व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT

संख्या/ No.: IMP-1036/2624/2020
माह/Month: December, 2020

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

GAHIR, CURVO-484
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
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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)	217.5 (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	0.2939	**Does not conform**
2.	Silicon (Si)	--	0.3934	--
3.	Manganese (Mn)	--	0.5450	--
4.	Sulphur (S)	--	0.0564	--
5.	Phosphorous (P)	--	0.0357	--

15. FIELD TEST

The field tests of 27 hours with 5 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, 655 DI
ii)	Gear used		H-1
iii)	Type of soil		Sandy loam
iv)	Av. soil moisture, %		11.3 to 13.4
v)	Av. bulk density of soil, g/cc	Before operation	1.47 to 1.52
		After operation	1.52 to 1.62
vi)	Av. area covered, ha/h		0.037 to 0.071
vii)	Av. time required for one hectare, h		14.08 to 27.03
viii)	Av. fuel consumption		
	- l/h		4.39 to 5.71
	- l/ha		67.52 to 136.29
ix)	Av-total volume of cut, m^3		7.75 to 129.29
x)	Av- total volume of fill, m^3		29.77 to 488.13
xi)	Av- total volume of earth work	m^3	119.43 to 495.88
		(m^3 /h)	34.12 to 100.79
		(m^3 /l)	5.98 to 20.65
xii)	Leveling Index before operation, cm		7.25 to 11.99
xiii)	Leveling Index after operation, cm		0.49 to 0.82
xiv)	Draft requirement, kg Range (Average)		739

15.1 Rate of Work

15.1.1 The field capacity in sandy loam soil was recorded as 0.037 to 0.071 ha/h.

15.1.2 Av-total volume of cut 7.75 to 129.29 m^3

15.1.3 Av- total volume of fill 29.77 to 488.13 m^3

15.1.4	Av- total volume of earth work	m^3	119.43 to 495.88
		(m^3 /h)	34.12 to 100.79
		(m^3 /l)	5.98 to 20.65

15.1.5 The time required to cover one hectare area was recorded as 14.08 to 27.03 h.

15.2 Quality of work

Leveling Index before and after field operation was observed from 7.25 to 11.99 and 0.49 to 0.82 respectively.

15..3 Fuel Consumption:

- l/h : 4.39 to 5.71
  l/ha : 67.52 to 136.29

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
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.

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 2.11 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.	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- 26	**Does not Conform**
		Thickness of beveling- 2.7	Conforms
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 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 soil cutting blade does not conform to the requirement of IS: 9813-2020. It **MUST** be looked into for corrective action

20 TECHNICAL LITERATURE

One booklet entitled "operator/service and spare parts manual" was provided for reference during test. The same, however, needs to be 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

Para No.	Our reference	Applicant comment
21.1	19.1	We will replace the existing labeling plate with the additional required data.
21.2	19.2	We will provide safety decals in regular production.
21.3	19.3 & 19.4	Corrective action will be taken in regular production.
21.4	20.	We will provide technical literature in regular production.