Doppel

O. E. C. D. Report No. 519

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Report on Test in Accordance with O. E. C. D.

STANDARD-CODE for the Official Testing of

Agricultural Tractors



TRACTORS IMT - 576 AND IMT - 579

Manufactured by: Industrija mašina i traktora (IMT)
Beograd - Yugoslavia

Date of Tests: January - December 1974

INSTITUT "KIRILO SAVIĆ" - BEOGRAD

INSTITUT ZA MEHANIZACIJU POLJOPRIVREDE - ZEMUN

This Bulletin is based on engineering tests in accordance with the O.E.C.D. STANDARD-CODE for the Official Testing of Agricultural Tractors.
It does not contain an evaluation of the performance of the tranctor on practical work.

This Report has been approved by the O.E.C.D. Co-ordinating Centre (C.N.E.E.M.A., France) as being in accordance with the O.E.C.D. STANDARD-CODE.

Date of Approval: August 13 st, 1976

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Tractor manufacturer's name and address:	Industrija mašina i traktora (IMT), Beograd - Yugoslavia
Submitted for test by:	Industrija mašina i traktora (IMT), Beograd - Yugoslavia
Selected by:	The representatives of the Institute from series production
Place of running-in:	Institute for Agricultural Mechanization, Beograd - Zemun, Yugoslavia
Duration of running-in:	60 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	Industrija mašina i traktora (IMT), Beograd - Yugoslavia
Model:	IMT - 576 and IMT - 579
Type:	Four wheel drive
Serial No.:	30100508

Remark: Specification of tractors IMT models 576 and 579 are identical, except for characteristics of power lift. The characteristics of power lift are specified for each model separately.

Engine

Make:	PERKINS, according to specification of factory IMT
Model:	4.248
Type:	Diesel, direct injection, 4 stroke
Serial No.:	4678
Cylinders	
Number	4
Disposition:	Vertical in line
Bore/Stroke:	100,96 / 127,00 mm (3,976 / 5,000 in)
Capacity:	4067 cm^3 (248,19 in^3)
Compression ratio:	16,1 : 1
Arrangement of valves:	Overhead valves
Cylinder liners:	Dry replaceable liners of cast iron alloy

Fuel system

Type of fuel feed:	Membrane type feed pump A.C. Delco
Type and model of fuel filter(s):	Two filters with replaceable elements
Capacity of fuel tank:	90 lit (19,8 UK gal)
Make, type and model of injection pump:	Rotary C.A.V. injection pump, mark DPA 3241 F 101
Serial No.:	37286
Manufacturer's production setting:	64 mm^3 (0,0039 in^3) per stroke at full load and 1600 engine r.p.m. Injection timing 22° before T.D.C.
Make, type and model of injectors:	C.A.V., mark CU
Manufacturer's production setting:	Injection pressure: 170 kg/cm^2 (2417,92 lb/in^2)

Governor

Make:	C.A.V.
Type:	Mechanical, all - range
Range of speed:	500 - 2160 r.p.m. of engine
Rated speed:	2000 r.p.m. of engine

Air cleaner (main)

Make:	Donaldson
Type:	Dry with element of impregnated paper and indicator which shows when the element should be cleaned

Pre-cleaner

Make:	Ikarus
Type:	Cyclon

Lubrication system

Type:	Circulation type under pressure
Type and number of filters:	Filter with replaceable element
Oil capacity:	8 lit (1,76 UK gal)
Changing period:	250 hours
Recommended oil	Super HD S 1 SAE 30 above 25 °C SAE 20 from 0 °C to 25 °C SAE 10 below 0 °C

Cooling system

Type:	Water cooling with compulsory circulation
Details of pump and fan:	Fan ø 432 mm (17,01 in) with 6 blades
Coolant capacity:	16 lit (3,52 UK gal)

Means of temperature control:	Thermostat
Pressure details:	0,4 - 0,5 kg/cm^2 (5,69 - 7,11 lb/in^2) over - pressure
Starting system	
Make:	Lukas
Type:	M 50 G
Aids for cold starting:	Heating plug in inlet pipe
Electrical system	
Voltage:	12 V, negative earth
Generator	
Make:	Lukas
Type:	22780 D C 40A, direct current, 0,4 kW
Battery	
Make:	Tesla, Brčko - Yugoslavia
Type:	With leaden plates
Capacity and rating:	135 Ah
Transmission	
Clutch	
Make:	Massey - Ferguson Mgf. Ltd., Coventry, England
Type:	Dry friction clutch of double acting type
Number of discs:	2
Type and diameter of discs:	Friction type. Disc diameters: for rear axle of tractor 305 mm (12,01 in) for p.t.o. shaft 228,6 mm (9,00 in)
Method of operation:	Operated mechanically by single foot pedal
Gearbox	
Make:	Industrija mašina i traktora (IMT), Beograd - Yugoslavia
Type:	Mechanical type, with sliding gears, with one permanently in contact pair of gears on entrance in gear box and with one epicyclic reduction gear on exit of gear box.
Number of gears:	6 forward gears 2 reverse gears
Rear axle and final drive	
Make:	Industrija mašina i traktora (IMT) Beograd - Yugoslavia
Type:	Differential of standard type with bevel gears and with 4 satelits. Final drive ratio at front axle 3,09 : 1. Final drive ratio at rear axle 3,455 : 1. Housing of differential is located in front of bevel gear of final drive.

Differential lock:	Exists for rear axle
Type:	Mechanical
Method of operating lock:	Pedal operated differential lock
Final drive:	Epicyclic gearing, ratio 4,0 : 1 Total ratio of rear axle 13,82 : 1 The final drive epicyclic gears are located at the far ends of the rear axle half shafts
Details of transmission:	Front wheel drive is propelled by a special joint shaft. In entrance of the front wheel drive is located a special device for activating the front wheel drive at a determined slip rate of rear wheels.
Oil capacity	
Gearbox and rear axle:	35 lit (7,7 UK gal)
Recomended oil:	Traktol M - 80 above 10 °C M - 75 below 10 °C)
Final drive:	
Front axle:	8 lit (1,76 UK gal)
Changing period:	500 hours

No.	Gear number	Number of engine revolutions for one revolution of rear driving wheels		+Nominal speed at nominal number of engine revolutions	
		Rear	Front	km/h	(m.p.h.)
Forward gears					
1	1 st	157,82	115,57	3,30	(2,051)
2	2 nd	105,22	77,19	5,00	(3,107)
3	3 rd	68,40	50,19	7,70	(4,785)
4	4 th	52,61	38,62	10,00	(6,214)
5	5 th	35,08	25,72	15,00	(9,321)
6	6 th	22,80	16,73	23,10	(14,353)
Reverse gears					
7	1 st	145,67	-	3,60	(2,237)
8	2 nd	48,56	-	10,90	(6,773)

+ Calculated with rear tyre rolling radius of 700 mm (27,56 in)

Remark: 1). Front wheel drive is automatically activated at the slip rate of rear wheels ammounting 7,02 %
2). Front wheel drive is disconnected when reverse gears are engaged.

Power take-off

Main p.t.o.

