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 DV

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

Date of test: March – August 1983

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 (C.E.M.A.G.R.E.F., France) as being in accordance with the O.E.C.D. STANDARD – CODE.

Date of Approval: January 5th, 1984

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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 8o hours

SPECIFICATION OF TRACTOR +

Note:
This tractor was allready tested as 2 WD model (O.E.C.D. Test Report N° 835, approved on June 3oth, 1982).
According to O.E.C.D. Standard Code, in this test report data concerning Main power take-off performance and Power lift and hydraulic pump performances are identical to data given in N° 835 Test Report. (The p.t.o. performance check gave in comparison with previous data the differences in power, torque and fuel consumption between ±o,5 %).

TRACTOR

Make:	IMT
Model:	IMT - 577 DV
Type:	Standard-unit construction, four wheels, all wheels driven
Serial N°:	lo loo 8873

ENGINE

Make:	IMT - Industrija Motora Rakovica
Model:	S 44 A/T
Type:	Four stroke, water cooled diesel, direct injection
Serial N°:	Y 664 N 23o2o

Cylinders: 4, vertical, in-line, bore 1oo,96 mm, stroke 127 mm, displacement 4o68 cm^3, compression ratio 16:1, overhead valves, replaceable dry cylinder 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 Y3241lo2 injection pump, Serial N° SY • 169, manufacturer's production setting 64 mm^3 at 2ooo engine rev/min and full load; injection timing 22° before T.D.C.;
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, insorporated 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

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 membrane type thermostat
Starting system:	Electrical ISKRA-solenoid-engaged starter motor AZJ o4o5 12 V 3 kW Clo; heating plug in intake menifold as aid for cold starting
Exhaust:	Vertical, above bannet, on the right hand side of engine, mouth 245o mm above ground; outlet dia 45 mm; silencer dimensions: dia loo mm; length 595 mm
Electrical system:	12 Volt, negative earth; ISKRA alternator AAG o6o3 14V 28A; one 12V lead acid battery with 135 Ah capacity at 2o-hour rating.

TRANSMISSION

Clutch:	KRON - Novi Beograd dry dual fiction disc type double acting clutch, tractor drive disc dia 3o1 mm, p.t.o. shaft drive disc dia 25o mm, mechanically pedal operated
Gearbox:	Own make; mechanical, 5 forward and 1 rewerse gear, 1st, 2nd and 3rd gear with sliding gears, 4th and 5th gear synchronized; low and high speed selector of epicyclic (planetary) type; N° of speeds (totally): lo 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; Crown wheel and pinion with final reduction gear of epicyclic type; Bewel gear type differential; Note: 1° Front wheel drive is propelled through a free wheel device, which activates this drive at a determinated slip rate of rear wheels. For new tyres and drive in line this slip rate is about 7 %. 2° Front wheel drive is disconnected when reverse gears are engaged.
Oil capacities:	Gearbox and rear axle (with hydraulic power lift) 35,5 l Front axle (in differential gearbox) 5,5 l Final drives (front and rear) 4 x 1,o l
Recommended oil qualities:	Gearbox - Hydraulic transmission oil John Deere J14B, MF M-1135, IHC HT-TRAN B-6 or acc. to MIL-L-21o4 C final drives and front axle - hypoid oil SAE 9o acc. to MIL-L-21o5 B
Oil changing period:	8oo hours for all gears

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 distance of the p.t.o. shaft end from the rear axle axis: - below 127 mm - behind 45o mm dimensions 29x34,9x8,7 mm, 6 splines, acc. to JUS M.L1.6o1 and ISO 5oo type 1; speed at rated engine speed (2ooo rev/min 745 rev/min;

standard p.t.o. speed 54o rev/min at 145o rev/min engine speed.

