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TEST REPORT: O.E.C.D. No. 1122

REPORT ON TEST IN ACCORDANCE WITH THE O.E.C.D. STANDARD CODE FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS



URSUS 1222 Tractor with Rear-wheel Drive
Manufacturer: Zrzeszenie Przemyslu Ciagnikowego "URSUS"
Warszaw, Poland

Date of Approval: 2nd February 1988

This Bulletin is based on engineering tests in accordance with O.E.C.D. Standard Code for Official Testing of Agricultural Tractors.
It does not contain an evaluation of the performance of the tractor on practical farm work.

This report has been approved by the O.E.C.D. Coordinating Centre (C.E.M.A.G.R.E.F., France) as being in accordance with the O.E.C.D. STANDARD CODE.

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TABLE OF CONTENTS

		Page No.
I	Specifications of Tractor	1
	Conditions during Test	14
II	Test Results	17
	Compulsory Tests	17
	1. Main Power Take-off	17
	2. Hydraulic Power and Lifting Force	22
	3. Drawbar Performance	24
	4. Turning Area and Turning Circle	25
	5. Location of Centre of Gravity	25
	6. Braking	26
	7. Measurements of External Noise Level	27
	Noise Measurements at the Driver's Ear	27
	Repairs and Remarks	28

Tractor manufacturer's name and address:	Zrzeszenie Przemyslu Ciagnikowego "URSUS", Warszawa, Poland.
Submitted for test by:	Biuro Handlu Zagranicznego "URSUS", Warszawa, Poland.
Selected for test by:	Manufacturer in agreement with Testing Station.
Place of running-in:	Zaklady Mechaniczne "URSUS", Warszawa.
Duration of running-in:	Approx. 50 hours.

I. SPECIFICATIONS OF TRACTOR

TRACTOR

Make	URSUS
Model:	1222
Type:	Rear-wheel-driven unit construction
Serial No.:	00004
First serial No.:	00001

ENGINE

Make:	ZTS. Martin
Model:	Z-8701.1.
Type:	Water cooled, 4-stroke, direct injection diesel engine
Serial No.:	0010027

Cylinders

Number/disposition:	6 vertical in line
Bore/stroke:	110/120 mm
Capacity:	6842 cm^3
Compression ratio:	17:1
Arrangement of valves:	Overhead
Cylinder liners:	Replaceable, wet

Fuel System

Fuel feed system	Piston pump.
Make, type and model of fuel filter(s):	Two step filter, felt and paper element JK 443 741 429 000
Capacity of fuel tank:	130 dm^3
Make, type and model of injection pump:	Motorpal in-line, PAL PP 6 M 85 K le .
Serial No	0920
Manufacturer's production setting of injection pump:	64.5 mm^3/stroke at 2200 rpm.and full load.
Injection pump timing:	24 + 2° before T.D.C.
Make, model of injectors	PAL, multihole VP 81 S 453 e 2575
Injection pressure:	16.8 MPa.

Governor

Make:	Motorpal
Model:	RV3M 300/1100
Type:	Mechanical
Governed range of engine speed:	600-2450 rev/min

Rated Engine Speed 2200 rev/min

Air Cleaner

Pre-cleaner	
Make:	Hodrusba-Hamre
Model:	PC 500
Type:	Cyclonic with dust container.
Location of air intake:	Under bonnet forward of radiator

Main	
Make:	Hodrusba-Hamre
Model:	9450.11
Type:	Two stage oil bath
Oil capacity:	2.5 l
Maintenance indicator:	None

Lubrication System

Type of feed pump:	Gear pump
Type of filter(s):	Centrifugal
Number:	1
Cleaning period	400 hours

Cooling System

Type of coolant:	Water or antifreeze
Type of pump:	Centrifugal belt driven
Specification of fan:	
Number of fan blades:	8
Fan diameter:	460 mm
Coolant capacity:	24 dm^3
Type of temperature control:	Thermostat and thermometer
Superpressure system:	0,52 kPa

Starting System:

Make:	ZELMOT
Model:	H 12 M
Type:	12 V
Starter motor power rating:	5.5 kW
Cold starting aid:	None
Safety device:	Gear selector to be in neutral

Electrical System

Voltage:	12 V
Generator:	Alternator
Make:	ZELMOT
Model:	A 12 M/12V
Power:	42 A
Battery (Number of accumulators):	2
Rating:	240 ah at 20 hours

Exhaust System

Make:	Ursus
Model:	Oval
Type:	Baffle
Location:	Left hand side, vertical
Height of outlet above ground:	2680 mm

TRANSMISSION TO WHEELS

Clutch

Make:	ZTS MARTIN
Type:	Dry, travel alone
Number of plates:	1
Diameter of plates:	380 mm
Method of operation	Mechanically by pedal

Gear Box

Make:	Povazske Strojarne
Type:	Mechanical
Arrangement:	4 forward x 2 ranges x torque multiplyer 4 reverse x torque multiplyer
Number of gears:	16 forward, 8 reverse
Available options:	Creep gear

Rear Axle and Final Drives:

Make:	ZPC "URSUS"
Type:	OERLIKON with planetary wheel reduction gears.

