MTT
Agrifood Research Finland

AGRICULTURAL ENGINEERING RESEARCH
(Vakola)

TEST BULLETIN: O.E.C.D. No. 2/1963 CODE 2

Report on Test in Accordance with O.E.C.D. Code 2
for the Official Testing of Agricultural Tractors



VALTRA 8400-4 (4WD)

Manufactured by: Valtra Inc.
FIN-44200 Suolahti, Finland

Date of approval: 09th July 2001
Serial No. 2/1963 CODE 2

MAA- JA ELINTARVIKETALOUDEN TUTKIMUSKESKUS

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This bulletin is based on engineering tests in accordance with the OECD Code 2 for the Official Testing of Agricultural Tractors Performance. It does not contain an evaluation of the performance of the tractor on practical farm work.
This report has been approved by the OECD Co-ordinating Centre (CEMAGREF France) as being in accordance with the OECD Restricted Code for the Official Testing of Agricultural Tractors.

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Tractor Manufacturer`s name and address	Valtra Inc. FIN-44200 Suolahti, Finland
Location of tractor assembly	Suolahti, Finland
Submitted for test by	The manufacturer
Selected for test by	The manufacturer
Place of running-in	Jyväskylä, Finland
Duration of running-in	255 h
Location of test	MTT/Vakola, Finland

1. SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1	Make	Valtra
	Model	8400-4
	Type	4 WD, unit construction
1.1.2	Numbers	
	1st Serial number	J34435
	Serial number	J34435
1.1.3	Other specifications	
	Speed version	40 km/h

1.2 Engine

Make/Model/Type	Sisudiesel/620.168 DS/water cooled, direct injection diesel engine, turbocharged
Serial number	J13113
1.2.1 Cylinders	
Number/disposition	6, vertical, in line
Bore/stroke	108 mm / 120 mm
Capacity	6596 cm^3
Compression ratio	16.5:1
Arrangement of valves	Overhead
Cylinder liners	Wet, with middle support
1.2.2 Supercharging	
Make/Model	Schwitzer/S2B
Pressure	0.115 MPa
1.2.3 Fuel system	
Fuel feed system	Mechanical piston type feed pump
Make/model/type of fuel filters	Paper filter 2pcs
Capacity of fuel tank	165 dm^3
Injection pump	Bosch PES6A95D320RS2806/AF, in line
Serial number	87143919

Manufacturer`s production setting of injection pump	81 mm^3/stroke at rated engine speed and full load on
Flow rating at rated engine speed and full load	32.1 dm^3/h
Timing	21° before TDC
Injectors	Stanadyne M34447/8368 54831
Injection pressure	27 MPa
1.2.4 Governor	
Make/Model/Type	Bosch/-/centrifugal
Governed range of engine speed	From 750 to 2400 min^{-1} (rev/min)
Rated engine speed	2200 rev/min
1.2.5 Air cleaner	
Pre-cleaner	
Make/Model/Type	Valtra /cyclon type
Location of air intake	Above engine hood
Main cleaner	
Make/Model/Type	Valtra/dry cleaner with safety element
Location of air intake	Above engine hood
Maintenance indicator	Electrical
1.2.6 Lubrication system	
Type of pump	Gear pump
Type of filters	One full flow oil filter with replaceable paper element
Number of filters	1
1.2.7 Cooling system	
Type of coolant	Anti-freeze
Type of pump	Centrifugal
Specifications of fan	Belt driven
Number of fan blades	8
Fan diameter	584 mm
Coolant capacity	28 dm^3
Type of temperature control	Thermostatic
Surpressure system	50 kPa
1.2.8 Starting system	
Make/Model/Type	Iskra/electrical solenoid starting motor
Starter motor power rating	3.0 kW
Cold starting aid	Thermostart
Safety device	Only operable when clutch pedal is pressed
1.2.9 Electrical system	
Voltage	12 V

Generator	
Make/Model/Type	Iskra 12 V 95 A
Power	1.28 kW
Battery	
Number	1
Rating	184 Ah at 20 h

1.2.10 Exhaust system

Make/Model/Type	Valtra/Ebersprächer/muffler expansion chamber type
Location	Vertical on the right hand side near cab corner, outlet 2820 mm above ground

1.3 Transmission

1.3.1 Clutch (travel alone)

Make/Model/Type	Fichtel & Sachs 350 WGSZ/dry
Number of plates	1
Diameter of plates	350 mm
Method of operation	Mechanical, pedal operated/electrical button on gear lever