Total ratios and speeds

Gear	Total ratio engine: rear driving wheel	Nominal travelling speed at rated engine speed km/h	Nominal travelling speed 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 driving wheel rolling radius 72o mm, given in the tyre manufacturer`s specification and with the engaged rear wheel drive

Power take off - continuation

Optionally:

In the p.t.o. housing two pairs of reduction gears with 1:1,2857 ratio giving 579 rev/min p.t.o. speed at rated engine speed (54o rev/min of p.t.o. at 1864 rev/min engine speed), or two pairs of reduction gear with 1:o,6842 ratio giving 1o89 rev/min p.t.o. speed at rated engine speed (1ooo rev/min of p.t.o. at 1836 rev/min engine speed) - with shaft end with 21 splines acc.to JUS M.L.1.6o1 and ISO 5oo type 1;

Direction of rotation clockwise, viewed from tractor rear;

Ground speed p.t.o.

Main p.t.o. may be shifted to ground speed p.t.o.;
travelling distance per one revolution of the p.t.o. o,15 m;
3o,15 revolution of p.t.o. per one revolution of driving wheel;

Optionally:

For 54o rev/min p.t.o.:
travelling distance per one revolution of the p.t.o. o,193 m
23,45 revolution of p.t.o. per one revolution of driving wheel;

For looo rev/min p.t.o.:
travelling distance per one revolution of the p.t.o. o,1o3 m
44,o5 revolution of p.t.o. per one revolution of driving wheel.

Direction of rotation clockwise, facing driving end of p.t.o. and with tractor in forward gear.

Power lift

Hydraulic system

Four cylinder piston pump of boxer type with 29,4 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, floating position;
opening pressure of relief valve 17o bar, sustained pressure by the opened relief valve 18o - 185 bar;
two single acting rams, main (located in tractor housing) with 83 mm bore and 121 mm stroke, supplementary (external) with 63 mm bore and 133 mm stroke;

2 external oil tappings, single or double acting at rear of tractor available optionally (fited on the tested tractor);
hydraulic oil tank in common with gearbox, oil capacity 35,5 l, max 5 l may be taken off through oil tappings when tractor is mooving, lo l when tractor is stationary;
strainer in hydraulic pump suction line, every 8oo hours maintained by waching;

Implement linkage: Three point linkage category II; (ISO 73o/1)
lift rods with fixed length;
lifting range above ground
from 29o to 97o mm
(rear wheels static radius 72o mm)

Pull attachment

Swinging drawbar: Height above ground 427 and 517 mm, adjustable by turning drawbar;
diameter of clevis hole 31 mm
horizontal distance of clevis hole centre to:
rear axle axis 616 and 8oo mm
p.t.o. shaft end 166 and 35o mm
swingable about 16o mm to either side with fixing points in the median position and 75 and 14o mm to both sides;
pivot point 81 mm in front of rear axle

Holed bar: Fitted on the clevis of the lower links;
length between the ball joints 66o mm;
thickness of the bar 25,4 mm;
one hole in the median position and 4 holes on either side in 54 mm steps;
all holes 2o mm diameter;
height above ground adjustable by power lift within the range from 27o to 95o mm continuoslly, mechanically lockable in all positions by means of two supporting bars with adjustable length;
distance of centre hole with lower links in horizontal position:

from rear axle:
horizontal 87o mm
vertical - 18o mm

from p.t.o. shaft end
horizontal 42o mm
vertical - 53 mm

Trailer Hitch: Automatically acting by means of power lift;
height above ground 342 mm in working position;
distance of hitch centre:

from rear axle:
horizontal 389,5 mm
vertical - 398 mm

from p.t.o. shaft end
horizontal 6o,5 mm
vertical - 271 mm

Maximum admissible vertical load 15oo daN
diameter of the coupling pin 3o mm;

Towing hitch: Fixted;
height above ground 797 mm;
distance of the hitch centre:

from the rear axle
horizontal 6o8 mm
vertical - 77 mm

from the p.t.o. shaft
horizontal 358 mm
vertical - 2o4 mm

diameter of the coupling pin 3o mm

Note:

1° All pull attachment heights are given for the static radius of rear wheels 72o mm;

2° Swinging drawbar only is compulsory equipment, holed bar, trailer hitch and towing hitch are available optionally.

