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

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

Date of test: September 1981 – March 1982

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: June 30th, 1982

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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 6o hours

SPECIFICATION OF TRACTOR

TRACTOR

Make: IMT

Model: IMT - 577

Type: Standard-unit construction, four wheels, rear wheels driven

Serial N°: 1o 1oo 8873

ENGINE

Make: IMR - 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 12V 3 kW C1o; 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 1oo 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 friction 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; No of speeds (totally): 1o 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
Oil capacities:	Gearbox (with hydraulic power lift) and rear axle 35,5 l final drives 2 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 drive - 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: 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

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 (54orev/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;

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 continuosly 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: Fixed;
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 differential;
manually operated by a hand lever;

Trailer brake: Optional equipment, fitted on the tested tractor;
make PPT;
single lims 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

Steering wheels: 2 pneumatics in front 7,5o-16 6 ply diagonal tyre casing;
maximum permissible load per tyre 71o kg at 2,5 bar inflation pressure and 3o km/h;
track width adjustable from 13oo to 18oo mm in 1oo 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 continuosly
W14L x 3o

Optionally:
2 pneumatics at rear 13,6-36, 8 ply diagonal tyre type casing;
maximum permissible load per tyre 133o kg at 1,1 bar inflation pressure and 3o km/h;
steel wheel discs, track width adjustable from 14oo to 21oo mm in 1oo mm steps;
rims W 1o L x 36

Wheel base: 2215 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 15
with oil 1o

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^{o}

CONDITIONS DURING TEST

Mass Ready for use as tested

		without driver	with driver
Without ballast:	front	975 kg	985 kg
	rear	1965 kg	2o3o kg
	total	294o kg	3o15 kg
With ballast:	front	1245 kg	1255 kg
	rear	28oo kg	2865 kg
	total	4o45 kg	412o kg
Ballast:	front	8 weights 3o kg each and weights carrier 2o kg	26o kg
	rear	4 weights 5o kg each	2oo kg
		water in the tyres	645 kg

Track setting

Front axle	14oo mm
Rear axle	161o mm

Dimensions

Total length: 367o mm without ballast
3965 mm with ballast

Total width: maximum 222o mm with rear wheel's track setting 175o mm with and without ballast

Total height: 181e mm to the top of steering wheel
245o mm to the top of exhoust pipe

Ground clearance: 48o mm in tractor's median plane, below gearbox housing

FUELS AND LUBRICANTS USED IN TESTS

Fuel:	INA Diesel-fuel D_2 in all tests	
	Specific gravity at 15°C	0,826 kg/l
	Cetane number	56
	Viscosity	4,7 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 98,9 °C)
Final drive oil:	HIPOL 9o (17 cSt 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 Ul-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						
42,86	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

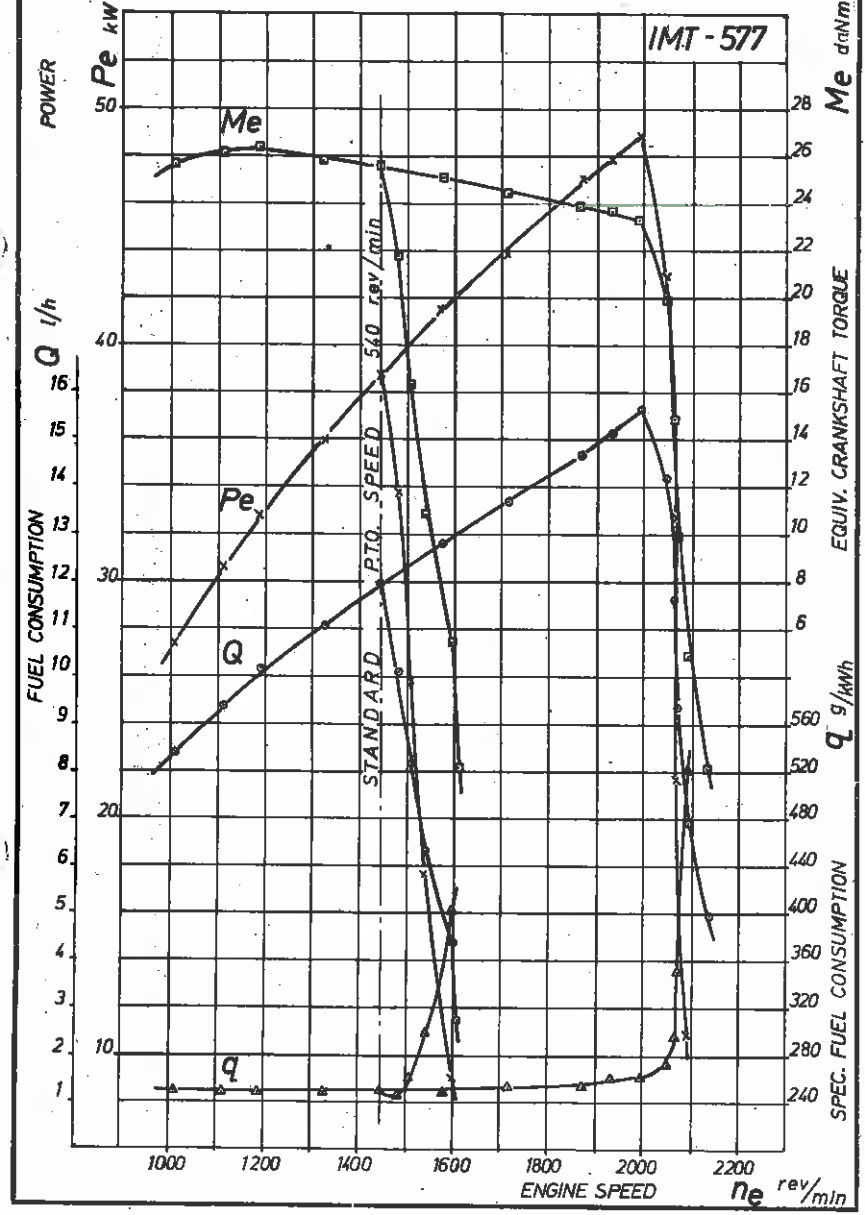
No load, maximum engine speed: 2152 rev/min