1.3.2 Gear box

Make/Model/Type	Valtra /650/constant mesh fully synchronized with shuttle gear
Description	Synchromesh gear box with 4 speeds, synchromesh group gear with 2 ranges (M and H), LL with dog clutch and 1 directional shift and 3-speed quick-shift gear

	Forward	Reverse
Number of gears	4	4
Number of ranges/groups	3/3	3/3
Total of arrangements	36	36

Available options: 30 km/h transmission, 33 forward, 33 reverse

1.3.3 Rear axle and final drives

Make/Model/Type	Valtra /crown wheel and pinion differential, planetary final drives
Differential lock	
Type	Multidisc
Method of engagement	Electro hydraulically by a press button
Method of disengagement	Electro hydraulically by a press button

1.3.4 Front axle and final drives

Make/Model/Type	Carraro 20.29, crown wheel and pinion differential

Differential lock

Type	Limit slip
Method of engagement	Automatic
Method of disengagement	Automatic

1.3.5 Total ratios and travelling speeds

Gear no	Group or range	Quick-shift	Number of engine revolutions for one revolution of the driving wheels		Nominal travelling speed (*) at rated engine speed of 2200 rev/min km/h	
			forward	reverse	forward	reverse
1	LL	I	1196	1168	0.59	0.61
1	LL	II	970	947	0.73	0.75
1	LL	III	779	760	0.91	0.93
2	LL	I	839	819	0.84	0.87
2	LL	II	681	664	1.04	1.07
2	LL	III	546	533	1.30	1.33
3	LL	I	597	583	1.19	1.22
3	LL	II	484	473	1.46	1.50
3	LL	III	389	379	1.82	1.87
4	LL	I	422	412	1.68	1.72
4	LL	II	343	334	2.07	2.12
4	LL	III	275	268	2.58	2.64
1	M	I	240	234	2.95	3.03
1	M	II	195	190	3.64	3.73
1	M	III	156	153	4.54	4.65
2	M	I	168	164	4.21	4.31
2	M	II	137	133	5.19	5.32
2	M	III	110	107	6.47	6.63
3	M	I	120	117	5.91	6.06
3	M	II	97.2	94.9	7.29	7.47
3	M	III	78.0	76.2	9.09	9.31
4	M	I	84.8	82.8	8.36	8.57
4	M	II	68.8	67.1	10.3	10.6
4	M	III	55.2	53.9	12.9	13.2
1	H	I	77.0	75.1	9.21	9.44
1	H	II	62.4	60.9	11.4	11.6
1	H	III	50.1	48.9	14.2	14.5
2	H	I	54.0	52.7	13.1	13.5
2	H	II	43.8	42.7	16.2	16.6
2	H	III	35.1	34.3	20.2	20.7
3	H	I	38.4	37.5	18.5	18.9
3	H	II	31.2	30.4	22.8	23.3
3	H	III	25.0	24.4	28.4	29.1
4	H	I	27.2	26.5	26.1	26.7
4	H	II	22.0	21.5	32.2	33.0
4	H	III	17.7	17.3	40.1	41.1

(*) Calculated with a tyre dynamic radius index of 855 mm (ISO 4251/1-1992)

Number of revolutions of front wheel for one revolution of rear wheels 1.315

1.4 Power take-off

1.4.1 Main power take-off

Type	Independent
Method of engagement	Hand lever operated electrohydraulical wet multiplate clutch together with a collar shifter
Number of shafts	1
Method of changing power take-off shaft ends	Changeable shaft and speed changing happens with a collar shifter

1.4.1.1 Power take-off proportional to engine speed

Power take-off at 540 rev/min

Location	At the rear of the tractor
Diameter of power take-off shaft end	34.8 mm
Number of splines	6, in conformity with type 1 of ISO 500:1991,
Height above ground	813 mm
Distance from the median plane of the tractor	0 mm
Distance behind rear-wheel axis	435 mm
PTO speed at rated engine speed (2200 rev/min)	634 rev/min
Engine speed at standard PTO speed 540 rev/min	1874 rev/min
Ratio of rotation speeds (engine speed/PTO speed)	3.47
Power restriction and maximum torque	None, but advice to use 1000 rev/min PTO for powers over 50 kW
Direction of rotation (viewed from behind tractor)	Clockwise

Power take-off at 1000 rev/min

Location	At the rear of the tractor
Diameter of power take-off shaft end	34.8 mm
Number of splines	6, as type 1 of ISO 500:1991, additional: 21, in conformity with ISO 500:1991
Height above ground	813 mm
Distance from the median plane of the tractor	0 mm
Distance behind rear-wheel axis	435 mm
PTO speed at rated engine speed (2200 rev/min)	1058 rev/min
Engine speed at standard PTO speed 1000 rev/min	2080 rev/min
Ratio of rotation speeds (engine speed/PTO speed)	2.08
Power restriction and maximum torque	None
Direction of rotation	Clockwise

