Report on test in accordance with
OECD STANDARD CODE II for the Official
Testing of Agricultural Tractor Performance

Restricted Code

OECD No. 1675



Agricultural Tractor
VALMET 8750-4 (4WD)

40 km/h-version

Manufacturer

SISU Tractors, Inc.
FIN-44200 Suolahti

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This is a report on a tractor test in accordance with OECD STANDARD CODE for the Official Testing of Agricultural Tractor Performance (C(87)53(Final), CODE II) and amendments (C(90)79, C(92)52, C(93)52, C(93)133, C(95)17, C(95)194 and C(97)19).

It does not contain an evaluation of the tractor on practical work.

Duration of tests: December 1996 till April 1997

DLG-Testing Station for Agricultural Machinery, Max-Eyth-Weg 1.
D-64823 Groß-Umstadt

This report has been approved by the OECD Co-Ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE.

Date of approval: 30th September 1997

OECD No. 1675
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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	kN	=	1000	N	=	102 kp
Powers				1	kW	=	1,36 PS
Pressures	1	MPa	=	10	bar	=	10,2 kp/cm^2
	100	kPa	=	1000	mbar	=	750,10 mm Hg

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Printed in Germany, October 1997
DLG-No. 288

PRELIMINARY REMARK

The tractor model 8750 works with so-called "Sigma-Power technique":

A controlling system increases the rated power of engine from 118 kW up to max. 140 kW if torque required by p.t.o. is higher than 350 Nm.

The torque requirement of p.t.o. is determinated by 2 pulse generators and forwarded to an electronic adjustment device of the fuel injection pump.

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Tractor manufacturer:	Sisu Tractors, Inc. FIN-44200 Suolahti
Location of tractor assembly:	Suolahti, Finland
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Jyväskylä, Finland
Duration of running-in:	82 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	VALMET
Trade name:	8750-4, 40 km/h-version
Type:	Wheel tractor, special unit construction four wheel driven, series MEGA 50
Serial no.:	F 36 208
1st serial no.:	F 20 225

Engine

Make:	VALMET
Model:	634 DS
Type:	Watercooled 4-stroke Diesel-engine direct injection, supercharged
Serial no.:	F 9656
Cylinders:	6, in line, bore 108 mm, stroke 134 mm, displacement 7365 cm³; compression ratio 16.5 : 1; replaceable, wet cylinder liners with middle support, two cylinder heads
Valves:	Overhead

Supercharging

Make:	SCHWITZER
Model:	S2B exhaust turbo-supercharger
Max. pressure:	146 kPa

Fuel system

Fuel feed system:	Piston type feed pump
Fuel filter:	CAV, two-stage fuel filter, replaceable cartridges, separate water trap connected in series
Capacity of fuel tank:	165 dm³, tank is identical with special "middle frame"; additional tank 85 dm³, fitted
Injection pump:	BOSCH PES 6A 95D 320 RS 2848, in-line fuel injection pump serial no. 66 726 / 07730 / 14 408
Manufacturer's production setting:	106 ± 2 mm³/stroke, (rated engine speed and full load at p.t.o. operation); injection timing 20 degrees before TDC
Injection nozzles:	STANADYNE NBS 0620, multihole; injection pressure 23 MPa

Governor

Make:	BOSCH RSV 500.. 1100 A 5 C 2269 R centrifugal variable speed; with supercharge pressure compensating device
Governed range of engine speed:	From 750 to 2400 rev/min
Rated engine speed:	2200 rev/min

Air cleaner

Pre-cleaner:	Incorporated in main cleaner
Make:	VALMET cyclon type
Location of air intake:	Above engine hood
Main cleaner:	
Make:	VALMET dry paper element cleaner with safety element, replaceable cartridge
Maintenance indicator:	Electric warning indicator lamp

Lubrication system	Pressure lubricated by gear pump; full flow oil filter with replaceable paper element
	engine oil/cooling-water heat exchanger integrated in filter socket

