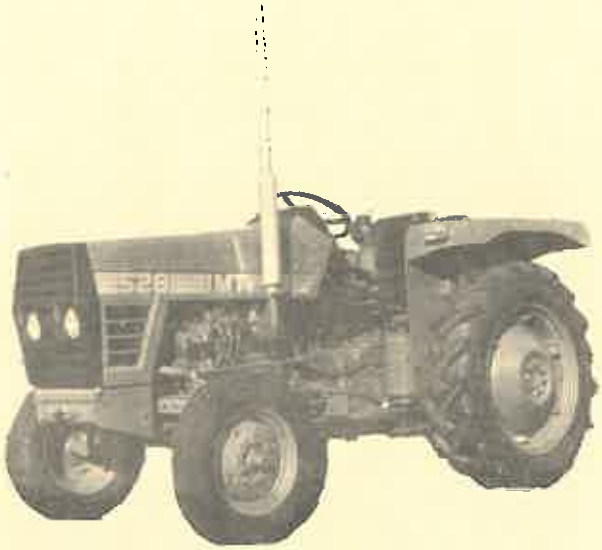
Institut za mehanizaciju poljoprivrede – Zemun

O.E.C.D. Report No 1115
Printed: February 1988

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



Agricultural Tractor IMT–528 DE LUXE (2 WD)

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

Date of test: June – July 1987

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: January 12th, 1988

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Printed in Yugoslavia

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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 - 528 DE LUXE (2 WD)

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

Serial N°: 7o1 ooo oo9 (Start of series)

ENGINE

Make: IMR - Industrija Motora Rakovica

Model: DM 32

Type: Four stroke, water cooled diesel, direct injection, naturally aspirated

Serial N°: Y 951 P 001

Cylinders: 2, vertical, in-line, bore 91,4 mm, stroke 127 mm, displacement 1667 cm^3, compression ratio 16,5:1, overhead valves, replaceable dry cylinder liners;

Fuel system: "Rikard Benčić" plunger type feed pump with hand primer and sediment bowl, driven by the camshaft of the injection pump, two CAV-DONIT paper element fuel filters on the pressure side of the feed pump, first filter with sediment bowl; recommended element change period 4oo h; fuel tank capacity 5o l; "Rikard Benčić" in-line type BP2 2T 13o-8-PR3 C II FVR injection pump, serial N° 18o97-86, manufacturer's production setting 5o-52 mm^3/stroke at rated engine speed and full load; injection timing 2o° before T.D.C.; CAV-IPM injector nozzles of multihole type (four holes), model EE, injection pressure setting 18,5 ± o,5 MPa;

Governor:	"Rikard Benčić", mechanical, all range, type RSV 325 1125/28 D, incorporated in fuel injection pump, governed range of engine speed 500 ± 30 to 2170 rev/min, rated engine speed 2000 rev/min;
Air cleaner:	DONALDSON-TPR dry paper element filter bellow the bonnet on the right hand side behind the engine, with maintenance indicator on the filter housing; vertical air inlet and centrifugal pre-cleaner above bonnet;
Lubrication system:	Forced feed from excentric rotor pump; oil filter with replaceable cartridge; recommended oil and filter change period 200 hours; recommended oil quality acc. MIL-L-2104 A - 20°C to - 5°C SAE 10 - 5°C to + 30°C SAE 20 or SAE 15 W 40 over 30°C GAE 40 or SAE 15 W 40 oil capacity 5,5 l
Cooling system:	Water cooling with impeller pump, pressurized system set to 50 kPa overpressure; fan with 6 blades 356 mm dia; water capacity 8 l; temperature control by piston type thermostat;
Starting sistem:	Electrical, 12 V; ISKRA solenoid-engaged starter motor AZJ 3544, 12 V, 2,4 kW; automatic heater with thermocouple by non-return valve in intake manifold as aid for cold starting; hand lever of speed selector in neutral position as starting safety device
Electrical system:	12 Volt, negative earth; 3-phose alternator ISKRA AAG 1302, 14 V, 28 A, 1 lead acid battery, 97 Ah at 20 hours rating
Exhaust:	Vertical, on the left hand side of tractor's body, outside bonnet; single chamber expansion type silencer with 85 mm dia and 500 mm length; exhaust outlet 50 mm dia, with mouth showing upwards, 2530 mm above ground

