Institut za mehanizaciju poljoprivrede – Zemun

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Report on Test in Accordance with O.E.C.D. STANDARD CODE for the Official Testing of Agricultural Tractors



Agricultural Tractor IMT–577 DE LUXE (2 WD)

Manufactured by: IMT–Industrija Mašina i Traktora
Novi Beograd – Yugoslavia

Date of test: July – November 1986

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 tractor on practical work.

This Report has been aporoved by the O.E.C.D. Co-ordinating Centre (CEMAGREF, France) as being in accordance with the O.E.C.D. STANDARD–CODE.

Date of Approval: 30th March 1987

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TABLE OF CONTENTS

	Page
Specification of tractor	1 to 13
Conditions during test	14
Fuel and lubricants used in tests	14
COMPULSORY TESTS	
(1) Main power take-off performance	15 to 18
(2) Drawbar performance on a tarmacadam track	19 to 21
(3) Turning space and turning circle	22
(4) Location of centre of gravity	22
(5) Braking performance	23
(6) Ambient noise, emitted by the tractor	24
(7) Noise at the driver's ear level	24
(8) Power lift and hydraulic power test	25 and 26

Tractor manufacturer:	IMT - Industrija Mašina i Traktora Novi Beograd - Yugoslavia
Submited for test by:	The manufacturer
Selected by:	Representatives of IMP
Place of running-in:	Laboratory of IMP
Duration of running-in:	cca 65 hours

SPECIFICATION OF TRACTOR

TRACTOR

Make:	IMT
Model:	IMT - 577 DE LUXE
Type:	Standard-unit construction, four wheels, rear wheels driven
Serial N°:	6o 1o 16 662 (Start of series)

ENGINE

Make:	IMT - Industrija Motora Rakovica
Model:	S 44 A/T
Type:	Four stroke, water cooled diesel, direct injection, naturally aspirated
Serial N°:	49646
Cylinders:	4, vertical, in-line, bore 1oo,96 mm, stroke 127 mm, displacement 4o68 cm^3, compression ratio 16:1, overhead valves, replaceable dry cilinder liners
Fuel system:	IPM membrane type feed pump with hand primer, two CAV-DONIT paper element fuel filters on the pressure side of feed pump, first filter with sediment bowl; fuel tank capacity 9o l; CAV-IPM distributor type DPA 3241 1o2 injection pump, Serial N° SY 6478oo, manufacturer's production setting 64 mm^3 at 2ooo engine rev/min and full load; injection timing 22° before T.D.C.;

Fuel system (continuation):	CAV-IPM injector nozzles of multi hole type (four holes), model 8o3465 BU, injection pressure setting 17o ± 2,5 bar, (working pressure cca 165 bar)
Governor:	CAV-IPM, mechanical all range, incorporated in fuel injection pump, governed range of engine speed 5oo ± 3o to 216o ± 3o rev/min, rated engine speed 2ooo rev/min
Air cleaner:	Main TPR-Rogatica FWG-o6-5151, dry with replaceable cartridge; centrifugal pre-cleaner Frad IK-517; Air intake (with pre-cleaner) above the bonnet; main cleaner below the bonnet and in front of radiator; maintenance indicator on the instrument panel
Lubrication system:	Forced feed from gear pump with strainer in sump, full flow replaceable paper element filter; total oil capacity minimum 8 l, maximum lo l; recommended oil quality acc.to MIL-L-21o4 C, recommended oil viscosities: winter SAE 2o summer SAE 3o tropics SAE 4o oil and filter change interval 25o h
Cooling system:	Water cooling with impeller pump; pressurized system set to o,4-o,5 bar overpressure; fan with 6 blades, 432 mm diameter; pump delivery 119 l/min of water, fan delivery 1,95 m^3/S of air, both at 2ooo engine rev/min; water capacity 16 l; temperature control by piston type thermostat
Starting system:	Electrical ISKRA-solenoid-engaged starter motor AZJ o4o5 12 V 3 kW Clo; heating plug in intake manifold as aid for cold starting; hand lever of speed selector in neutral position as starting safety device

Exhaust:	Vertical, outside bonnet, on the right hand side of engine, mouth 2780 mm above ground; outlet dia 45 mm; single chamber expansion type silencer with 100 mm dia and 595 mm length
Electrical system:	12 Volt, negative earth; ISKRA alternator AAG 0603 14V 28A; one 12 V lead acid battery with 135 Ah capacity at 20-hour rating.

TRANSMISSION

Clutch:	KRON - Novi Beograd dry dual fiction disc type double acting clutch, tractor drive disc dia 301 mm, p.t.o. shaft drive disc dia 250 mm, mechanically pedal operated
Gearbox:	Own make; mechanical, 5 forward and 1 reverse gear, 1^{st}, 2^{nd} and 3^{rd} gear with sliding gears, 4^{th} and 5^{th} gear synchronized; low and high speed selector of epicyclic (planetary) type; N^{o} of speeds (totally): 10 forward 2 reverse
Rear axle and final drive:	Own make; Bevel gear drive with crown wheel and pinion; bevel gear type differential, with lock pedal operated, self disengaging; final drives of epicyclic type
Front axle:	Own make; Steering axle of telescopic type, not driven, track width adjustable in steps, hydrostatic steering.

