STÁTNÍ ZKUŠEBNA
ZEMĚDĚLSKÝCH,
POTRAVINÁŘSKÝCH
A LESNICKÝCH STROJŮ

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Report on test in accordance with the OECD Standard Code for the Official Testing of Agricultural Tractor Preformance

CODE 2

Restricted Code

Date of approval: 29th January 1996

OECD No. 1595



Agricultural Tractor

ZTS 11245 Super (4WD) 30 km/h version

Manufactured by: ZTS TEES š.p., 036 57 Martin, Slovakia

Report No. 12116

Date of test: August-November 1995

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Tractor manufacturer's name and address:	ZTS TEES š.p., 036 57 Martin, Slovakia
Location of tractor assembly:	Martin, Slovakia
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer
Place of running-in:	Martin, Slovakia
Duration of running-in:	100 hours
Location of test:	SZZPLS Praha 6 - Řepy, Czech Republic

1. SPECIFICATIONS OF TRACTOR

1.1 IDENTIFICATION

Make:	ZTS
Model:	11245 Super 30 km/h version
Type:	Wheeled, unit construction, all wheels drive
Number of driving wheels:	4
Serial No.:	11245 0464
1st Serial No.:	11245 0464

1.2 ENGINE

Make:	MARTIN DIESEL
Model:	Z 8701.13
Type:	4-stroke diesel engine, direct injection, water cooled, naturally aspirated
Serial No.:	C 00528

1.2.1 Cylinders

Number/disposition:	6, in-line, vertical
Bore/stroke:	110 mm/120 mm
Capacity:	6842 cm^3
Compression ratio:	17.0:1
Arrangement of valves:	Overhead
Cylinder liners:	Wet, replaceable

1.2.2 Supercharging

None

1.2.3 Fuel system

Fuel feed system:	Lift pump piston-type, integral with fuel injection pump

Make, model and type of fuel filters:	AUTOBRZDY, 443 741 429 000, two-stage with paper cartridge
Capacity of fuel tank:	195 dm^3
Make, model and type of injection pump:	MOTORPAL, 6M 3140, in-line
Serial No.:	Uv 0697
Manufacturer's production setting of injection pump:	
Flow rate (rated engine speed and full load):	22.80 dm^3/h
Timing:	24°+2° before TDC
Make, model and type of injection:	MOTORPAL, DOP 150 S 430-1439, 4 hole
Injection pressure:	16.8+0.8 MPa

1.2.4 Governor

Make, model and type:	MOTORPAL, RV 3M 300/1100 3301, centrifugal, variable speed
Governed range of engine speed:	from 600 to 2450 rev/min
Rated engine speed:	2200 rev/min

1.2.5 Air cleaner

Pre-cleaner:	
Make, model and type:	SANDRIK, PC 750, cyclon type
Location of air intake:	Under bonnet forward of radiator
Main cleaner:	
Make, model and type:	SANDRIK, 9450.11, oil bath
Maintenance indicator:	Warning light on instrument panel

1.2.6 Lubrication system

Type of feed pump:	Gear
Type of filter:	Full flow with replaceable paper element
Number:	2
Oil cooler:	Heat exchanger with engine coolant

1.2.7 Cooling system

Type of coolant:	Water and anti-freeze
Type of pump:	Centrifugal, belt driven
Specification of fan:	Axial, belt driven
Number of blades:	8
Fan diameter:	460 mm
Coolant capacity:	25 dm^3
Type of temperature control:	Thermostat

Superpressure system:	40±10 kPa
1.2.8 Starting system	
Make, model and type:	ELMOT, R20e, electrical, solenoid engaged
Starter motor power rating:	5.5 kW
Cold starting aid:	None
Safety device:	Gear selector lever to be in neutral position
1.2.9 Electrical system	
Voltage:	12 V, negative earth
Generator:	
Make, model and type:	MAGNETON, 443 113 516 184, alternator, belt driven
Power:	770 W
Battery (number of accumulators):	2
Rating:	100 Ah at 20 hours
1.2.10 Exhaust system	
Make, model and type:	ZTS, 87.014.500, expansion and absorption muffler
Location:	Left-hand side of engine, vertical

1.3 TRANSMISSION

1.3.1 Clutch	
Make, model and type:	ZTS, 87.021.500, dry for transmission only
Number of plates:	1
Diameter of plates:	380 mm
Method of operation:	Hydraulically by pedal
1.3.2 Gear box	
Make, model and type:	ZVL, 87.960.000, mechanical
Arrangement:	Synchromesh gear box with 4 speeds, group gear box with two speed ranges and reverse (I, II and R) and 2-speed hydraulically actuated torque multiplier (M+ and M-)
Number of gears:	16 forward and 8 reverse
Available options:	None
Oil cooler:	Heat exchanger with air
1.3.3 Rear axle and final drives	
Make, model and type:	ZTS, ZM 90, crown wheel and bevel pinion differential and planetary final drives

Differential lock:

Type:	Multiplate differential lock
Method of engagement:	Electro-hydraulically by switch
Method of disengagement:	Electro-hydraulically by switch

1.3.4 Front axle and final drives

Make, model and type:	VS, 89.000.654, crown wheel and bevel pinion differential and planetary final drives

Differential lock:

Type:	Multiplate differential lock
Method of engagement:	Electro-hydraulically by switch
Method of disengagement:	Electro-hydraulically by switch