Cooling system	Water cooling with impeller pump
Blower:	EATON viscous drive fan, belt driven, variable fan speed controlled by air flow temperature; 8 blades, with 600 mm dia
Coolant capacity:	34 dm³
Type of temperature control:	Thermostat and by-pass circuit
Superpressure system:	Overpressure relief valve set to 50 kPa
Starting system	Electrical
Make:	ISKRA solenoid pre-engaged drive starter motor
Starter motor power rating:	3.6 kW
Cold starting aid:	Flame glow plug in air intake manifold additional engine heater for 225 V power supply
Safety device:	Starter only operable when clutch pedal is pressed
Electrical system	
Voltage:	12 V, negative earth
Generator:	
Make/Model	ISKRA / 14V 95A 3-phase alternator, 1330 W
Battery:	1 lead acid battery
Rating	184 Ah at 20 hours
Exhaust system	
Make:	VALMET/EBERSPÄCHER; muffler, expansion chamber type, 210 mm dia, 500 mm long
Location:	On the right hand beside engine, horizontal below hood; vertical stack beside the right A-post, mouth showing upwards, forward to the right, 2850 mm above ground
Transmission	
Clutch (travel alone)	
Make / Model:	FICHTEL & SACHS / 350 / WGSZ; dry single disc clutch, hydraulically operated by pedal
Diameter of plate:	350 mm

Gearbox

Make / Model:	VALMET / Delta Powershift 650 - 40 km/h (mechanical gear box)
Arrangement:	synchro-mesh gear box with 4 speeds (1 - 4) range gear with 2 sychronized ranges (M/H) and 1 dog clutch shifted creeper range (LL) power shifted 3-speed gear (PSI / PSII / PSIII) electro-hydraulically shiftable in 2 ways: Either by 2 push-button switches on shift-lever of speed change gear or by 2 push-button switches on shift-lever of reversing gear synchro-mesh reversing gear (F/R) total 3 levers, 4 push-button switches
Number of gears:	36 forward and 36 reverse, see on page 8
Available options:	30 km/h transmission (4th gear blocked in range H) 33 forward and 33 reverse
Lubrication:	Force feed lubrication by low pressure circuit with own pump, oil cooler in front of water cooler

Rear axle and final drives

Make:	VALMET; bevel gear drive, bevel gear differential with lock, planetary final drives
Differential lock:	**Wet, multidisc;** electro-hydraulically engaged and disengaged by a toggle switch with 3 positions; automatic disengagement when service brake is operated (depending on selected position of toggle switch)

Front axle and final drives

Make / Model:	SIGE / DS 17 SD 01; driven by wet multi-plate clutch, propeller shaft (in tractor's median plane) and bevel gear; differential with lock; planetary final drives
Method of engagement and disengagement	
Clutch:	Electro-hydraulically operated under load by a toggle switch; 4 wheel drive is engaged when engine stops running and also while braking with both pedals of service brake
Differential lock:	Automatic limited slip type lock

Number of revolutions of front wheels for one revolution of rear wheels: 1.3090

Total ratios and speeds:

Range		Gear	Number of engine revolutions for one revolution of the driving wheels		Nominal travelling speed at rated engine speed 2200 rev/min *) km/h	
			forward	reverse	forward	reverse
LL	PSI	1	1196.56	1167.61	0.59	0.61
		2	839.29	818.98	0.84	0.87
		3	597.26	582.81	1.19	1.22
		4	422.47	412.25	1.68	1.72
	PSII	1	970.28	946.81	0.73	0.75
		2	680.57	664.11	1.04	1.07
		3	484.32	472.60	1.46	1.50
		4	342.58	334.29	2.07	2.12
	PSIII	1	778.82	759.98	0.91	0.93
		2	546.28	533.06	1.30	1.33
		3	388.75	379.35	1.82	1.87
		4	274.98	268.33	2.58	2.64
M	PSI	1	240.21	234.40	2.95	3.03
		2	168.49	164.41	4.21	4.31
		3	119.90	117.00	5.91	6.06
		4	84.81	82.76	8.36	8.57
	PSII	1	194.79	190.08	3.64	3.73
		2	136.63	133.32	5.19	5.32
		3	97.23	94.88	7.29	7.47
		4	68.77	67.11	10.31	10.57
	PSIII	1	156.35	152.57	4.54	4.65
		2	109.67	107.02	6.47	6.63
		3	78.04	76.16	9.09	9.31
		4	55.20	53.87	12.85	13.16
H	PSI	1	76.99	75.12	9.21	9.44
		2	54.00	52.69	13.13	13.46
		3	38.43	37.50	18.45	18.91
		4	27.18	26.52	26.09	26.73
	PSII	1	62.43	60.92	11.36	11.64
		2	43.79	42.73	16.19	16.60
		3	31.16	30.41	22.76	23.32
		4	22.04	21.51	32.17	32.97
	PSIII	1	50.11	48.90	14.15	14.50
		2	35.15	34.30	20.17	20.67
		3	25.01	24.41	28.35	29.05
		4	17.69	17.26	40.08	41.07