TRANSMISSION

Clutch: KRON - Novi Beograd;
dry dual friction disc type single acting clutch with disc dia 3oo mm, mechanically pedal operated;

Gearbox: Own make; mechanical, 3 forward and 1 rewerse gear, all gears with sliding gears; low and high speed selector of epicyclic (planetary) type;
N° of speeds (totally):
6 forward
2 reverse

Rear axle: Own make;
Bevel gear drive with crown wheel and pinion; bevel gear type differential, with lock pedal operated, self disengaging;

Front axle: Own make;
Steering axle of extending type, not driven; track width adjustable in steps

Oil capacities: Gearbox (with hydraulic power lift) and rear axle 33,o l

Recommended oil qualities: Hydraulic transmission oil GALAX Traktol HT, INA Transhidrol 85 or HENA Traktol M 8o, or engine oil acc. to MIL-L-21o4 C;
oil changing interval 8oo h;
oil filter cleaning interval 8oo h;

Power take-off

Main P.T.O. Not independent p.t.o.;
driven by the pedal operated disc of single acting clutch;
at rear of tractor, in the median plane, height above ground 443 mm (with 11,2-28 rear tyres and radius index 57o mm);
distance of the p.t.o. shaft end from the rear axle centre line:
- below 127 mm
- behind 261 mm
dimensions 35 mm Ø, 6 splines, acc. to ISO 5oo type 1 and JUS M.Ll.6o1;

Proportional to engine speed p.t.o.:	Standard p.t.o. speed 540 rev/min; direction of rotation clockwise, viewed from tractor rear; p.t.o. speeds may be set by oid of tractormeter

p.t.o. speed rev/min	engine speed rev/min	transmission ratio engine: p.t.o.
540	1549	2,684 : 1
745	2000	

Power restriction and maximum torque:	Maximum engine power and torque equivalent to maximum engine torque
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	0,49	7,31

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 540 rev/min km/h
Forward speeds			
1 low	198,63	2,16	1,57
2 low	132,42	3,25	2,35
3 low	72,23	5,95	4,31
1 high	49,66	8,65	6,27
2 high	33,11	12,98	9,41
3 high	18,06	23,80	17,25
Reverse speeds			
low	145,85	2,95	2,14
high	36,46	11,79	8,54

Calculated with the driving wheel radius index 570 mm

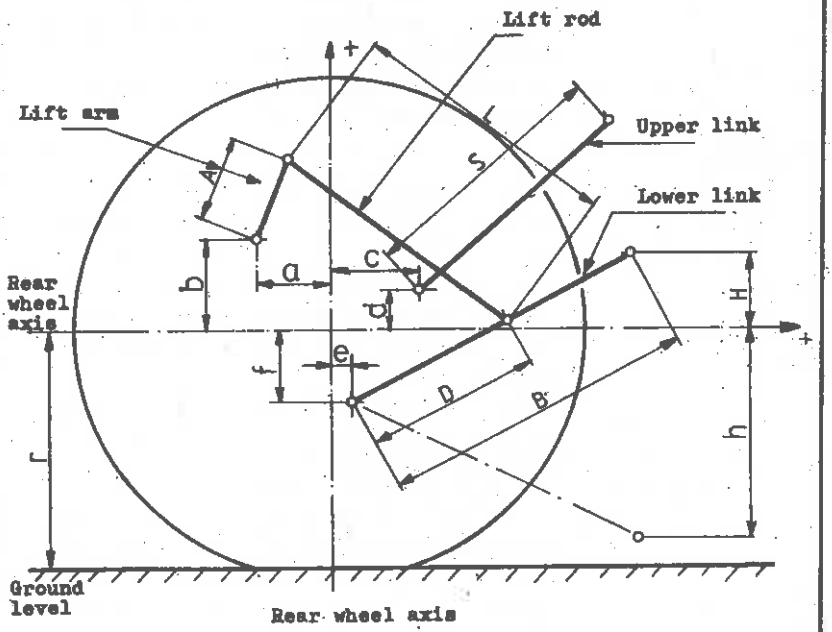
Belt pulley: Available optionally;
located at rear of tractor, connected to p.t.o. shaft;
width 165 mm, diameter 228,6 mm;
speeds at rated engine speed (2000 rev/min)
linear 1070 m/min
rotational 1490 rev/min
engine speed at standard belt pulley speed (945 m/min) 1766 rev/min;
direction of rotation clockwise viewed face of pulley