Differential lock:

Type:	Clow clutch, mechanical
Method of engagement:	Manual by pedal
Method of disengagement	Self disengaging

Front Axle

Make:	Own make
Model:	Telescopic

Total Ratios and Travelling Speeds

Gear			Number of engine rev. for one rev. of the driving wheel.	x) Nominal travelling speed for 2200 rpm. rated engine speed. km/h
Reduction Gear Engaged				
Forward	L	1	348.35	1.95
-	L	2	221.05	3.08
-	L	3	139.10	4.89
-	L	4	97.92	6.95
-	H	1	119.42	5.69
-	H	2	75.76	8.98
-	H	3	47.68	14.26
-	H	4	33.50	20.30
Reverse		1	254.75	2.67
-		2	161.64	4.21
-		3	101.72	6.69
-		4	71.45	9.52
Reduction Gear Disengaged				
Forward	L	1	260.40	2.61
-	L	2	165.22	4.12
-	L	3	103.98	6.54
-	L	4	73.03	9.31
-	H	1	89.26	7.62
-	H	2	56.63	12.01
-	H	3	35.65	19.08
-	H	4	25.04	27.16
Reverse		1	190.43	3.57
-		2	120.83	5.63
-		3	76.04	8.85
-		4	53.40	12.74

x) Calculated with a tyre dynamic radius index of 820 mm.

POWER TAKE OFF

Main Power Take Off:

Type:	Independent hydraulically operated. Wet multi-disc clutch.
Method on engagement:	By hand lever
Number of shafts:	1
Method of changing power take-off shaft ends and speeds	Manually by exchanging shafts

Power Take-off Proportional to Engine Speed.

540 Rev/min

Location:	At rear of tractor
Diameter of power take-off shaft end:	34.9 mm
Number of splines In conformity with ISO 500, 1979:	6
Height above ground:	644 mm
Distance from the median plane of the tractor:	0 mm
Distance behind rear wheel axle:	510 mm
PTO speed at rated engine speed (2200 rev/min):	629 rev/min
Engine speed at standard power take-off speed:	1890 rev/min
Engine to pto ratio:	3.50:1
Power restriction and maximum torque:	48 kW, 850 Nm
Direction of rotation (Viewed facing driving end):	Clockwise

1000 Rev/min

Location:	At rear of tractor
Diameter of power take-off shaft end:	34,9 mm
Number of splines in conformity with ISO 500, 1979:	21

Height above ground:	644 mm
Distance from the median plane of the tractor:	0 mm
Distance behind rear wheel axle:	510 mm
PTO speed at rated engine speed (2200 rev/min):	1146 rev/min
Engine speed at standard power take-off speed:	1920 rev/min
Engine to pto ratio:	1.92:1
Direction of rotation (Viewed facing driving end):	Clockwise

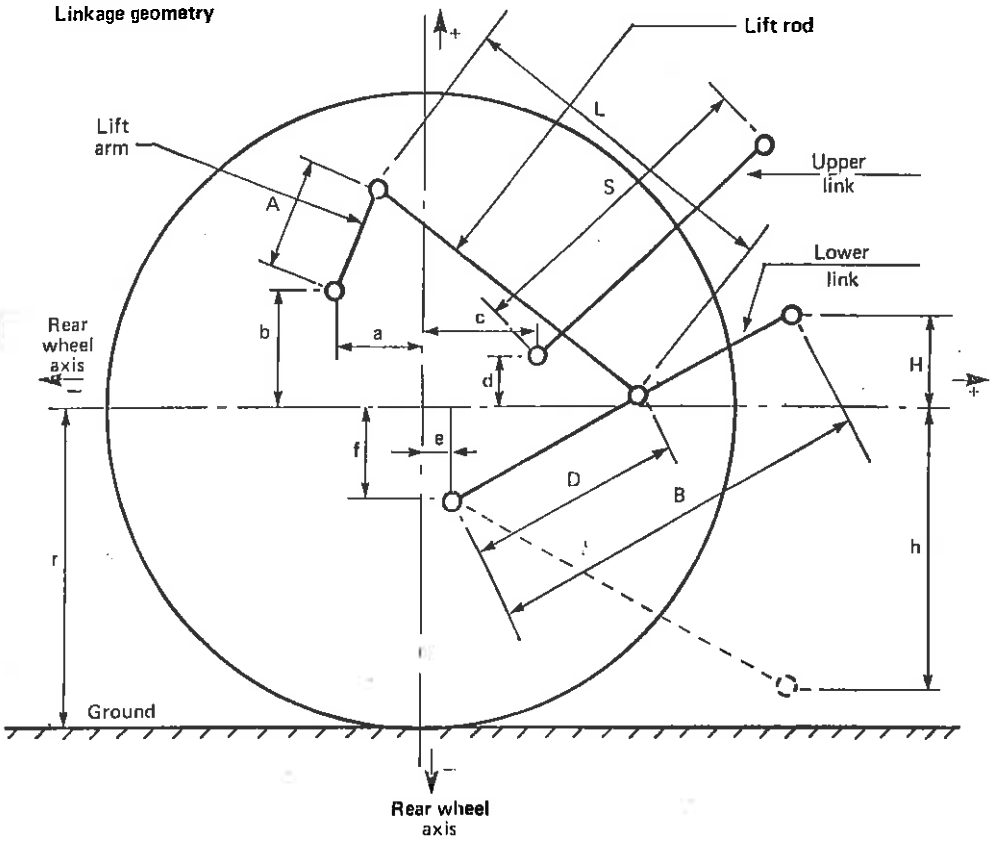
Power Take-off Proportional to Ground Speed Optional