Location:	At rear of tractor
Dimensions:	34,9 mm (1 3/8 in) dia (according to JUS M.L1. 601)
Type of drive:	Semi - independent
Number of splines:	6
Whether these are ISO Standards:	Yes
Height above ground:	573 mm (22,559 in) situated in the median plane of the tractor
Proportional p.t.o. speed at 2000 r.p.m. rated speed of engine:	- slow 381 r.p.m. - normal 752 r.p.m. - fast 1098 r.p.m.
Engine speed at standard p.t.o. speed of 540 r.p.m.	1437 r.p.m. for normal p.t.o.
Direction of rotation:	Right (clock-wise) viewed from tractor:s rear end

Ground p.t.o.

Distance travelled for one revolution of p.t.o.	
- slow	32,0 cm (12,60 in)
- normal	25,1 cm (9,39 in)
- fast	17,3 cm (6,81 in)
Remark:	The tractor is delivered only with normal p.t.o. Slow and fast p.t.o. are delivered optionally
Number of revolutions of p.t.o. for one revolution of rear driving wheel:	
- slow	13,70 r.p.m.
- normal	17,55 r.p.m.
- fast	25,40 r.p.m.
Direction of rotation:	Right (clock-wise) viewed from tractor:s rear end when the forward gear is engaged
Details of p.t.o. shafts:	

Power lift

Basic hydraulic system

Make:	Industrija mašina i traktora (IMT), Beograd - Yugoslavia
Type (for tractor model 576):	Four cylinder piston pump located in central housing, driven by front end of p.t.o. shaft with dividing valve on the intake side, with the cylinder of power lift and with three external tappings. Type of piston pump: boxer.

Oil capacity:	Power lift operates with the oil from gear box.
Description of controls:	Position and draught control.
Type (for tractor model 579):	Same as the model 576 with addition of a supplementary external power lift cylinder.
Auxiliary hydraulic system (built in only on the request of customer):	
Make:	Prva Petoletka, Trstenik, Yugoslavia
Type:	With external tappings
Oil capacity:	Power lift operates with the oil from gear box.

Remark: The coupling of basic and auxiliary hydraulic system by means of a tap located on the left side of the cover of power lift. The capacity of coupled pumps is 52 lit/min (11,44 UK gal) at 2000 r.p.m. of engine.

Three point linkage:	Category II Lifting rods length adjustable from 463 to 550 mm (18,23 to 21,65 in) Lifting height above ground with short lifting rods from 380 to 920 mm (14,96 to 36,22 in) and with long lifting rods from 320 to 997 mm (12,60 to 39,25 in)
Swinging drawbar:	
Type:	Fixed, with horizontal adjustment
Height above ground:	
- maximum	335 mm (13,19 in)
- minimum	325 mm (12,80 in)
Method of changing position:	Lateral adjustment
Distance from rear axle:	530 mm (20,87 in), respectively 795 mm (31,30 in)
Position relative to p.t.o.:	238 mm (9,37 in), respectively 304 mm (11,97 in) behind of p.t.o.
Lateral adjustment:	40 mm (1,57 in), 80 mm (3,15 in) and 120 mm (4,72 in) to the left and to the right in relation to the medium position.
Pivot position relative to rear wheel centre:	530 mm (20,87 in), respectively 795 mm (31,30 in)
Diameter of the coupling pin:	30 mm (1,18 in)
Hitch	
Height above ground:	335 mm (13,19 in)
Distance from rear axle:	389 mm (15,32 in)
Position relative to p.t.o.:	265 mm (10,43 in)
Diameter of the coupling pin:	30 mm (1,18 in)
Steering	
Make:	Industrija mašina i traktora (IMT), Beograd - Yugoslavia
Type:	Worm gear with one connecting rod.

Method of operation:	The hydraulic servo-steering with cylinder and piston in connecting rod.
Brakes	
Make:	Industrija mašina i traktora (IMT), Beograd - Yugoslavia
Type:	Disc brake, with 2 pedals coupled by a latch, located before the final drive.
Method of operation:	Hydraulic
Type of parking brake:	Band brake acting to the shaft of final drive. Command by hand by means of a lever.
Front wheels (steering and	
Number:	2
Arrangement:	At the front
Type of tyre	For agriculture
Size:	9.5/9 - 24
Ply rating:	6
Rim size:	8 x 24
Maximum permissible weight on each tyre at 2,1 kg/cm^2 (29,87 lb/in^2) pressure:	940 kg (2072,7 lbs) according to JUS GE 3.602
Track width:	1535 mm (60,43 in)
Method of changing:	------
Rear wheels (driving)	
Number:	2
Position:	At the rear
Type of tyre(s):	For agriculture
Size:	15 x 30
Ply rating:	8
Rim size:	W 14 L x 30
Maximum permissible weight on each tyre at 1,1 kg/cm^2 (15,64 lb/in^2) pressure:	2085 kg (4596,6 lbs) for tyres 15 x 30, according to JUS GE 3.602
Track widths:	1500 mm (59,06 in) - minimum 2000 mm (78,74 in) - maximum
Method of changing:	Continually
Wheelbase:	2220 mm (87,20 in)

Lighting

	Height above ground of centre		Diameter		Distance from outside edge of tractor to centre	
	cm	(in)	cm	(in)	cm	(in)
Head lights	120,0	(47,244)	12,5	(4,921)	57,8	(22,756)
Side lights	152,0	(59,842)	6,0	(2,362)	25,0	(9,843)
Rear lights	151,0	(59,449)	7,5	(2,953)	12,0	(4,724)
Reflectors	174,0	(68,504)	13,5	(5,315)	40,0	(15,748)

Unrestricted beam angle of headlight in plan view 32 °.

Number of lubrication points

- grease	31
- oil	12

Weights

Tractor (without driver, but with tanks full)

	Front		Rear		Total	
	kg	(lb)	kg	(lb)	kg	(lb)
Without ballast	1545	(3406,7)	2180	(4806,9)	3725	(8213,6)
With ballast	1715	(3781,6)	2910	(6416,5)	4625	(10198,1)

Ballast

	No. of weights	Total weight kg	(lb)	Water kg	(lb)
Front	-	-	-	170	(374,8)
Rear	-	-	-	730	(1609,6)
Additional (on the frame in front of the engine)	9	270	(595,3)	-	-

Remark: The tractor is permanently provided with additional weights (stated as "without ballast")

Track widths (during the test)

Front	1535 mm (60,43 in)
Rear	1600 mm (62,99 in)
Clearance:	Minimum ground clearance 317 mm (12,48 in) under the front axle drive casing

Overall dimensions

		Length	Width	Height with exhaust pipe	Height without exhaust pipe
Tractor without ballast	m (ft in)	4,235 (13ft 10,7in)	2,040 (6ft 8,3in)	2,470 (8ft 1,2in)	1,812 (5ft 11,3in)
Tractor with ballast	m (ft in)	4,235 (13ft 10,7in)	2,040 (6ft 8,3in)	2,470 (8ft 1,2in)	1,812 (5ft 11,3in)

Remark: Height of tractor measured to the highest position of steering wheel

Seat

Make: Industrija mašina i traktora (IMT), Beograd - Yugoslavia

Type of suspension: Back support with longitudinal adjustment

Type of damping: With spring and shock - absorber

Range of adjustment: Longitudinal adjustment 7,5 cm (2,95 in) lateral adjustment in 3 positions