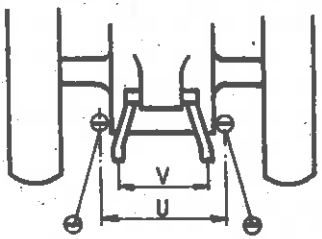
Power lift:

Hydraulic system: Four cylinder piston pump of boxer type with 24,9 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; single acting ram with 83 mm bore, 121 mm stroke;
4 external oil tappings, single or double acting at rear of tractor available optionally (not fitted on the tested tractor);
hydraulic oil tank in common with gearbox, oil capacity 33 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 6 and 7

Implement linkage: Three point linkage, joint balls category 1 acc. to ISO 730/I





Dimensions of implement linkage (projected lengths, in mm)
underlined dimensions are valid for power lift test page 23

Rear tyres (size 11,2 - 28)	radius index	(r)	57o
Front tyres (size 6,oo - 16)	static radius	(r`)	324
Length of lift arms		(A)	256
Length of lower links		(B)	864
Distance of lift arm pivot point from rear wheel centre line	horizontally	(a)	196
	vertically	(b)	241
Horizontal distance between the 2 lower link points		(u)	46o
Horizontal distance between the 2 lift arm end points		(v)	535
Length of upper link		(S)	575 to 77o, 69o
Distance of upper link pivot point from rear wheel centre line	horizontally	(c)	13o
	vertically	(d)	278
Distance of lower link pivot point from rear wheel centre line	horizontally	(e)	-45
	vertically	(f)	114
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	374
Length of lift rods		(L)	5oo

Height of lower link hitch points relative to rear axle centre line (situated 57o mm above ground) in mm

These data are valid for unloaded power lift

		lift rod length L
		5oo mm
Lowest position	(h)	37o mm
Highest position	(H)	3oo mm
Transport position	(H`)	3oo mm

Pull attachment

Swinging drawbar: Height above ground 277 and 367 mm, adjustable by turning drawbar;
diameter of clevis hole 31 mm;
horizontal distance of clevis hole centre to:

rear axle centre 616 and 800 mm
p.t.o. shaft end 166 and 350 mm

swinging about 160 mm to either side with fixing points in median position and 75 and 140 mm to both sides;
pivot point 81 mm in front of rear axle;

Holed bar: Fitted on the clevis of lower links;
length between ball joints 660 mm;
thickness of the bar 30 mm, width 70 mm;
centre hole and 4 holes on either side in 48 mm steps;
all holes with 20 mm diameter;
height above ground adjustable by power lift within the range from 200 to 870 mm continuosly;
mechanically lockable in all positions within the range from 260 to 590 mm above ground by means of two supporting bars with adjustable lengts;
distance of centre hole with lower links in horizontal position:

from rear axle:
horizontal 820 mm behind
vertical 114 mm below

from p.t.o. shaft end
horizontal 559 mm behind
vertical 13 mm above

Trailer hitch: Automatically acting by means of power lift;
height above ground 306 mm in working position;
distance of hitch centre

Trailer hitch: (continuation)

from rear axle:
horizontal 390 mm behind
vertical 264 mm below

from p.t.o. shaft end
horizontal 129 mm behind
vertical 137 mm below

diameter of the coupling pin 30 mm;
maximum admissible vertical load 1500 daN

Towing hitch: Fixted;
height above ground 645 mm;
distance of the hitch centre:

from the rear axle
horizontal 608 mm behind
vertical 75 mm above

from the p.t.o. shaft end
horizontal 347 mm behind
vertical 202 mm above

diameter of the coupling pin 30 mm

NOTE:

1° All pull attachment heights are given for the radius index of rear wheels 570 mm (11,2-28 tyres).

