted.

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.

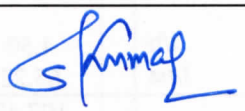
19.4 The chemical composition of the soil cutting blade does not conform to the requirement of IS: 9813-2002. It Should be looked into for corrective action.

19.5 The length of bevel of the soil cutting blade does not conform to the requirement of IS: 9813-2002. It Should be looked into for corrective action.

20. TECHNICAL LITERATURE

One booklet entitled "Operator Manual, Service Manual, and Part Manual" was provided for reference during test. The same, however, needs to be revised, upgraded and updated as per IS: 8132-1999.

TESTING AUTHORITY

SANJAY KUMAR AGRICULTURAL ENGINEER	
P. K. PANDEY **DIRECTOR**	

Draft test report Compiled by C. Veeranjaneyulu, Senior Technician

21. APPLICANT'S COMMENTS

In respect of non-conformities, we will make further improvement.