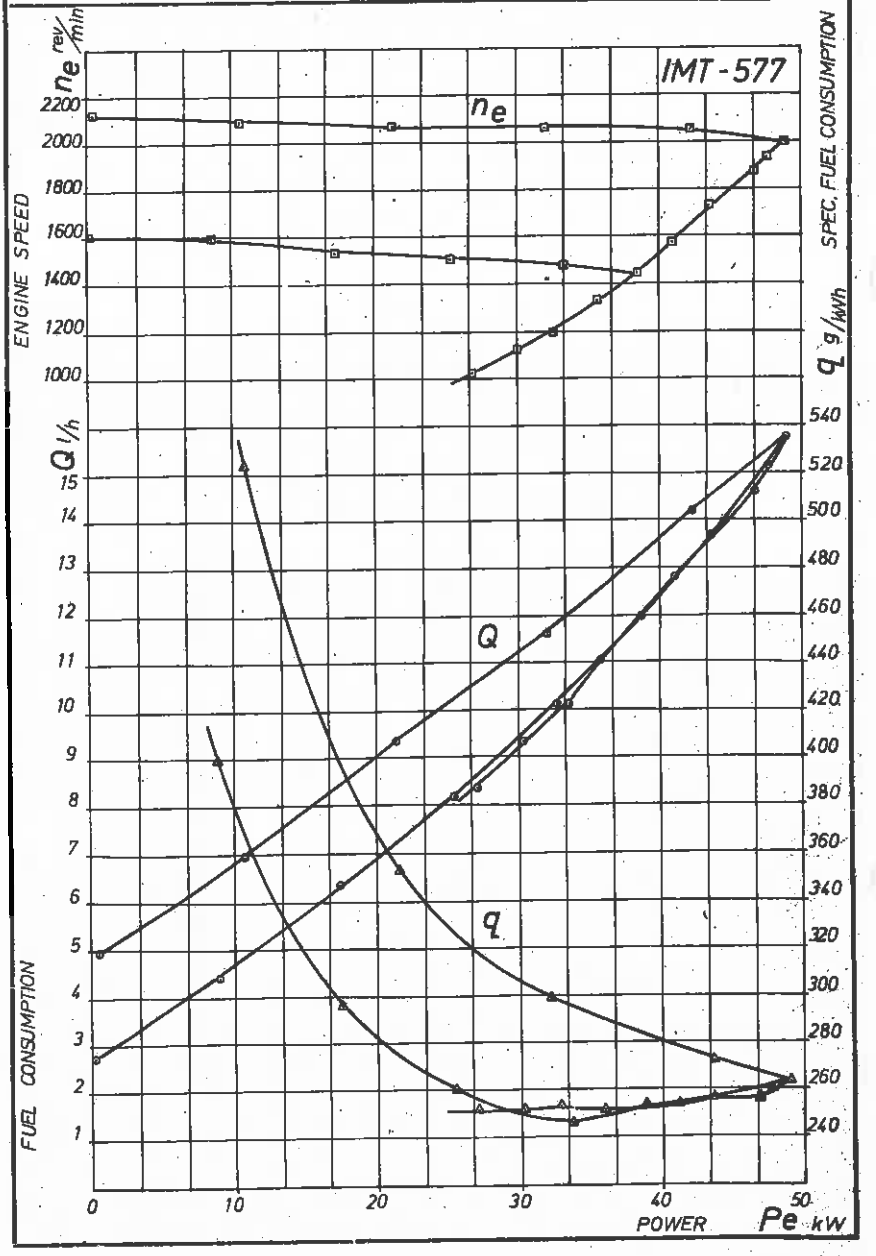
Equivalent crankshaft torque
at maximum power: 23,35 daNm