Oil capacities: Gearbox (with hydraulic power lift) and rear axle 32 l
final drives 2x1 l

Recommended oil qualities: Gearbox and rear axle:
hydraulic transmission oil Galax Traktol HT, INA TRANSHIDROL 85 or HENA Traktol M 8o, or engine oil acc to MIL-L-2o14 C; oil changing interval 8oo h;
oil filter cleaning interval 8oo h;
Final drive:
hypoid oil SAE 9o acc to MIL-L-21o5 B

Total ratios and speeds

Gear	Total ratio engine: rear driving wheel	Nominal travelling speed at rated engine speed km/h	at standard p.t.o.speed 54o rev/min km/h
Forward speeds			
1 low	256,oo	2,11	1,53
2 low	17o,64	3,17	2,3o
3 low	11o,48	4,9o	3,55
4 low	98,68	5,48	3,97
5 low	73,48	7,36	5,33
1 high	63,88	8,47	6,14
2 high	42,64	12,69	9,2o
3 high	27,6o	19,61	14,21
4 high	24,67	21,94	15,9o
5 high	18,4o	29,42	21,32
Reverse speeds			
low	235,35	2,3o	1,67
high	58,84	9,2o	6,67

Calculated with the rear wheel radius index 72o mm.

Power take-off

Main P.T.O. Semi-independent p.t.o.; driven by the pedal operated second disc of the double acting clutch; at rear of tractor, in the median plane, height above ground 593 mm (with 18,4-3o rear tyres and radius index 72o mm); distance of the p.t.o. shaft end from the rear axle axis:

- below 127 mm
- behind 45o mm

dimensions 35 mm Ø, 6 splines acc. to JUS M.L1.6o1 and ISO 5oo type 1

Proportional to engine speed p.t.o.: Standard p.t.o. speed 54o rev/min; direction of rotation clockwise, viewed from tractor rear; p.t.o. speeds may be set by aid of tractormeter

p.t.o. speed rev/min	engine speed rev/min	transmission ratio engine: p.t.o.
54o	145o	2,685 : 1
745	2ooo	

Power restriction and maximum torque: Maximum engine power and torque equivalent to maximum engine torque

Optionally:

In the p.t.o. housing two pairs of reduction gears with 1,2857 : 1 gear ratio for 54o rev/min p.t.o. (35 mm Ø, 6 splines acc. to ISO 5oo Type 1) or with o,6842 : 1 gear ratio for looo rev/min p.t.o. (35 mm Ø, 21 splines acc. to ISO 5oo Type 1):

p.t.o. speed rev/min	engine speed rev/min	transmission ratio engine: p.t.o.
54o	1864	3,452 : 1
579	2ooo	
looo	1837	1,837 : 1
1o89	2ooo	

Power restriction and maximum torque: For 54o rev/min p.t.o. 48 kW and 85o Nm (acc.to ISO 5oo)

Ground speed p.t.o. — Driven by rear axle drive, sence of rotation clockwise, at forward movement

p.t.o.	travel distance per p.t.o. revolution m	number of p.t.o. revolutions per rear wheel revolution
540	0,15	30,15

Optionally (with two pairs of reduction gears in the p.t.o. gearbox)
Sence of rotation clockwise, at forward movement

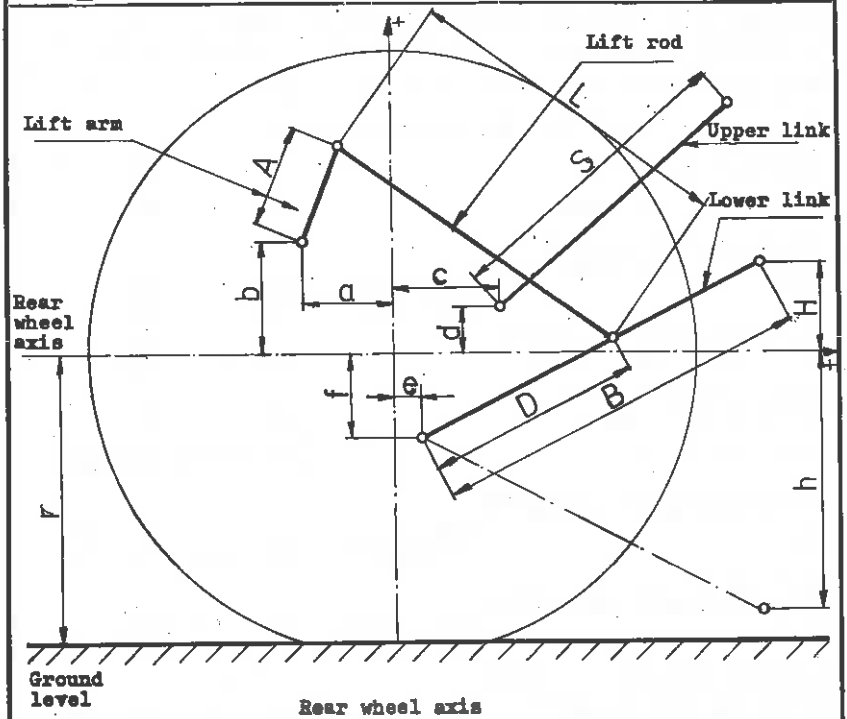
p.t.o.	travel distance per p.t.o. revolution m	number of p.t.o. revolutions per rear wheel revolution
540	0,193	23,45
1000	0,103	44,05