FUELS AND LUBRICANTS USED IN TESTS

Laboratory and track tests

Fuel

Type:	Diesel oil D_2 (commercially available quality acc. to JUS B.H.2.411)
Specific gravity at 15 °C (59 °F):	0,828 gr/cm^3 (0,03 lb/in^3)
Cetane number:	57

Engine oil

Type:	INA Super HD S 1
Viscosity:	SAE 30 (61 cSt at 50 °C, 11 cSt at 98,9 °C)
Index of viscosity:	Minimum 90

Transmission oil

Type:	Traktol
Viscosity:	M - 80 (83,6 - 91,2 cSt at 50 °C)
Index of viscosity:	Minimum 125
Oil for power lift	Power lift operates with the oil from the gear box

COMPULSORY TESTS

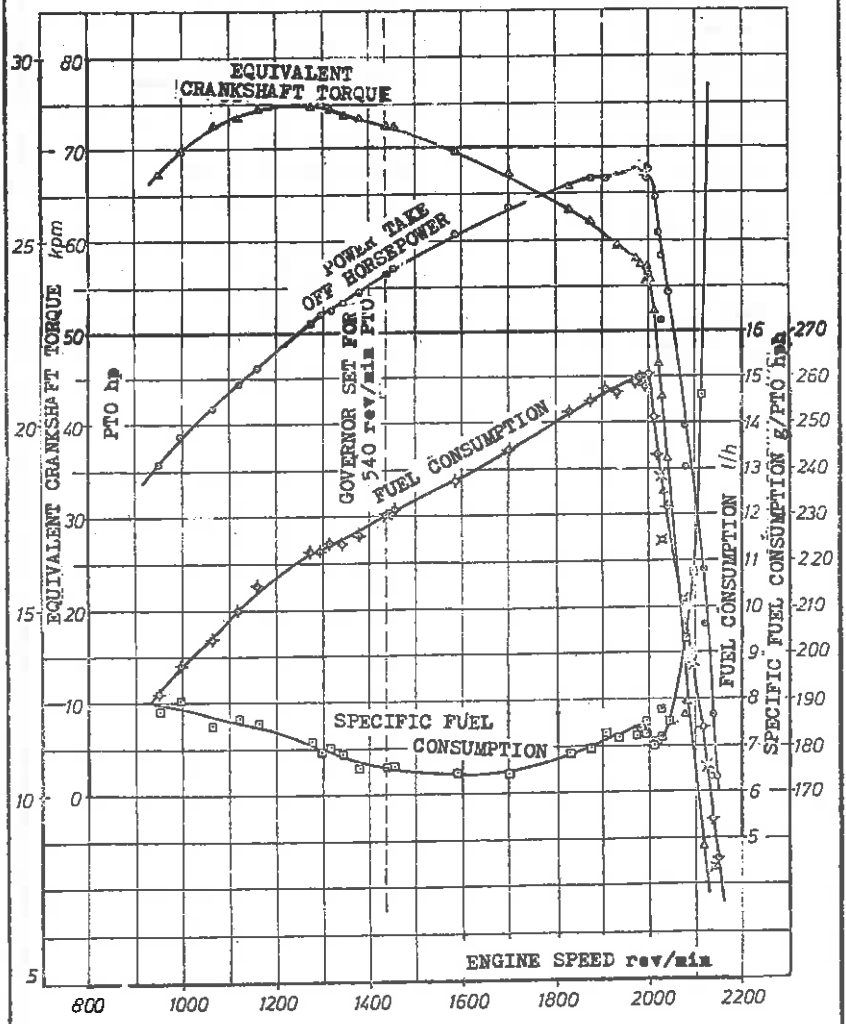
(1) MAIN POWER TAKE-OFF PERFORMANCE

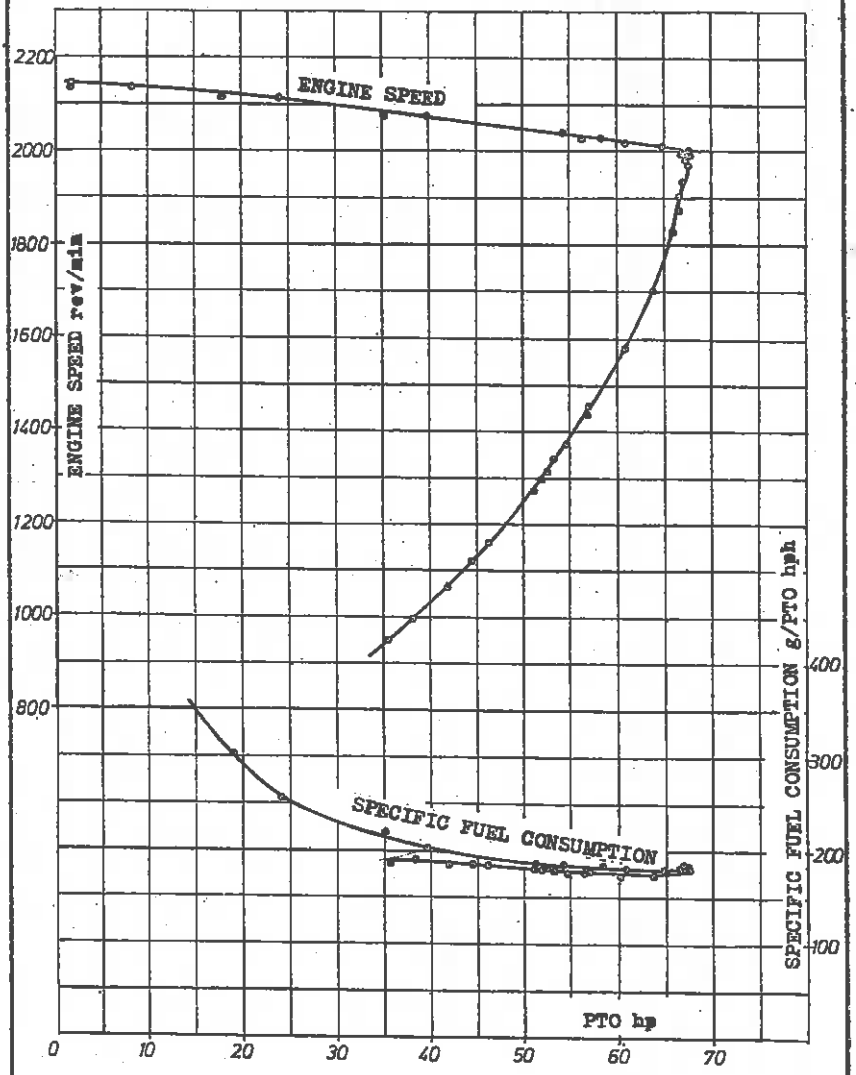
Date and location of tests: 14th January 1974
Institute for Agricultural Mechanisation, Beograd-Zemun, Yugoslavia