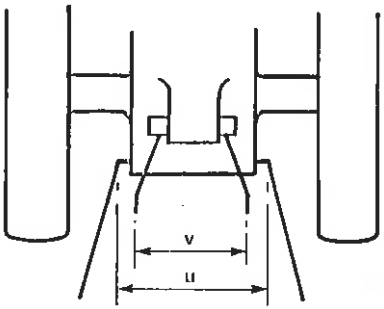
POWER LIFT:

Make:	Archimedes, Wroclaw
Type of hydraulic system:	Open centre
Type and number of cylinders:	One internal and two external single acting.
Type of linkage lock for transport:	Hydraulic
Relief valve pressure setting:	16.0 MPa
Opening pressure of cylinder safety valve:	18.63 + 0.98 MPa
Lift pump type:	Gear pump and additionsl piston pump.
Transmission between pump and engine:	Gear driven.
Type and number of filters:	ZPZ 2
Site of oil reservoir:	Main transmission housing
Type and number of tapping points:	2 double and 1 single
Maximum volume of oil available to external cylinders	15 dm^3

THREE-POINT LINKAGE

Category:	II in conformity with ISO 730/I
Controls:	Draft, position and pressure control and floating position. Lower links sensing


Linkage geometry
Lift rod
Lift arm
L
S
A
Upper link
Lower link
Rear wheel axis
b
a
c
d
H
f
e
D
B
h
r
Ground
Rear wheel axis


v
u

Dimensions of Linkage Geometry (When Connected to the Standard Frame) mm

			Dimension or range	Settings used in test
Rear tyres (size 18.4/15-38) dynamic index radius		(r)	820	
Front tyres (size 7.50-20) dynamic index radius		(r′)	470	
Lenght of lift arms		(A)	330	
Length of lower links		(B)	925	
Distance of lift arm pivot point from rear wheel centre line	Horizontally Vertically	(a) (b)	175 behind 290	
Horizontal distance between the 2 lower link points		(u)	530	
Horizontal distance between the 2 lift arm end points		(v)	550	
Length of upper link		(S)	from 610 to 865	690
Distance of upper link point from rear wheel centre line	Horizontally Vertically	(c) (d)	382 200, 155, 95	200
Distance of lower link from rear wheel centre line	Horizontally Vertically	(e) (f)	120 255	
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	465, 505	490
Length of lift rods		(L)	from 540 to 755	590

Height of lower hitch points relative to the rear wheel centre line, situated 820 mm above the ground level.

						TEST
Length of lift rods,	L	540	755	540	755	590
Linkage distance of lift rods,	D	465		505		
Lowest position	h	390	740	235	645	620
Highest position	H	360	35	400	145	75

Height above ground of lower hitch points when locked in transport position — Any height within lift range

FIXED DRAWBAR

Type:	Clevis type
Height above ground:	425 mm
Type of adjustment:	Length
Distance of hitch point from rear wheel axis horizontally:	820 - 870 mm
Distance of hitch point from power take-off shaft end	
vertically:	270 mm
horizontally:	350 - 400 mm
Diameter drawbar pin hole:	33 mm

TRAILER HITCH

Type:	Hook
Hook diameter:	47 mm
Height above ground:	480 mm
Distance of hitch point from rear wheel axis Horizontally:	557 mm
Distance of hitch point from power take-off shaft end	
Vertically:	225 mm
Horizontally:	47 mm
Diameter hitch pin hole:	33 mm
Maximum vertical permissible load:	21 kN

HOLED DRAWBAR

Number of holes:	9
Distance between holes:	80 mm
Hole diameter:	33 mm
Thickness/width of the drawbar:	20 + 55/90
Height above ground	
minimum:	75 mm
maximum:	1150 mm
Horizontal distance to power take-off shaft end (rear)	530 mm

STEERING

Make:	Agromet-Pilmet.
Method of operation:	Circular ball gear steering, hydraulically assisted.
Working pressure:	8 + 0,8 MPa