1.4.1.2 Power take-off proportional to ground speed PTO shaft	Optional together with 540/750, 540/1000 or 1000
Travelling distance for one revolution of power take-off shaft	131.6 mm
Number of power take-off shaft revolutions for one revolution of (rear) driving wheels	40.8[*]
Direction of rotation with forward gear engaged	Clockwise

1.5 Hydraulic power lift

Make/Model/Type	Valtra /70 kN
Type of hydraulic system	Open centre
Type and number of cylinders	Two single acting
Type of linkage lock for transport	None
Relief valve pressure setting	19 Mpa
Opening pressure of cylinder safety valve	20 MPa
Lift pump type	Gear pump
Transmission between pump and engine	Gear
Type and number of filters	Suction strainer and pressure filter
Site of oil reservoir	In the gearbox
Type, number and location of tapping points	Push-pull, 4 at the rear of the tractor
Maximum volume of oil available to external cylinders	15 dm^3 or 31 dm^3 depending on filling quantity, with extra tank 41 dm^3

1.6 Three point linkage

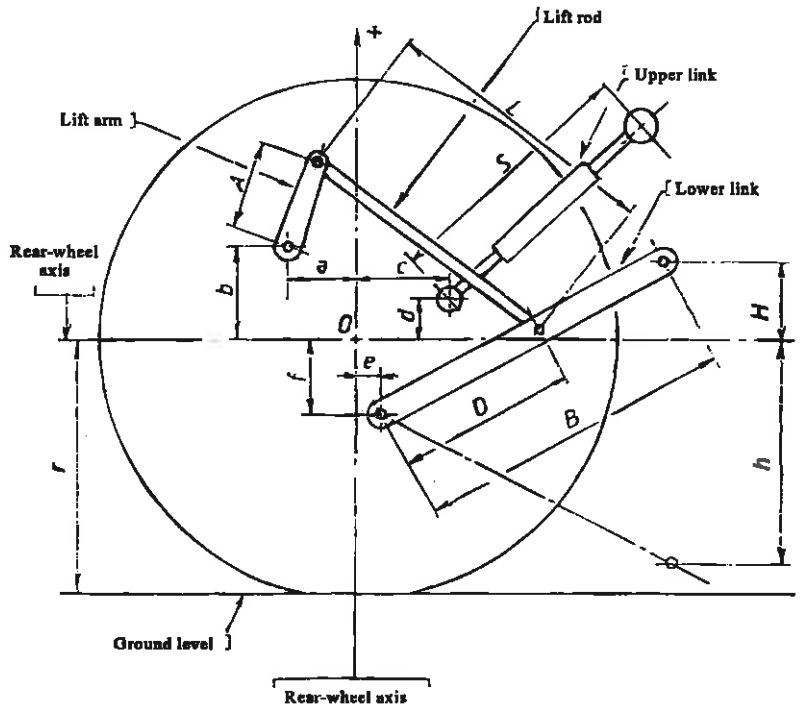
Category	3, in conformity with ISO 730-1:1990 + Corr.1:1994
Category adapter	None

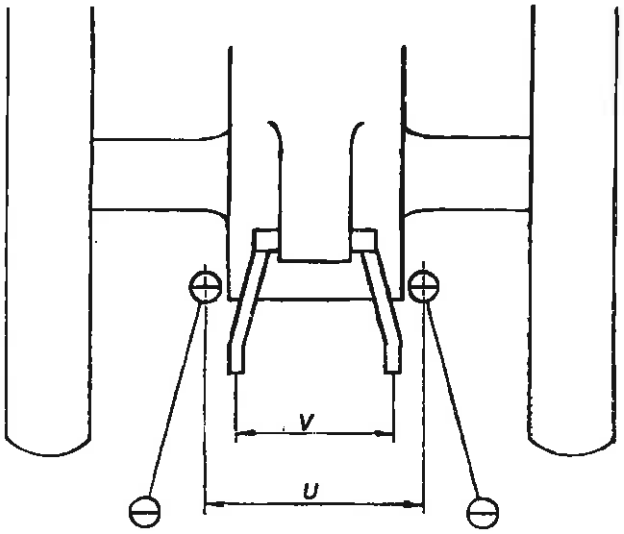
[*] The proportional to ground speed power take off is not connected to pto speeds 540 or 1000, but is independent from those, lever in a third position