1.3.4 Total ratios and travelling speeds

Gear	Group	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed at rated engine speed of 2200 rev/min km/h (*)
1	IM+	355.354	1.91
2		225.466	3.02
3		123.673	5.50
4		107.273	6.34
1	IM-	265.618	2.56
2		168.530	4.04
3		92.442	7.36
4		80.184	8.48
1	IIM+	106.673	6.38
2		67.682	10.05
3		37.125	18.32
4		32.202	21.12
1	IIM-	79.735	8.53
2		50.591	13.44
3		27.750	24.51
4		24.070	28.25
1	RM+	227.569	2.99
2		144.389	4.71
3		79.200	8.59
4		68.697	9.90
1	RM-	170.102	4.00
2		107.927	6.30
3		59.200	11.49
4		51.350	21.12

(*) Calculated with a tyre dynamic radius index of 820 mm (ISO 4251/1-1992)

M+: Torque multiplier engaged in position "plus", M-: Torque multiplier engaged i position "minus"

Number of revolutions of front wheels for one revolution of rear-wheels: 1.4038

1.4 POWER TAKE-OFF

1.4.1 Main power take-off

Type: Independent

Method of engagement: Hydraulic clutch operated by hand lever, independent of main drive clutch, wet multiplate

Number of shafts: 1

Method of changing power take-off speeds: Manually by shaft turning

1.4.1.1 Power take-off proportional to engine speed

Location: At rear of tractor

P.T.O.	Diameter of power take-off shaft end mm	Number of splines	In conformity with ISO 500/1991
540	34.9	6	Yes
1000	34.9	21	Yes

Height above ground: 684 mm

Distance from the median plane of the tractor: 0 mm

Distance behind rear-wheel axis: 530 mm

P.T.O.	P.T.O speed rev/min	Engine speed rev/min	Ratio of rotation speeds (engine speed/p.t.o. speed)	Power restriction and maximum torque kW/Nm
540	540	1890	3.5000	45.0/795.8
	629	2200		
1000	1000	1920	1.9200	None
	1146	2200		

Direction of rotation (viewed from behind tractor):Clockwise

1.4.1.2 Power take-off proportional to ground speed

P.T.O. and range	Travelling distance for one revolution of power take-off shaft m	Number of power take-off shaft revolutions for one revolution of (rear) driving vheels
-	0.170	30.3516

Direction of rotation with forward gear engaged (viewed from behind tractor): Clockwise

1.4.2 Optional power take-off

Type: Independent

Method of engagement: Hydraulic clutch operated by hand lever, independent of main drive clutch, wet multiplate

Number of shafts: 1

Method of changing power take-off speeds: None

1.4.2.1 Power take-off proportional to engine speed

Location: At front of tractor

P.T.O.	Diameter of power take-off shaft end mm	Number of splines	In conformity with ISO 500/1991
1000	34.9	21	Yes

Height above ground: 718 mm

Distance from the median plane of the tractor: 0 mm

Distance in front front-wheel axis: 621 mm

P.T.O.	P.T.O. speed rev/min	Engine speed rev/min	Ratio of rotation speeds (engine speed/p.t.o. speed)	Power restriction and maximum torque kW/Nm
1000	1000	1947	1.9474	40.0/382.0
	1130	2200		

Direction of rotation (viewed from face tractor): Clockwise

1.4.2.2 Power take-off proportional to ground speed

None

1.5 POWER LIFT

Make, model and type: AGROMET ARCHIMEDES, 88.646.000, hydraulic with mechanical position, draft or mixed control, lower link sensing

Type of hydraulic system: Open centre

Type and number of cylinders: 1 integral single-acting and 1 external single-acting

Type of linkage lock for transport: Hydraulic

Relief valve pressure setting (tolerance): 18.0+2.0 MPa

Opening pressure of cylinder safety valve: 20.5+1.0 MPa

Lift pump type: Gear

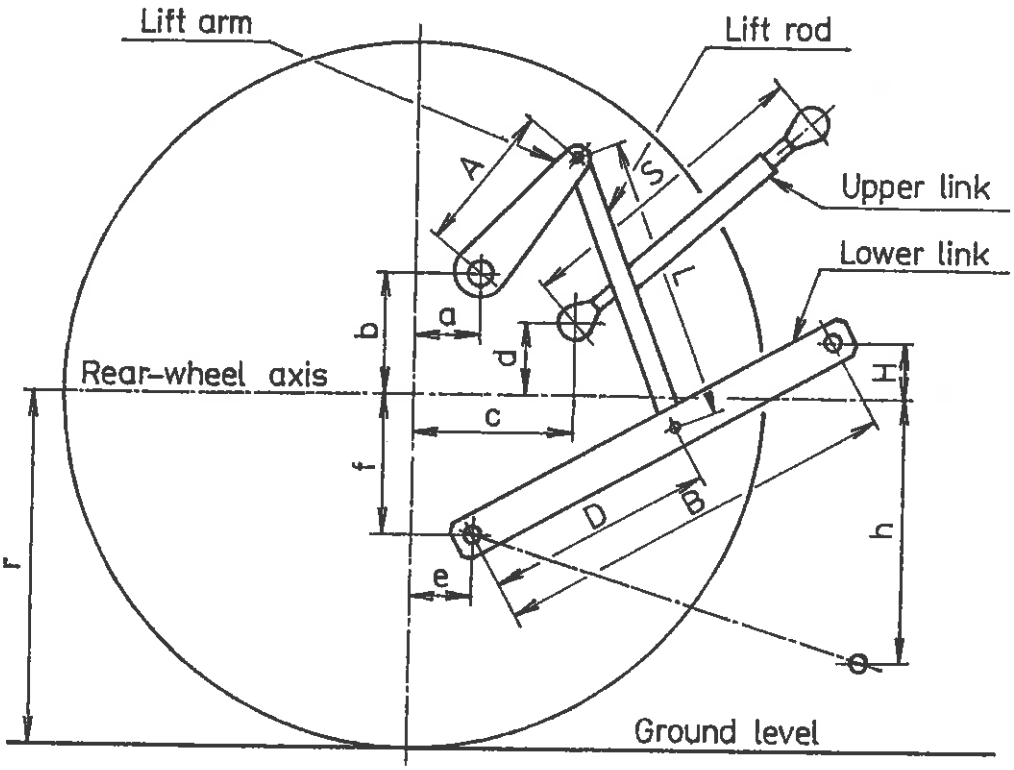
Transmission between pump and engine: Gear driven from engine