BRAKES

Service Brake

Make:	CSRS
Type:	Dry disc, multiplate, 2 per side
Method of operation:	Hydraulic by pedals coupled or independent
Trailer braking take-off:	Air brake

Parking Brake

Type:	Mechanical
Method of operation:	Hand lever with rachet operating mechanical linkage on service brakes

WHEELS

Number:	Front:	2 steering
	Rear:	2 driving
Wheelbase:		2690 mm

Track width adjustment method

	Min	Max	Adjustment method
Front	1350	1800	Telescopic front axle
Rear	1500	1875	By exchanging wheels and rim lugs

PROTECTIVE STRUCTURE

Make:	FMR KUNOW
Model:	88.361.000
Manufacturer's name and address:	AGROMET - FMR KUNOW, POLAND
Protective device:	Safety cab
Tilting/not tilting:	Not tilting

DRIVER'S SEAT

Make:	CSRS
Model:	59115400
Type of suspension:	Helical compression spring in the column
Type of damping:	Hydraulically
Range of adjustment:	
longitudinal:	150 mm
vertical:	60 mm

MISCELLANEOUS

Additional seat:	1
Location:	Behind the driver
Number of places:	1

LIGHTING

The lighting is in accordance with the national Danish regulations for road traffic.

	Height above ground of centre mm	Size mm	Distance from outside edge of tractor to median plan mm
Headlights	1095	125 dia	808
Sidelights	1855	65 x 65	187
Rearlights	1680	90 x 90	287
Reflectors	1330	75 dia	163

CONDITIONS DURING TEST

Overall Dimensions

Tyre size front: 7.50-20
rear: 18.4/15-38

	Length	Width		Height at top of, exhaust silencer	Height at top of, protective structure
	mm	min. mm	max. mm	mm	mm
Without ballast	4490	1985	2365	2680	2730
With ballast	4670	1985	2365	2678	2728

Ground Clearance (unballasted)

Clearance: 375 mm limited by fixed drawbar

Track Setting

Front: 1580 mm
Rear: 1510 mm

Tractor Mass and Ballasting

Tractor mass
(Without driver, but with tanks full - with cab)

Without ballast:
- front 1775 kg
- rear 2409 kg
- total 4184 kg

Front ballast:
- 7 weights 158 kg
- 8 add. weights 175 kg

Rear ballast:
- 5 weights per wheel incl. mountings, total 328 kg
- Water in tyres 756 kg

With ballast:
- front 2108 kg
- rear 3493 kg
- total 5601 kg

Tyres, Axle Loads and Track Specifications

	Front wheels	Rear wheels
Tyres:		
Dimensions	7.50-20	18.4/15-38
Ply rating	6	8
Type	diagonal	radial
Maximum load (tyre manufacturer's) (kN)	8.75	25.65
Maximum load (tractor manufacturer's) (kN)	8.75	25.65
Inflation pressure tyre manufacturer's (kPa)	280	140
Dynamic radius index (mm)	470	820
Chosen track width (mm):	1580	1510

Oils and Lubrication

Capacity and Change Interval

	Capacity (dm^3)	Oil change (h)	Filter change (h)
Engine	19	200	Not exchangeable x)
Gear box and rear axle	47	1600	800
Final drive (rear)	9.0	1600	-
Hydraulic system	in common with gearbox		
Other steering	7	800	800

x) Cleaning period 400 h.

Specifications

	Recommended	Used during test
Engine oil		
Type:	SAE 20W/40	SAE 20W/40
Viscosity:	14.5 c st	14.5 c st
Classification:	API CC-SF	API CC-SF
Transmission oils		
Type:	SAE 80	Hipol 6 SAE 80
Viscosity:	44 c st	48 c st
Classification:	API GL5	API GL5
Hydraulic fluid		
Type:	Same as transmission oils	
Viscosity:	- - -	-
Classification:	- - -	-
Steering oil		
Type:	Same as transmission oils	
Viscosity:	- - -	-
Classification:	- - -	-
Grease	LT 43	Esso MP Grease
Number of lubrication points:	13	

Fuel

Type	
In conformity with national standard:	Esso Diesel Fuel
Density at 15°C:	0.846 g/cm^3

TEST RESULTS

COMPULSORY TEST RESULTS

1. MAIN POWER TAKE-OFF

Date and location of tests: 1985.11.12, Bygholm, Horsens

Type of dynamometer: Schenck U2-30

Power	Speed		Fuel consumption		Specific Energy
	Engine	P.T.O	Hourly	Specific	
kW	rev/min		l/h	g/kWh	kWh/l
1.2 MAXIMUM POWER - 2 - hour test					
78.4	2200	1146	24.1	260	3.25
1.4 POWER AT RATED ENGINE SPEED					
78.4	2200	1146	24.1	260	3.25
1.4 STANDARD POWER TAKE-OFF SPEED (1000 ± 25 rev/min)					
71.2	1920	1000	21.5	255	3.31
PART LOADS					
1.4.1 the torque corresponding to maximum power at rated engine speed					
78.4	2200	1146	24.1	260	3.25
1.4.2 85% of torque obtained in 1.4.1					
68.5	2260	1177	21.8	269	3.14
1.4.3 75% of torque defined in 1.4.2					
50.2	2300	1198	17.1	288	2.94
1.4.4 50% of torque defined in 1.4.2					
35.3	2330	1213	14.0	335	2.51
1.4.5 25% of torque defined in 1.4.2					
17.8	2355	1226	10.1	480	1.76
1.4.6 unloaded					
-	2370	1234	8.9	-	-