		Dimension or range mm	Settings used in test mm
Length of lift arms	(A)	360	360
Length of lower links	(B)	960	960
Distance of lift arm pivot point from rear-wheel axis : horizontally : vertically	(a) (b)	-98 290	-98 290
Horizontal distance between the 2 lower link point	(u)	610	610
Horizontal distance between the 2 lift arm end points	(v)	600	600
Length of upper link	(S)	from 640 to 915	745
Distance of upper link pivot point from rear wheel axis : horizontally : vertically	 (c) (d)	 434, 444, 454 305, 230, 155	 434 305
Distance of lower link pivot point from rear wheel axis : horizontally : vertically	 (e) (f)	 188 256	 188 256
Distance of lower link pivot points to lift rod pivot points on lower links	(D)	330, 390, 440	440
Length of lift rods	(L)	from 590 to 735	650
Height of lower hitch points relative to the rear-wheel axis : in low position : in high position	 (h) (H)	 from 445 to 770 from -55 to 335	 625 110
Height above ground of lower hitch points when locked in transport position (*)		85 - 1190	

(*) Assuming r = 855 mm tire dynamic radius index of ISO 4251-1:1992.

Table 1.1 Dimensions of linkage geometry when connected to standard frame


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


V
U

1.7. Trailer hitch

Type	Hitch-hook
Hook diameter	47 mm
Height above ground	585 mm
Distance of hitch point from rear-wheel axis, horizontally	470 mm
Distance of hitch point from power take-off shaft end:	
- vertically	228 mm
- horizontally	35 mm
Maximum vertical permissible load	53 kN

1.8 Steering

Make/Model/Type	Danfoss/Orbitrol OSPC125LS/hydrostatic
Method of operation	Hydraulic circuit with priority valve for steering
Cylinders	Single central cylinder acting on both steering arms
Working pressure	14 MPa

1.9 Brakes

1.9.1 Service brake	
Make/Model/Type	Valtra /oil immersed disc brakes(5+5 discs)
Method of operation	Two pedals hydraulically actuated independent or combined operation
Trailer braking take-off	Additional hydraulic or pneumatic (not mounted on tested tractor)
1.9.2 Parking brake	
Type	Mechanical, coupled to both service brakes
Method of operation	Hand lever with ratchet

1.10 Wheels

Number	
- front	2 driving and steering
- rear	2 driving wheels
Wheelbase	2558 mm
Track width adjustment:	

	Minimum mm	Maximum mm	Adjustment method
Front	1635	2035	Offset lug rims and reversing wheel centres
Rear	1710	1910	

1.11 Protective structure

Make/Model/Type	VALTRA T 888/2C, Cab
Manufacturer's name and address	Valtra Inc. FIN-44200 Suolahti, Finland
Protective device	Protective cab, not tiltable
OECD approval number	Valmet 8400-4 (4 WD) CSS 0424/47 with seat GRAMMER MSG 95 A/31
Date of approval	25th March 1997

1.12 Seat

1.12.1 Driver's seat

Make/Model/Type	Grammer MSG 95 A/31
Seat and steering wheel reversible	Optional
Type of suspension	Pneumatic
Type of damping	Hydraulic
Range of adjustment	
- longitudinal	200 mm
- vertical	80 mm
Safety belt	No

1.12.2 Optional driver's seat

Make	Model and type	Type of suspension	Type of damping	Range of adjustment	
				vertical	longitudinal
Grammer	DS 85H/90 A	mechanical	hydraulic	60	200
Grammer	DS 85H1/90 A	mechanical	hydraulic	60	200
Grammer	DS 85H/3	mechanical	hydraulic	60	210

1.12.3 Passenger seat

- location	To the left of the driver
- number of places	1

1.13 Lighting

	Height above ground of centre mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
Headlights	1230	100 x 160	260
Sidelights	1850	60 x 80	840
Rearlights	1795	60 x 80	835
Reflector	1600 825 760	40 x 175 ø 75 40 x 175	900 550 700

2. TEST CONDITIONS

2.1 Overall dimensions

	Length mm	Width		Height at top of	
		Minimum mm	Maximum mm	Protective structure mm	Exhaust silencer mm
Unballasted	4830	2290	2490	2800	2820

2.2 Ground clearance

510 mm

Clearance limiting part: Hitch-hook

2.3 Tractor mass

(with cab and tanks full)

	Unballasted	
	Without driver kg	With driver kg
Front	2270	2280
Rear	2770	2835
Total	5040	5115

