

COMMERCIAL TEST REPORT

REPORT NO.: 2011/377
MONTH- AUGUST 2022



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**“MULTISPEED” ROTAVATOR
VIRAT JINA 185 (MASCHIO GASPARDO)**

TESTED AT

**STATE LEVEL FARM MACHINERY TRAINING AND TESTING
INSTITUTE, RAHMANKHERA, HARDOI ROAD
LUCKNOW, U.P. - 226101**

Telephone: 0522- 2841021

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(The Institute is approved Testing Centre by Department of Agriculture & Cooperation, Ministry of Agriculture, GOI vide letter no. 8-1/2004-My (I&P) dated September 14,2010 and subsequent letters)

THIS TEST REPORT IS VALID FROM 31.08.2022 TO 30.08.2023

TEST REPORT NO.	NAME OF THE MACHINE/IMPLEMENT, MODEL NO.	MONTH	YEAR
IMP- 2011/377	“MULTI SPEED” ROTAVATOR VIRAT JINA 185 (MASCHIO GASPARD0)	AUGUST	2022



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Type of test	:	COMMERCIAL
Name of machine	:	“MULTI SPEED” ROTAVATOR VIRAT JINA 185 (MASCHIO GASPARDO)
Test Code referred	:	IS: 11531-1995 (Reaffirmed) Test code for Puddler. IS: 4468- 2007 (Pt.-I)-Agricultural wheeled tractors- Rear mounted three point linkage. IS: 4931-1996 (Reaffirmed)-Technical requirements for Power Take-Off shaft of Agricultural Tractors. IS: 6690-1996 (Reaffirmed)-Blades for Rotavator and Power Tillers.
Test requested by	:	M/S MASCHIO GASPARDO INDIA PVT. LTD. PLOT NO.-F-27 RANJANGAON, MIDC, VILL-KAREGAON, SHIRUR, PUNE (M.H)-412220 INDIA.
Testing Authority	:	STATE LEVEL FARM MACHINERY TRAINING AND TESTING INSTITUTE, RAHMANKHERA, HARDOI ROAD LUCKNOW, U.P. - 226101
Period of test	:	JUNE 2021 TO AUGUST 2022

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1. This Test Report should not be reproduced in part or full without prior permission of the Incharge Testing Centre.
 2. The data given in the Test Report pertain to the particular machine submitted for test by the Applicant.
 3. The data collected during the test do not in any way attribute to the durability of the machine.
 4. The results reported in this report are observed values and no corrections have been applied for atmospheric and site conditions.
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Selected Conversions

S. No	Units	Conversion Factor
1	Force	
	1 kgf	9.80665 N
		2.20462 lbf
2	Power	
	1 hp	1.01387 metric hp (Ps)
		745.7 W
	1 Ps	735W
	1 kW	1.35962 Ps
3	Pressure	
	1 psi	6.895 kPa
	1 kgf/cm ²	98.067 kPa = 735.56 mm of Hg
	1 bar	100 kPa = 10 N/cm ²
	1 mm of Hg	1.3332 m-bar

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1. SCOPE OF TEST

The scope of the test was to check and assess the followings.

- i) Specification
- ii) Hardness & chemical analysis of material of rotavator blades
- iii) Field performance under dry and wet land condition with regard to
 - a) Rate of work.
 - b) Quality of work.
 - c) Ease of operation, maintenance & adjustments.
 - d) Wear of soil engaging components.

2. TEST PROCEDURE / CODES

- i) IS: 11531-1995 (Reaffirmed) Test code for Puddler.
- ii) IS: 4468- 2007 (Pt.-I)-Agricultural wheeled tractors-Rear mounted three point linkage.
- iii) IS: 4931-1996 (Reaffirmed)-Technical requirements for power take-off shaft of Agricultural Tractors.
- iv) IS: 6690-1996 (Reaffirmed)-Blades for rotavator and power tillers.

3. METHOD OF SELECTION

The test sample was directly submitted for test by the applicant at the Institute.

4. SPECIFICATION

4.1	General		
	Name of manufacturer/applicant	:	M/s- Maschio Gaspardo India Pvt. Ltd. Plot No.-F-27 Ranjangaon, MIDC, Vill- Karegaon, Shirur, Pune (M.H)-412220,India.
	Type	:	Tractor Mounted Type.
	Make	:	Maschio Gaspardo.
	Model	:	VIRAT JINA 185
	Year of manufacture	:	2021
	Serial No.	:	MII5VU706
	Tractor horse power required	:	55 & Above.
	Type of blade	:	J- Type.
	Working width of implement, mm	:	1850
4.2	PRIME MOVER USED		
	Tractor	:	Mahindra-605 (DI) Arjun (NOVO)
	Chassis No.	:	N8MA04311
	Max. PTO Power Kw	:	37.5
	Year of manufacture	:	2018
4.3	CHASSIS		
	Type	:	M.S Box
	Size of pipe, mm	:	1835×60×60
	Size of supporting flat, mm	:	498×110×8
	Type of mounting of pipe	:	Fixed to side support with the help of nut and bolts.