Steering: Own make;
worm with travelling balls;
manual control with arm and connecting rod;
aditional hydraulic servo system with separate engine driven gear pump with 22,5 l/min capacity at rated engine speed (2ooo rev/min) and double acting ram with 45 mm bore and 24o mm stroke;
working pressure loo-115 bar;

Brakes:

Service brake: FAK - Loznica;
hydraulically acting disc type brake, located in the rear axle housing before final drive;
operated with 2 pedals coupled by a latch;

Steering brake: Divided pedals of service brake, for normal was locked together;

Parking brake: Own make;
band brake acting to the shaft before rear axle diferential;
manually operated by a hand lever;

Trailer brake: 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 by 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 within 4,8-5,3 bar;
compressed air tank with 2o l capacity;
standardized coupling head

Wheels

Front wheels: (Steering and driving)	2 pneumatics 9,5-24 AS, 6 ply, diagonal type tyre casing; maximum permissible load per tyre 94o kg at 2,1 bar inflation pressure and 3o km/h; track width 1535 mm; rims 8 x 24
Rear 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 continuosly, rims W14L x 3o
Wheel base:	222o mm
Seat:	Own make; upholstered seat with back rest; adjustable spring (6o to 12o kg) with shock absorber; height of driver's platform above ground 78o mm, height of ballasted seat cca 123o mm; for and aft adjustable about 125 mm
Number of grease points:	with grease 19 with oil 12

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	ø 11o	111o	535
Side lights			
front	ø 75	151o	155
rear	4o x 55	154o	22o
Rear lights			
position	6o x 55	154o	275
stop	4o x 55	154o	325
Reflectors			
front 2)	ø 85	151o	285
rear 3)	ø 135	171o	44o

1) with rear wheel's track width 14oo mm (measured from fender's outside edge)

2) a pair of reflectors on the fender's front panel

3) only one reflector on the rear edge of right hand fender

4) unrestricted beam angle of head lights in plan view 32°

CONDITIONS DURING TEST

Mass Ready for use as tested

		without driver	with driver
Without ballast:	front	1175 kg	1185 kg
	rear	2135 kg	2200 kg
	total	3310 kg	3385 kg
With ballast:	front	1610 kg	1620 kg
	rear	2990 kg	3055 kg
	total	4600 kg	4675 kg
Ballast:	front	8 weights 30 kg each and weights carrier 20 kg	260 kg
		water in tyres	165 kg
	rear	4 weights 50 kg each	200 kg
		water in tyres	665 kg

Track setting

Front axle	1535 mm
Rear axle	1620 mm

Dimensions

Total length: 3670 mm without ballast
3965 mm with ballast

Total width: maximum 2220 mm with rear wheel's track setting 1750 mm with and without ballast

Total height: 1810 mm to the top of steering wheel
2450 mm to the top of exhoust pipe

Ground clearance: 317 mm below the front axle drive housing

FUELS AND LUBRICANTS USED IN TESTS

Fuel:		
- power take off test	INA Diesel fuel D_2	
	Specific density at 15°C	0,826 kg/l
	Cetane number	56
	Viscosity	4,7 cSt at 15°C
- tests on the track	INA Diesel fuel D_2	
	Specific density at 15°C	0,829 kg/l
	Cetane number	54
	Viscosity	4,9 cSt at 15°C
Engine oil:	Galax Super (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 drive oil:	HYPOL 9o (17 cSt at 98,9°C)	

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 19. Oktober 1981
Institut for Agricultural Mechanization - Zemun

Type of dynamometer: Hydraulic brake SCHENCK U1-3o

Power	Speed engine	Speed p.t.o.	Fuel consumption hourly	Fuel consumption hourly	Fuel consumption specific	Specific energy
kW	rev/min	rev/min	l/h	kg/h	kg/kWh	kWh/l
	MAXIMUM POWER					
	At 2-hour test					
48,9o	2ooo	745	15,65	12,89	o,264	3,125
	At standard p.t.o. speed (54o rev/min)					
38,86	1449	54o	11,95	9,83	o,253	3,252
	At speed recommended by the manufacturer for drawbar work					
48,9o	2ooo	745	15,65	12,89	o,264	3,125
	PART LOADS					
	Governor hand lever in position giving maximum power					
(i) 85 % of the torque at maximum power						
42,36	2o54	765	14,16	11,67	o,272	3,o27
(ii) unloaded						
o,59	2137	796	4,94	4,o7	-	-
(iii) 5o % of the load defined in (i)						
21,68	2o75	773	9,34	7,69	o,353	2,321
(iv) maximum power						
48,9o	2ooo	745	15,65	12,89	o,264	3,125
(v) 25 % of the load defined in (i)						
1o,9o	2o99	782	6,93	5,71	o,524	1,573
(vi) 75 % of the load defined in (i)						
32,38	2o7o	771	11,6o	9,56	o,295	2,791