2.4 Tires and track width specifications

	Front	Rear
Tyres:		
- dimensions	16.9 R 28	20.8 R 38
- load index	141 A8/ 133 B	153 A8/ 150 B
- type	radial	radial
- maximum load (tyre manufacturer's)	25.8 kN	36.5 kN
- maximum load (tractor manufacturer's)	44.1 kN	78.5 kN
- inflation pressure (tyre manufacturer's)	160 kPa	160 kPa
- dynamic radius index	670 mm	855 mm
Chosen track width	1835 mm	1810 mm

2.5 Fuel

Type: Dieseloil, in conformity with national standards

Density at 15 °C: PTO test 0.838 kg/dm^3

Drawbar power test 0.833 kg/dm^3

2.6 Oils and lubricants

2.6.1 Capacity and change interval

	Capacity dm^3	Oil change h	Filter change h
Engine	19	250	250
Gear box *)	34	1000	500
Front axle	6	1000	-
Final drive (front axle)	2 x 1.5	1000	-

*)Includes rear axle, final drive (rear), hydraulic system and steering

2.6.2 Specifications

	Recommended	Used during test
Engine oil		
- Type	10W/30 -20...+30°C	Valtra engine
- Viscosity	15W/40 -10...+40°C	10W-30
- Classification	API CE, CF/CF-4	API CF4
Transmission oils		
- Type	HT 60: -30...+30°C	Valtra transmission
- Viscosity	HT 100: -10...+40°C	HT-60
- Classification	API GL 4(G2-98)	
Front axle		
- Type		Aqip
- Viscosity	80W-90	80W-90
- Classification	API GL-5 (LS)	

2.6.3 Grease — Universal grease

Number of lubrication points — 29

3. COMPULSORY TEST RESULTS

3.1 Main power take-off

Date and location of tests 24.8.2000 MTT/Vakola
Type of dynamometer Schenk W 400

Power	Speed		Fuel consumption			Specific energy
	Engine	P.T.O.	Hourly		Specific	
kW	rev/min		kg/h	l/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER - TWO-HOUR TEST						
102.9	1934	930	24.71	29.49	240	3.49
3.1.2 POWER AT RATED ENGINE SPEED						
99.6	2200	1058	25.53	30.47	256	3.27
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000 REV/MIN)						
102.4	2080	1000	25.44	30.36	248	3.37
3.1.4 PART LOADS						
3.1.4.1 The torque corresponding to maximum power at rated engine speed						
99.6	2200	1058	25.53	30.47	256	3.27
3.1.4.2 85 % of torque obtained in 3.1.4.1						
86.2	2240	1077	22.94	27.39	266	3.15
3.1.4.3 75 % of torque defined in 3.1.4.2						
66.1	2290	1101	19.11	22.81	289	2.9
3.1.4.4 50 % of torque defined in 3.1.4.2						
44.9	2334	1122	15.56	18.58	347	2.42
3.1.4.5 25 % of torque defined in 3.1.4.2						
22.8	2375	1142	11.53	13.77	505	1.66
3.1.4.6 Unloaded						
0	2413	1160	7.85	9.38	-	-
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (1000 REV/MIN)						
3.1.5.1 The torque corresponding to maximum power						
102.4	2080	1000	25.44	30.36	248	3.37
3.1.5.2 85 % of torque obtained in 3.1.5.1						
89.5	2140	1029	22.87	27.3	255	3.28
3.1.5.3 75 % of torque defined in 3.1.5.2						
68.6	2188	1052	18.95	22.62	276	3.03
3.1.5.4 50 % of torque defined in 3.1.5.2						
46.9	2238	1076	15.05	17.98	321	2.61
3.1.5.5 25 % of torque defined in 3.1.5.2						
23.9	2282	1097	11.05	13.2	463	1.81
3.1.5.6 Unloaded						
0	2317	1114	7.01	8.39	-	-

- No load maximum engine speed 2413 rev/min
- Torque[1)] at rated engine speed 432 Nm
- Torque[1)] at maximum power 508 Nm
- Maximum torque[1)] 586 Nm
  at engine speed 1435 rev/min

[1)] Equivalent crankshaft torque

Mean atmospheric conditions

– Temperature	24 °C
– Pressure	97.8 kPa
– Relative humidity	61 %

Maximum temperatures

– Coolant	88 °C
– Engine oil	117 °C
– Fuel	49 °C
– Engine air intake	39 °C

3.2 Hydraulic power and lifting force

Date of tests: 15.9 and 19.9.2000

3.2.1 Hydraulic power test

Sustained pressure with relief valve open	19.4 MPa
Pump stalled	No
Pump delivery rate at minimum pressure	70.4 l/min

	Flow rate l/min	Pressure MPa	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting and corresponding hydraulic power	67.8	17.5	19.8
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	67.8	17.5	19.8