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4.3.1	SIDE SUPPORT		
	Type	:	M.S. sheet fabricated.
	Thickness of plate, mm	:	8
	Method of fixing	:	Fixed to the frame with nuts bolts (size 30×11.75×1.25 mm) and welded with chassis frame.
4.3.2	SHIELD (COVER)		
	Type	:	M.S. sheet fabricated.
	Curved width, Length mm	:	1835×420
	Thickness of sheet, mm	:	3.0
	Method of mounting	:	Welded with supporting plate of chassis.
4.4	TRAILING BOARD		
	Type & material	:	M.S. sheet supported with M.S. flate.
	Size of board, mm	:	1970×520
	Thickness of sheet, mm	:	3.0
	Locking system	:	3 clamps welded to chassis frame. The board is held in position by locking the fixing bracket through spring loaded rod.
	Method of mounting plate sector	:	Bolted to flate of chassis frame.
	Type of hinge	:	M.S. bush.
	No. of hinges	:	Two.
	Method of fixing	:	M.S. rod is passing through M.S. bush and fixed at both the end with main chassis frame.

4.5	ROTOR SHAFT		
	Material	:	M.S. pipe.
	Type of rotor axle	:	Tubular section with disc flanges for mounting the blades.
	Size of shaft, mm	:	
	Length	:	1754
	Dia.	:	76.0
	No. of flanges	:	12
	Type of flange	:	M.S. circular plate.
	Dia of flange, mm	:	226
	Thickness of flange, mm	:	10
	No. of blades on each flange	:	06 blades in each flange.
	Method of mounting blades on flanges	:	Each blade is mounted by nut and bolt size (34.50×11.80×1.25) mm.
	Distance of between two flanges	:	140 mm.
	Total no. of blades	:	72
	Dia. of rotor with blades, mm	:	476
	Method of fixing	:	Rotor shaft is bolted with hubs on both ends. These hubs are centrally mounted with two ball bearings on each end.

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4.5.1	ROTOR BLADE		
	Number	:	72
	Type	:	J-shape hatched.
	Material	:	Carbon steel.
	Overall thickness, mm	:	7.04
	Thickness at the beveled edge, mm	:	1.45
	Length of the beveled edge, mm	:	20.37

4.6	Depth of control mechanism		
4.6.1	Skid		
	Type & Material	:	Curved shape, M.S. doubles flat.
	Size, mm	:	590×60×12.
	No. of skid	:	2
	Method of fixing	:	Skid is bolted to side plate and adjusting rack at the front & rear side respectively with the help of bolt & nut size (34.69×11.75×1.5) mm.
4.6.2	Adjusting Rack		
	Type	:	M.S. Sliding type.
	Size, mm	:	270×50.80×6
	No. and size of locking bolt, mm	:	2 in each (60×11.85×1.5)
	Range of depth adjustment, mm	:	0-115
	Method of fixing	:	M.S flat is fixed to upper end of the rack fixed to the side support on both sides and lower ends with the skids. This is fit to side plate with nut and bolts size (60×11.85×1.5) mm.

4.7	Three point linkage (Cat. II) (Refer fig.1)			
Sl. No.		As per IS:4468-2007 (pt.- I) (mm)	As measured mm	Remarks
I	Upper hitch points			
(a)	Diameter of hitch pin (A)	25.27 to 25.40	25.04	Does not conform
(b)	Diameter of hitch pin hole(B)	25.70 to 25.91	25.71	Conforms
(c)	Width between outer faces of yoke (E)	86 (Max.)	61.60	Conforms
(d)	Width between inner faces of yoke (F).	52 (min)	54.90	Conforms
(e)	Linch pin hole distance(D)	93(min)	107.05	Conforms
II	Lower hitch points			
(a)	Dia. of hitch pin	27.79 to 28.0	27.75	Does not conform
(b)	Linch pin hole distance (K)	49 (Min.)	105.96	Conforms
III	Diameter of linch pin hole			
(a)	Upper hitch pin (L)	12(min)	13.10	Conforms
(b)	Lower hitch pin	12(min)	13.01	Conforms

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IV	Mast height (M)	510 (min.)	618	Conforms
V	Lower hitch point span (N)	823.5 to 826.5	865 (but adjustable)	Conforms

4.7.1	Mast			
	Type	:	M.S. plate and flat fabrication.	
	Size of flat, mm H×W×T (max)	:	840×260×8	
	(min.)	:	660×250×8	
	Shape	:	Pyramid.	