Power	Speed engine	Speed p.t.o.	Fuel consumption hourly	Fuel consumption hourly	Fuel consumption specific	Specific energy
kW	rev/min	rev/min	l/h	kg/h	kg/kWh	kWh/l
Governor setting giving standard p.t.o. speed at full load						
(i) 85 % of the torque at full load						
33,84	1485	553	1o,1o	8,31	o,246	3,35o
(ii) unloaded						
o,27	1613	6o1	2,74	2,25	-	-
(iii) 5o % of the load defined in (i)						
17,58	1541	574	6,33	5,21	o,296	2,777
(iv) full load						
38,86	1449	54o	11,95	9,83	o,253	3,252
(v) 25 % of the load defined in (i)						
9,o6	16oo	596	4,41	3,63	o,4o1	2,o54
(vi) 75 % of the load defined in (i)						
25,81	1511	563	8,18	6,73	o,261	3,155

STANDARD SPECIFIC FUEL CONSUMPTION: o,272; o,353
o,246; o,296 kg/kWh

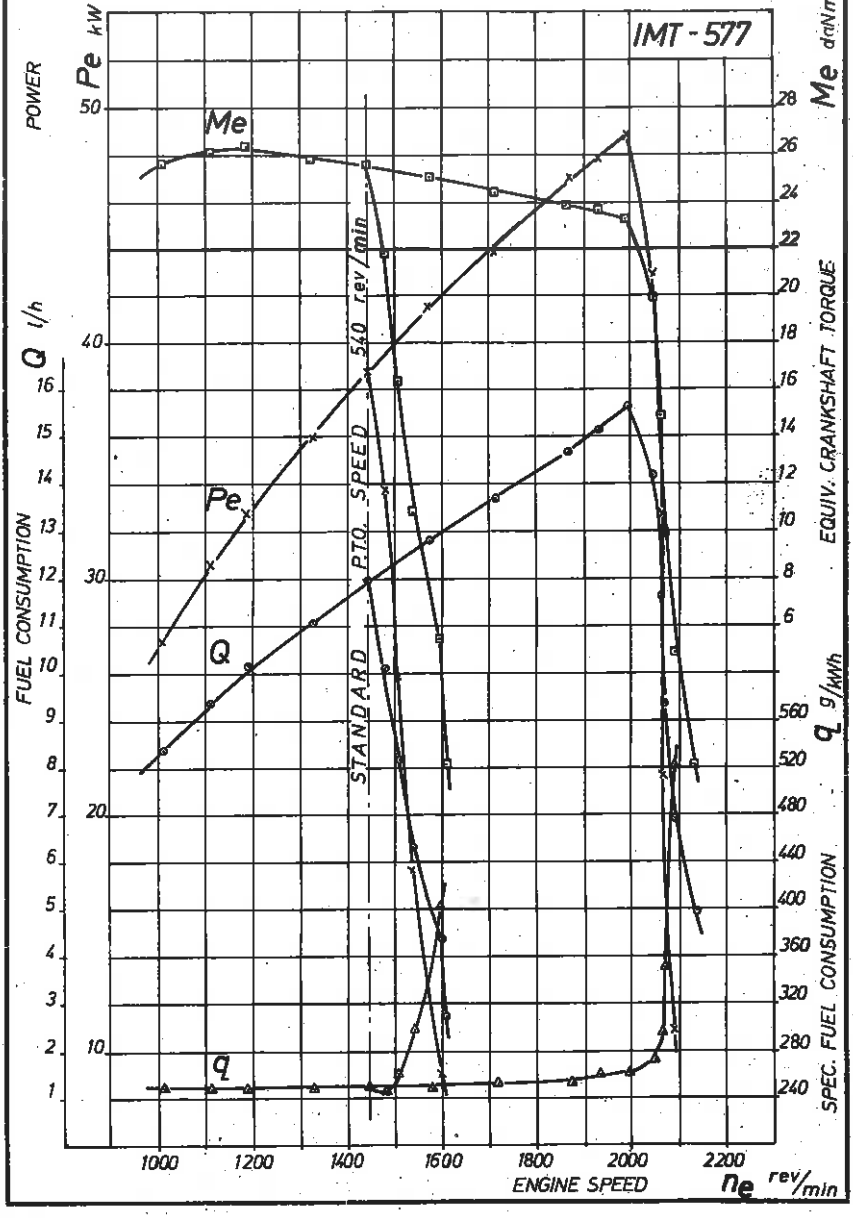
No load, maximum engine speed: 2152 rev/min