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

Steering: Own make;
Worm with travelling balls;
Manual control by steering wheel, two arms and two connecting rods;

Brakes:

Service brake: Own make;
mechanically acting shoe type brake with 2 brake drums at the end of diferential half shafts;
operated with 2 pedals coupled by a latch;

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

Parking brake:	Parking lateh on the pedal of service brake
Trailer braking take-off:	Optional equipment, not fitted on the tested tractor; make PPT; single line air brake, operated by pedal mounted valve; compresor with 75 mm bore, 28 mm stroke, driven by the engine at 2o8o rev/min by rated engine speed (2ooo rev/min); compressor delivery o,26 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 6,oo - 16 AS-FRONT, 6 ply, diagonal type tyre casing; maximum permissible load per tyre 535 daN at 3,o bar inflation pressure and 3o km/h; track width adjustable from 122o to 2o3o mm in cca loo mm steps by extending axle; rims 4,5Ex16
Driving wheels:	2 pneumatics at rear 11,2-28, agricultural, 6 ply, diagonal type tyre casing; maximum permissible load per tyre 1o5o daN at 1,7 bar inflation pressure and 3o km/h; steel wheel discs, track width adjustable from 123o to 193o mm in cca loo mm steps by reversing discs and rims rims W9x28
Wheel base:	176o 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
Number of grease point	with grease 7 with oil 6

OVERALL DIMENSIONS

Total length:	299o mm with horizontal lower links
Maximum width:	221o mm with maximum rear track setting
Minimum width:	178o mm with minimum rear track setting
Total height:	253o mm to the top of exhaust outlet
Ground clearance:	32o mm, in the middle of tractor

Note: Total height and ground clearance are given for the radius index of rear tyres 57o mm

Running-time meter	Mechanical, combined with tachometer, driven by the engine; reference engine speed for one really counted hour 15oo rev/min;

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 130	930	740
Side lights:			
front 3)	120/35	1290	250
rear 4)	60/55	1330	265
Position lights:			
from 3)	120/35	1325	250
rear 4)	120/35	1270	235
Stop lights: 4)	60/55	1330	265
Reflectors:			
rear 5)	ø 130	1480	185

1) distance from outside edge of fender (rear wheel track setting 1330 mm)

2) unrestricted beam angle of Head lights in plan view 32°

3) on common plate 120/70 mm

4) on common plate 120/90 mm

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

Note: All heights are given for the radius index of rear wheels 570 mm (11,2-28 tyres) and static radius of front wheels 324 mm (6.00-16 tyres).

TEST CONDITIONS

Masses Ready for use as tested

		without driver kg	with driver kg
Without ballast:	front	68o	695
	rear	895	955
	total	1575	165o
With ballast:	front	68o	695
	rear	1o75	1135
	total	1755	183o
Ballast:	rear	water in tyres	18o kg

NOTE: The manufacturer does not recommend use of ballast weights

Track setting: front: 122o mm
rear: 133o mm

FUELS AND LUBRICANTS USED IN TESTS

Fuel:	INA Diesel-fuel D_2 in all tests	
	Density at 15°C:	o,83o 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 TRANTOL HT (8,7 cSt at 98,9°C)	
Steering oil:	GALAX SUPER HD S3, SAE 1o	

COMPULSORY TESTS

(1) MAIN POWER-TAKE-OFF PERFORMANCE

Date and location of test: 23rd June 1987
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					
18,65	2ooo	745	6,164	5,11o	o,274	3,o3
	at standard p.t.o. speed (54o rev/min)					
15,66	1449	54o	5,o23	4,165	o,266	3,12
	at speed recommended by the manufacturer for drawbar work					
18,65	2ooo	745	6,164	5,11o	o,274	3,o3
	PART LOADS					
	Governor hand lever in position giving maximum power					
(i) 85% of torque at maximum power						
16,o6	2o26	755	5,3o8	4,4oo	o,274	3,o3
(ii) unloaded						
o,75	2114	788	1,817	1,5o6	-	-
(iii) 5o% of the load defined in (i)						
8,2o	2o68	771	3,383	2,8o4	o,342	2,42
(iv) maximum power						
18,65	2ooo	745	6,164	5,11o	o,274	3,o3
(v) 25% of the load defined in (i)						
4,17	2o9o	732	2,545	2,11o	o,5o6	1,64
(vi) 75% of the load defined in (i)						
12,24	2o54	765	4,37o	3,623	o,296	2,8o