Type of dynamometer: Hydraulic brake "SCHENCK", W 1 - 30

Speeds			Fuel consumption		
Horsepower metric hp (U.K.HP)	Engine r.p.m.	P.T.O. r.p.m.	Per hour l/h (UK gal/h)	Specific g/net hph (lb/HPh)	hp hours/unit of volume metric hph/lit (HPh/UK gal)
MAXIMUM POWER - 2 HOUR TEST					
67,68 (66,75)	1997	751	14,89 (3,28)	182,3 (0,408)	4,55 (20,35)
STANDARD P.T.O. SPEED (540 r.p.m.)					
56,60 (55,82)	1437	540	12,06 (2,66)	176,4 (0,395)	4,69 (20,98)
THE SPEED RECOMMENDED BY THE MANUFACTURER FOR DRAWBAR WORK					
67,60 (66,67)	2000	752	14,88 (3,28)	182,2 (0,408)	4,55 (20,35)
PART LOADS					
(i) 85 % of the torque at maximum power					
58,40 (57,59)	2024	761	12,82 (2,82)	181,8 (0,407)	4,55 (20,35)
(ii) unloaded					
1,67 (1,65)	2139	804	4,34 (0,96)		
(iii) 50 % of the load defined in (i)					
35,05 (34,56)	2078	781	8,94 (1,97)	211,0 (0,473)	3,92 (17,54)
(iv) maximum power					
67,60 (66,67)	2000	752	14,88 (3,28)	182,2 (0,408)	4,55 (20,35)
(v) 25 % of the load defined in (i)					
18,00 (17,75)	2118	796	6,59 (1,45)	303,2 (0,679)	2,73 (12,24)
(vi) 75 % of the load defined in (i)					
51,40 (50,69)	2028	762	11,47 (2,53)	188,5 (0,422)	4,48 (20,04)

No load, maximum engine speed:	2160 r.p.m.
Equivalent crankshaft torque at maximum power:	24,22 kgm (175,1 lbft)
Maximum equivalent crankshaft torque:	28,76 kgm (207,9 lbft) at 1295 r.p.m. engine speed
Mean atmospheric conditions:	
- temperature:	22 °C (71,6 °F)
- pressure:	761 mm Hg (29,98 in Hg)
- relative humidity:	67 %
Maximum temperature:	
- coolant:	84 °C (183 °F)
- engine oil:	103 °C (217,4 °F)
- fuel:	24 °C (75,2 °F)
- air at the entrance of cleaner:	27 °C (80,6 °F)


EQUIVALENT CRANKSHAFT TORQUE
POWER TAKE OFF HORSEPOWER
GOVERNOR SET FOR 540 rev/min PTO
FUEL CONSUMPTION
SPECIFIC FUEL CONSUMPTION
EQUIVALENT CRANKSHAFT TORQUE kpm
PTO hp
FUEL CONSUMPTION l/h
SPECIFIC FUEL CONSUMPTION g/PTO hph
ENGINE SPEED rev/min
30
25
20
15
10
5
80
70
60
50
40
30
20
10
0
16
15
14
13
12
11
10
9
8
7
6
5
270
260
250
240
230
220
210
200
190
180
170
800
1000
1200
1400
1600
1800
2000
2200


ENGINE SPEED
SPECIFIC FUEL CONSUMPTION
ENGINE SPEED rev/min
SPECIFIC FUEL CONSUMPTION g/PTO hph
PTO hp
2200
2000
1800
1600
1400
1200
1000
800
400
300
200
100
0
10
20
30
40
50
60
70

(2) DRAWBAR PERFORMANCE OF TRACTOR

Date of tests: 27th, 28th and 29th March 1974
Type of track: Concrete
Height of drawbar above ground: 375 mm (14,76 in)

Gear number	Speed km/h (mph)	Horse power net.hp (UK HP)	Drawbar pull kg (lb)	Engine speed r.p.m.	Slip of wheels %	FUEL CONSUMPTION: Drawbar m.hph/l (drawbar HPh / UK gal)	FUEL CONSUMPTION: Specific g/m.hph (lb/ /drHPh)	TEMPERATURE: Fuel °C (°F)	TEMPERATURE: Coolant °C (°F)	TEMPERATURE: Engine °C (°F)	ATMOSPHERIC CONDITIONS: Temper. °C (°F)	ATMOSPHERIC CONDITIONS: Rel. hum. %	ATMOSPHERIC CONDITIONS: Pressure mm Hg (in Hg)
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
I. MAXIMUM POWER OF BALLASTED TRACTOR													
1.	2,73 (1,69)	38,02 (37,50)	3760 (8287)	2010	14,80	3,33 (14,91)	248 (0,554)	20 (68)	84 (183)	98 (208)	18 (64)	62	758,3 (29,85)
2.	4,23 (2,63)	52,48 (51,76)	3350 (7383)	1981	8,94	3,53 (15,80)	235 (0,525)	20 (68)	83 (181)	98 (208)	18 (64)	62	758,3 (29,85)
3.	6,75 (4,19)	54,50 (53,75)	2180 (4805)	1975	3,99	3,67 (16,43)	226 (0,505)	21 (70)	84 (183)	100 (212)	18 (64)	66	758,3 (29,85)
4.	9,02 (5,60)	55,12 (54,36)	1650 (3637)	1953	4,69+	3,69 (16,52)	225 (0,503)	21 (70)	84 (183)	102 (216)	19 (66)	66	758,3 (29,85)
5.	13,50 (8,38)	52,30 (51,58)	1046 (2305)	1907	12,48+	3,50 (15,67)	236 (0,527)	21 (70)	85 (185)	102 (216)	19 (66)	64	758,3 (29,85)
6.	20,45 (12,70)	45,44 (44,82)	600 (1322)	1866	2,20+	3,07 (13,74)	269 (0,601)	22 (72)	85 (185)	103 (217)	19 (66)	64	758,3 (29,85)
Maximum drawbar pull: 3790 kg (8353 lb) at 15 % of average wheelslip													
II. FIVE HOUR TEST OF BALLASTED TRACTOR AT 75 % OF PULL AT MAXIMUM POWER IN TEST (I)													
3.	7,02 (4,36)	42,64 (42,09)	1640 (3615)	-	6,84	3,84 (17,19)	216 (0,483)	20 (68)	84 (183)	98 (208)	19 (66)	60	761,2 (29,97)

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
III. FIVE HOUR TEST OF BALLASTED TRACTOR AT PULL CORRESPONDING TO 15 % OF AVERAGE WHEELSLIP IN TEST (I)													
1.	-	-	3790 (8353)	-	-	-	-	20 (68)	84 (183)	98 (208)	18 (64)	62	761,2 (29,97)
IV. MAXIMUM POWER OF UNBALLASTED TRACTOR													
1.	2,74 (1,70)	32,98 (32,53)	3250 (7163)	2058	15,00	3,14 (14,06)	264 (0,391)	21 (70)	84 (183)	99 (210)	21 (70)	60	759,4 (29,97)
2.	3,97 (2,46)	47,64 (46,99)	3240 (7141)	2008	15,00	3,24 (14,50)	257 (0,575)	21 (70)	84 (183)	99 (210)	21 (70)	60	759,4 (29,97)
3.	6,72 (4,17)	53,62 (52,88)	2155 (4750)	1991	5,81	3,59 (16,07)	230 (0,514)	20 (68)	83 (181)	100 (212)	19 (66)	58	759,4 (29,97)
4.	8,84 (5,49)	54,51 (53,76)	1665 (3670)	1979	3,98	3,68 (16,47)	226 (0,506)	20 (68)	84 (183)	100 (212)	19 (66)	58	759,4 (29,97)
5.	13,64 (8,47)	52,03 (51,32)	1030 (2270)	1956	4,27+	3,48 (15,58)	237 (0,530)	20 (68)	84 (183)	100 (212)	19 (66)	60	759,4 (29,97)
6.	21,58 (13,45)	49,95 (49,26)	625 (1378)	1934	2,10+	3,31 (14,83)	249 (0,557)	20 (68)	84 (183)	100 (212)	19 (66)	60	759,4 (29,97)

Maximum drawbar pull: 3250 kg (7163 lb) at 15 % of average wheelslip

Total oil consumption during ten hours duration of tests (II) and (III):..... 78 gr/h (0,1765 lb/h)

Remark: 1). Five hour test of ballasted tractor at pull corresponding to 15 % of average wheelslip in test (I) has been carried out with additional ballast. From the mentioned reason, the results for power, wheelslip, speed and fuel consumption have no practical significance.