Tapping point used for test	External tapping
Temperature of hydraulic fluid, if different from 65 ± 5 °C	
Opening pressure of the unloading valve	-
Closing pressure of the unloading valve	-

3.2.2 Power lift test

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	230 mm	230 mm
Vertical movement	735 mm	735 mm
Maximum corrected force exerted through full range	60.4 kN	45.1 kN
Corresponding pressure of hydraulic fluid	17.5 MPa	17.5 Mpa
Moment about rear-wheel axis	69.3 kNm	79.3 kNm
Maximum tilt angle of mast from vertical		11 degrees

Lifting heights relative to the horizontal plane including the lower link pivot points									
mm	-369	-300	-200	-100	0	100	200	300	366
Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting of the hydraulic lift system.)									
At the hitch points kN	62.7	63.1	62.9	63.1	62.7	62.4	61.2	60.9	60.4
Corresponding pressure: 17.5 MPa									
At the frame kN	59.2	58.2	56.7	55.6	53.6	51.5	49.3	46.7	45.1
Corresponding pressure: 17.5 MPa									

3.3 Drawbar power test (unballasted tractor)

Date of tests 30.8 and 6.9.2000
Type of track Tarmacadam

	Tire inflation presssure	
Height of drawbar above ground	Front	Rear
570 mm	100 kPa	100 kPa

Gear and range	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
								Fuel	Coolant	Engine oil	Tempera-ture	Relative humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	kPa
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)													
1 M I	32.1	42.0	2.75	2338	15.0	455	1.84	51	80	99	21	58	100.5
1 M II	39.2	41.8	3.38	2317	14.7	419	1.99	49	80	95	18	58	100.5
2 M I	45.6	42.4	3.87	2299	14.7	392	2.14	48	80	94	18	58	100.5
1 M III	48.4	42.0	4.15	2289	14.8	375	2.23	47	80	93	19	58	100.5
2 M II	53.7	41.2	4.69	2268	15.0	369	2.27	50	80	94	21	58	100.5
3 M I	61.7	42.0	5.29	2244	15.0	344	2.43	50	80	94	21	58	100.5
2 M III	66.7	41.6	6.39	2231	14.7	335	2.49	50	81	97	21	58	100.5
3 M II	73.8	41.6	6.63	2186	14.5	327	2.56	51	81	99	20	58	100.5
4 M I	78.1	42.4	6.63	1949	13.2	301	2.78	51	79	98	19	58	100.5
3 M III	80.0	39.0	7.38	1936	10.5	290	2.88	50	80	97	20	58	100.5
1 H I	82.4	40.0	7.42	1918	10.4	284	2.94	50	80	96	19	58	100.5
4 M II	82.5	34.4	8.63	1934	7.7	285	2.94	51	80	97	19	58	100.5
1 H II	85.3	32.0	9.60	1931	6.7	276	3.03	49	79	90	18	58	100.5
4 M III	82.0	26.8	11.01	1937	5.6	287	2.92	50	79	94	19	58	100.5
2 H I	86.0	27.6	11.22	1928	5.5	273	3.06	49	79	91	19	58	100.5
1 H III	85.2	25.2	12.17	1931	5.0	275	3.04	50	79	90	19	58	100.5
2 H II	84.6	21.6	14.1	1941	4.3	278	3.01	49	79	91	18	58	100.5

3.3.2 FUEL CONSUMPTION

Gear and range	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
								Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	kPa
		3.3.2.1 In selected gear at maximum power											
2 H I	86	27.6	11.22	1928	5.5	273	3.06	49	79	91	19	58	100.5
		3.3.2.1.1 75 % of pull at maximum power at rated speed											
2 H I	76.2	20.8	13.18	2229	4	301	2.78	47	80	98	15	54	100.3
		3.3.2.1.2 50 % of pull at maximum power at rated speed											
2 H I	52.5	13.8	13.7	2290	2.9	354	2.37	48	80	96	14	54	100.3
		3.3.2.1.3 Next higher gear at reduced engine speed, same pull and travelling speeds as in 3.3.2.1.1											
1H III	74.8	20.4	13.2	2065	3.7	291	2.88	49	80	99	15	54	100.3
		3.3.2.1.4 Next higher gear at reduced engine speed, same pull and travelling speeds as in 3.3.2.1.2											
1H III	53.3	14	13.7	2125	2.8	334	2.5	49	79	99	14	54	100.3