4.8	Power transmission system:			
	Method of transmission	:	Propeller shaft receives drive from PTO and transmits power to rotary shaft through two spur gear & one Pinion beveled gear reduction units, primary and secondary, consisting of gear reduction respectively.	

4.8.1	Dimensions of power input shaft (Ref. Fig. 2)			
Notation	As per IS:4931-1996 (mm)	As observed (mm)	Remarks	
D ϕ	34.79 \pm 0.06	34.93	Does not conform	
d ϕ	28.91 \pm 0.05	28.82	Does not conform	
S	8.69 (max.)	8.56	Conforms	
R	6.7 \pm 0.25	5.39	Does not conform	
α	30°	30°	Conforms	
Q	7.0	7.0	Conforms	
H	38.0	38.0	Conforms	
A	54.0 (min.)	54.39	Conforms	
B	76.0 (min.)	76.18	Conforms	

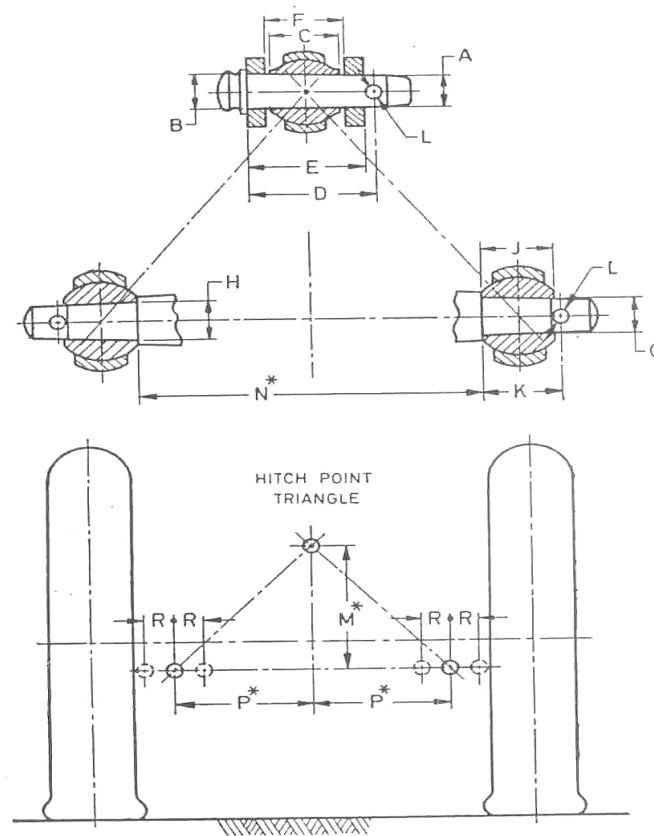


FIG. 1. DIMENSIONS OF HITCH POINTS

Fig.:1 Dimension of Hitch Points

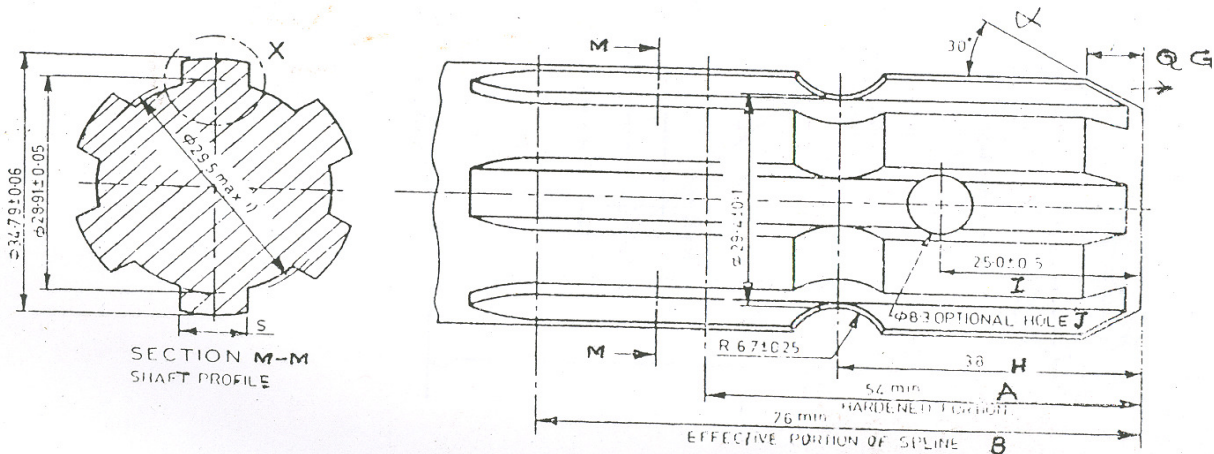


Fig. 2: Dimensions of Rotavator Power Input Shaft, mm

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4.8.2	Gear box Assembly (primary reduction) Multispeed gear box		
	Type	:	Bevel pinion gear.
	No. of teeth on pinion	:	13
	No. of teeth on bevel gear	:	25
	Reduction ratio at gear box	:	1:0.52
	Oil capacity, l	:	2.75
	Oil change period hours	:	250
	Recommended grade of oil	:	EP-140
	Length of power transmission shaft, mm (from gear box to secondary reduction unit)	:	882
	Dia. of shaft, mm	:	48