PART LOADS AT STANDARD POWER TAKE-OFF SPEED (1000 rev/min)

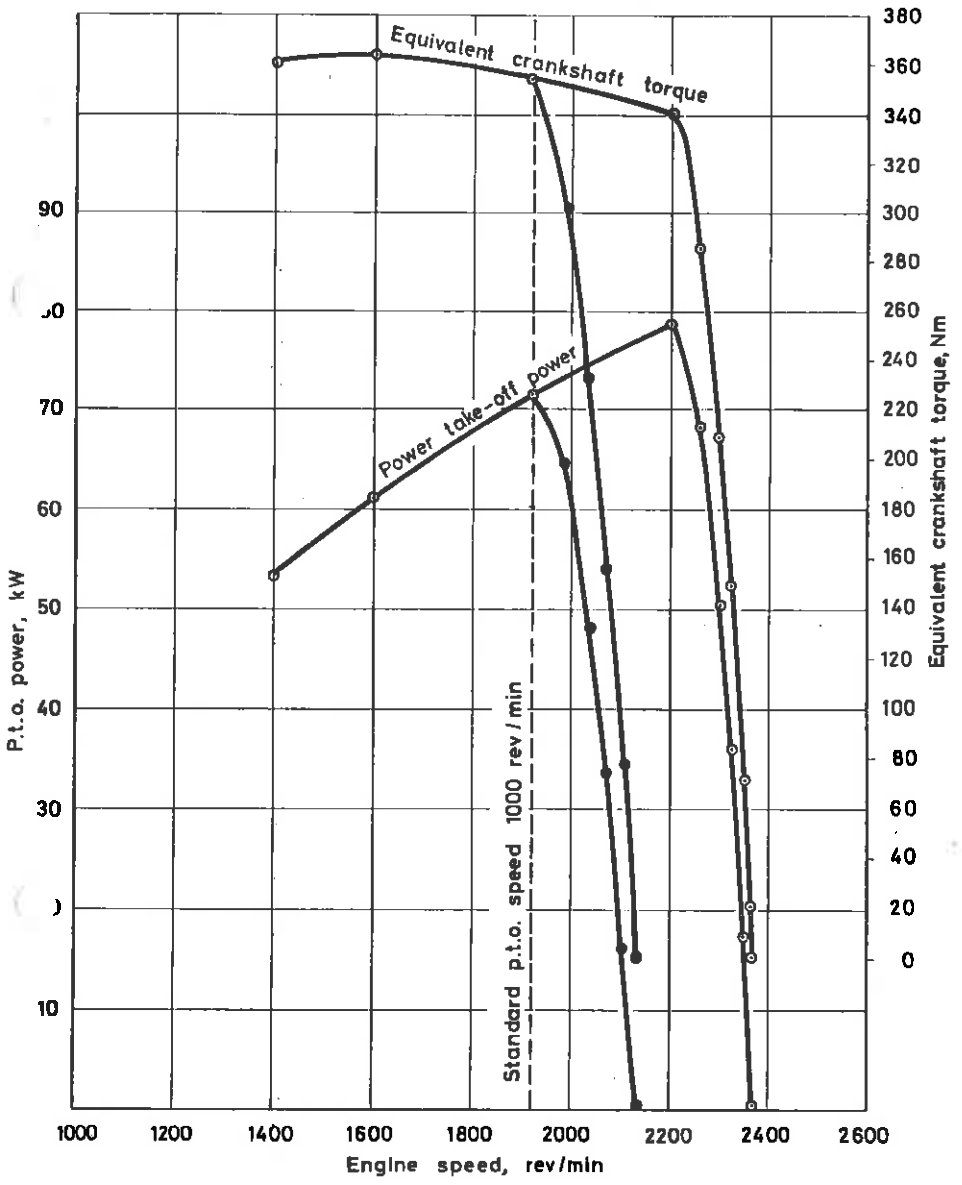
Power	Speed		Fuel consumption		Specific Energy
	Engine	P.T.O	Hourly	Specific	
kW	rev/min		l/h	g/kWh	kWh/l
1.4.1 The torque corresponding to maximum power					
71.2	1920	1000	21.6	255	3.30
1.4.2 85% of torque obtained in 1.4.1					
62.6	1987	1035	19.0	255	3.30
1.4.3 75% of torque defined in 1.4.2					
48.2	2040	1063	14.8	255	3.30
1.4.4 50% of torque defined in 1.4.2					
32.6	2070	1078	12.0	310	1.71
1.4.5 25% of torque defined in 1.4.2					
16.6	2110	1099	8.7	442	2.00
1.4.6 unloaded					
-	2130	1109	6.4	-	-