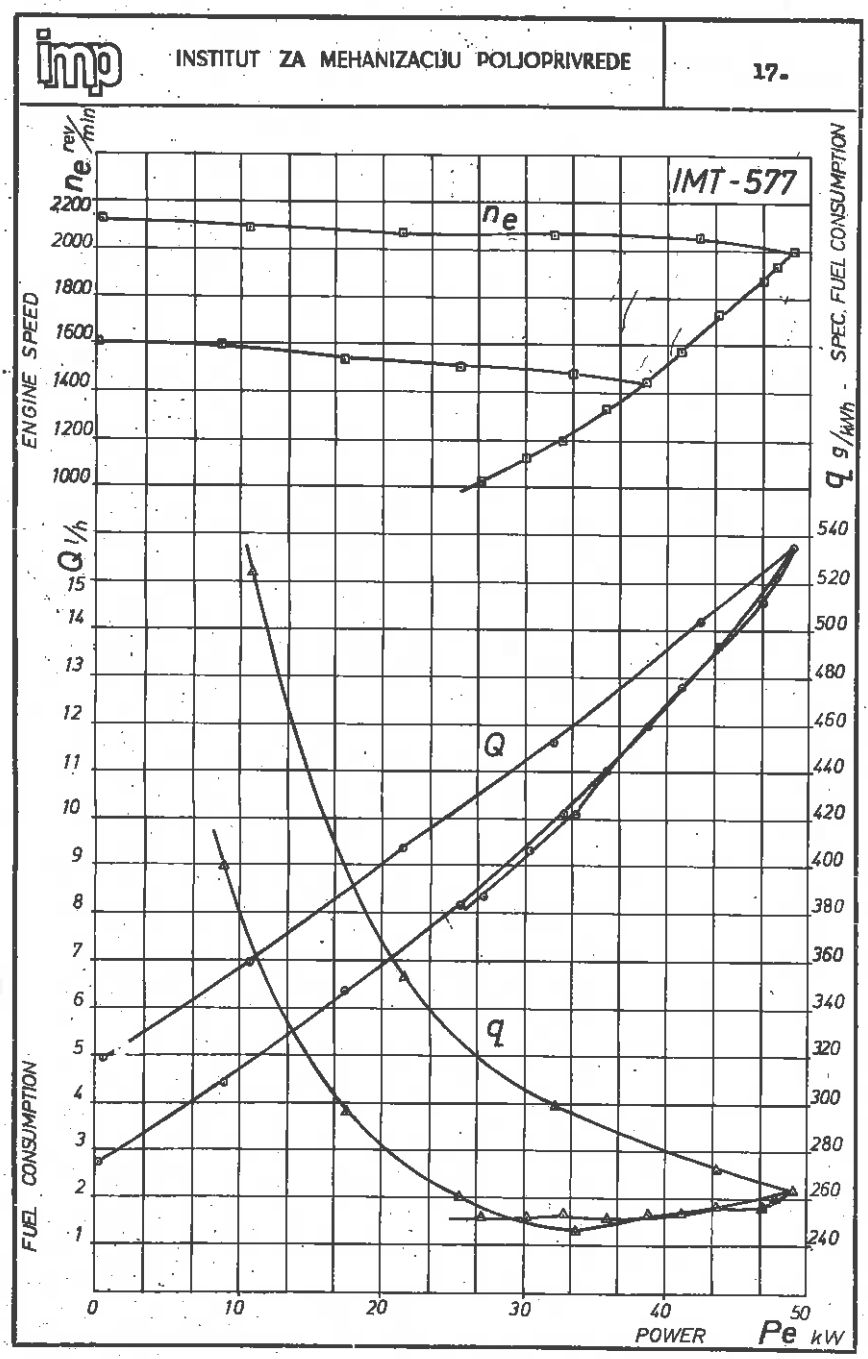
Equivalent crankshaft torque
at maximum power: 23,35 daNm