	No. of bearing	:	Five –Tapper roller bearing, (Two-30207, One-30210, One-30209, One-32207)
4.8.2.1	Gear drive (secondary reduction)		
	Type	:	Gear Drive.
	No. of teeth drive gear	:	25
	No. of teeth driven idler spur gear	:	37
	No. of teeth driven spur gear	:	34
	Reduction ratio at gear box	:	1:0.73
	Oil capacity, l	:	3.0
	Recommended grade of oil, apa	:	EP-140
	Oil change period, h (apa)	:	250 h
	Provision for oil level checking	:	Bolt Provided.
	Provision for dipstick/breather	:	Breather Provided.
	Oil filling arrangement	:	Provided.
	No. of bearing	:	04- Three tapper roller bearing (Two-30207, One-30208, One ball bearing 6309)
4.8.3	Propeller shaft		
	Type	:	Telescopic (in two segments having 06 splines at both ends).
	Length of shaft (mm)		
	-- Minimum	:	792
	-- Maximum	:	1030
	Mass of shaft, kg	:	16.630
	Provision for locking	:	Spring loaded locking pins on both sides are provided.

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4.8.3.1 Propeller shaft hub dimensions (Ref. Fig.3)			
Notation	As per IS:4931-1996 (mm)	As observed (mm)	Remarks
D ϕ	34.93 \pm 0.03	34.91	Conforms
d ϕ	29.7 \pm 0.1	28.90	Does not conform
W	8.69 (min)	8.60	Does not conform
B	54 (min)	55.01	Conforms

4.8.4	Safety clutch/device	:	Yes
4.9	Rotavator Stand	:	Yes
4.10	Furrow wheel	:	Yes, But optional

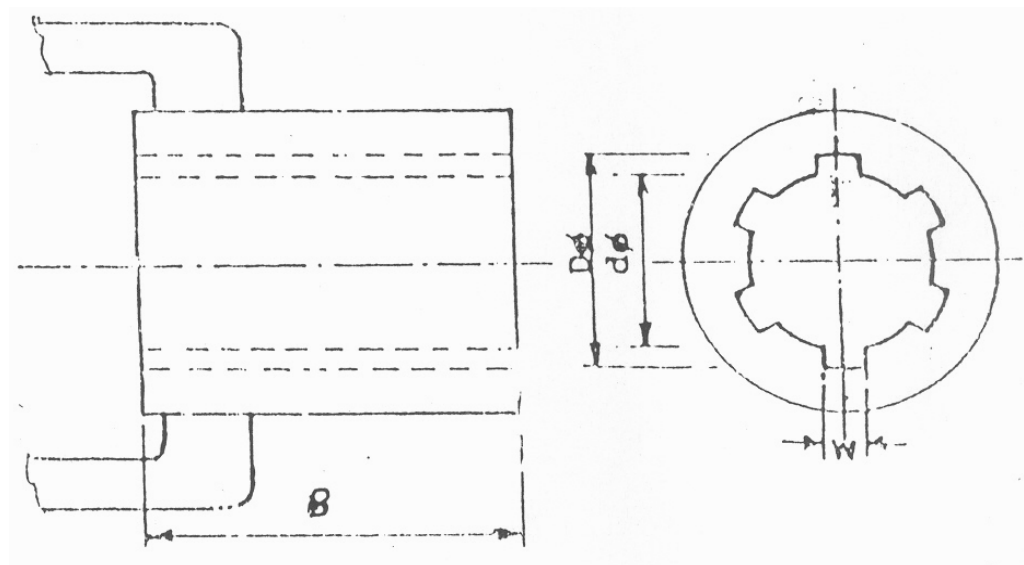


Fig. 3: Propeller Shaft Insert Dimensions, (mm)