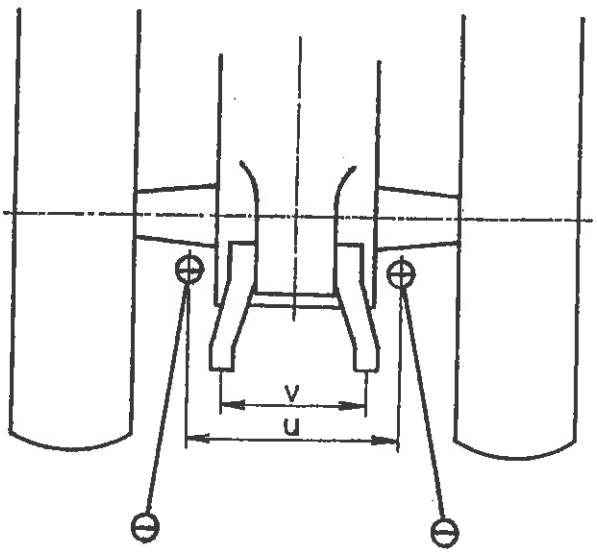
Type and number of filters: 1 magnetic and 1 screen filter in suction side and full flow filter with replaceable paper cartridge in delivery side of pumps of hydraulic and gear box

Site of oil reservoir:	Transmission housing
Type, number and location of tapping points:	5 pressure and 1 return, quick release at rear of tractor
Maximum volume of oil available to external cylinders:	15 dm^3

1.6 THREE-POINT LINKAGE

Category:	2, in conformity with ISO 730/1-1990
Category adapter:	None





Linkage geometry dimensions:

			Dimension or range mm	Settings used in test mm
Length of lift arms		(A)	330	330
Length of lower links		(B)	950	950
Distance of lift arm pivot point from rear-wheel axis:	horizontally vertically	(a) (b)	170 285	170 285
Horizontal distance between the 2 lower link points		(u)	542	542
Horizontal distance between the 2 lift arm end points		(v)	640	640
Length of upper link		(S)	652 to 851	674
Distance of upper link pivot point from rear-wheel axis:	horizontally vertically	(c) (d)	385 123, 170, 210	385 123
Distance of lower link pivot point from rear-wheel axis:	horizontally vertically	(e) (f)	130 255	130 255
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	507	507
Length of lift rods		(L)	525 to 670	641
Height of lower hitch points relative to the rear-wheel axis: - in low position - in high position		(h) (H)	424 to 708 -39 to 200	620 45
Height above ground of lower hitch points when locked in transport position (*)			Any height withing lift range	
(*) Assuming the tyre dynamic radius index r=820 mm of ISO 4251/1-1992				

1.7 SWINGING DRAWBAR

Type: Clevis

Height above ground:
- Maximum: 404 mm
- Minimum: 404 mm

Type of adjustment: Sliding drawbar in two distance of hitch point from power take-off shaft end - 400 and 500 mm

Distance of hitch point from rear-wheel axis, horizontally: 930 and 1030 mm

Distance of hitch point from power take-off shaft end:
- Vertically: 280 mm
- Horizontally: 400 and 500 mm

Lateral adjustment (centre of clevis):	
Right-hand:	0 mm
Left-hand:	0 mm
Distance of pivot point from rear-wheel axis, horizontally:	385 mm to rear
Diameter drawbar pin hole:	33 mm
Maximum vertical permissible load:	9 kN for 400 mm, 7 kN for 500 mm

1.8 TRAILER HITCH

Type:	Automatic clevis
Hole diameter:	42 mm
Height above ground:	723, 773, 823, 873 and 923 mm
Distance of hitch point from rear-wheel axis, horizontally:	930 mm
Distance of hitch point from power take-off shaft end:	
Vertically:	39, 89, 139, 189 and 239 mm
Horizontally:	400 mm
Maximum vertical permissible load:	10 kN

1.9 HOLED DRAWBAR

Number of holes:	7
Distance between holes:	80 mm
Hole diameter:	32 mm
Thickness/width of the drawbar:	2×20·mm/90 mm
Height above ground:	
Maximum:	865 mm
Minimum:	200 mm
Horizontal distance to power take-off shaft end (rear):	550 mm