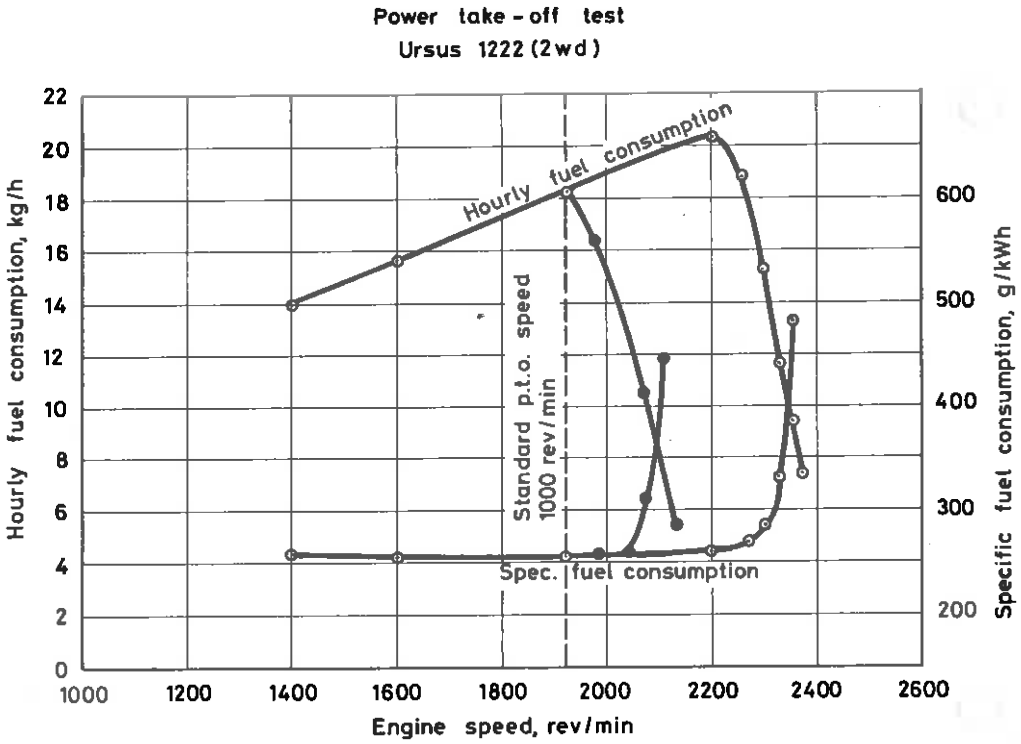
Standard specific fuel consumption, g/kWh 169/335/255/310

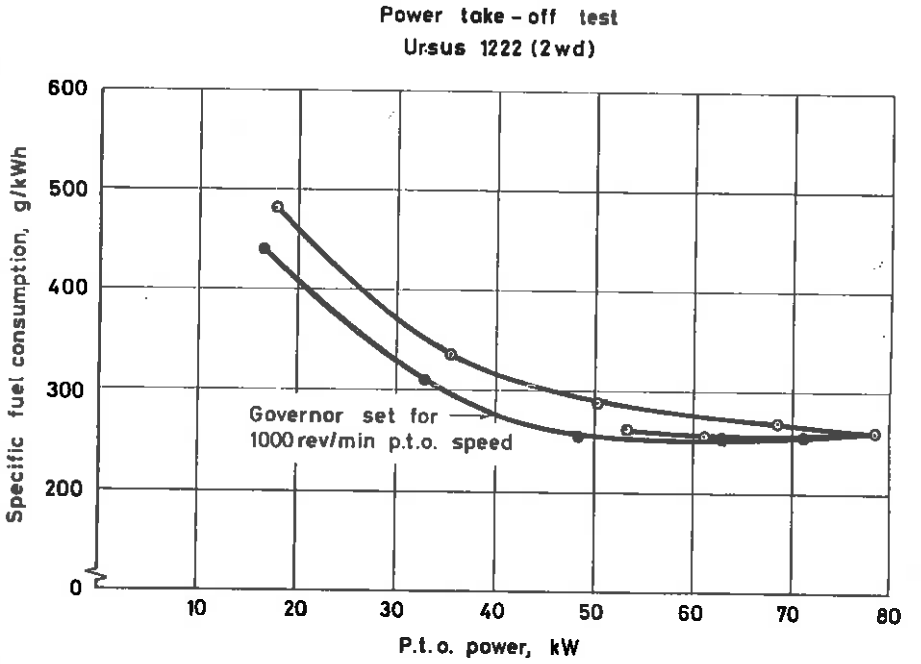
No load maximum engine speed: 2370 rev/min