Power lift: Own make;

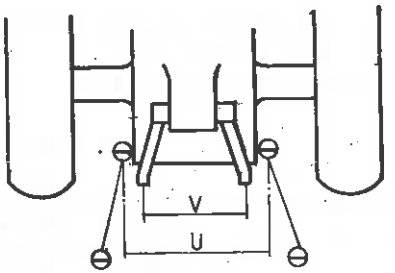
Hydraulic system: Four cylinder pirton pump of boxer type with 26,4 cm^3/rev delivery, located in central housing, driven by p.t.o. shaft front end, with control valve at suction side;

control valve for lifting and sinking, draught control, position control, both stepless mixable;
opening pressure of relief valve 175 bar, sustained pressure by the opened relief valve 180 - 185 bar;
No cylinder safety valve exist;
two single acting rams with 63 mm bore, 215 mm stroke;
4 external oil tappings, single or double acting are located at rear of tractor;
hydraulic oil tank in common with gearbox, oil capacity 32 l, max 5 l may be taken off through oil tappings when tractor is mooving, 10 l when tractor is stationary;
strainer in hydraulic pump suction line, every 500 working hours maintained by washing.

Implement linkage: See pages 7 and 8



Rear wheel axis



Implement linkage: Three point linkage, joint balls category 2 acc. to ISO 730/I

Dimensions of implement linkage (projected lengths, in mm).
underlined dimensions are valid for power lift test page 26

Rear tyres (size 18,4 - 3o) radius index		(r)	72o
Front tyres (size 7,5o - 16) radius index		(r`)	38o
Length of lift arms		(A)	3oo
Length of lower links		(B)	78o
Distance of lift arm pivot point from rear wheel centre line	horizontally	(a)	-11o
	vertically	(b)	42o
Horizontal distance between the 2 lower link points		(u)	57o
Horizontal distance between the 2 lift arm end points		(v)	41o
Length of upper link		(S)	65o to 87o, 82o
Distance of upper link pivot point from rear wheel centre line	horizontally	(c)	185 or 181
	vertically	(d)	185 or 219
Distance of lower link pivot point from rear wheel centre line	horizontally	(e)	215
	vertically	(f)	185
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	34o or 38o
Length of lift rods		(L)	6o5 to 725, 665

Height of lower link hitch points relative to rear axle centre line (situated 72o mm above ground) in mm

These data are valid for unloaded power lift

	lift rod length L		
	6o5 mm	665 mm	725 mm
Lowest position	31o mm	46o mm	61o mm
Highest position	38o mm	26o mm	145 mm
Transport position	38o mm	26o mm	145 mm

Trailer hitch: Automatically acting by means of power lift; height above ground 424 mm in working position;
distance of hitch centre

from rear axle:
horizontal 529 mm behind
vertical 296 mm below

from p.t.o. shaft end
horizontal 79 mm behind
vertical 169 mm below

diameter of the coupling pin 48 mm;
maximum admissible vertical load 15oo daN

Towing hitch: Fixted;
height above ground 72o, 76o, 8oo and 84o mm distance of the hitch centre:

from the rear axle
horizontal 561 mm behind
vertical in line, 4o; 8o and 12o mm above

from the p.t.o. shaft end
horizontal 111 mm behind
vertical 127, 167, 2o7 and 247 mm above

diameter of the coupling pin 3o mm

Note:

1° All pull attachment heights are given for the radius index of rear wheels 72o mm (18,4 - 3o tyres).

2° Holed bar, trailer hitch and towing hitch are available optionally.

Steering:	PPT-ORSTA hydrostatic steering, model LAGB 1oo, with own oil circuit; engine driven pump with maximum delivery 22,5 l/min at 2ooo rev/min engine speed (4ooo rev/min pump speed), maximum working pressure 1o-11,5 MPa; double acting ram with 4o/22 bore and 217 mm stroke; oil capacity 1,8 l; recommended oil - GALAXMATIC DAC or DEXTRON B, ZF ATF, ALLISON C-2 and C-3. oil changing interval 4oo h; oil filter in reverse line with changing interval 8oo h.
Brakes	
Service brake:	model G.O.I.M.P. 8,75x7,4 ($2o^{o}$); hydraulically acting disc type brake on the rear differential half shafts, in oil bath, with four discs on each side, disc diameter 222,2/187,9 mm;
Steering brakes:	Divided pedals of service brake, for normal use locked together;
Parking brake:	Service brake, but mechanically acting, hand lever operated;
Trailer braking take-off:	Optional equipment, fitted on the tested tractor; make PPT; single line air brake, operated by pedal mounted valve; compressor with 75 mm bore 28 mm stroke, driven by the engine at 224o rev/min speed at rated engine speed (2ooo rev/min) compressor delivery o,27 m^3/min (at atmospheric pressure) at rated engine speed; pressure control valve with filter and coupling for tyre pressurizing, operating withing 4,8-5,3 bar (opening pressure); compressed air tank with 2o l capacity; standardized coupling head;