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
FUEL CONSUMPTION
Q l/h
EQUIV. CRANKSHAFT TORQUE
Me daNm
SPEC. FUEL CONSUMPTION
q g/kWh
Me
Pe
Q
q
STANDARD P.T.O. SPEED 540 rev/min
ENGINE SPEED
ne rev/min
1000
1200
1400
1600
1800
2000
2200


IMT - 577
ENGINE SPEED
ne rev/min
2200
2000
1800
1600
1400
1200
1000
ne
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: 27th to 29th October 1981 and 18th February 1982

Type of track: Tarmacadam

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

Gear	Driving speed	Power	Drawbar pull	Engine speed	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 660 mm					tyre inflation pressure 0,9 bar					
1 L	1,88	13,16	2520	2084	15,0	1,57	0,526	19	78	82	18	53	1006
2 L	2,82	19,74	2520	2071	15,0	1,88	0,439	19	78	82	18	53	1006
3 L	4,32	30,36	2530	2053	15,1	2,15	0,382	19	79	83	18	53	1006
4 L	4,77	33,39	2520	2034	15,0	2,27	0,362	20	78	85	18	53	1006
5 L	6,91	38,96	2030	2000	7,2	2,48	0,332	21	82	85	18	53	1006
1 H	8,05	40,25	1800	2000	5,4	2,55	0,322	22	82	86	18	53	1006
2 H	12,40	40,47	1175	2000	3,0	2,58	0,319	21	83	86	19	51	1006
3 H	19,40	38,80	720	2000	1,9	2,46	0,334	21	82	86	19	51	1006
4 H	21,80	38,15	630	2000	1,5	2,43	0,339	21	84	85	19	51	1006
5 H	29,35	36,69	450	2000	1,2	2,32	0,353	21	83	85	20	48	1006

Gear	Driving speed	Power	Drawbar pull	Engine speed	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
			(ii) MAXIMUM POWER (ballasted)					Driving wheels					
			height of drawbar above ground 62o mm					inflation pressure 1,2 bar					
1 L	1,89	18,13	346o	2o74	15,o	1,84	o,447	15	77	81	15	61	1oo9
2 L	2,81	27,o1	346o	2o61	15,o	2,21	o,374	16	8o	81	15	61	1oo9
3 L	4,46	38,o6	3o7o	2ooo	1o,2	2,43	o,339	18	8o	82	16	58	1oo9
4 L	5,13	39,o3	274o	2ooo	8,1	2,49	o,332	18	82	85	16	58	1oo9
5 L	7,o8	39,73	2o2o	2ooo	5,1	2,53	o,326	18	82	85	16	58	1oo9
1 H	8,23	4o,45	177o	2ooo	4,o	2,57	o,321	19	84	85	16	58	1oo9
2 H	12,53	4o,o2	115o	2ooo	2,5	2,54	o,325	19	84	85	16	58	1oo9
3 H	19,6o	37,57	69o	2ooo	1,5	2,39	o,346	18	84	85	16	58	1oo9
4 H	21,95	36,6o	6oo	2ooo	1,3	2,33	o,354	18	83	84	16	58	1oo9
5 H	29,5o	34,83	425	2ooo	1,o	2,21	o,373	18	82	84	16	58	1oo9

Gear	Driving speed	Power	Drawbar pull	Engine speed	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	7,37	31,12	152o	2o6o	3,7	2,44	o,338	16	8o	82	15	67	1ool
			(iv) FIVE-HOUR-TEST at pull corresponding 15 % wheel sleep in test (ii)										
2 L	-	-	346o	2o6o	-	-	-	17	81	84	16	61	998

Total oil consumption during ten hours duration of tests (iii) and (iv) was 58 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 8 ply

Track of wheels front: 14oo mm
rear: 161o mm

	Without brakes		With brakes	
	left-hand	right-hand	left-hand	right-hand
	m	m	m	m
Radius of turning space	5,5o	5,55	4,29	4,31
Radius of turning circle	5,37	5,42	4,15	4,18

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	819 mm
Distance forward from rear axle axis	724 mm
Distance from tractor`s median plane	3 mm to the right