Torque (equivalent crankshaft) at maximum power: 340 Nm

Power take-off test
Ursus 1222 (2wd)




Power take-off test
Ursus 1222 (2wd)
Hourly fuel consumption, kg/h
Specific fuel consumption, g/kWh
Engine speed, rev/min
Hourly fuel consumption
Spec. fuel consumption
Standard p.t.o. speed
1000 rev/min
0
2
4
6
8
10
12
14
16
18
20
22
200
300
400
500
600
1000
1200
1400
1600
1800
2000
2200
2400
2600


Power take - off test
Ursus 1222 (2wd)
Specific fuel consumption, g/kWh
600
500
400
300
200
0
10
20
30
40
50
60
70
80
P.t.o. power, kW
Governor set for
1000 rev/min p.t.o. speed

Maximum torque (equivalent crankshaft) (engine speed: rev/min. 1600):	365 Nm
Mean atmospheric conditions:	
Temperature:	22 °C
Pressure:	1030 kPa
Relative humidity:	70 %
Maximum temperatures:	
Coolant:	90 °C
Engine oil:	98 °C
Fuel:	22 °C
Engine air intake:	28 °C

2. HYDRAULIC POWER AND LIFTING FORCE

Date and location of tests:	1987.01.20, Bygholm
Hydraulic power test	
Type of hydraulic system:	Open centre
Hydraulic fluid temperature at beginning of test:	65°C

HYDRAULIC POWER TEST

Sustained pressure with relief valve open: (Pump stalled - no)	18.8 MPa
Pump delivery rate at minimum pressure	44.0 l/min
Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power	
Flow rate:	38.5 l/min
Pressure	16.9 MPa
Power:	10.8 kW
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	
Flow rate:	39.5 l/min
Pressure:	16.5 MPa
Power:	10.9 kW

Tapping point used for test: Auxiliary service connection

Temperature of hydraulic fluid, if different from 65°±5°C: °C

Opening pressure of the unloading valve: 16.7 MPa

Closing pressure of the unloading valve: 17.0 MPa

Power Lift Test

	Height of lower hitch point above ground in down position mm	Vertical movement mm	Maximum corrected force exerted through full range kN	Corresponding pressure of hydraulic fluid MPa	Moment about rear axle kN.m	Max. tilt angle of mast from vertical Degrees
at hitch points	200	695	36.0	16.5	37.8	-
on the frame	200	830	27.4	16.5	45.5	12.0

Linkage settings for test - see table and figure in specifications

Lifting heights relative to the horizontal plane including the lower link pivot points

mm	-365	-300	-200	-100	0	+100	+200	+330

Lifting forces at hitch points

(Corresponding pressure 16.5 MPa)

kN	36.0	37.1	38.7	39.8	4.05	40.4	39.7	-

Lifting forces at test frame

(Corresponding pressure 16.5 MPa)

kN	-	34.6	34.8	33.8	32.4	30.6	28.7	27.4

3. DRAWBAR PERFORMANCE

Date of tests: 1985-10-16 to 1987-02-02
Type of track: Tarmacadam
Height of drawbar above ground: 780 mm ballasted and unballasted
Tyre size: 7.50-20 at front, 18.4/15-38 at rear
Tyre inflation pressure: Unballasted 280 kPa at front, 110 kPa at rear
" " : ballasted 280 kPa at front, 140 kPa at rear