2). Average slip means the mean value of front and rear wheels slip.

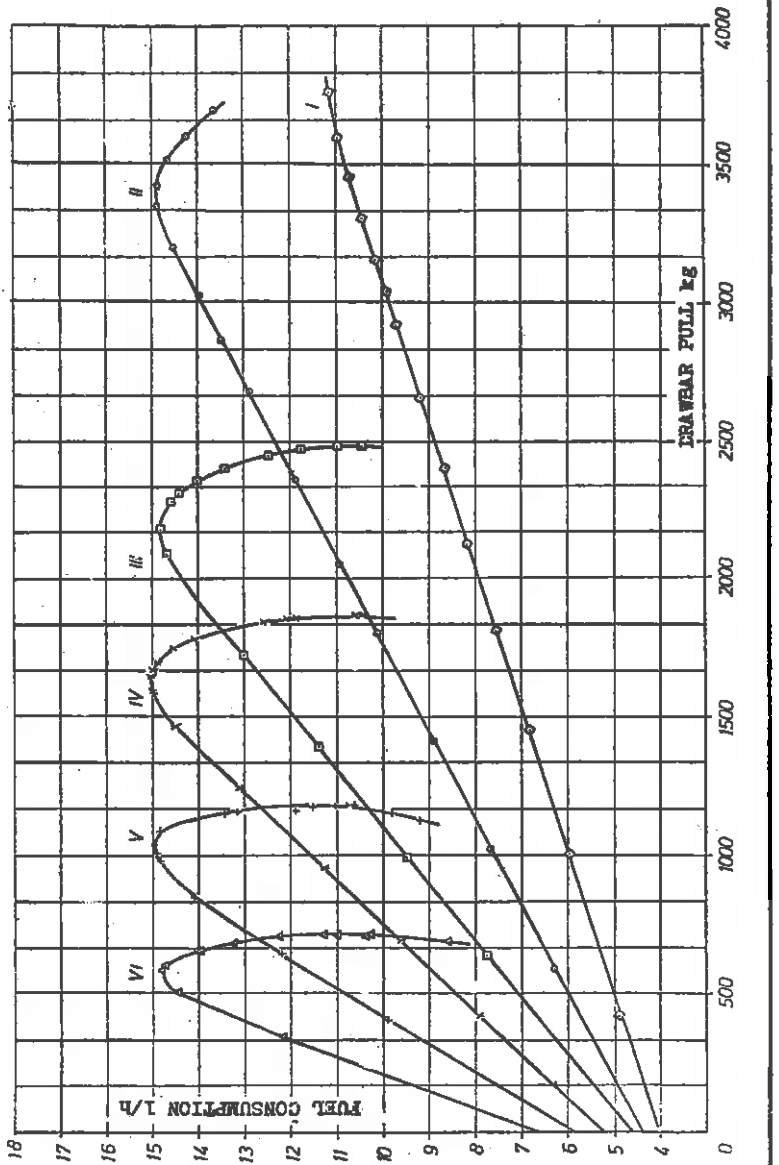
3). Asterisk (+) means the slip of rear wheels only.

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LEGEND
λz - SLIP OF REAR WHEELS
λs - AVERAGE SLIP
λp - SLEEP OF FRONT WHEELS
SLIP %
0
10
20
30
DRAWBAR PULL kg
0
500
1000
1500
2000
2500
3000
3500
4000
λz
λs
λp
λs = 15%

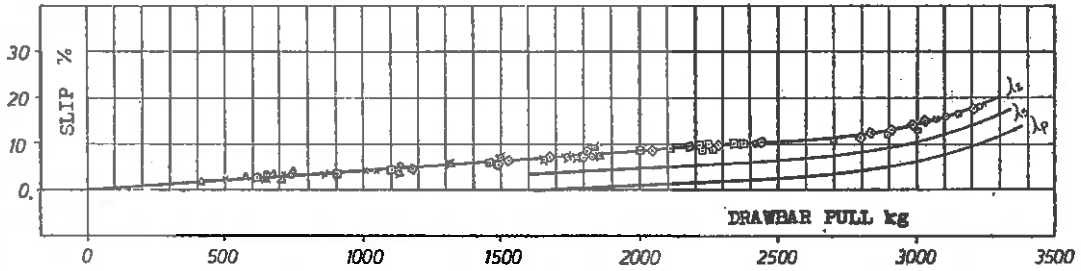
DRAWBAR PULL kg
0
500
1000
1500
2000
2500
3000
3500
4000
FORWARD SPEED km/h
2
4
6
8
10
12
14
16
18
20
22
24
26
I
II
III
IV
V
VI

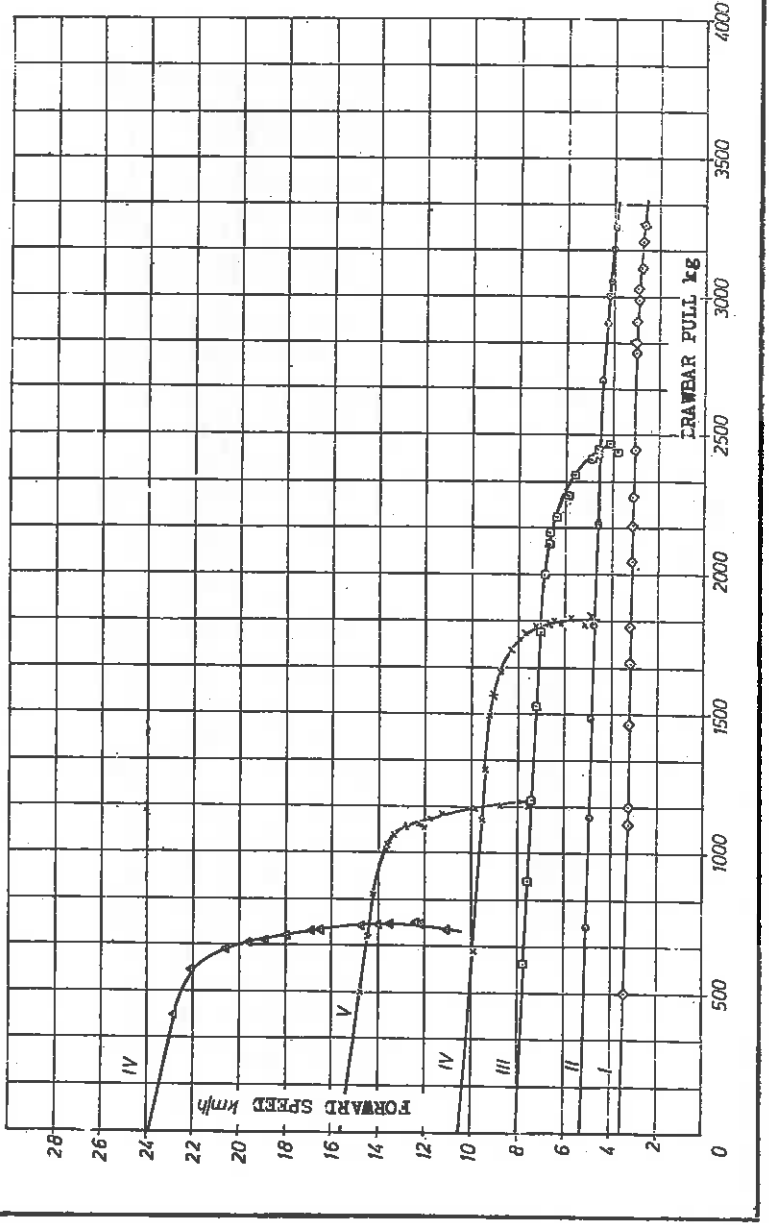
DRAWBAR METRIC hp
DRAWBAR PULL kg
0
10
20
30
40
50
60
70
500
1000
1500
2000
2500
3000
3500
4000
I
II
III
IV
V
VI