Wheels

Steering wheels:	2 pneumatics in front 7,5o-16 6 ply diagonal type casing; maximum permissible lead per tyre 745 kg at 2,5 bar inflation pressure and 3o km/h; track width adjustable from 13oo to 18oo mm in loo mm steps; rims 5,5F x 16
Driving wheels:	2 pneumatics at rear 18,4-3o, 8 ply diagonal type tyre casing; maximum permissible load per tyre 2415 kg at 1,4 bar inflation pressure and 3o km/h; cast iron wheel discs, track width adjustable from 13oo to 175o mm continuoslly, rims W14L x 3o
Wheel base:	22lo mm
Seat:	Own make; model 52o o4 5oo; upholstered seat with back rest; adjustable spring (6o to 12o kg) with shock absorber; for and aft adjustable about 125 mm
Cab:	Own make; safety cab IMT 527 39 6oo with drivers platform IMT 527 39 5oo (O.E.C.D. Approval CSD olooo/4-a(C)) joined to the tractor body in four points by means of elastic supports; interior padding of the cab is from sound deadening materials; windows with safety glasses, back window may be opened; heating and ventilating unit make TAP-Ptuj, with filter and air inlet in cab's roof front panel.
Number of grease points:	with grease 19 with oil lo

OVERALL DIMENSIONS

Total lenght:	4o9o mm with horizontal lower links and with front ballast
	38oo mm with horizontal lower links and without front ballast
Maximum width:	222o mm with maximum rear track setting with and without rear ballast
Minimum width:	177o mm between the outside edges of rear tyres (track setting 13oo mm)
Total height:	2665 mm to the top of the cab
	278o mm to the top of the exhaust outlet
Ground clearance:	484 mm in the middle of tractor

Note: Total heights and ground clearance are given for the radius index of rear tyres 72o mm(18,4-3o tyres)

Lighting equipment: Electrical, 12 Volt, negative earth

	Dimensions mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm 1)
Head lights: 2)	Ø 135	1150	645
Side lights:			
front 3)	120/35	1590	135
rear 4)	60/35	1620	135
Position lights:			
front 3)	120/35	1625	135
rear 4)	120/35	1575	185
Stop lights: 4)	60/55	1620	215
Reflectors:			
rear 5)	Ø 135	1775	135

1) distance from autside edge of rear wheel (rear wheel track width 1300 mm)

2) unrestricted beam angle of Head lights in plan view 32^{0}

3) on common plate 120/70 mm

4) on common plate 120/90 mm

5) only one reflector on the rear edge of righ hand fender

Running-time meter: Mechanical with tachometer combined driven by the engine; reference engine speed for one really counted hour 1500 rev/min

TEST CONDITIONS

Masses Ready for use as tested

		without driver kg	with driver kg
Without ballast:	front	121o	122o
	rear	23o5	237o
	total	3515	359o
With ballast:	front	148o	149o
	rear	314o	32o5
	total	462o	4695
Ballast:	front	8 weights 3o kg each	24o kg
	rear	4 weights 5o kg each	2oo kg
		water in tyres	565 kg
Track setting:	front	14oo mm	
	rear	16oo mm	

FUELS AND LUBRICANTS USED IN TESTS

Fuel:	INA Diesel-fuel D_2 in all tests	
	Density at 15°C:	o,831 kg/l
	Cetane number:	min 5o
	Viscosity at 5o°C	2,5 cSt
Engine oil:	GALAX SUPER HD S3, SAE 3o (11 cSt at 98,9°C)	
Transmission and power lift oil:	GALAX TRAKTOL HT 8,7 cSt at 98,9°C)	
Final drives:	HYPOL 9o B (17 cSt at 98,9°C)	
Steering oil:	GALAXMATIC DAC	

COMPULSORY TESTS

(1) MAIN POWER-TAKE-OFF PERFORMANCE

Date and location of test: 17 th July, 1986
Institut za mehanizaciju poljoprivrede - Zemun

Type of dynamometer: Hydraulic brake SCHENCK U1-3o with auxilary band brake

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific kg/kWh	Specific energy kWh/l
	MAXIMUM POWER					
	At 2-hour test					
48,92	2ooo	745	15,78	13,o7	o,267	3,1o
	At standard p.t.o. speed (54o rev/min)					
38,86	145o	54o	12,2o	1o,1o	o,26o	3,19
	At speed recommended by the manufacturer for drawbar work					
48,92	2ooo	745	15,78	13,o7	o,267	3,1o
	PART LOADS Governor hand lever in position giving maximum power					
(i) 85% of torque at maximum power						
42,23	2o32	757	14,13	11,7o	o,277	2,99
(ii) unloaded						
o,64	2127	792	4,57	3,79	-	-
(iii) 5o% of the load defined in (i)						
21,62	2o8o	775	8,68	7,19	o,332	2,49
(iv) maximum power						
48,92	2ooo	745	15,78	13,o7	o,267	3,1o
(v) 25% of the load defined in (i)						
1o,98	21o8	785	6,58	5,45	o,496	1,67
(vi) 75% of the load defined in (i)						
32,o2	2o53	765	1o,96	9,o8	o,284	2,92