1.10 SEMI-TRAILER HITCH

Type:	Towing hook
Hole diameter:	47 mm
Height above ground:	454 mm
Distance of hitch point from rear-wheel axis, horizontally:	709 mm
Distance of hitch point from power take-off shaft end:	
Vertically:	230 mm
Horizontally:	179 mm

Maximum vertical permissible load: 21 kN

1.11 FRONT TOWING HITCH Not fitted

1.12 STEERING

Make, model and type: HYDRAULIK NORD, LAGB 125-1, hydrostatic

Method of operation: Independent hydraulic circuit for steering

Pump: Gear, driven from engine

Ram: Double-acting cylinder on the front axle

Working pressure: 14.0 MPa

1.13 BRAKES

1.13.1 Service brake

On the rear axle:

Make, model and type: ZTS, 63.227.000, wet disc, multiplate, 5 discs on each side

Method of operation: Hydraulically by pedals, coupled or independent

On the front axle: None

Trailer braking take-off: Air brake operated by tractor pedals

1.13.2 Parking brake

Type: Common with service brake

Method of operation: Mechanically by hand lever with ratchet

1.14 WHEELS

Number:

Front: 2, steering and driving

Rear: 2, driving

Wheelbase: 2705 mm

Track width adjustment:

	Minimum mm	Maximum mm	Adjustment method
Front	1795	1995	By changing wheel discs to either side of wheel centre
Rear	1800	1800	None

1.15 PROTECTIVE STRUCTURE

Make, model and type:	VĽAD, BK UR II M87, cab with integrated safety frame
Manufacturer's name and address:	VĽAD, 081 17 Prešov, Slovakia
Protective device:	
Cab/frame/rollguard/other:	Cab
Tiltable/not tiltable:	Not tiltable
OECD approval number:	CSS 0275/5
Date of approval:	25th April 1994
Modification certificate if any:	None

1.16 SEAT

1.16.1 Driver's seat

Make, model and type:	MARS, Zetor 5911-5400, upholstered seat
Type of suspension:	Parallelogram linkage adjustable for driver's weight
Type of damping:	Hydraulic
Range of adjustment:	
Longitudinal:	150 mm
Vertical:	60 mm

1.16.2 Optional driver's seat

Make, model and type:	GRAMMER, LS 95H1/90AR, upholstered seat with back rest
Type of suspension:	Parallelogram linkage adjustable for driver's weight
Type of damping:	Hydraulic
Range of adjustment:	
Longitudinal:	150 mm
Vertical:	60 mm

1.16.3 Passenger seat

None

1.17 LIGHTING

	Height above ground of centre mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
Headlights	1205	Ø120	240
Sidelights			
1st pair	1840	60×65	775
2nd pair (*)	2600	Ø60	740
Rearlights			
1st pair	1780	105×70	905
2nd pair (*)	2600	Ø60	740
Reflectors	1075	Ø80	1030

(*) At top of cab

2. TEST CONDITIONS

2.1 OVERALL DIMENSIONS (unballasted tractor)

Length mm	Width		Height at top of	
	minimum mm	maximum mm	protective structure mm	exhaust silencer mm
4470	2370	2485	2725	2935

2.2 GROUND CLEARANCE (unballasted tractor): 345 mm

Clearance-limiting part: Swinging drawbar

2.3 TRACTOR MASS (unballasted tractor with cab)

	Without driver kg	With driver kg
Front	2055	2070
Rear	3220	3280
Total	5275	5350

2.4 TYRES AND TRACK WIDTH SPECIFICATIONS

	Front	Rear
Tyres:		
Make	BARUM	TAURUS
Dimensions	14.9-24	18.4R38
Ply rating	8 PR	146 A8
Type	diagonal	radial
Maximum load (tyre manufacturer's)	17.60 kN	32.10 kN
Maximum load (tractor manufacturer's)	15.00 kN	27.15 kN
Inflation pressure (tyre manufacturer's)	180 kPa	160 kPa
Dynamic radius index	590 mm	820 mm
Chosen track width:	1895 mm	1800 mm

2.5 OILS AND LUBRICATION

2.5.1 Capacity and change interval

	Capacity dm^3	Oil change h	Filter change h
Engine	19.0	200	200
Gear box	52.0	1200	600
Front axle	2.6	1200	-
Rear axle		Common with gear box	
Final drive (front)	2×1.3	2400	-
Final drive (rear)	2×4.0	1200	-
Hydraulic system		Common with gear box	
Steering	8.0	1200	1200
Air cleaner	2.2	100	-

2.5.2 Specifications

	Recommended	Used during test
Engine oil: Type Viscosity Classification	 SAE 30 12.0 cSt at 100 °C API SC/CB	As recomended
Transmission oils: Type Viscosity Classification	 SAE 80W 7.5 cSt at 100 °C API GL-4	As recommended
Steering oil: Type Viscosity Classification	 OL-N22 19.8 cSt at 40 °C ISO 6743 HH 22	As recommended