4.11 Overall Dimensions, mm (Ref. Fig.4)			
	Length	:	805
	Width	:	2060
	Height	:	1120
	Weight, Kg (apa)	:	421

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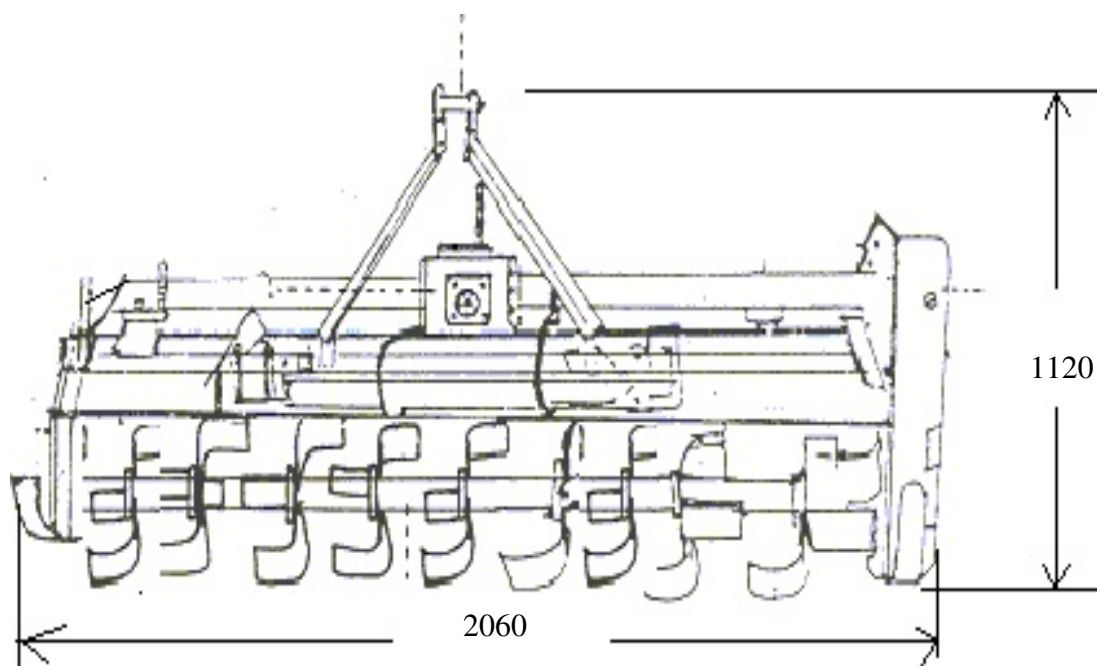


Fig. 4: Overall Dimensions of Rotavator, mm

5. LABORATORY TEST

5.1 The hardness of blades was determined at blade portion. The results of hardness test are tabulated in Table-I.

S.no	Portion of blade	Hardness (HRC)		Remark
		As observed	As per IS:6690-2007	
1-	On blade Portion	39-43	37-45	Conforms

Sl. No.	Material	Requirement as per IS:6690-1996 (Reaffirmed) (% by weight)	As observed (% by weight)	Remark
1.	Carbon (C)	0.50 to 0.60	0.26	Does not conform
2.	Silicon (Si)	1.50 to 2.0	0.28	Does not conform
3.	Manganese (Mn)	0.50 to 1.0	1.29	Does not conform
4.	Sulphur (S)	0.05 (max.)	0.030	Conforms
5.	Phosphorous (P)	0.05 (max.)	0.045	Conforms

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6 FIELD PERFORMANCE TEST

The field tests of the implement comprising of dry and wet land operation were conducted for 20 and 15 hours each in different soil moisture conditions to assess the performance of the implement. The details of tractor used for field operations are given in annexure I.

The tractor PTO speed was maintained at 540 rpm. The performance of implement is reported in Annexure-II and summarized in Table-3.