FUEL CONSUMPTION l/h
DRAWBAR PULL kg
I
II
III
IV
V
VI
0
500
1000
1500
2000
2500
3000
3500
4000
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

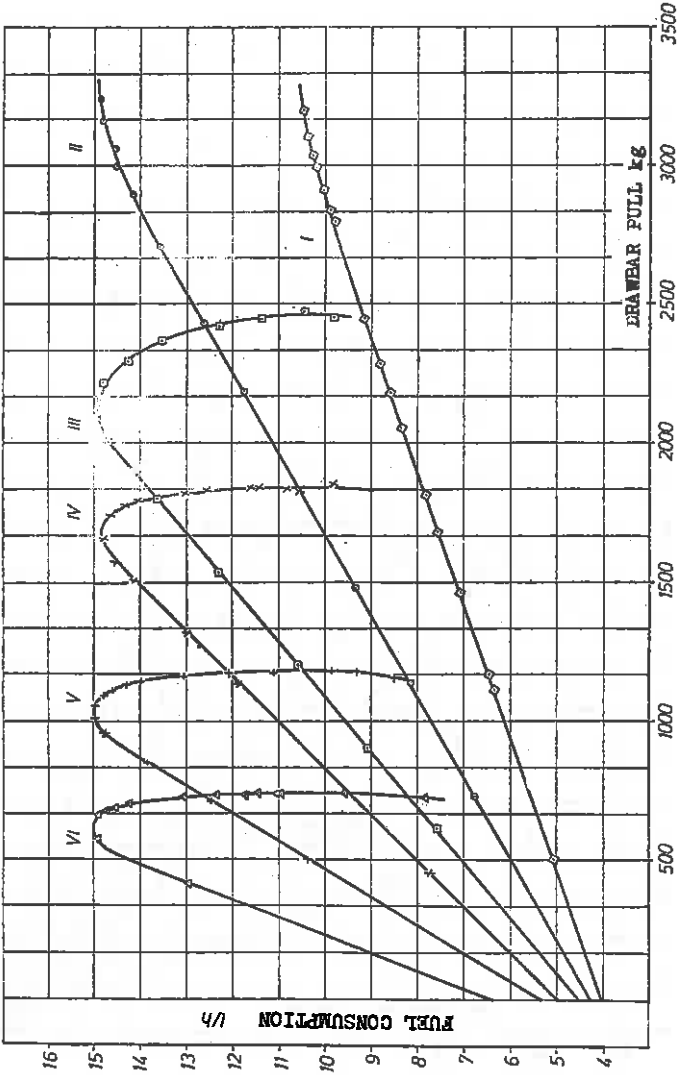
SPECIFIC FUEL CONSUMPTION g/PTO hph
DRAWBAR PULL kg
I
II
III
IV
V
VI
800
700
600
500
400
300
200
100
0
500
1000
1500
2000
2500
3000
3500
4000

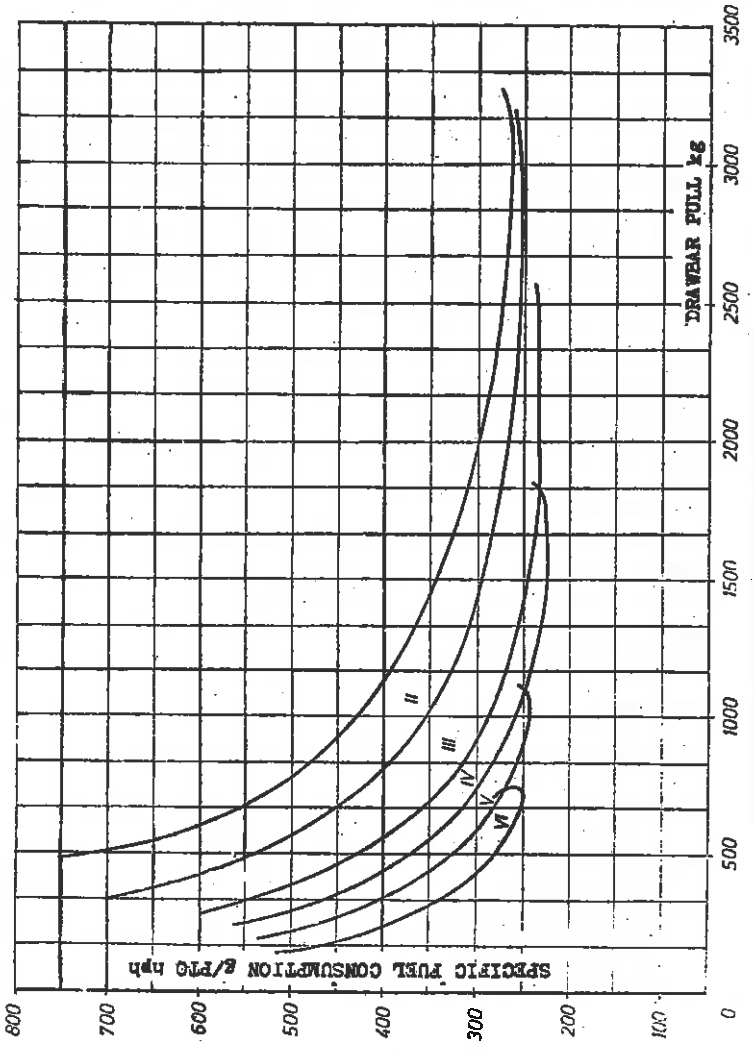
LEGEND
λ_z - SLIP OF REAR WHEELS
λ_s - AVERAGE SLIP
λ_p - SLEEP OF FRONT WHEELS




FORWARD SPEED km/h
DRAWBAR PULL kg
I
II
III
IV
V
IV
0
500
1000
1500
2000
2500
3000
3500
4000
2
4
6
8
10
12
14
16
18
20
22
24
26
28