Power	Speed		Fuel consumption			Specific energy
	engine	p.t.o.	hourly	specific		
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						
13,5o	1473	549	4,315	3,578	o,265	3,13
(ii) unloaded						
o,46	1559	581	1,1o1	o,913	-	-
(iii) 5o% of the load defined in (i)						
7,18	1514	564	2,651	2,197	o,3o6	2,71
(iv) full load						
15,66	1449	54o	5,o23	4,165	o,266	3,12
(v) 25% of the load defined in (i)						
3,53	1541	574	1,865	1,546	o,438	1,39
(vi) 75% of the load defined in (i)						
1o,29	1498	558	3,463	2,871	o,279	2,97

STANDARD SPECIFIC FUEL CONSUMPTION: o,274; o,3o2; o,265; o,3o6 kg/kWh

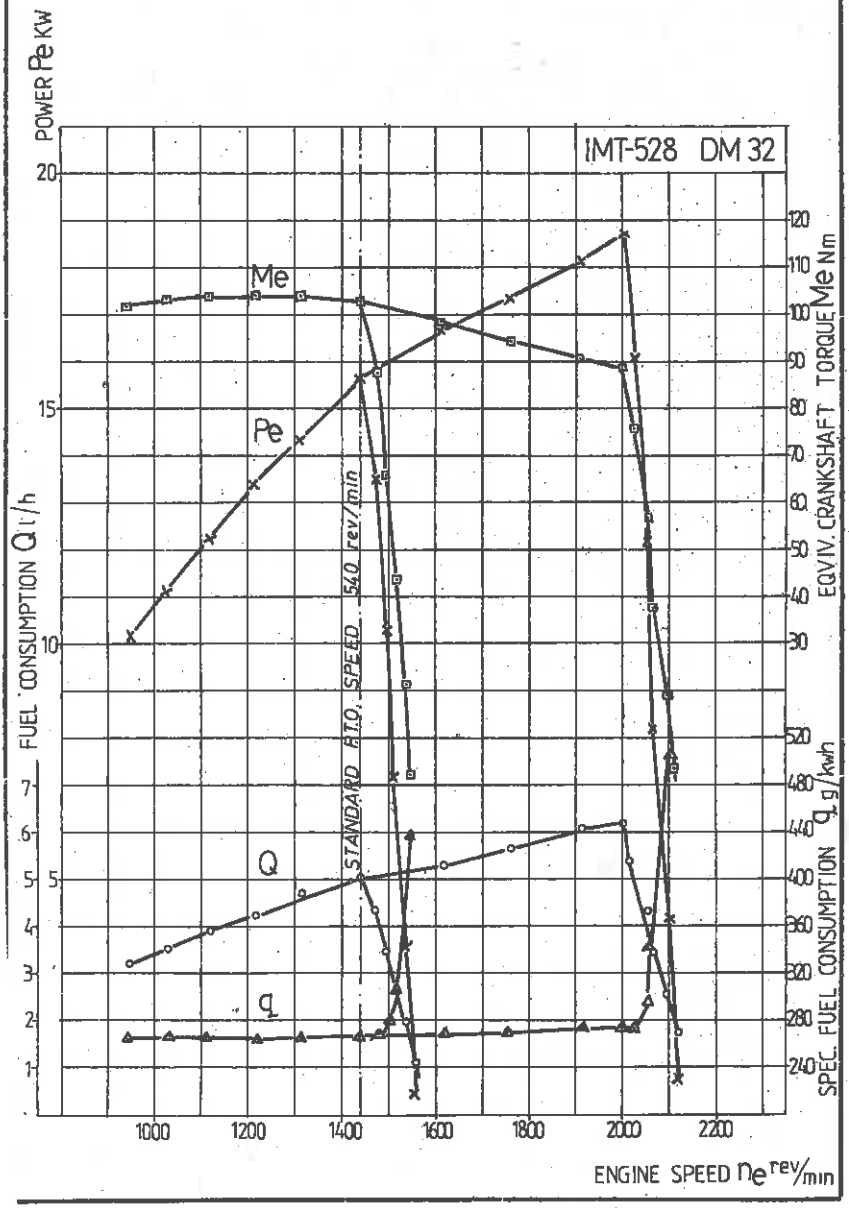
No load, maximum engine speed: 2114 rev/min