*) calculated with the radius index (ISO 4251/1-1992) 855 mm

POWER TAKE-OFF

Shiftable by pre-selector lever as independent or as ground speed p.t.o.,
1 shaft at tractor's rear;

*) 45 mm dia 20 splines, ISO 500-1991 type 3,

820 mm above ground, 430 mm behind rear wheel centre, in tractor's median plane

*) on request available:
45 mm dia, 6 splines
35 mm dia, 21 splines
35 mm dia, 6 splines

Main p.t.o.

Independent;
driven by wet multi-plate clutch;
electro-hydraulically operated through control valve by toggle switch;

direction of rotation clockwise (seen from tractor's rear)

p.t.o. type	p.t.o. speed rev/min	engine speed rev/min	p.t.o. transmission ratio	Power restriction kW
1000	1000 1058	2080 2200	2.0800	-

P.t.o. proportional to ground speed

Optionally available, fitted
direction of rotation clockwise (with forward gear engaged)

p.t.o. type	travel distance in mm per p.t.o. revolution	number of p.t.o. revolutions per rear wheel revolution
1000	131.6	40.8

Power lift

VALMET;
EHR "AUTOCONTROL D"
with additional drive balance control;
electronic-hydraulic power lift, with external lift cylinders;
draft-, position- and mixed control, floating position, raise limit, fast raising and lowering, rate of drop control,
electronic lower link sensing

Hydraulic system:

Open centre;

1 tandem type gear pump,
SAUER SUNDSTRAND 95 KO7, type A 25/8,
with common strainer in suction line,
driven by gear box, independent of travel- and p.t.o. clutch,
oil reservoir in common with gear box;
2 separate hydraulic circuits;

High pressure circuit:

Feeds power lift and steering system,
max. delivery 67.8 dm³/min at rated engine speed and free circulating pressure,
max. pressure 19 + 0.8 Mpa;
oil filter in pressure line

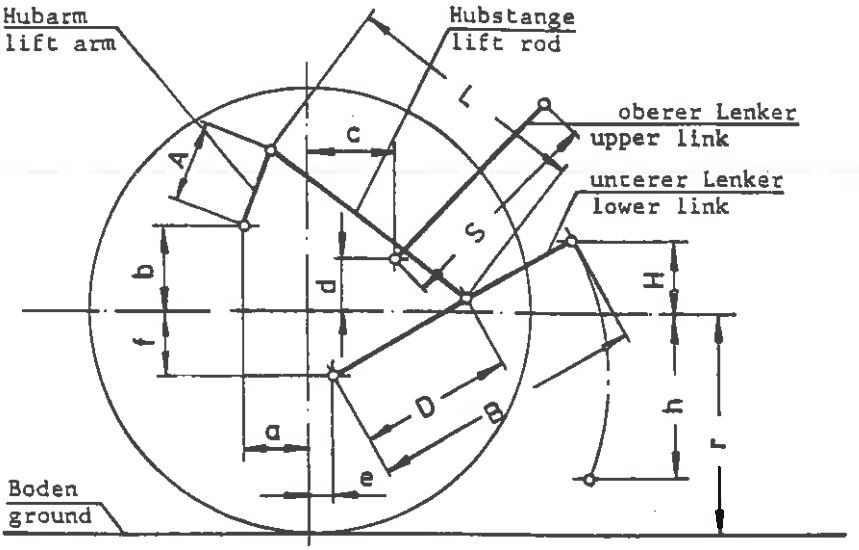
Low pressure circuit:

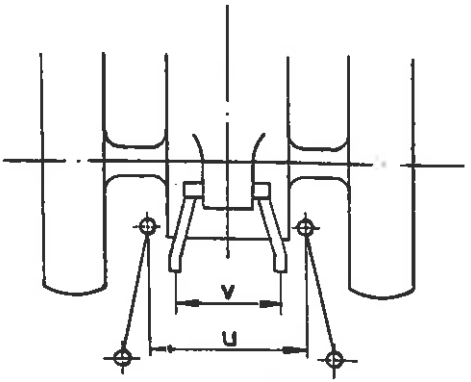
Feeds power shift, clutch of front wheel drive, clutch of p.t.o., differential lock and transmission lubrication;
max. delivery 21.1 dm³/min at rated engine speed,
max. pressure 1.8 Mpa

VALMET control valve
in transport position lockable;
2 single acting cylinders with 100 mm bore and 185+5 mm stroke, cylinder safety valve set to 20+1 Mpa,
additional push-buttons on left and right rear mudguards for lifting and lowering

three 1/2 action additional control valves,
6 oil couplings at rear of tractor, 1 low pressure return line;
maximum volume of oil, available to external cylinders:
15 dm³,
24 dm³ with extra filling

Three-point linkage: Category 3 acc. to ISO 730/1-1994, with WALTERSCHEID quick couplers





Dimensions of rear implement linkage			projected lengths in mm: dimensions (general)	dimensions used for tests on page 25
Rear tyres 650/65 R 38 Front tyres 540/65 R 28		(r) *) (r') *)	855 670	
Length of lift arms		(A)	355	
Length of lower links		(B)	980	
Distance of lift arm pivot points from rear axle centre	horizontal vertical	(a) (b)	-105 285	
Horizontal distance between lower link pivot points		(u)	610	
Horizontal distance between lift arm end points		(v)	600	
Length of upper link		(S)	650 to 900	750
Distance of upper link pivot point from rear wheel axis	horizontal vertical	(c) (d)	417/427/437 310/240/170	427 240
Distance of lower link pivot points from rear wheel axis	horizontal vertical	(e) (f)	196 255	
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	330/390/440	440
Length of lift rods		(L)	580 to 730 x)	670

x) at length of 730 mm: Lower links touch ground if power lift is in downmost position

Heights (h, H, H') of lower link hitch points relative to rear wheel axis (situated 855 mm above ground), at different adjustments of L

These data are valid for unloaded power lift				data for tests on page 25
Length of lift rods	(L)	580	730	670
Linkage distance of lift rods	(D)	440		
Lowest position	(h)	445	770	625
Highest position	(H)	310	0	130
Transport position	(H')	310	0	130

*) Assuming r resp. r' = tyre dynamic radius index of ISO 4251/1-1992

Pull equipment

Swinging drawbar:	On request available, not fitted		
Trailer hitch:	SCHARMÜLLER, 2146-1 automatical; diameter of hitch pin on request		31.5 mm 38.0 mm
	hitch adjustable above ground (by quick adjustment) to: 615/665/715/765/840/965/1015/1065 or 1105 mm		
	distance of hitch point from: Rear wheel axis p.t.o. shaft end	horizontal horizontal	622 mm 192 mm
Holed drawbar:	Short bar; length between ball guides 9 holes, 33 mm dia, 80 mm distance between the holes' centres thickness/width		870 mm 30/80 mm
	height above ground: minimum maximum		85 mm 1300 mm
Towing hitch:	At front of the tractor, mouth's centre above ground		910 mm

Steering

DANFOSS, Orbitrol OSPC 125 LS
hydrostatic steering, connected by priority valve to the high pressure hydraulic circuit;
1 integrated cylinder of symmetrical design;
200 mm stroke, 65 mm bore, 32 mm piston rod, acting on steering levers;
max. working pressure 14+1 MPa