DRAWBAR METRIC hp
DRAWBAR PULL kg
0
10
20
30
40
50
60
70
500
1000
1500
2000
2500
3000
3500
I
II
III
IV
V
VI


FUEL CONSUMPTION l/h
DRAWBAR PULL kg
I
II
III
IV
V
VI
16
15
14
13
12
11
10
9
8
7
6
5
4
500
1000
1500
2000
2500
3000
3500


SPECIFIC FUEL CONSUMPTION g/PTO hph
DRAWBAR PULL kg
800
700
600
500
400
300
200
100
0
500
1000
1500
2000
2500
3000
3500
II
III
IV
V
VI

(3) TURNING SPACE AND TURNING CIRCLE

Details of wheel equipment: front: 9,5/9 - 24
rear: 15 x 30

Track of wheels: front: 1535 mm (60,43 in)
rear: 1600 mm (62,99 in)

	With brakes		Without brakes	
	Right hand	Left hand	Right hand	Left hand
Radius of turning space	4,05 m (13,29 ft)	3,95 m (12,96 ft)	5,43 m (17,81 ft)	5,38 m (17,65 ft)
Radius of turning circle	3,90 m (12,80 ft)	3,80 m (12,47 ft)	5,28 m (17,32 ft)	5,23 m (17,16 ft)

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground: 795 mm (31,30 in)

Distance forward from the vertical plane containing the axis of the rear wheels: 921 mm (36,26 in)

Distance from the median plane: 10 mm (0,39 in) to the right

(5) BRAKING

Date of tests: 19 $\frac{th}{}$ November 1974

Type of track: Concrete

Type of decelerometer: SIEMENS B4

Weight of tractor (no additional ballast permitted for the road work): 3725 kg (8210 lb)

Cold brakes

Travelling speed of the tractor: 23,3 km/h (14,47 m.p.h.)

i) Deceleration: 4,21 m/sec^2 (13,81 ft/sec^2)

ii) Stoping distance: 8,45 m (27,71 ft)

iii) Force exerted on the brake pedel: 58 kg (127,87 lb)

iv) Force exerted on the brake pedal to achieve a deceleration of 2,5 m/sec^2 (8,2 ft/sec^2): 20 kg (44,09 lb)

Brake fade characteristics (hot tests)

Deceleration hot / Deceleration cold x 100:	100 %
Stopping distance cold / Stopping distance hot x 100:	98 %
Force on pedal, cold / Force on pedal, hot x 100:	82 %

Parking brake

Efficacy of handbrake:

- facing up slope:	Satisfactory
- facing down slope:	Satisfactory
Pull on handbrake:	39 kg (85,91 lb)

(6) MEASUREMENT OF AMBIENT NOISE

Date of tests:	17th october 1974
Type of sound level meter:	Group of instruments BRUEL & KJAER
Type of track:	Asphalt
Results of tests:	
- gear:	6th
- travelling speed:	18,4 km/h (11,43 m.p.h.)
- sound level:	88,3 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR LEVEL
(The test was carried out without a cab or frame on the tractor)

Date of tests:	17th october 1974
Type of sound level meter and octave filter:	Group of instruments BRUEL & KJAER, Type 2204
Type of track:	Asphalt

Results of tests

Gear	Speed km/h	Speed (m.p.h.)	dB(A)	Sones
3 rd	7,35	(4,57)	100,2	124,9
3 rd	6,82	(4,24)	98,4	128,1
6 th	21,50	(13,36)	99,7	132,4

(8) POWER LIFT PERFORMANCE

Date and location of tests:	12th december 1974 Institute for Agricultural Mechanisation, Beograd - Zemun polje
Hydraulic fluid:	
- make and type:	HENA Tractol M - 80

- viscosity:	83,6 - 91,2 cSt at 50 °C
- viscosity index:	Minimum 125
Manner of fixing of power lift levers in transport position:	By means of chains
Release pressure of the safety valve on the cylinder:	- - - - - - - - - - - - - - -
Pump characteristics	
Release pressure of the relief valve:	175 kg/cm^2 (2488 lb/in^2)
Pressure by fully opened relief valve and maximum flow:	190 - 196 kg/cm^2 (2701 - 2786 lb/in^2)
Pump delivery at minimum pressure and nominal engine speed:	14 lit/min (3,09 UK gal/min)
Pump delivery	13 lit/min (2,86 UK gal/min)
- Work pressure:	170 kg/cm^2 (2416 lb/in^2)
- Power:	4,91 metric hp (4,84 U.K.HP)

Tractor model IMT - 576

LIFTING HEIGHT IN RELATION TO THE HORIZONTAL LINE PASSING THROUGH THE LOVER LINK PIVOTING POINTS

A. Lifting force without frame

- Stroke														
cm	-17,50	-14,00	- 9,00	- 4,00	0	+ 6,00	+11,00	+21,00	+26,00	+30,50	+35,50	+37,50	+40,50	+43,00
(in)	- 6,89	- 5,51	- 3,54	- 1,58	0	+ 2,37	+ 4,33	+ 8,27	+10,24	+12,01	+13,98	+14,76	+15,95	+16,93
- Maximum lifting force														
kg	1745	1765	1780	1800	1810	1805	1775	1710	1690	1680	1660	1650	-	-
(lb)	3846	3890	3923	3967	3989	3978	3912	3769	3725	3703	3659	3637	-	-
- Minimum lifting force														
kg	-	1680	1695	1720	1740	1695	1640	1490	1410	1350	1295	1280	1255	1210
(lb)	-	3703	3736	3791	3835	3736	3615	3284	3108	2975	2854	2821	2766	2667

- Maximum force exerted through whole range 1650 kg (3637 lb)
- Forces were measured at 192 kg/cm^2 (2729 lb/in^2) (maximum pressure) and the reported data were calculated to correspond to the forces obtained at 170 kg/cm^2 (2416 lb/in^2) (maximum hydraulic power pressure)

B. Lifting force with frame

- Stroke														
cm	-18,00	-14,00	- 9,00	- 4,00	0	+ 6,00	+18,50	+26,00	+33,50	+41,00	+44,00	+48,00	+50,00	-
(in)	- 7,09	- 5,51	- 3,54	- 1,58	0	+ 2,37	+ 7,28	+10,24	+13,19	+16,14	+17,32	+18,90	+19,69	-
- Maximum lifting force														
kg	1550	1550	1560	1570	1580	1550	1480	1420	1370	1300	1210	-	-	-
(lb)	3416	3416	3438	3460	3482	3416	3262	3130	3019	2865	2667	-	-	-
- Minimum lifting force														
kg	-	-	1480	1500	1510	1480	1350	1220	1120	1040	980	880	780	-
(lb)	-	-	3262	3306	3328	3262	2975	2689	2468	2292	2160	1940	1719	-

- Maximum force exerted through whole range 1210 kg (2667 lb)
- Forces were measured at 192 kg/cm^2 (2729 lb/in^2) (maximum pressure) and the reported data were calculated to correspond to the forces obtained at 170 kg/cm^2 (2416 lb/in^2) (maximum hydraulic power pressure)