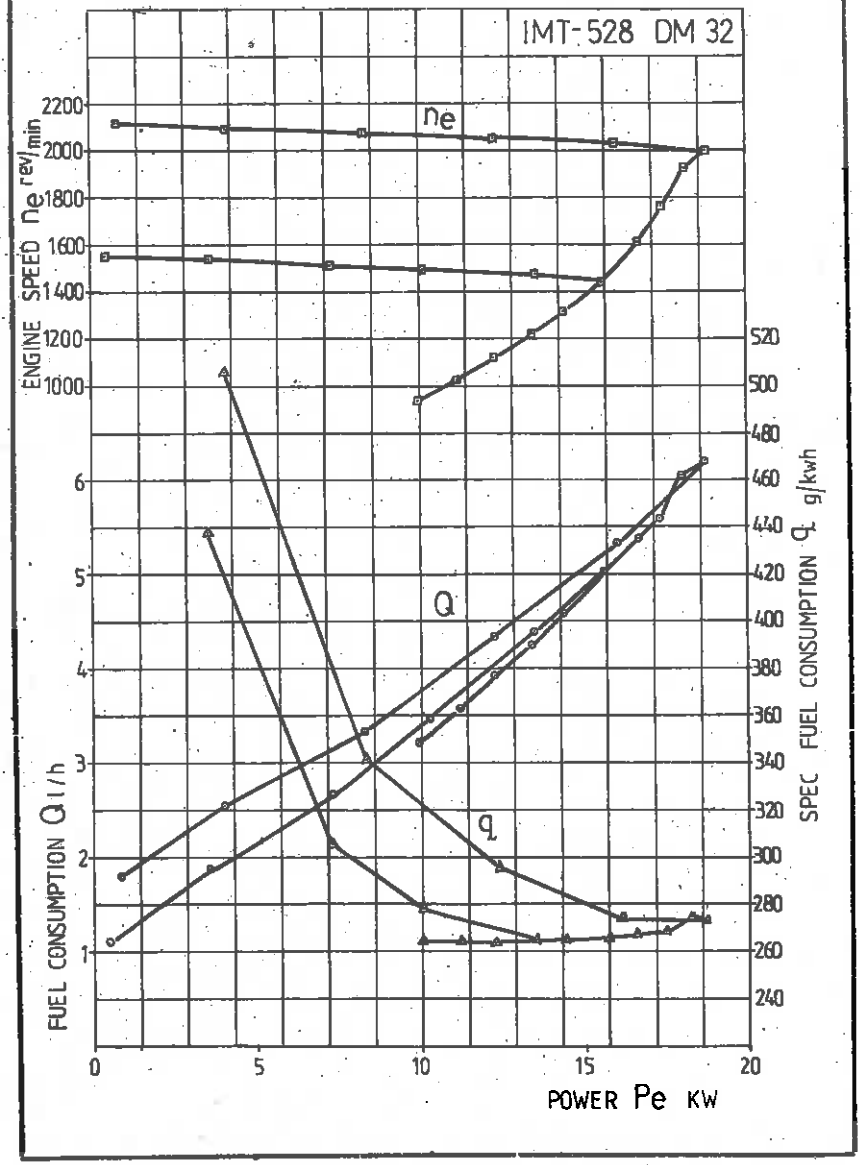
Equivalent crankshaft torque at maximum power: 89,o Nm

Maximum equivalent crankshaft torque: 1o4,5 Nm at 1221 rev/min engine speed

Mean atmospheric conditions
- temperature: 24°C
- pressure: 1oo6 mbar
- humidity: 39 %

Maximum temperatures
- coolant: 82°C
- engine oil: 95°C
- fuel: 26°C
- air intake: 27°C