Gear and range	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Specific consumption	Specific energy	Temperature					Atmospheric conditions
								Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	kPa
		3.3.2.2 In selected gear nearest to 7.5 km/h											
3 M II	73.8	41.6	6.39	2186	14.5	327	2.56	51	81	99	20	58	100.5
		3.3.2.2.1 75 % of pull at maximum power at rated speed											
3 M II	63.7	31.6	7.26	2267	6.4	325	2.57	47	80	96	15	54	100.3
		3.3.2.2.2 50 % of pull at maximum power at rated speed											
3 M II	44	20.8	7.62	2319	3.9	380	2.2	47	80	95	16	54	100.3
		3.3.2.2.3 Next higher gear at reduced engine speed, same pull and travelling speeds as in 3.3.2.2.1											
4 M I	63.4	31.2	7.32	1994	6.4	298	2.81	47	79	99	14	54	100.3
		3.3.2.2.4 Next higher gear at reduced engine speed, same pull and travelling speeds as in 3.3.2.2.2											
4 M I	44.1	20.8	7.64	2042	4.6	334	2.5	47	79	99	15	54	100.3

4. REPAIRS None

5. REMARKS None

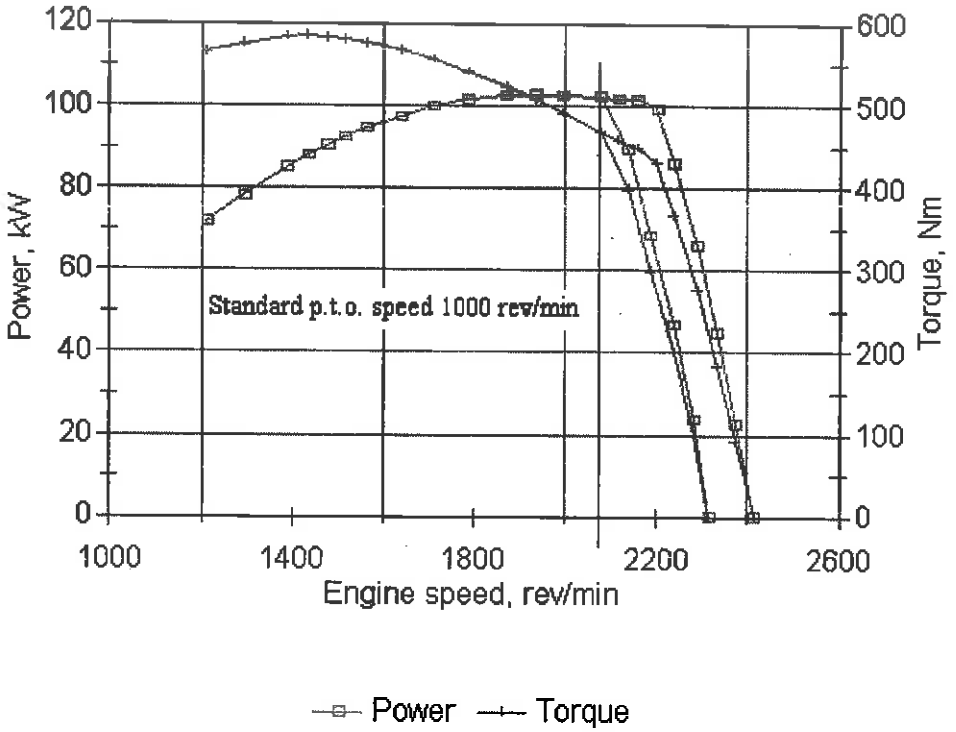
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AGRICULTURAL ENGINEERING RESEARCH