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption specific kg/h	Fuel consumption specific kg/kWh	Specific energy kWh/l
Governor setting giving standard p.t.o. speed at full load						
(i) 85% of the torque at full load						
33,63	1477	55o	1o,89	9,o1	o,268	3,o9
(ii) unloaded						
o,34	1574	568	3,9o	3,23	-	-
(iii) 5o% of the load defined in (i)						
17,39	1525	568	6,74	5,58	o,321	2,58
(iv) full load						
38,86	145o	54o	12,2o	1o,1o	o,26o	3,19
(v) 25% of the load defined in (i)						
8,83	1549	577	4,99	4,13	o,468	1,77
(vi) 75% of the load defined in (i)						
25,63	15o1	559	8,48	7,o2	o,274	3,o2

STANDARD SPECIFIC FUEL CONSUMPTION: o,277; o,332
o,268; o,321 g/kWh

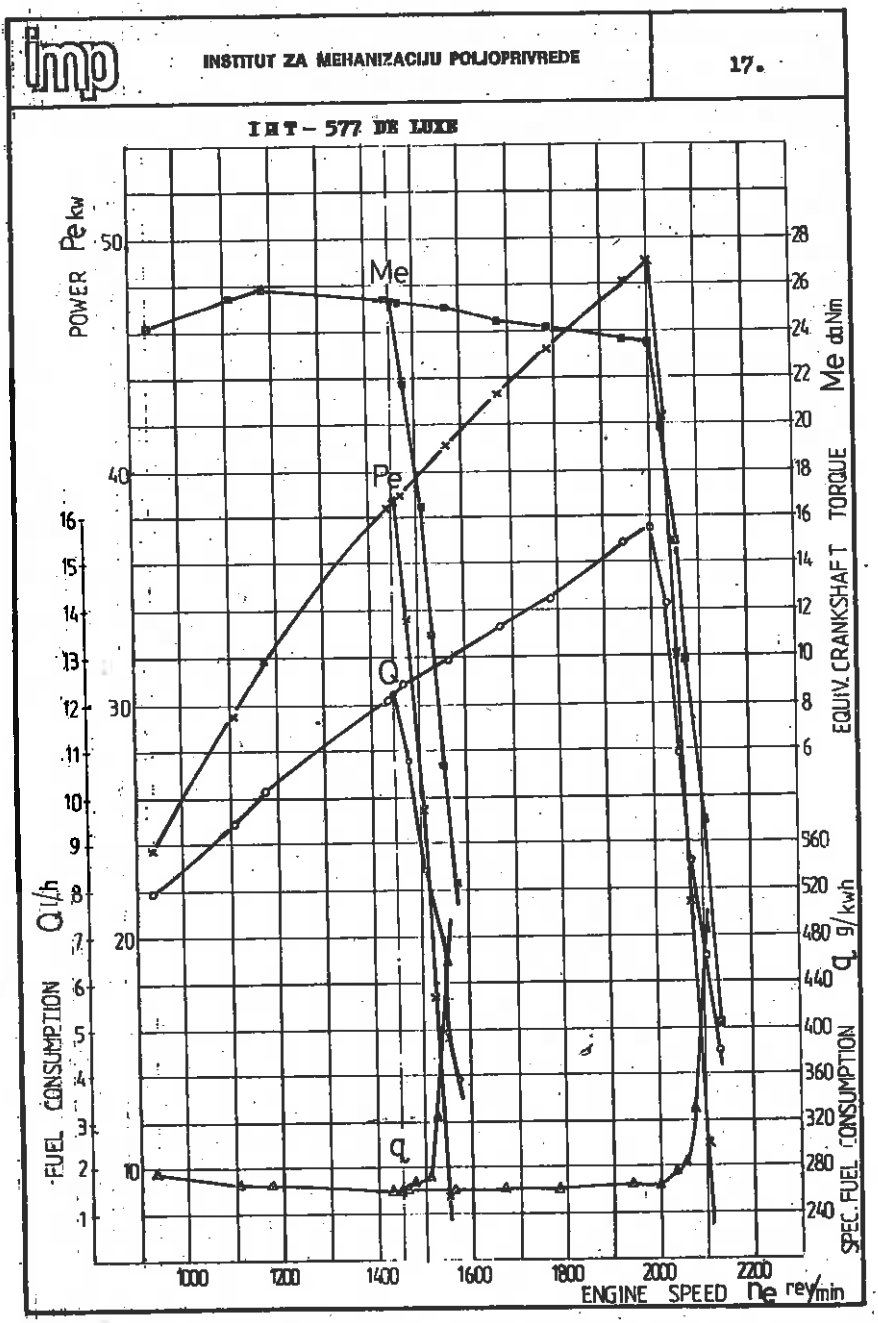
No load, maximum engine speed: 214o rev/min