Brakes

Service brake:	VALMET pedal operated muscle power brake with hydraulic transmission, separate brake-fluid reservoir, acting on rear axle shafts, oil-immersed multi disc brakes with 5 discs per half shaft, disc diameter 224 mm; automatic engaging of front wheel drive when service brake is actuated
Trailer brake:	Combined one line/two line compressed-air brake system on request, fitted
Parking brake:	Mechanical coupled to service brake, operated by lever with ratchet
Steering brake:	Divided pedal of service brake, for normal use locked together

Wheels

Front:	Driving and steering, 2 pneumatics
Rear:	Driving, 2 pneumatics
Wheelbase:	2748 mm

Track width adjustment:

	Minimum mm	Maximum mm	Adjustment method
Front	1450	2150	Offset lug rims and reversing wheel centres
Rear	1610	2115	

Possible combinations of tyres front/rear

front	rear
14.9 R 28	18.4 R 38
420/70 R 28	520/70 R 38
16.9 R 28	20.8 R 38
480/65 R 28	600/65 R 38
480/70 R 28	580/70 R 38
540/65 R 28	650/65 R 38

This is the list of the most popular tyres combinations.
More combinations are available.

Protective structure

VALMET, Ergo Cab, Model T 888/2A, OECD-tested, approval no. CSS 0248/55
(with seat GRAMMER MSG 95A/31);
safety cab with integrated safety frame, mounted by 4 antivibration silent-blocks on tractor;

2 doors and 2 steps each, steps 520 and 830 mm, driver's platform 1175 mm above ground;
side windows, rear window and roof hatch to open;

2 separate heating elements, connected to cooling water circuit:

a) combined heating/ventilation system with 3-step blower, incorporated in cab roof, air intake by paper element filter from outside at the left hand side of roof; air outlets in the roof

b) combined heating/ventilation system for recirculated air operation, incorporated in steering console

air conditioner on request (in Germany standard), not fitted

Noise reduction materials:

Roof	staple fibre with textile surfacing	10 mm
hatch	mineral wool with textile surfacing	40 mm
mudguards		
left	PUR foam with PVC surfacing	10 mm
right	molded plastic cover	4 mm
floor	plastic foam covered with rubber mat or PUR	15 mm 5-8 mm
control panel (on right hand side)	molded plastic cover partially foam on inside	3 mm
steering console		
front plate,	(made of steel)	4 mm
outer side:	Covered with heavy mat	4 mm
inner side:	Staple fibre	20 mm

Driver's seat

GRAMMER MSG 95A/31
upholstered seat with back rest and arm rests, pneumatic suspension with automatic weight adjustment, hydraulic shock absorber, horizontal suspension, heating;
seat rotatable to both sides up to 20°, additionally turnable to the right hand side about 180°;

height of unloaded seat above platform steplessly adjustable from 400 to 570 mm,
horizontal adjustment 220 mm

optionally available driver's seats:

Make and type of seat		OECD approval no. of cab
GRAMMER	DS 85 H / 90 A	CSS 0248/52
	LS 95 H 1 / 90 AR	CSS 0248/53
	DS 85 H 1 / 90 A	CSS 0248/54
	MSG 95 A / 31 *)	CSS 0248/55

*) installed at tested tractor

Operating hours meter

Electronic, counts real operating hours when engine is running

Lighting

Electrical, 12 Volt

	Height above ground of centre mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
Headlights	1200	100x160	255
Sidelights	1850	60x80	800
Rearlights	1800	60x80	835
Reflectors 1st pair 2nd pair	 1600 825	 40x180 80 dia	 884 550

TEST CONDITIONS

Overall dimensions

	Length mm	Width mm	Height at top of protective structure mm	Height at top of exhaust silencer mm
Unballasted	4930	2420	2780	2850

Ground clearance 550 mm
Clearance-limiting part: Front axle differential

Tractor mass (with cab)

	without driver kg	with driver kg
front	2370	2380
rear	2990	3055
total	5360	5435

Tyres and track widths specifications

	Front	Rear
Tyres:	MICHELIN XM108	
dimensions	540/65 R 28	650/65 R 38
load index speed index	137 A8	154 A8
type	radial	
maximum load (tyre manufacturer's) 40 km/h	23.0 kN	37.5 kN
inflation pressure (tyre manufacturer's)	120 kPa	120 kPa
radius index	670 mm	855 mm
Chosen track width:	1850 mm	1810 mm
Rims:	W 15L x 28	DW 18L x 38
Technically permissible axle load:	39.0 kN	80.0 kN *)
Technically permissible total weight:	110.0 kN	