Gear No.	Speed	Power	Drawbar pull	Engine speed	Slip of wheels	Specific fuel consumption		Temperatures			Atmospheric conditions		
								Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	km/h	kW	kN	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	kPa
Maximum power (unballasted)													
1 L x)	1.72	18.8	39.2	2336	15.0	1.46	578	17	57	82	1	80	101.9
1 L	2.34	25.5	39.2	2333	15.0	1.81	471	8	57	80	1	80	101.9
2 L x)	2.66	29.0	39.2	2300	15.0	1.85	457	16	58	80	1	80	101.9
2 L	3.60	39.2	39.2	2295	15.0	2.18	388	16	60	81	1	80	101.9
3 L x)	4.21	45.9	39.2	2282	15.0	2.23	379	17	63	81	1	80	101.9
3 L	5.51	60.0	39.2	2209	15.0	2.51	337	17	65	80	-1	70	101.9
4 L x)	6.01	62.3	37.3	2187	11.6	2.59	327	18	67	80	-1	70	101.9
4 L	8.32	63.6	27.5	2180	8.8	2.64	320	17	67	79	-1	70	101.9
1 H x)	4.79	52.1	39.2	2275	15.0	2.21	381	20	67	85	-1	70	101.2
1 H	6.55	65.1	35.8	2205	11.2	2.70	313	16	75	86	-1	70	101.2
2 H x)	8.06	63.6	28.4	2192	8.6	2.64	321	18	75	87	1	60	101.2
2 H	11.02	64.3	21.0	2200	5.3	2.68	316	19	72	85	1	60	101.2
Maximum power (ballasted)													
1 L x)	1.78	21.5	43.5	2419	15.0	1.37	609	33	83	88	15	80	102.6
1 L	2.36	28.3	43.5	2406	15.0	1.73	482	33	83	88	15	80	102.6
2 L x)	2.75	33.0	43.5	2392	15.0	1.93	432	33	83	88	15	80	102.6
2 L	3.69	42.2	41.2	2380	15.0	2.14	390	33	83	88	15	80	102.6
3 L x)	4.45	47.6	38.5	2356	15.0	2.24	372	33	83	88	15	80	102.6
3 L	5.55	62.0	40.2	2200	13.3	2.58	328	33	83	88	15	80	102.6
4 L x)	6.07	63.7	37.8	2205	11.4	2.64	320	33	83	88	15	80	102.6
4 L	8.42	64.3	27.5	2200	8.0	2.68	316	33	83	88	15	80	102.6
1 H x)	4.92	58.4	42.7	2301	15.0	2.42	350	33	83	88	15	80	102.6
1 H	6.67	67.3	36.3	2201	11.0	2.79	303	33	83	88	15	80	102.6
2 H x)	8.12	64.1	28.4	2200	8.4	2.65	319	33	83	88	15	80	102.6
2 H	11.11	64.8	21.0	2200	5.0	2.69	314	33	83	88	15	80	102.6
Five hour test at 75% pull at maximum power													
1 H	7.12	53.8	27.2	2280	9.1	2.26	374	36	83	99	15	80	102.6
Five hour test corresponding to 15% wheelslip													
1 H x)	4.86	57.9	42.9	-	-	-	-	36	83	99	15	80	102.6

x) With torque amplifier group engaged.

Total oil consumption during 10 hours of tests: 63 g/h.

4. TURNING AREA AND TURNING CIRCLE (m)

Wheel equipment: Front 7.50-20 6 PR Track 1580
Rear 18.4 -38 8 PR Track 1510

	With brakes		Without brakes	
	Right hand	Left hand	Right hand	Left hand
Radius of turning area	3.51	4.06	4.95	4.55
Radius of turning circle	3.40	3.93	4.82	4.43

5. LOCATION OF CENTRE OF GRAVITY (mm)

Height above ground		920
Distance forward from the vertical plane containing the axis of the rear wheels		1124
Distance from the median plane of the tractor	left hand	0

6. BRAKING

Date of tests: 1986.06.24

Cold Service Braking Device Test

Ballasted tractor: Front: 1950 kg
Rear: 5130 kg

Speed before application of brakes	km/h			27.3	
Braking device control force	N	300	400	500	600
Mean deceleration	m/s^2	1.9	2.9	3.4	3.8

Unballasted tractor: Front: 1775 kg
Rear: 2409 kg

Speed before application of brakes	km/h			27.3	
Braking device control force	N	200	300	400	500
Mean deceleration	m/s^2	0.4	1.8	3.2	3.8

Fade Test

Speed before application of brakes	km/h			27.3	
Braking device control force	N	300	400	500	600
Mean deceleration	m/s^2	1.6	2.2	2.6	2.9

Maximum deviation of tractor from its original course:	None
Abnormal vibration:	None
The brakes were heated by:	Towing

Parking Braking Device Test

	18% slope		12% slope with 3 tons trailer	
	Up	Down	Up	Down
Braking device control force: kN	151	143	150	143

7. MEASUREMENTS OF EXTERNAL NOISE LEVEL

Date of tests:	1986.10.14
Sound level meter:	
Make:	Brüel & Kjær
Type:	2209
Type of track:	Tarmacadam
Gear number:	4 H
Travelling speed before acceleration:	21 km/h
Sound level:	89.5 dB(A)

Noise Measurements at the Driver's Ear

Date of test:	1985.10.14
Type of sound level meter and octave filter:	Brüel & Kjær type 2209 and 1613
Type of track:	Tarmacadam

Gear	Drawbar pull, at which the tractor develops the max. sound level kN	Measured travelling speed km/h	Sound level dB(A)
1 H	16.7	7.9	88.0
1 H	Light load	8.1	87.0
4 H	Light load	29.0	87.5

The 1. H gear corresponds to nominal travelling speed nearest to 7.5 km/h.

Repairs and Remarks: None

In this report all performance characteristics are given corresponding to the International System of Units.

The reference to the former used Technical System of Units is given by the following relations:

Forces:	1 N	= 0.10197 kp	or 1 kp	= 9.80665 N
Powers:	1 kW	= 1.35962 metric hp	or 1 metric hp	= 0.73550 kW
Pressures:	1 bar	= 1.0197 kp/cm^2	or 1 kp/cm^2	= 0.980665 bar
Torques:	1 Nm	= 0.10197 kpm	or 1 kpm	= 9.80665 Nm

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