TABLE-3

Summary of field performance

Sl.No	Parameters	Dry land operation	Wet land operation
i	Tractor used	Mahindra-605 (DI) Arjun (NOVO)	
ii	Type of soil	Sandy loam	
iii	Av. Soil moisture, %	18 to 20	--
iv	Av. Depth of standing water, cm	--	9.4 to 9.5
v	Puddling Index, %	--	78 to 80
vi	Av. Speed of operation, kmph	3.27 to 3.38	2.77 to 2.77
vii	Field efficiency	80.75 to 83.71	--
viii	Av. Depth of cut/depth of puddle, cm	10.60 to 10.96	11.46 to 11.90
ix	Av. Working width, m	1.79 to 1.83	--
x	Area covered, ha/h	0.490 to 0.500	--
xi	Time required for one hectare, h	2.00 to 2.04	--
xii	Fuel consumption		
	- l/h	5.00 to 5.300	4.900 to 5.00
	- l/ha	10.12 to 10.81	--

6.1 Rate of Work

6.1.1 Dry Land Operation

-The rate of work in sandy loam soil was recorded as 0.490 to 0.500 ha/h and the forward speed as 3.27 to 3.38 kmph.

-The time required to cover one hectare area was recorded as 2.00 to 2.04 h.

6.1.2 Wet Land Operation

-Speed of operation varied from 2.77 to 2.77 kmph.

6.2 Quality of Work

6.2.1 Dry land operation

-The depth of operation was recorded as 10.60 to 10.96 cm.

-The field efficiency was recorded as 80.75 to 83.71 %.

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6.2.2 Wet Land Operation

- Depth of puddle was recorded as 11.46 to 11.90 cm.
- Puddling index was recorded as 78 to 80 %.

6.3 WEAR OF BLADES

6.3.1 On Mass basis

Wear of hatchet blades on mass basis after 35.0 hrs. of field operation are tabulated in Table-4.

TABLE-4

Sl. No.	Initial mass of blade (g)		Mass after 35.0 h of operation		Loss in mass		Wear / h	
					g	%		
1.	538		523		15	2.78		0.07
2.	499		479		20	1.00		0.11
3.	496		486		10	2.01		0.05
4.	495		475		20	4.04		0.11
5.	522		507		15	2.87		0.08
6.	503		493		10	1.98		0.05
7.	512		494		18	3.51		0.100
8.	514		500		14	2.72		0.07
9.	518		503		15	2.89		0.08
10.	504		484		20	3.96		0.11
11.	538		528		10	1.85		0.05
12.	376		556		20	3.47		0.09
6.3.2	Wear On Dimensions basis Fig. 5: Dimensions for Wear Analysis (L-Type hatched Blade)							
Sl. No.	Initial Width at, mm		Width after 35.0 hrs. at, mm		Wear, (mm)		Wear, %	
	A (at tip)	B (65 mm from edge)	A (at tip)	B (65 mm from edge)	A (at tip)	B (65 mm from edge)	A (at tip)	B (65 mm from edge)
1.	42.80	47.39	38.41	46.42	4.39	0.97	10.25	2.04
2.	42.60	45.46	39.04	44.10	3.56	1.36	8.35	3.12
3.	42.43	46.68	39.21	45.12	3.22	1.56	7.58	3.34
4.	42.86	46.58	39.85	44.78	3.07	1.80	7.24	3.86
5.	44.39	45.31	39.16	44.38	5.23	0.93	11.80	2.05
6.	42.43	46.79	39.40	43.15	2.95	1.64	6.95	3.50
7.	43.50	46.32	39.05	43.32	4.41	3.0	10.13	6.47
8.	42.43	47.07	38.78	46.35	3.65	0.72	8.60	1.52
9.	43.49	47.74	38.07	45.09	5.42	2.65	12.46	5.55
10.	43.55	46.84	39.78	45.10	3.77	1.24	8.66	2.64

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11.	44.13	46.34	39.09	45.10	5.04	1.24	11.42	2.67
12.	44.80	47.63	39.10	46.10	5.70	1.53	12.72	3.23