IMT-528 DM 32
POWER Pe KW
FUEL CONSUMPTION Q l/h
EQVIV. CRANKSHAFT TORQUE Me Nm
SPEC. FUEL CONSUMPTION q g/kwh
ENGINE SPEED ne rev/min
STANDARD R.T.O. SPEED 540 rev/min
Me
Pe
Q
q
20
15
10
7
6
5
4
3
2
1
120
110
100
90
80
70
60
50
40
30
520
480
440
400
360
320
280
240
1000
1200
1400
1600
1800
2000
2200


IMT-528 DM 32
ne
Q
q
ENGINE SPEED ne rev/min
FUEL CONSUMPTION Q l/h
SPEC FUEL CONSUMPTION q g/kwh
POWER Pe KW
2200
2000
1800
1600
1400
1200
1000
6
5
4
3
2
1
520
500
480
460
440
420
400
380
360
340
320
300
280
260
240
0
5
10
15
20

(2) DRAWBAR PERFORMANCE

Date of test: 26th and 30th June 1987

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			Atmospheric conditions		
								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
	(i) MAXIMUM POWER Without ballast height of drawbar above ground 645 mm driving wheels inflation pressure o,9 bar												
1 L	1,88	7,15	137o	2o65	15,o	1,99	o,417	22	8o	88	21	41	1o11
2 L	2,81	1o,69	137o	2o4o	15,o	2,27	o,365	23	8o	89	21	41	1o11
3 L	5,56	15,91	1o3o	2ooo	6,6	2,58	o,322	24	81	89	21	41	1o11
1 H	8,39	16,31	7oo	2ooo	3,2	2,64	o,314	24	81	9o	22	41	1o11
2 H	12,8o	16,oo	45o	2ooo	1,5	2,6o	o,319	25	82	9o	23	38	1o11
3 H	23,65	14,45	22o	2ooo	o,6	2,34	o,355	24	81	88	23	38	1o11

Gear	Driving speed	Power	Drawbar pull	Engine speed	Slip of wheels	Specific energy	Specific fuel consumpt.	Temperatures Fuel	Co-olant	Engine oil	Atmospheric conditions Tempe-rature	Relative humidity	Pres-sure
-	km/h	kW	daN	rev/min	%	kWh/l	lg/kWh	°C	°C	°C	°C	°C	mbar
1	2	3	4	5	6	7	8	9	1o	11	12	13	14
		(ii) MAXIMUM POWER with ballast					height of drawbar above ground 645 mm driving wheels inflation pressure 1,1 bar						
1 L	1,87	8,o5	155o	2o55	15,o	2,o7	o,4o1	22	81	86	24	47	1oo8
2 L	2,78	11,97	155o	2o25	15,o	2,39	o,347	23	81	88	24	47	1oo8
3 L	5,62	16,oo	1o25	2ooo	5,7	2,59	o,321	25	81	9o	25	44	1oo8
1 H	8,4o	16,22	695	2ooo	2,8	2,63	o,316	26	83	92	25	44	1oo8
2 H	12,8o	15,64	44o	2ooo	1,3	2,53	o,327	26	83	92	25	44	1oo8
3 H	23,7o	13,82	21o	2ooo	o,5	2,24	o,371	26	82	89	26	44	1oo8
		(iii) FIVE-HOUR TEST at 75% of drawbar pull at maximum power in 3rd L gear											
3 L	5,83	12,47	77o	2o3o	3,4	2,48	o,334	25	8o	87	24	47	1oo8
		(iv) FIVE-HOUR TEST at pull corresponding maximum wheel sleep in test (ii)											
2 L	-	-	155o	2o2o	-	-	-	25	82	92	23	51	1oo8

Total oil consumption during the ten hours duration of tests (iii) and (iv) was 41 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: 6,oo - 16 AS Front, 6 ply
rear: 11,2 - 28 AS 6 ply

Track of wheels front: 122o mm
rear: 133o mm

	Without brakes		With brakes	
	left-hand	right-hand	left-hand	right-hand
	m	m	m	m
Radius of turning space	3,17	3,14	2,84	2,83
Radius of turning circle	3,o5	3,o2	2,72	2,7o