Hydraulic fluid: Same as transmission

Air cleaner filling: Same as engine

2.5.3 Grease

Number of lubrication points: 21

2.6 FUEL

Type: Diesel fuel, in conformity with national standard ČSN 65 6506

Density at 15 °C: 0.837 g/cm^3 for p.t.o. tests
0.837 g/cm^3 for drawbar tests

3. COMPULSORY TEST RESULTS

3.1 MAIN POWER TAKE-OFF

Date and location of tests: 29th August 1995, SZZPLS Praha

Type of dynamometer: FROUDE AG 400, eddy-current

Power	Speed		Fuel consumption			Specific
	Engine	P.T.O.	Hourly		Specific	energy
kW	rev/min		kg/h	l/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER - TWO-HOUR TEST						
68.8	2150	1120	18.72	22.37	272	3.08
3.1.2 POWER AT RATED ENGINE SPEED						
68.6	2200	1146	19.08	22.80	278	3.01
3.1.3 SATNDARD POWER TAKE-OFF SPEED (1000±25 rev/min)						
64.5	1920	1000	17.04	20.36	264	3.17
3.1.4 PART LOADS 3.1.4.1 the torque corresponding to maximum power at rated engine speed						
68.6	2200	1146	19.08	22.80	278	3.01
3.1.4.2 85 % of torque obtained in 3.1.4.1						
60.4	2281	1188	17.47	20.87	289	2.89
3.1.4.3 75 % of torque defined in 3.1.4.2						
45.9	2307	1202	14.26	17.04	311	2.69
3.1.4.4 50 % of torque defined in 3.1.4.2						
30.9	2332	1215	11.36	13.57	368	2.28
3.1.4.5 25 % of torque defined in 3.1.4.2						
15.9	2359	1229	8.60	10.27	551	1.52
3.1.4.6 unloaded						
-	2390	1245	6.12	7.31	-	-

Power	Speed		Fuel consumption			Specific
	Engine	P.T.O.	Hourly		Specific	energy
kW	rev/min		kg/h	l/h	g/kWh	kWh/l
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED 1000 rev/min 3.1.5.1 the torque corresponding to maximum power						
64.5	1920	1000	17.04	20.36	264	3.17
3.1.5.2 85 % of torque obtained in 3.1.5.1						
58.5	2050	1068	15.80	18.88	270	3.10
3.1.5.3 75 % of torque defined in 3.1.5.2						
44.6	2085	1086	12.90	15.41	289	2.89
3.1.5.4 50 % of torque defined in 3.1.5.2						
30.3	2121	1105	10.21	12.20	337	2.48
3.1.5.5 25 % of torque defined in 3.1.5.2						
15.4	2150	1120	7.58	9.06	492	1.70
3.1.5.6 unloaded						
-	2179	1135	5.12	6.12	-	-

No load maximum engine speed: 2390 rev/min

Torque (equivalent crankshaft):

at maximum power: 305.6 Nm
at rated engine speed: 297.8 Nm
at standard power take-off speed: 320.8 Nm

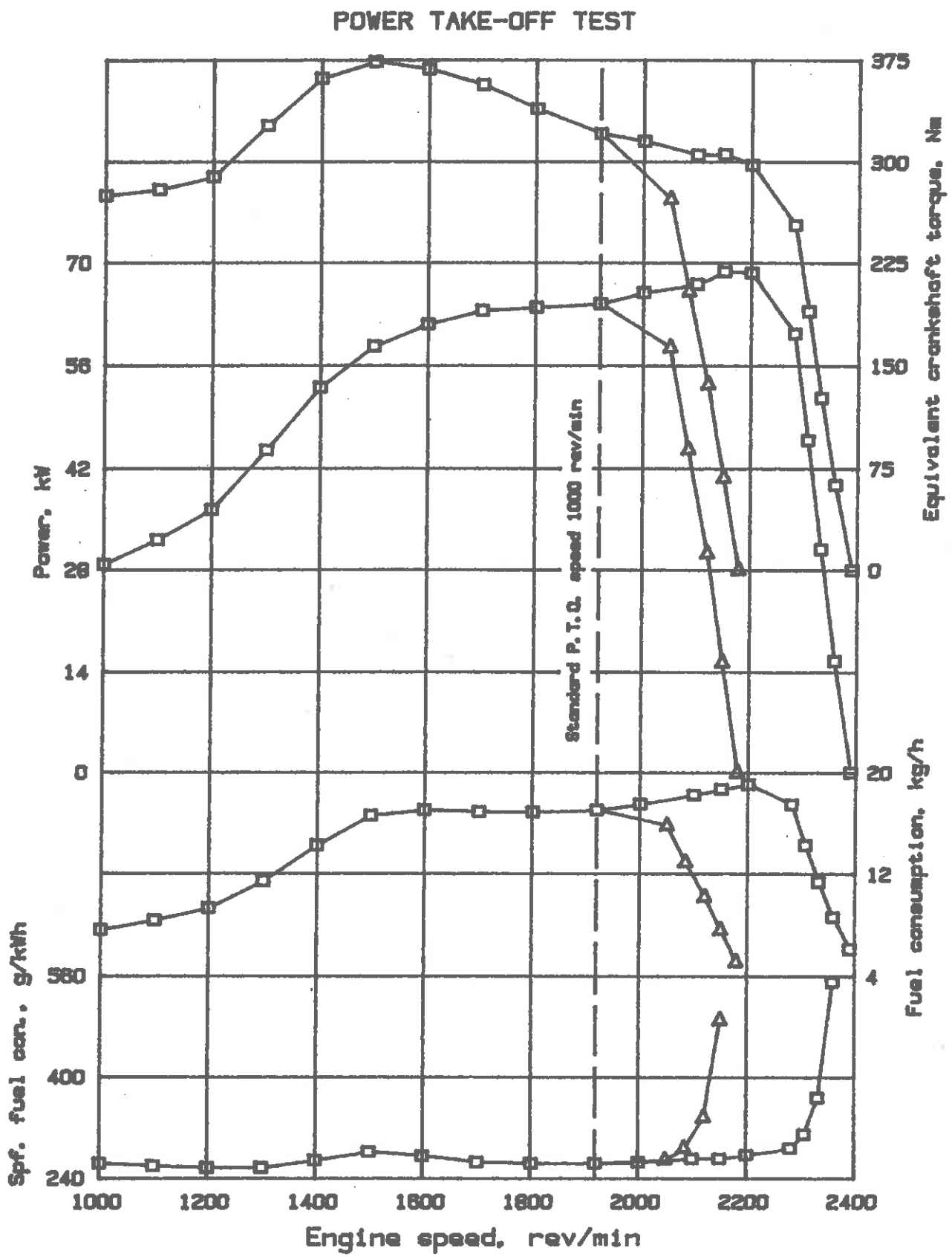
Maximum torque (equivalent crankshaft): 373.9 Nm
(engine speed: 1499 rev/min)