(5) BRAKING PERFORMANCE

Date of test: 28th October 1981 and 19th February 1982

Type of track: Tarmacadam

Mass of tractor with driver (kg)

	front	rear	total
ballasted	1255	2865	4120
unballasted	985	2030	3015

Type 0 (ordinary cold service braking device performance) test

Speed before application of brakes 30,5 km/h

Ballasted	Braking device control force	daN	20	25	30	35	40
	Mean deceleration	m/s^2	1,90	2,20	2,85	3,15	3,20
Unballasted	Braking device control force	daN	20	25	30	35	40
	Mean deceleration		2,05	2,40	3,00	3,25	3,25

Type I (fade) test

Speed before application of brakes 30,5 km/h

Ballasted	Braking device control force	daN	25	30	35	40	45
	Mean deceleration	m/s^2	2,10	2,70	2,95	3,05	3,05
Unballasted	Braking device control force	daN	25	30	35	40	45
	Mean deceleration	m/s^2	2,00	2,30	2,85	3,20	3,20

Maximum deviation of tractor from its original course less than 1,0 m to the left

No abnormal vibrations occured

The brakes were heated by towing the tractor with the braking force about 10 % of the mass of tractor at the speed 24 km/h (80 % 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	34	34	38	39

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 28th October 1981
Type of track: Tarmacadam
Type of sound level meter: BRUEL &v KJAER mod. 22o9

Results of test

Gear: 5th high
Travelling speed before acceleration: 22,5 km/h
Sound level: 89,1 dB(A)

(7) NOISE AT DRIVER'S EAR LEVEL

Date of test: 28th October 1981
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 daN	Travelling speed nominal km/h	Travelling speed efective km/h	Sound level dB(A)
1 L	25oo	2,11	1,9	96,7
2 L	25oo	3,17	2,8	98,2
3 L	25oo	4,9o	4,3	97,4
4 L	25oo	5,48	4,8	97,9
5 L+)	2ooo	7,36	6,9	98,6
5 L+)	light load	7,36	7,3	96,9
1 H	18oo	8,47	8,1	98,7
2 H	115o	12,69	12,5	loo,2
3 H	7oo	19,61	19,5	99,8
4 H	62o	21,94	21,7	loo,1
5 H	45o	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	29o	68o	187o	15,3 (153)	174o	-
On the frame	25o	85o	122o	15,3 (153)	188o	-1° 55' +1o° 5o'

1) With the rear wheel static radius 72o mm

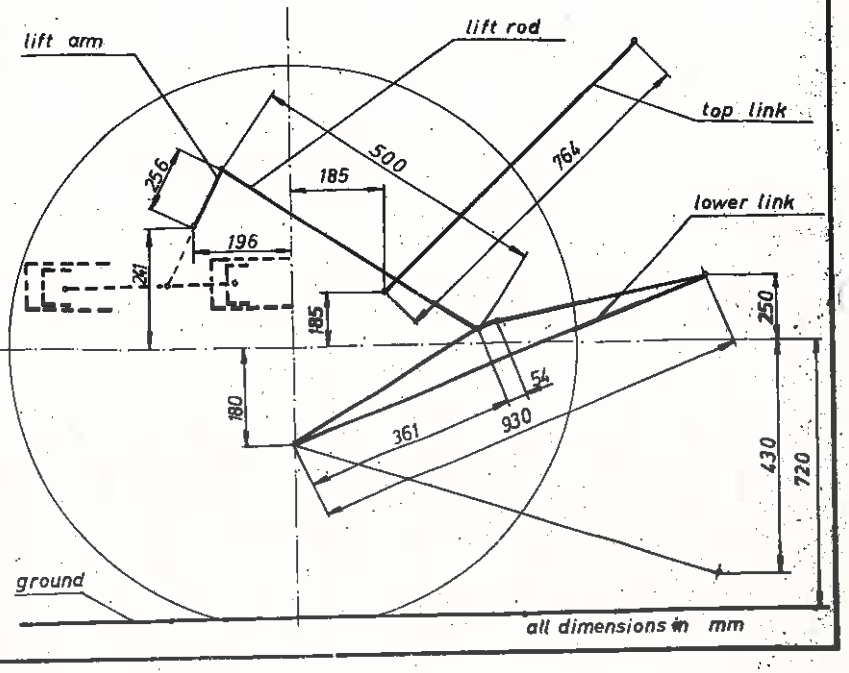
2) Calculated with the maximum force exerted through the full range of lower links movement and with maximum oil pressure (18,4 MPa)

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 pressure, 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	-290	-250	-200	-100	0	+100	+200	+300	+400	+430	+500	+550
			At hitch points									
daN	-	1870	1860	1850	1860	1880	1900	1925	1940	1950	-	-
			At test frame (610 mm behind lower link hitch points									
daN	1420	-	1400	1390	1380	1370	1350	1330	1280	-	1250	1220

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 90 % 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 folloving 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 above
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	