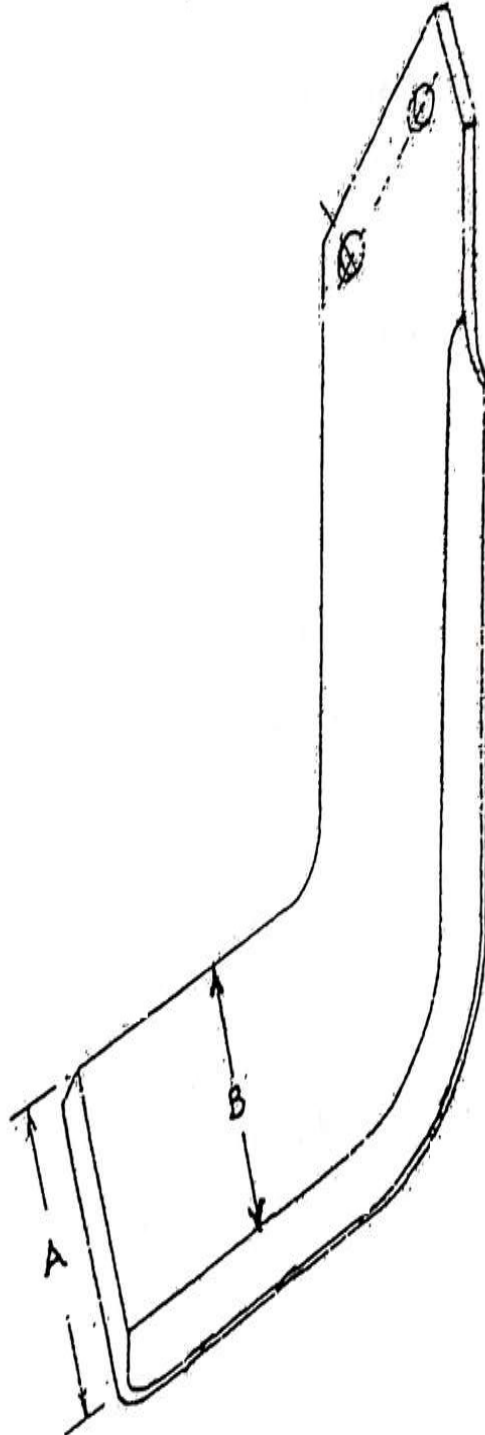


Fig. 5: Dimensions for Wear Analysis (L-Type hatched Blade)

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7. EFFECTIVENESS OF SEALINGS

After completion of field test in wet land operation for 35.0 hrs. The implement was dismantled for checking effectiveness of sealing provided against ingress of dust and water/mud in various sub-assemblies and also to check the conditions of components of the rotavator.

Sl.No.	Location	Whether ingress of mud and/or water was observed
1.	Primary reduction gear box.	No
2.	Secondary reduction gear; drive	No
3.	Hub of rotor assembly	No

8. EASE OF OPERATION, ADJUSTMENTS & SAFETY

9. DEFECTS, BREAKDOWNS AND REPAIRS

9.1 No breakdown occurred during 35.0 h operation in the field.

10. COMMENTS & RECOMMENDATIONS

10.1 The dimensions of three point linkage system are not conforming to the requirement of As per IS:4468-2007 (pt.- I) (mm) the standard three point linkage system conforming to BIS should be used at regular production level.

10.2 Maneuverability of tractor with Rotavator was found to be satisfactory. The quality of work was observed to be satisfactory.

10.3 The percentage wear of hatchet blades on mass basis during field operation (35.0 hr) ranged from 1.85 to 4.04 %, which is normal.

10.4 The percentage wear of hatchet blades on dimensional basis during field operation (35.0 hr) ranged from 6.95 to 12.72 % and 1.52 to 6.47 % respectively at Tip and at 65 mm from edge.

10.5 Dimensions of power input & corresponding propeller shaft hub have not been provided as per requirements of As per IS:4931-1996 (mm) from the standardization point of view and interchangeability of components provision of input and propeller shaft as per the standard specification is necessary. It may be corrected at the production level before the commencing sale of the rotavators.

10.6 Arrangement should be made to permanently display the quality and parameters obtained in the test in all commercially manufactured (agriculture machines by putting engraved seals or plates) on the machines, so that the farmers can get proper information about the quality of the equipment.

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11. LITERATURE :


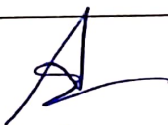




The specification of the implement operating manual, maintenance, safety instruction and spare parts catalogue provided in English. The literature developed is found to be adequate for the guidance of user and service personal. However, it need to developed (as per IS: 8132: 1999) in other regional languages.

12. APPLICANTS'S COMMENTS:

No Comments Received;

This report is being issued with the condition that the tested implement will be rectified as per recommendation and comments given by the Institute and applicant respectively and after rectification the implement should be manufactured on commercial basis.