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground: 696 mm

Distance forward from rear axle centre: 741 mm

Distance from tractor's median plane: 1 mm to the left

(5) BRAKING PERFORMANCE

Date of test: 29th June and 2nd July 1937

Type of track: Tarmacadam

Mass of tractor with driver (kg):

	front	rear	total
ballasted	695	1135	1830
unballasted	695	955	1650

Type 0 (ordinary cold service braking device performance) test

Speed before application of brakes 24,7 km/h

Ballasted	Braking device control force	daN	20	24	28	32	35
	Mean deceleration	m/s^2	2,45	2,80	2,95	3,25	3,30
Unballasted	Braking device control force	daN	20	24	28	32	35
	Mean deceleration	m/s^2	2,50	2,70	3,00	3,20	3,20

Type I (fade) test

Speed before application of brakes 24,7 km/h

Ballasted	Braking device control force	daN	20	24	28	32	35
	Mean deceleration	m/s^2	2,30	2,60	2,85	3,10	3,30
Unballasted	Braking device control force	daN	20	24	28	32	35
	Mean deceleration	m/s^2	2,40	2,55	2,85	3,05	3,20

Maximum deviation of tractor from its original course less than 0,2 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 at the speed 19 km/h (80% 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 1575 kg	
	Up	Down	Up	Down
Braking device control force, daN	18	18	20	20

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 24th June 1987
Type of track: Tarmacadam
Type of sound level meter: BRUEL &. KJAER mod.22o9

Results of test

Gear: 3rd high
Travelling speed before acceleration: 16,8 km/h
Sound level: 86,8 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of test: 24th June 1987
Type of track: Tarmacadam
Type of sound level meter: BRUEL &. KJAER mod.22o9

Results of test

Tractor without 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 effective km/h	Sound level dB(A)
1 L	135o	2,16	1,96	95,4
2 L	135o	3,25	2,9	96,1
3 L	1ooo	5,95	5,6	96,7
1 H+)	7oo	8,65	8,4	97,o
1 H+)	Light load	8,65	8,9	95,5
2 H	45o	12,98	12,8	96,6
3 H	Light load	23,8o	24,o	95,2

+) Gear corresponding to the nominal travelling speed nearest to 7,5 km/h

(8) POWER LIFT AND HYDRAULIC POWER TEST

Date and location of test: 9th July 1987, IMP - Zemun

Hydraulic fluid:

Make and type: Galax Traktol HT

Viscosity: 8,7 mm/s (cSt) at 98,9°C

Viscosity index: over 85

Hydraulic fluid temperature at the beginning of test: 64°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 dimensions see on pages 6 and 7

	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	2oo	67o	128o	15,8	-	-
On the frame	149	865	95o	15,8	1358	-2° 5' +1o° 5'

Note: The front wheels are raising when on the lower links hitch points is applied the lifting force of 1433 daN (tractor without driver).

Performance of power lift

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

mm	-307	-256	-200	-100	0	+100	+200	+300	+400	+414	+500	+558
At hitch points												
daN	-	1280	1320	1350	1380	1420	1430	1450	1470	1480	-	-
At test frame (610 mm behind lower link hitch points)												
daN	1150	-	1140	1130	1120	1110	1100	1070	1040	-	1000	950

1° The forces are meassured at sustained pressure with the relief valve open (18,0 MPa) and calculated on the pressure 15,8 MPa which corresponds 90% of relief valve setting (17,5 MPa).

Hydraulic power test:

Sustained pressure with relief valve open:	18,0 MPa (180 bar)
Opening pressure of relief valve:	17,5 MPa (175 bar)
Pump delivery rate on minimum pressure:	15,6 l/min at 2000 rev/min
Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydrsulic power:	Flow rate: 14,8 l/min Pressure: 15,8 MPa (158 bar) Power: 3,89 kW
Flow rate and hydraulic pressure corresponding to maximum hydraulic power:	Flow rate: 14,4 l/min Pressure: 16,5 MPa (165 bar) Power: 3,96 kW
Topping point used for test:	On the power lift housing
Temperature of hydraulic fluid:	64 - 67°C
REMARKS and REPAIRS:	No