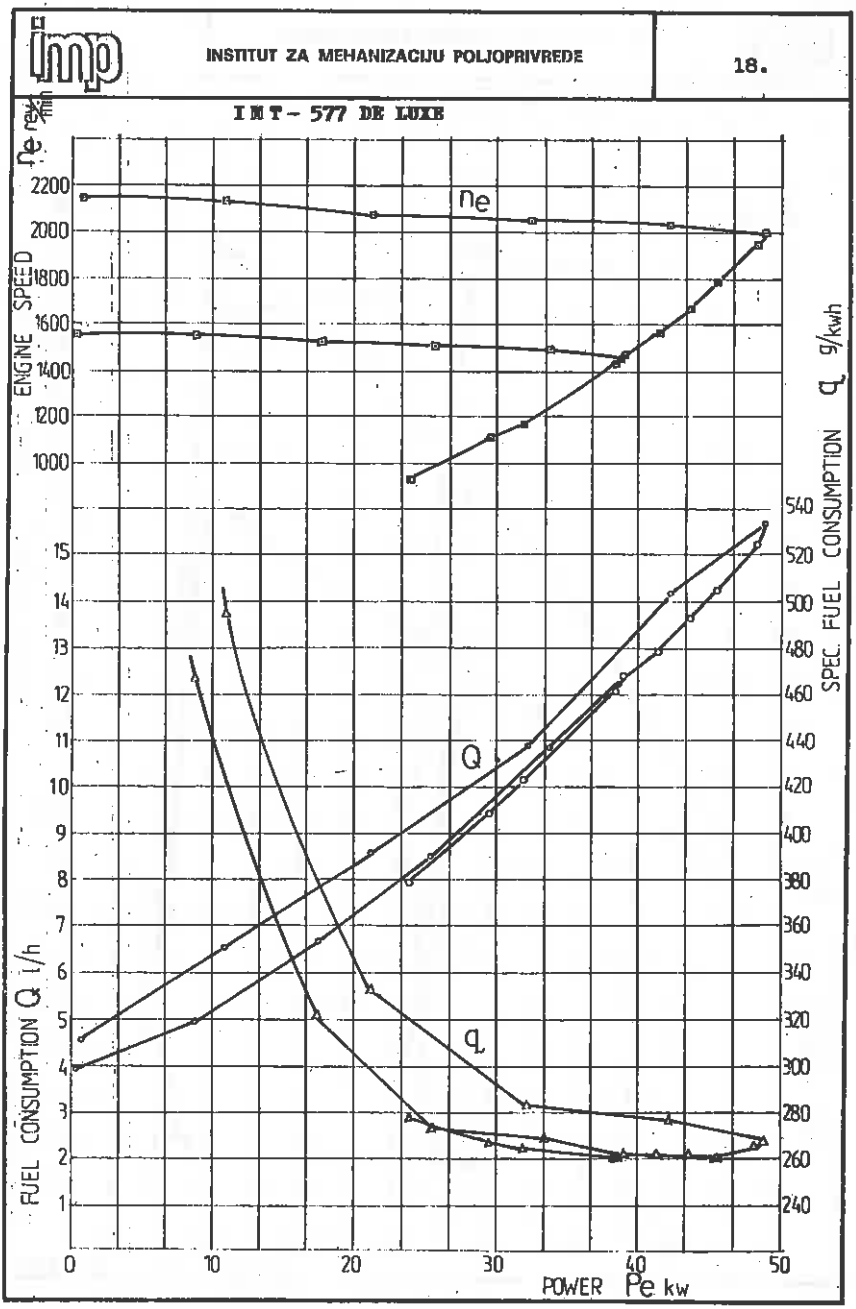
Equivalent crank-shaft torque
at maximum power: 233,6 Nm

Maximum equivalent
crankshaft torque: 259,1 Nm at 1175 rev/min engine speed

Mean atmospheric conditions:
- temperature: 21°C
- pressure: 1o19 mbar
- humidity: 57%

Maximum temperatures
- coolant: 87°C
- engine oil: 95°C
- fuel: 23°C
- air intake: 25°C


I H T – 577 DE LUXE
POWER Pe kw
Me
Pe
Q
q
FUEL CONSUMPTION Q l/h
EQUIV. CRANKSHAFT TORQUE Me daNm
SPEC. FUEL CONSUMPTION q g/kwh
ENGINE SPEED ne rev/min
50
40
30
20
10
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
28
26
24
22
20
18
16
14
12
10
8
6
560
520
480
440
400
360
320
280
240
1000
1200
1400
1600
1800
2000
2200


IMT - 577 DE LUXE
ne rev/min
ENGINE SPEED
ne
2200
2000
1800
1600
1400
1200
1000
FUEL CONSUMPTION Q l/h
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Q
q
SPEC. FUEL CONSUMPTION q g/kwh
540
520
500
480
460
440
420
400
380
360
340
320
300
280
260
240
0
10
20
30
40
50
POWER Pe kw