Mean atmospheric conditions:

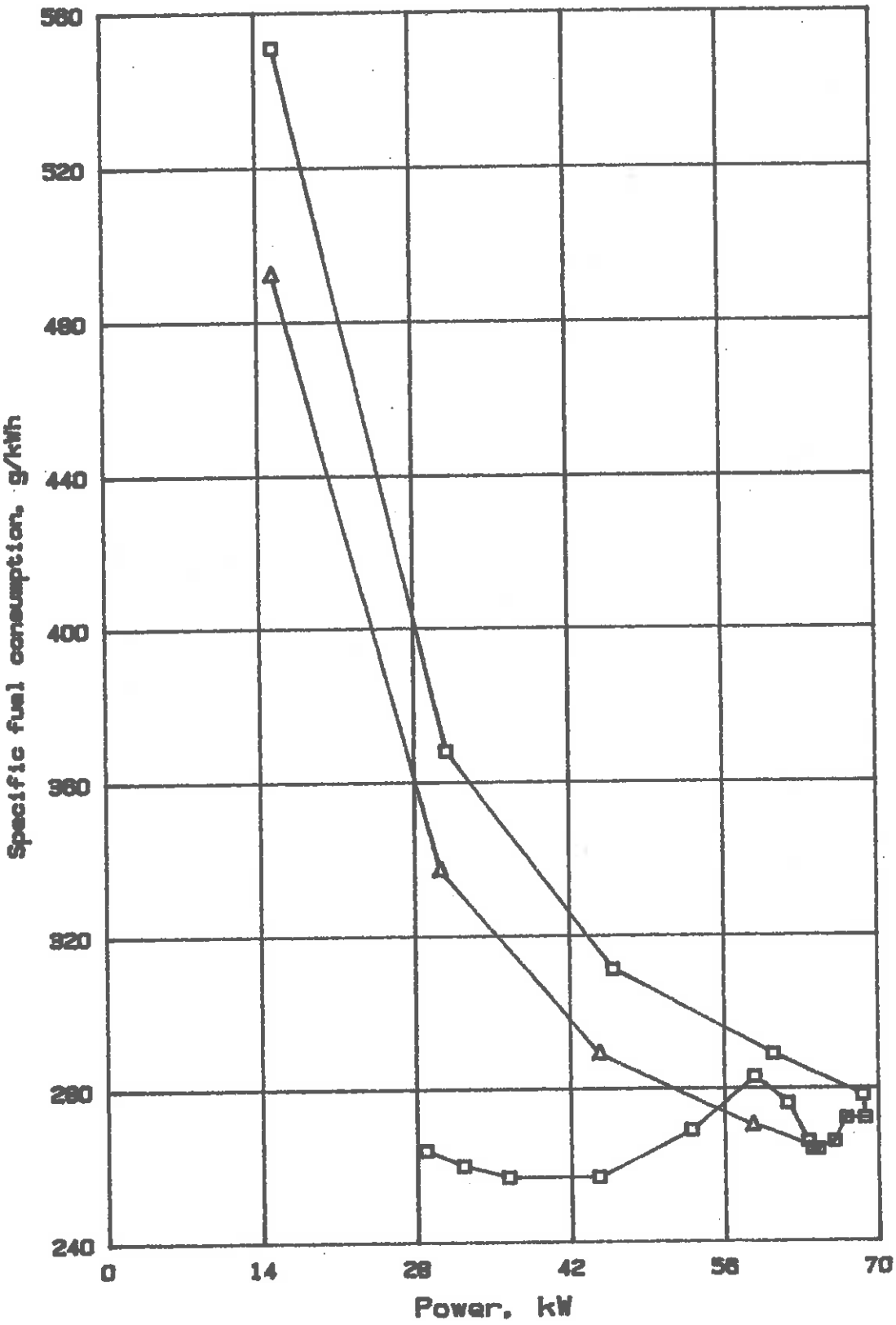
Temperature: 18 °C
Pressure: 96.3 kPa
Relative humidity: 63 %