Tractor model IMT - 579

LIFTING HEIGHT IN RELATION TO THE HORIZONTAL LINE PASSING THROUGH THE LOVER LINK PIVOTING POINTS

A. Lifting force without frame

- Stroke														
cm	-17,50	-14,00	- 9,00	- 4,00	0	+ 6,00	+11,00	+21,00	+26,00	+30,50	+35,50	+37,50	+40,50	+43,00
(in)	- 6,89	- 5,51	- 3,54	- 1,58	0	+ 2,37	+ 4,33	+ 8,27	+10,24	+12,01	+13,98	+14,76	+15,95	+16,93
- Maximum lifting force														
kg	2360	2375	2385	2440	2410	2405	2380	2320	2290	2270	2265	2250	-	-
(lb)	5201	5234	5257	5378	5312	5246	5237	5113	5047	5003	4992	4959	-	-
- Minimum lifting force														
kg	-	2280	2295	2320	2350	2310	2240	2265	2145	2110	2050	2030	2000	1840
(lb)	-	5025	5056	5113	5179	5091	4937	4992	4728	4650	4518	4474	4408	4055

- Maximum force exerted through whole range 2250 kg (4959 lb)
- Forces were measured at 192 kg/cm^2 (2729 lb/in^2) (maximum pressure) and the reported data were calculated to correspond to the forces obtained at 170 kg/cm^2 (2416 lb/in^2) (maximum hydraulic power pressure)

B. Lifting force with frame

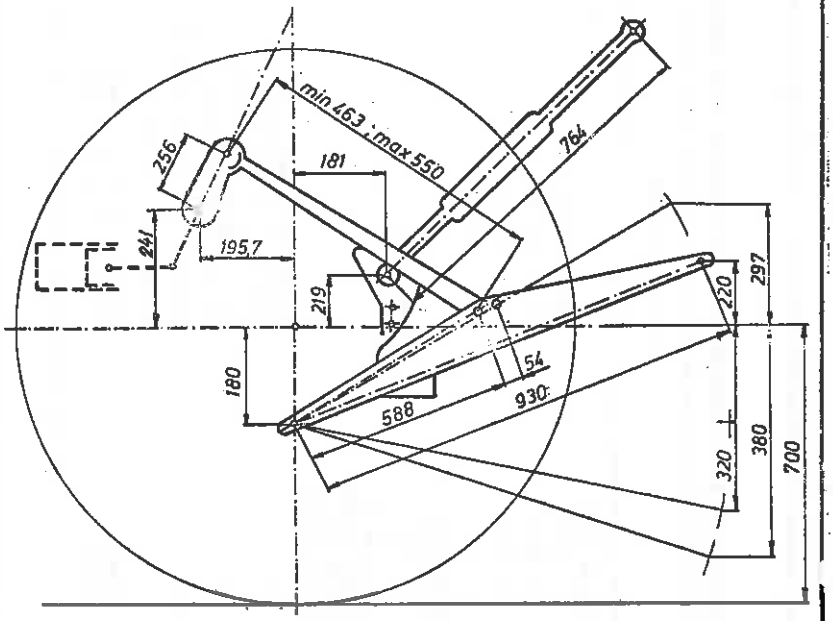
- Stroke														
cm	-18,00	-14,00	- 9,00	- 4,00	0	+ 6,00	+18,50	+26,00	+33,50	+41,00	+44,00	+48,00	+50,00	-
(in)	- 7,09	- 5,51	- 3,54	- 1,58	0	+ 2,37	+ 7,28	+10,24	+13,19	+16,14	+17,32	+18,90	+19,69	-
- Maximum lifting force														
kg	2140	2145	2150	2175	2180	2150	2080	2020	1970	1910	1810	-	-	-
(lb)	4717	4728	4739	4794	4805	4739	4584	4452	4342	4210	3989	-	-	-
- Minimum lifting force														
kg	-	-	2075	2100	2110	2080	1950	1825	1670	1640	1590	1500	1400	-
(lb)	-	-	4573	4628	4650	4584	4298	4022	3681	3615	3504	3306	3086	-

- Maximum force exerted through whole range 1810 kg (3989 lb)
- Lifting force when front of tractor lifts 2220 kg (4893 lb)
- Forces were measured at 192 kg/cm^2 (2729 lb/in^2) (maximum pressure) and the reported data were calculated to correspond to the forces obtained at 170 kg/cm^2 (2416 lb/in^2) (maximum hydraulic power pressure)

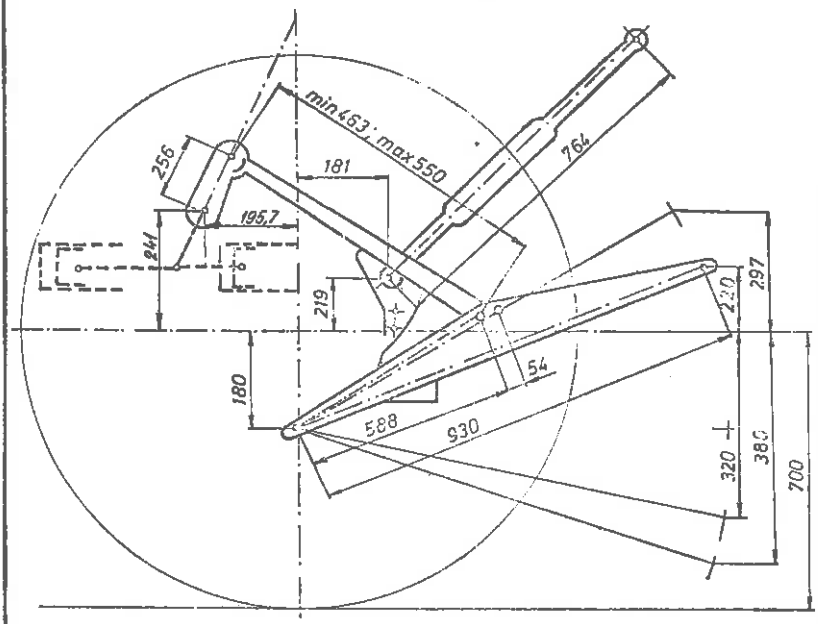
LINKAGE GEOMETRY WHEN CONNECTED TO THE STANDARD FRAME FOR TRACTORS MODEL IMT-576 AND IMT-579

	Maximum lifting force	Minimum lifting force
Projection of length in side view		
- lower links mm (in)	930 (36,62)	930 (36,62)
- lift arms mm (in)	256 (10,08)	256 (10,08)
- lift rods mm (in)	550 (21,66)	463 (18,23)
- top link mm (in)	752 (29,60)	751 (29,57)
Distance of lift rod connection point from pivot point of lower link mm (in)	642 (25,29)	588 (23,15)
Following dimensions are given in relation to the rear wheels centre line, which is on the height of 700 mm (27,56 in) above the ground		
- lower link pivoting point	in vertical plane 180 mm (7,09 in) below	in vertical plane 180 mm (7,09 in) below
- top link pivoting point	181 mm (7,13 in) behind 219 mm (8,62 in) above	185 mm (7,28 in) behind 185 mm (7,28 in) above
- lift arm pivoting point	195,7 mm (7,71 in) in front of 241 mm (9,49 in) above	195,7 mm (7,71 in) in front of 241 mm (9,49 in) above
- maximum and minimum height of lower link hitch points	195 mm (7,68 in) above 355 mm (13,98 in) below	250 mm (9,84 in) above 320 mm (12,60 in) below

LIFTING MECHANISM – *TRAKTOR IMT-576*



LIFTING MECHANISM - TRAKTOR IMT-579



Test Engineer: M. ŽIVKOVIĆ
Officer in charge: N. MILOVANOVIĆ
Director: R. OROVIĆ
Date: 20 th December 1974