(2) DRAWBAR PERFORMANCE

Date of test: 6th and 21st October 1986

Type of track: Tarmacadam

Note: The drawbar test was started with run-in tyres

Gear	Driving speed	Power	Drawbar pull	Engine speed	Mean slip of wheels	Specific energy	Specific fuel consumpt.	Temperatures Fuel	Co-olant	Engine oil	Atmospheric condit. Tempe-rature	Relative humidity	Pres-sure
-	km/h	kW	daN	rev/min	%	kWh/l	kg/kWh	°C	°C	°C	°C	%	mber
1	2	3	4	5	6	7	8	9	1o	11	12	13	14
				(i) MAXIMUM POWER (unballasted)						tyre inflation pressure			
				height of drawbar above ground 67o mm						front 2,2 bar; rear 1,o bar			
1 L	1,91	16,45	31oo	2o85	15,o	1,77	o,468	16	8o	84	18	68	1oo8
2 L	2,79	24,o3	31oo	2o6o	15,o	2,o1	o,412	17	82	84	18	68	1oo8
3 L	4,19	35,85	3o8o	2ooo	14,9	2,27	o,366	18	83	85	19	65	1oo8
4 L	4,85	37,o5	275o	2ooo	12,8	2,34	o,354	2o	83	85	2o	65	1oo8
5 L	6,88	38,6o	2o2o	2ooo	7,o	2,45	o,339	2o	84	85	2o	65	1oo8
1 H	8,o6	4o,o8	179o	2ooo	5,2	2,54	o,326	21	84	86	21	61	1oo8
2 H	12,45	4o,11	116o	2ooo	2,8	2,55	o,325	21	84	86	21	61	1oo8
3 H	19,45	38,36	71o	2ooo	1,7	2,45	o,338	22	84	88	21	61	1oo8
4 H	21,7o	37,o7	615	2ooo	1,4	2,37	o,353	22	83	88	21	61	1oo8
5 H	29,2o	35,69	44o	2ooo	1,1	2,27	o,365	22	83	86	2o	61	1oo8

Gear	Driving speed	Power	Drawbar pull	Engine speed	Mean slip of wheels	Specific energy	Specific fuel consumpt.	Temperatures			Atmospheric condit.		
								Fuel	Co-olant	Engine oil	Tempe-rature	Relative humidity	Pres-sure
-	km/h	kW	daN	rev/min	%	kWh/l	kg/kWh	°C	°C	°C	°C	%	mbar
1	2	3	4	5	6	7	8	9	1o	11	12	13	14
			(ii) MAXIMUM POWER (ballasted)							tyre inflation pressure			
			height of drawbar above ground 67o mm							front 2,4 bar; rear 1,2 bar			
1 L	1,8o	2o,25	4o5o	2o65	15,o	2,o1	o,411	16	8o	84	17	69	1o11
2 L	2,7o	3o,38	4o5o	2o25	15,o	2,13	o,388	16	8o	85	17	69	1o11
3 L	4,47	37,99	3o6o	2ooo	9,3	2,39	o,347	17	82	86	17	69	1o11
4 L	5,o8	38,52	273o	2ooo	7,8	2,44	o,34o	17	84	87	17	69	1o11
5 L	7,o4	39,o1	1995	2ooo	4,7	2,47	o,335	17	84	88	18	63	1o11
1 H	8,25	4o,33	176o	2ooo	3,7	2,55	o,325	18	85	88	18	63	1o11
2 H	12,4o	38,75	1125	2ooo	2,3	2,45	o,338	18	85	88	18	63	1o11
3 H	19,3o	36,46	68o	2ooo	1,4	2,3o	o,36o	19	84	86	18	63	1o11
4 H	21,7o	35,56	59o	2ooo	1,2	2,24	o,37o	19	84	86	18	63	1o11
5 H	29,2o	33,66	415	2ooo	o,9	2,13	o,388	19	83	85	18	63	1o11

Gear	Driving speed	Power	Drawbar pull	Engine speed	Mean slip of wheels	Specific energy	Specific fuel consumpt.	Temperatures Fuel	Co-olant	Engine oil	Atmospheric condit. Tempe-rature	Relative humidity	Pres-sure
-	km/h	kW	daN	rev/min	%	kWh/l	kg/kWh	°C	°C	°C	°C	%	mbar
1	2	3	4	5	6	7	8	9	1o	11	12	13	14
			(iii) FIVE-HOUR-TEST at 75% of drawbar pull at maximum power in 5th L gear										
5 L	7,25	3o,21	15oo	2o4c	3,8	2,45	o,338	19	82	85	18	63	1oll
			(iv) FIVE-HOUR-TEST at pull corresponding 15% wheel sleep in test (ii)										
2 L	-	-	4o5o	2o2o	-	-	-	2o	86	9o	18	63	1oll

Total oil consumption during ten hours duration of tests (iii) and (iv) was 74 g/h

Test (iv) was carried out with additional ballast, the figures not quoted are therefore irrelevant

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment	front:	7,5o - 16	6 ply
	rear:	18,4 - 3o AS	8 ply
Track of wheels	front:	14oo mm	
	rear:	16oo mm	

+Front wheel drive disengaged

	Without brakes		With brakes	
	left-hand	right-hand	left-hand	right-hand
	m	m	m	m
Radius of turning space	4,75	4,74	4,19	4,17
Radius of turning circle	4,51	4,48	3,91	3,9o

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground:	876 mm
Distance forward from rear axle centre:	744 mm
Distance from tractor`s median plane:	2 mm to the right