Maximum temperatures:

Coolant: 80 °C
Engine oil: 99 °C
Fuel: 37 °C
Engine air intake: 29 °C


POWER TAKE-OFF TEST
Power, kW
70
56
42
28
14
0
Spf. fuel con., g/kWh
360
400
240
Standard P.T.O. speed 1000 rev/min
Equivalent crankshaft torque, Nm
375
300
225
150
75
0
Fuel consumption, kg/h
20
12
4
1000
1200
1400
1600
1800
2000
2200
2400
Engine speed, rev/min

POWER TAKE-OFF TEST



3.2 HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 5th October 1995

3.2.1 Hydraulic power test

Sustained pressure with relief valve open: 19.0 MPa

Pump delivery rate at minimum pressure: 45.0 l/min

	Flow rate l/min	Pressure kPa	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting and corresponding hydraulic power	23.0	17.1	6.6
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	43.0	14.7	10.5

Tapping point used for test: External tapping

Temperature of hydraulic fluid: 65 °C

Opening and closing pressures of the unloading valve: Not applicable

3.2.2 Power lift test

Linkage setting for test - see page 11

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	200 mm	200 mm
Vertical movement	615 mm	800 mm
Maximum corrected force exerted through full range	44.5 kN	32.8 kN
Corresponding pressure of hydraulic fluid	17.1 MPa	17.1 MPa
Moment about rear-wheel axis	48.1 kNm	55.4 kNm
Maximum tilt angle of mast from vertical	-	10 degrees

Lifting heights relative to the horizontal plane including the lower link pivot points												
mm	-479	-400	-365	-300	-200	-100	0	+100	+200	+250	+300	+321
Lifting forces at the hitch points, corrected to 17.1 MPa												
kN	-	-	44.5	45.5	45.9	47.1	46.2	46.7	47.2	47.5	-	-
Lifting forces at the test frame, corrected to 17.1 MPa												
kN	37.9	38.3	-	37.0	36.5	36.8	35.5	34.1	33.1	-	32.8	32.8

3.3 DRAWBAR PERFORMANCE (unballasted tractor)

Date of tests: 19th and 20th October 1995

Type of track: Bituminous-concrete surface

Height of drawbar above ground	Tyre inflation pressure	
	Front	Rear
404 mm	120 kPa	110 kPa

Gear and group	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Specific fuel consumption
	kW	kN	km/h	rev/min	%	g/kWh
3.3.1 MAXIMUM POWER IN TESTED GEARS						
2 IM+	36.9	47.0	2.83	2299	15.3	395
2 IM-	48.5	46.2	3.78	2271	14.4	351
3 IM+	58.0	39.3	5.31	2148	7.3	316
4 IM+	57.9	33.3	6.26	2147	5.1	316
1 IIM+	59.4	33.9	6.31	2154	5.2	310
3 IM-	60.2	29.7	7.30	2148	4.2	308
4 IM-	59.5	25.3	8.46	2144	3.5	309
1 IIM-	60.6	25.3	8.62	2169	3.5	306
2 IIM+	57.2	20.3	10.14	2157	2.8	324
2 IIM-	58.0	15.2	13.73	2158	1.9	318
3 IIM+	55.2	10.6	18.75	2150	1.3	334
3.3.2 FUEL CONSUMPTION 3.3.2.1 in selected gear, at maximum power at rated speed						
1 IIM-	60.6	24.9	8.76	2202	3.3	308
3.3.2.1.1 75 % of pull at maximum power at rated speed						
1 IIM-	47.9	18.8	9.18	2286	2.5	326
3.3.2.1.2 50 % of pull at maximum power at rated speed						
1 IIM-	32.6	12.5	9.38	2317	1.5	380
3.3.2.1.3 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.1						
2 IIM+	47.5	18.7	9.14	1934	2.4	309
3.3.2.1.4 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2						
2 IIM+	32.5	12.5	9.37	1962	1.5	346
3.3.2.2 in selected gear nearest to 7.5 km/h at rated speed						
3 IM-	60.2	28.8	7.53	2207	3.8	312
3.3.2.2.1 75 % of pull at maximum power at rated speed						
3 IM-	47.3	21.6	7.88	2288	3.0	329
3.3.2.2.2 50 % of pull at maximum power at rated speed						
3 IM-	32.5	14.5	8.08	2316	1.7	382
3.3.2.2.3 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.1						
4 IM-	47.2	21.7	7.83	1968	3.0	303
3.3.2.2.4 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2						
4 IM-	32.4	14.5	8.05	2002	1.7	347

Specific energy	Temperature			Atmospheric conditions		
	Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
kWh/l	°C	°C	°C	°C	%	kPa
2.12	35	82	88	13	76	97.8
2.38	35	85	91	13	76	97.8
2.65	38	86	96	15	70	98.5
2.65	38	86	95	15	69	98.4
2.70	38	85	96	14	70	98.4
2.72	33	82	88	11	78	97.9
2.71	35	87	93	11	79	97.9
2.74	36	86	92	12	78	97.9
2.59	36	85	89	13	77	97.8
2.63	36	85	90	13	74	97.8
2.51	36	87	91	13	75	97.8
2.71	33	86	91	12	78	97.9
2.57	34	80	86	13	76	97.8
2.20	36	82	89	13	76	97.8
2.71	35	81	88	13	76	97.8
2.42	35	81	88	13	76	97.8
2.68	31	79	83	11	78	97.9
2.54	36	82	89	14	74	97.8
2.19	38	85	91	14	74	97.8
2.76	34	82	87	13	75	97.8
2.41	34	83	87	13	75	97.8