Maximum equivalent
crankshaft torque: 26,29 daNm
at 1194 rev/min engine speed

Mean atmospheric conditions
- temperature: 19°C
- pressure: loo7 mbar
- humidity: 57 %

Maximum temperatures
- coolant: 84°C
- engine oil: 92°C
- fuel: 23°C
- air intake: 24°C


IMT - 577
POWER
Pe kW
Me daNm
Me
Pe
Q
q
Q l/h
FUEL CONSUMPTION
STANDARD P.T.O. SPEED 540 rev/min
EQUIV. CRANKSHAFT TORQUE
q g/kWh
SPEC. FUEL CONSUMPTION
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
ne rev/min
ENGINE SPEED
2200
2000
1800
1600
1400
1200
1000
ne
Q l/h
FUEL CONSUMPTION
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Q
q
q g/kWh - SPEC. FUEL CONSUMPTION
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: 12th July and 8th to 10th August

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	%	mbar
1	2	3	4	5	6	7	8	9	10	11	12	13	14
(i) MAXIMUM POWER (unballasted) height of drawbar above ground 620 mm tyre inflation pressure front 1,6 bar; rear 0,9 bar													
1 L	1,79	16,16	3250	2073	15,0	1,726	0,478	23	84	83	25	67	1004
2 L	2,70	24,38	3250	2065	15,0	2,149	0,384	25	84	83	25	67	1004
3 L	4,45	38,01	3075	2000	8,8	2,421	0,342	26	86	84	25	67	1004
4 L	5,04	38,50	2750	2000	6,7	2,452	0,336	26	88	84	26	63	1004
5 L	6,90	38,90	2030	2000	3,6	2,478	0,332	26	88	86	26	63	1004
1 H	8,06	39,85	1780	2000	5,3*	2,538	0,325	27	88	88	26	63	1004
2 H	12,50	40,10	1155	2000	2,8*	2,554	0,322	28	89	89	26	63	1004
3 H	19,50	38,46	710	2000	1,7*	2,450	0,336	28	89	88	27	61	1004
4 H	21,75	36,85	610	2000	1,5*	2,348	0,350	28	89	88	27	61	1004
5 H	29,35	35,87	440	2000	1,1*	2,285	0,360	29	88	87	27	61	1004

*Only rear wheel's drive (the front wheel drive was still not automatically engaged)

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. Temperature	Relative humidity	Pressure
-	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) height of drawbar above ground 57o mm							tyre inflation pressure front 2,o bar; rear 1,2 bar			
1 L	1,83	22,62	445o	2o53	15,o	2,o48	o,4o3	21	82	85	22	56	1oll
2 L	2,73	33,75	445o	2o36	15,o	2,3o2	o,358	21	84	86	22	56	1oll
3 L	4,49	38,35	3o75	2ooo	6,8	2,446	o,337	21	86	88	23	56	1oll
4 L	5,14	38,98	273o	2ooo	4,7	2,492	o,33o	22	86	87	23	56	1oll
5 L	7,1o	39,84	2o2o	2ooo	5,o+	2,544	o,324	23	88	87	24	54	1oll
1 H	8,25	4o,45	1765	2ooo	3,8+	2,585	o,318	24	88	86	25	54	1oll
2 H	12,55	39,74	114o	2ooo	2,4+	2,538	o,324	24	88	85	25	52	1oll
3 H	19,7o	37,48	685	2ooo	1,4+	2,392	o,345	24	89	85	25	52	1oll
4 H	22,oo	36,o6	59o	2ooo	1,2+	2,3o3	o,359	25	87	84	25	5o	1oll
5 H	29,5o	34,42	42o	2ooo	1,o+	2,199	o,374	25	86	84	26	48	1oll