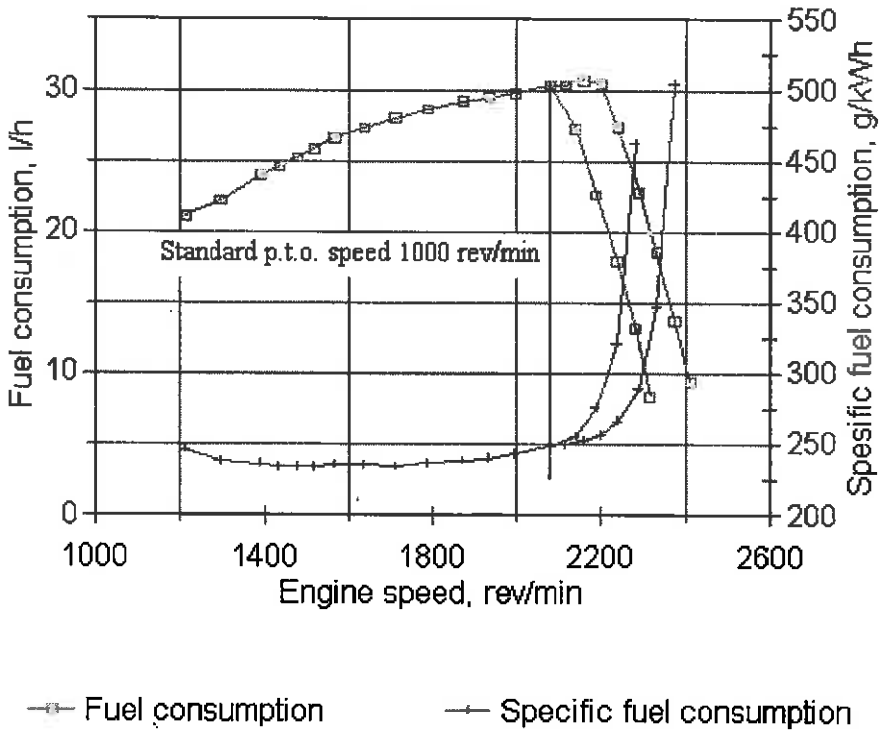
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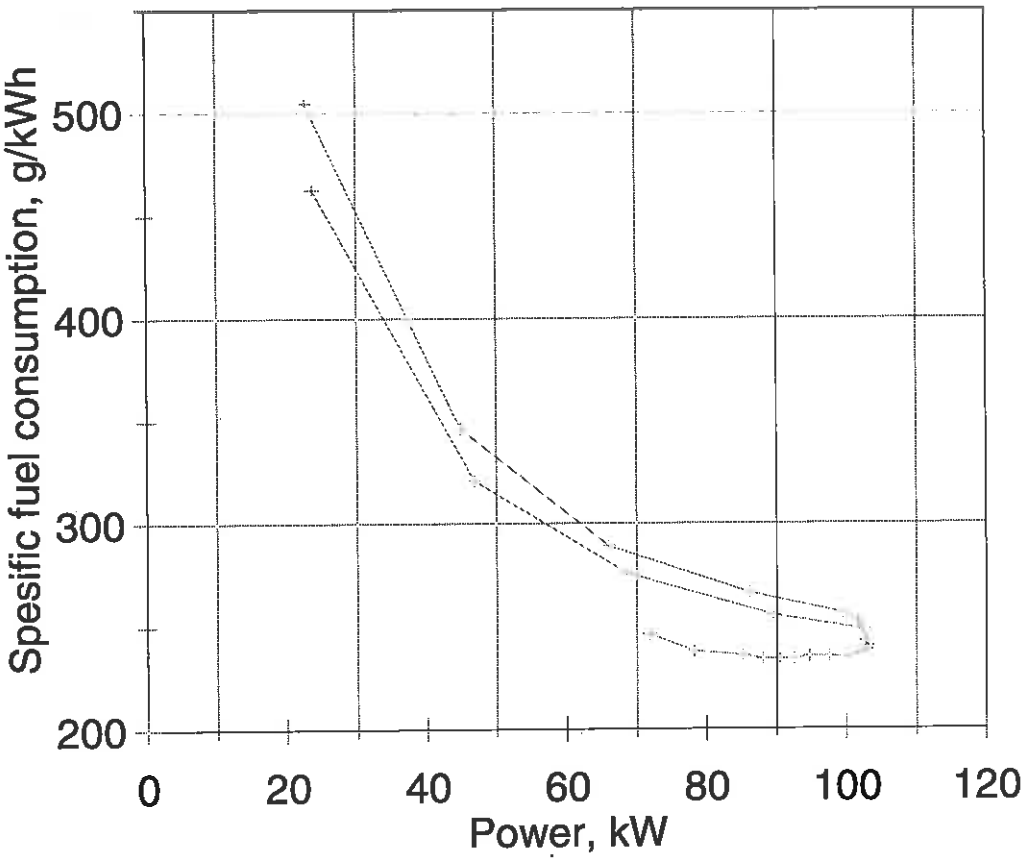
MTT / Maatalousteknologian tutkimus

Lauri Tuunanen
Head of inspector office

Ari Lemminkäinen
Test engineer


120
100
80
60
40
20
0
Power, kW
600
500
400
300
200
100
0
Torque, Nm
Standard p.t.o. speed 1000 rev/min
1000
1400
1800
2200
2600
Engine speed, rev/min
Power
Torque


30
20
10
0
Fuel consumption, l/h
550
500
450
400
350
300
250
200
Spesific fuel consumption, g/kWh
Standard p.t.o. speed 1000 rev/min
1000
1400
1800
2200
2600
Engine speed, rev/min
Fuel consumption
Specific fuel consumption


Spesific fuel consumption, g/kWh
500
400
300
200
0
20
40
60
80
100
120
Power, kW

Vihdin Painorasteri Oy 2001