TESTING AUTHORITY

(UPENDRA KUMAR) -SENIOR TECHNICAL ASSISTANT-	
(ANAND CHAUDHARI) -TEST ENGINEER-	
(DIGVIJAY SINGH) -TEST ENGINEER-	
(VIJAY KUMAR SINGH) -ASSOCIATE PROFESSOR – ENGG.	
(DR. PRAMOD KUMAR GUPTA) -ADDITIONAL DIRECTOR-	
(DR. PANKAJ TRIPATHI) - DIRECTOR-	

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ANNEXUR- 1

BRIEF SPECIFICATIONS OF THE TRACTOR USED DURING FIELD TEST

1	Make, model and type	Mahindra-605 (DI) Arjun (NOVO) Two; wheel drive Agriculture purpose tractor
2	Number of cylinders	4
3	Maximum PTO power, Kw	37.5
4	Power at standard Power Take-Off speed, 540± 10 rpm, Kw	35.3
5	Rated engine speed, rpm	2400
6	No load engine speed during field test, rpm	1800
7	Drawbar power, Kw	37.3
8	Drawbar pull, kN :	
	- Without ballast	22.93
	- With ballast	17.70
9	Type of wheel equipment	Pneumatic
10	Number & size of tyre :	
	Front	02; 6.00-16.00-8PR
	Rear	02; 12.4-28-12PR
11	Standard track width, mm :	
	- Front	1315
	- Rear	1420
12	Wheel base, mm	2050
13	Ballast condition	un -ballast
14	Total Operational Mass, kg :	
	- Front	680
	- Rear	1150
	- Total	1830

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ANNEXURE- II

OBSERVATION SHEET OF FIELD TESTING (DRY LAND OPERATION)

Type of soil : Sandy loam
Place of test : Institute farm
Tractor used : Mahindra-605 (DI) Arjun (NOVO)
Gear used : L-2

Test No.	Date of test	Duration of test, (h)	Length of furrow, (m)	Av. Soil moisture (%)	Av. Speed of operation(km ph)	Wheel slip (%)	Av. Depth of cut (cm)	Av. Working width (m)	Area covered (ha./h)	Field efficiency (%)	Time required for one hectare, (h)	Fuel consumption	
												(l/h)	(l/ha)
1	2	3	4.	5	6	7	8	9	10	11	12	13	14
1.	04.05.22	06	95	18	3.38	-5.5	10.96	1.81	0.494	80.75	2.02	5.00	10.12
2.	05.05.22	07	100	19	3.33	-5.2	10.63	1.83	0.500	82.06	2.00	5.200	10.40
3.	06.05.22	07	98	20	3.27	-5.8	10.60	1.79	0.490	83.71	2.04	5.300	10.81

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ANNEXURE-III

OBSERVATION SHEET OF FIELD TESTING (PUDDLING OPERATION)

Type of soil : Sandy loam
Place of test : Institute farm
Tractor used : Mahindra-605 (DI) Arjun (NOVO)
Gear used : L-2

Test No.	Date of test	Duration of test (h)	Av. Depth of standing water (cm)	Puddling Index (%)	Av. Depth of puddle (cm)	Av. Speed of operation (kmph)	Wheel slip (%)	Fuel consumption	Engine speed (rpm)	
								(l/h)	On load	No load
1	2	3	4	5	6	7	8	9	10	11
1.	09.05.22	08	9.5	78	11.90	2.77	-7.76	5.00	1800	1900
2.	10.05.22	07	9.4	80	11.46	2.77	-7.86	4.900	1800	1900

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ANNEXURE -IV

SYMBOL AND ABBREVIATIONS

SYMBOLS:

I- SYMBOLS ASSIGNED TO BASIC SI UNITS			
S.N.	PHYSICAL QUANTITY	NAME OF SI UNIT	SYMBOL
1	Length	Meter	m
		Millimeter	mm
2	Mass	Kilogram	kg
		Gram	g
		Tone	t
3	Time	Second	s

II- SYMBOLS ASSIGNED TO SOME DERIVED UNITS			
S.N.	PHYSICAL QUANTITY	NAME OF SI UNIT	SYMBOL
1.	Area	Square centimeter	cm ²
		Square meter	m ²
		Hectare	ha
2	Speed/Velocity	Meter per second	m/s
		Kilometer per hour	kmph
3	Pressure	Newton per square millimeter	N/mm ²
4	Time	Minute	min
		Hour	h
5	Volume	Cubic centimeter	cm ³
		Milliliter	ml
		Liter	l

ABBREVIATIONS:

As per applicant	:	apa	Clause	:	Cl
Degree	:	deg	Figure	:	Fig
Indian Standard	:	IS	Kilowatt	:	kW
Number	:	No.	Not available	:	N.A.
Not Recorded	:	N.R.	Percent	:	%
Reference	:	Ref.	Revolution	:	rpm