(5) BRAKING PERFORMANCE

Date of test: 8th and 16th October 1986

Type of track: Tarmacadam

Mass of tractor with driver (kg):

	front	rear	total
ballasted	149o	32o5	4695
unballasted	121o	23o5	359o

Type O (ordinary cold service braking device performance) test

Speed before application of brakes 3o,5 km/h

Ballasted	Braking device control force	daN	2o	25	3o	35	4o
	Mean deceleration	m/s^2	2,oo	2,4o	2,85	3,2o	3,3o
Unballasted	Braking device control force	daN	2o	25	3o	35	4o
	Mean deceleration	m/s^2	2,15	2,6o	3,1o	3,4o	3,5o

Type I (fade) test

Speed before application of brakes 3o,5 km/h

Ballasted	Braking device dontrol force	daN	25	3o	35	4o	45
	Mean deceleration	m/s^2	2,15	2,6o	3,oo	3,1o	3,2o
Unballasted	Braking device control force	daN	25	3o	35	4o	45
	Mean deceleration	m/s^2	2,3o	2,9o	3,1o	3,3o	3,4o

Maximum deviation of tractor
from its original course no deviation was observed

No abnormal vibrations occured

The brakes were heated by towing the tractor with the braking force about 1o% of the mass at the speed 24,5 km/h (8o% of the maximum speed)

Parking braking device test

	Tractor with ballast 18 per cent slope		Tractor without ballast 12 per cent slope with trailer of 359o kg	
	Up	Down	Up	Down
Braking device control force, daN	26	26	25	25

(6) AMBIENT NCISE EMITTED BY THE TRACTOR

Date of test: 17th October 1986
Type of track: Tarmacadam
Type of sound level meter: BRUEL &. KJAER mod.22o9

Results of test

Gear: 5th high
Travelling speed before acceleration: 22,5 km/h
Sound level: 89,2 dB(A)

(7) NOISE AT DRIVER`S LEVEL

Date of test: 17th October 1986.
Type of track: Tarmacadam
Type of sound level meter: BRUEL &. KJAER mod.22o9

Results of test

1) Tractor with cab and with vertical exhaust pipe

Gear	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed nominal km/h	Travelling speed efective km/h	Sound level d (A)
1 L	28oo	2,11	1,8	82,2
2 L	28oo	3,17	2,8	82,6
3 L	28oo	4,9o	4,5	82,7
4 L	255o	5,48	4,9	82,6
5 L+)	2ooo	7,36	6,8	82,9
5 L+)	Light load	7,36	7,4	81,4
1 H	179o	8,47	8,3	83,4
2 H	116o	12,69	12,6	83,7
3 H	71o	19,61	19,6	83,9
4 H	61o	21,94	21,8	83,8
5 H	Light load	29,42	29,5	82,o

+) The 5th low gear corresponds to the travelling speed nearest to 7,5 km/h

(8) POWER LIFT AND HYDRAULIC POWER TEST

Date and location of test: 14th October 1986, IPM - Zemun

Hydraulic fluid:

Make and type: Galax Traktol HT

Viscosity: 8,7 mm/s (cSt) at 98,9°C

Viscosity index:

Hydraulic fluid temperature at the beginning of test: 63°C

Type of linkage lock for transport: hydraulic

Opening pressure of the cylinder overpressure safety valve (manufacturer's specification): No overpressure valve exist

Power lift:

Main linkage dimenions see on pages 7 and 8

	Height of lower hitch point above ground in down position mm	Vertical movement mm	Maximum force exerted through full range daN	Corresponding pressure of hydraulic fluid MPa	Moment around rear axle daNm	Max.tilt angle of mast over range of lift degr.
At hitch points	26o	72o	222o	15,8	-	-
On the frame	26o	885	183o	15,8	294o	-5° 25' +1o° 2o'

Note: The front wheels are raising when on the lower links hitch points is applied the lifting force of 27lo daN (tractor without front ballast)

Performance of power lift

Lifting heights in relation to a horizontal line through the lower link pivot points

mm	-335	-275	-200	-100	0	+100	+200	+300	+400	+445	+500	+550
	At hitch points											
daN	-	2220	2300	2400	2500	2600	2650	2730	2800	2840	-	-
	At test frame (610 mm behind lower link hitch points)											
daN	1830	-	1940	1990	2040	2060	2080	2080	2090	-	2110	2120

1° The forces are measured at sustained pressure with the relief valve open (18,3 MPa) and calculated on the pressure 15,8 MPa which corresponds 90% of relief valve setting (17,5 MPa).

Hydraulic power test:

Systained pressure with relief valve open:	18,3 MPa (183 bar)	
Opening pressure of relief valve:	17,5 MPa (175 bar)	
Pump delivery rate on minimum pressure:	18,9 l/min at 2000 rev/min engine speed	
Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power:	Flow rate: Pressure: Power:	18,2 l/min 15,8 MPa (158 bar) 4,79 kW
Flow rate and hydraulic pressure corresponding to maximum hydraulic power:	Flow rate: Pressure: Power:	14,6 l/min 16,3 MPa (163 bar) 3,97 kW
Tapping point used for test:	At rear of tractor	
Temperature of hydraulic fluid:	63 - 68°C	

REMARKS and REPAIRS: No