+Only rear wheel's drive (the front wheel drive was still not automatically engaged)

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
			(iii) FIVE-HOUR-TEST at 75 % of drawbar pull at maximum power in 5th L gear										
5 L	7,38	3o,96	151o	2o62	3,6	2,453	o,336	24	83	88	23	56	1oo7
			(iv) FIVE-HOUR-TEST at pull corresponding 15 % wheel sleep in test (ii)										
2 L	-	-	444o	2o3o	-	-	-	25	84	89	24	59	1oo4

Total oil consumption during ten hours duration of tests (iii) and (iv) was 49 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: 9,5 - 24 6 ply
rear: 18,4 - 3o 8 ply

Track of wheels front: 1535 mm
rear: 162o mm

	Without brakes		With brakes	
	left-hand	right-hand	left-hand	right-hand
	m	m	m	m
Radius of turning space	5,98	6,21	4,64	4,96
Radius of turning circle	5,73	6,ol	4,48	4,81

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	798 mm
Distance forward from rear axle axis	777 mm
Distance from tractor's median plane	6 mm to the right

(5) BRAKING PERFORMANCE

Date of test: 15th July 1983 and 12th August 1983

Type of track: Tarmacadam

Mass of tractor with driver (kg)

	front	rear	total
ballasted	162o	3o55	4675
unballasted	1185	22oo	3385

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	1,9o	2,2o	2,75	3,o5	3,1o
Unballasted	Braking device control force	daN	2o	25	3o	35	4o
	Mean deceleration	m/s^2	2,oo	2,45	2,9o	3,2o	3,25

Type I (fade) test

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

Ballasted	Braking device control force	daN	25	3o	35	4o	45
	Mean deceleration	m/s^2	2,1o	2,6o	2,9o	3,oo	3,1o
Unballasted	Braking device control force	daN	25	3o	35	4o	45
	Mean deceleration	m/s^2	2,oo	2,4o	2,95	3,2o	3,25

Maximum deviation of tractor from its original course less than o,5 m to the left

No abnormal vibrations occured

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

Parking braking device test

	18 per cent slope		12 per cent slope with trailer of three tonnes	
	Up	Down	Up	Down
Braking device control force, dan	36	36	39	38

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 14th July 1983
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: 89,6 dB(A)

(7) NOISE AT DRIVER'S EAR LEVEL

Date of test: 14th July 1983
Type of track: Tarmacadam
Type of sound level meter: BRUEL &. KJAER mod.22o9

Results of test

+) Tractor without cab or frame and with vertical exhaust pipe

Gear	Drawbar pull at which the tractor develops the maximum sound level	Travelling speed nominal	Travelling speed efective	Sound level
-	daN	km/h	km/h	dB(A)
1 L	32oo	2,11	1,8	97,9
2 L	32oo	3,17	2,8	98,3
3 L	29oo	4,9o	4,5	97,6
4 L	26oo	5,48	5,1	98,o
5 L+)	2o2o	7,36	6,9	98,5
5 L+)	light load	7,36	7,3	97,1
1 H	175o	8,47	8,1	98,9
2 H	115o	12,69	12,5	1oo,5
3 H	7oo	19,61	19,6	1oo,o
4 H	6oo	21,94	21,8	99,9
5 H	4oo	29,42	29,4	99,6

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

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: 3rd and 4th February 1982
Institut for Agricultural mechanization - Zemun

Hydraulic fluid

Make and type:	Galax Traktol HT
Viscosity:	8,7 cSt at 98,9°C
Viscosity index:	over 85

Note: Power lift operates with the oil from the gearbox

Type of linkage lock for transport: hydraulic

Power lift

	Height of lower hitch point above ground in down position mm 1)	Vertical movement mm	Maximum force exerted through full range daN	Corresponding pressure of hydraulic fluid MPa (bar)	Moment about rear axle daNm	Max.tilt angle of mast over range of lift deg.
At hitch points	290	680	1870	15,3 (153)	1740	-
On the frame	250	850	1220	15,3 (153)	1880	-1° 55' +10° 50'