4. OPTIONAL TEST RESULTS

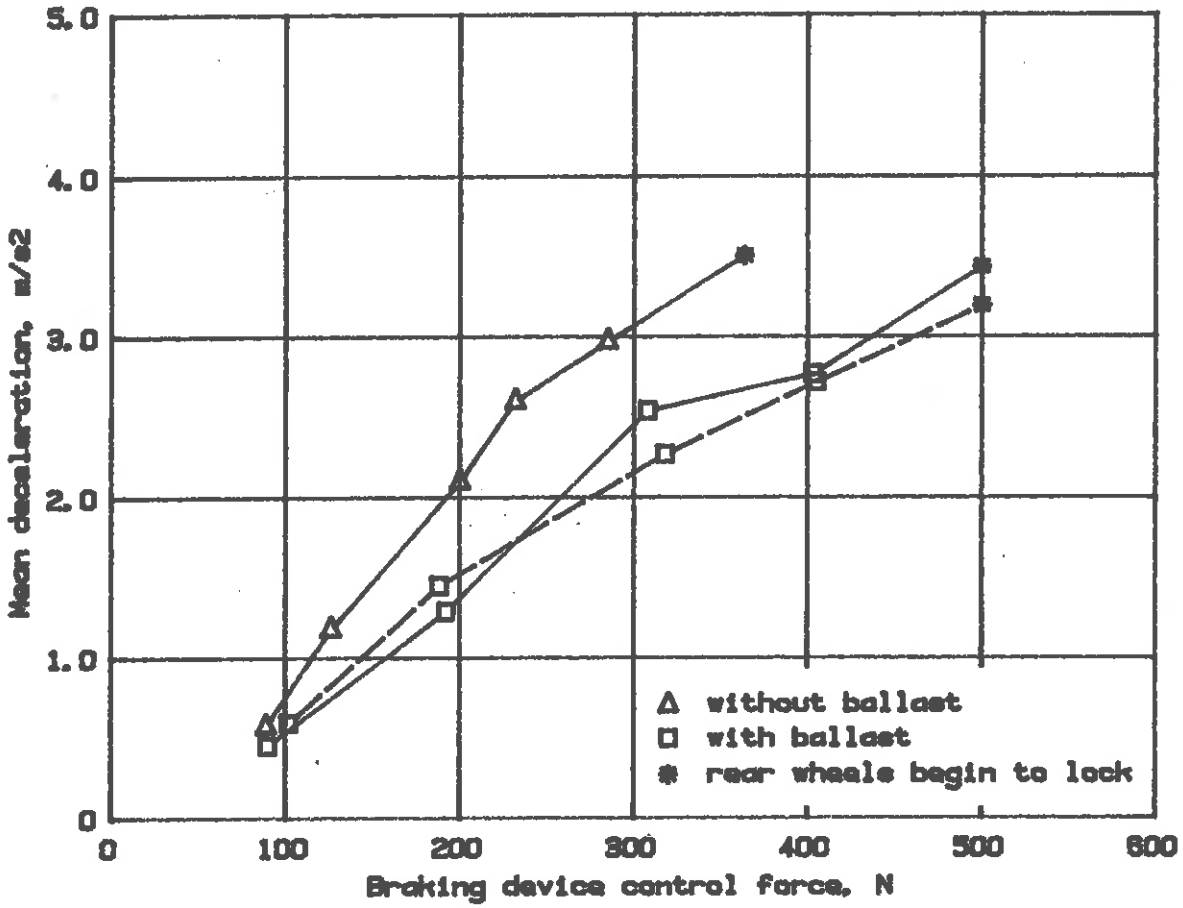
4.1 BRAKING

Date of tests: 31st October and 30th November 1995

	Tractor mass (with driver)			Speed before application of brakes km/h
	Front kg	Rear kg	Total kg	
Ballasted	3000	5430	8430	30.5
Unballasted	2070	3280	5350	30.8

4.1.1 Cold service braking device test (————————)

4.1.2 Fade test (— — — — —)



Maximum deviation of tractor from its original course: Not significant

Abnormal vibration: None

Brake heating method: Driven with brakes applied for 1 km at 80 % of maximum speed with a pedal force corresponding to a deceleration of 1 m/s^2

4.1.3 Parking braking device test

	Ballasted tractor on 18 % slope	
	Uphill	Downhill
Braking device control force	340 N	260 N

4.2 MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests:	26th October 1995
Make and model of sound level meter:	BRÜEL & KJAER, 2231
Type of track:	Bituminous-concrete surface
Gear number:	4 IIM-
Travelling speed before acceleration:	23.1 km/h
Sound level:	86.5 dB(A)

5. REPAIRS

None

6. REMARKS

None

Test carried out by: Dipl. Ing. Peter Pernis

Head of the Tractor Laboratory

Pernis

Dipl. Ing. Peter Pernis

Director

Dipl. Ing. Vladimír Hanzlík