1) With the rear wheel static radius 720 mm

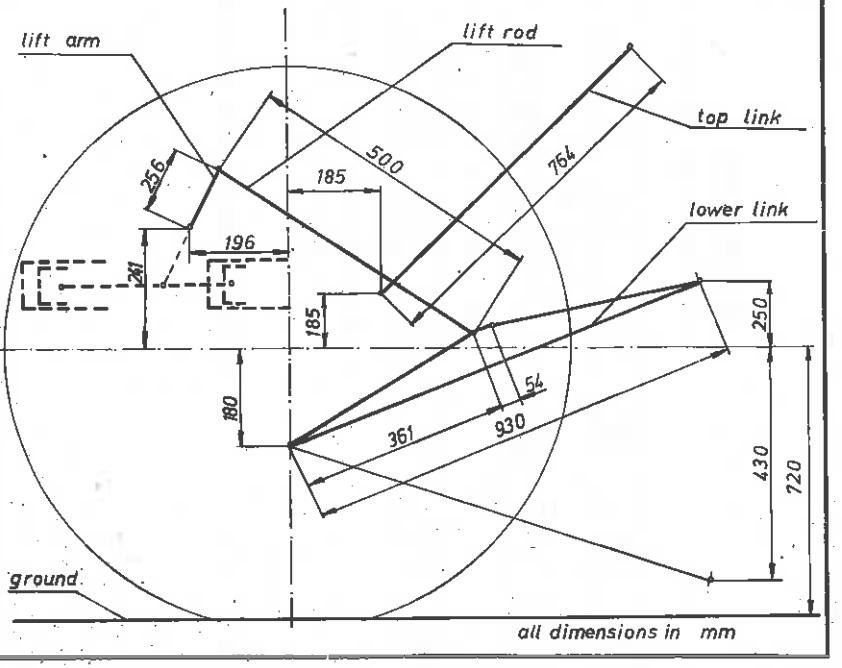
2) Calculated with the maximum force exerted through the full range of lower links movement and with maximum oil pressure (18,4 MPa)

Temperature of hydraulic fluid at start of test 62°C

Hydraulic pump performance

Opening pressure of the relief valve:	17,o MPa (17o bar)
Sustained pressure with relief valve open: (pump was not stalled)	18,4 MPa (184 bar)
Pump delivery rate at minimum préssure, the governor control lever being set for maximum power:	22,3 l/min
Pump delivery rate at 9o % of relief valve setting, the governor control lever being set for maximum power:	2o,6 l/min
Hydraulic power at 9o % of relief valve setting:	5,26 kW

Dimensions of linkage geometry
for the table on page 25



LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-29o	-25o	-2oo	-1oo	0	+1oo	+2oo	+3oo	+4oo	+43o	+5oo	+55o
				At hitch points								
daN	-	187o	186o	185o	186o	188o	19oo	1925	194o	195o	-	-
				At test frame (61o mm behind lower link hitch points								
daN	142o	-	14oo	139o	138o	137o	135o	133o	128o	-	125o	122o

1° The forces are measured at sustained pressure with relief valve open (18,4 MPa) and calculated on the pressure 15,3 MPa which corresponds 9o % of relief valve setting

2° The hydraulic fluid temperature during the test was 62°C - 67°C

Linkage geometry when connected to the standard frame

Projected length in side view

lower links	930 mm
lift arms	256 mm
lift rods	500 mm
top link	764 mm
Distance of lift rod connection point from pivot point of lower link	361 mm

The following dimensions are given relative to the rear wheel centre line, situated 720 mm above the ground level:

Lower link pivot point	0 mm	180 mm below
Top link pivot point	185 mm behind,	185 mm below
Lift arm pivot point	196 mm forward,	241 mm above
Maximum and minimum height of lower link hitch points	250 mm above,	430 mm below
Height of lower link hitch points when locked in transport position	250 mm above	

Štampa: Biro za grafičku delatnost Instituta za vodoprivredu „Jaroslav Černi",
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