*) without consideration of load restriction by the tyres used

Oils and lubrication

Capacity and change interval:

	Capacity dm³	Oil change h	Filter-change h
Engine	21	250	
Gear box, rear axle and final drives, hydraulic system, steering	34	1000	500
Front axle final drives	8 2 x 1.5		-

Specification:

	Recommended	Used during test
Engine oil:		
Type	Engine oil	ESSO-Diesel
Viscosity		SAE 10W/30
Winter	SAE 5W/20	
Summer	SAE 10W/30	
Classification	API-CD	API-CD
Transmission oil: Used in gearbox, rear axle and rear final drives, hydraulic system, steering		
Type	SUPER-TRACTOR-OIL-UNIVERSAL STOU*)	ESSO-Unifarm
Viscosity	SAE 5W/20,5W/30,10W/30 15W/40	SAE 15W/40
Classification	API-GL4	API-GL4
used in front axle and front final drives		
Type	Transmission oil LS 90	TEXACO GEARTEX LS
Viscosity	SAE 85W/90	SAE 85W/90
Classification	API-GL5	API-GL5

*) likewise recommended: Transmission oil on biological base HYBRAN BIO SAE 10W/30 API-GL4

Grease: SAE EP-multi purpose grease
number of lubrication points 29

Fuel

Used during test

Type:	ARAL-Diesel-fuel, in conformity with DIN 51601	
Density at 15°C:	At p.t.o. performance tests	0.825 g/cm³
	at drawbar power tests	0.822 g/cm³

Likewise permitted

Type:	Rape-seed oil fuel (methyl ester RME)

COMPULSORY TESTS

1. MAIN POWER TAKE OFF PERFORMANCE (1000 rev/min)

Date of tests: 16th December 1996
Location of tests: DLG-Testing Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed Engine rev/min	Speed P.t.o. rev/min	Fuel consumption hourly dm³/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/dm³
Maximum power						
1.1 At 2-hour test						
130,3	1800	865	38,38	31,66	243	3,39
1.2 At rated speed						
126,1	2200	1058	42,55	35,10	278	2,96
1.3 At standard p.t.o. speed						
127,7	2082	1001	41,07	33,88	265	3,11
1. 4 Part loads, the governor hand lever in the position corresponding to maximum power at full load (curve a)						
1.4.1 the torque corresponding to maximum power at rated speed						
126,1	2200	1058	42,55	35,10	278	2,96
1.4.2 85% of the torque obtained in 1.4.1						
109,7	2252	1083	38,30	31,60	287	2,86
1.4.3 75% of the torque defined in 1.4.2						
83,9	2296	1104	30,72	25,34	301	2,73
1.4.4 50% of the torque defined in 1.4.2						
56,9	2335	1123	23,59	19,46	341	2,41
1.4.5 25% of the torque defined in 1.4.2						
28,9	2375	1142	17,48	14,42	498	1,65
1.4.6 unloaded						
-	2404	1156	11,55	9,53	-	-

Power kW	Speed Engine rev/min	Speed P.t.o. rev/min	Fuel consumption hourly dm³/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/dm³
1. 5 Part loads, the governor hand lever in the position corresponding to standard p.t.o. speed at full load (curve b)						
1.5.1 the torque corresponding to maximum power						
127,7	2082	1001	41,07	33,88	265	3,11
1..2 85% of the torque obtained in 1.5.1						
111,6	2140	1029	36,32	29,96	268	3,07
1.5.3 75% of the torque defined in 1.5.2						
85,3	2184	1050	29,30	24,17	283	2,91
1.5.4 50% of the torque defined in 1.5.2						
57,8	2219	1067	22,67	18,70	323	2,55
1.5.5 25% of the torque defined in 1.5.2						
29,5	2256	1085	16,58	13,68	463	1,78
1.5.6 unloaded						
-	2281	1096	10,26	8,47	-	-

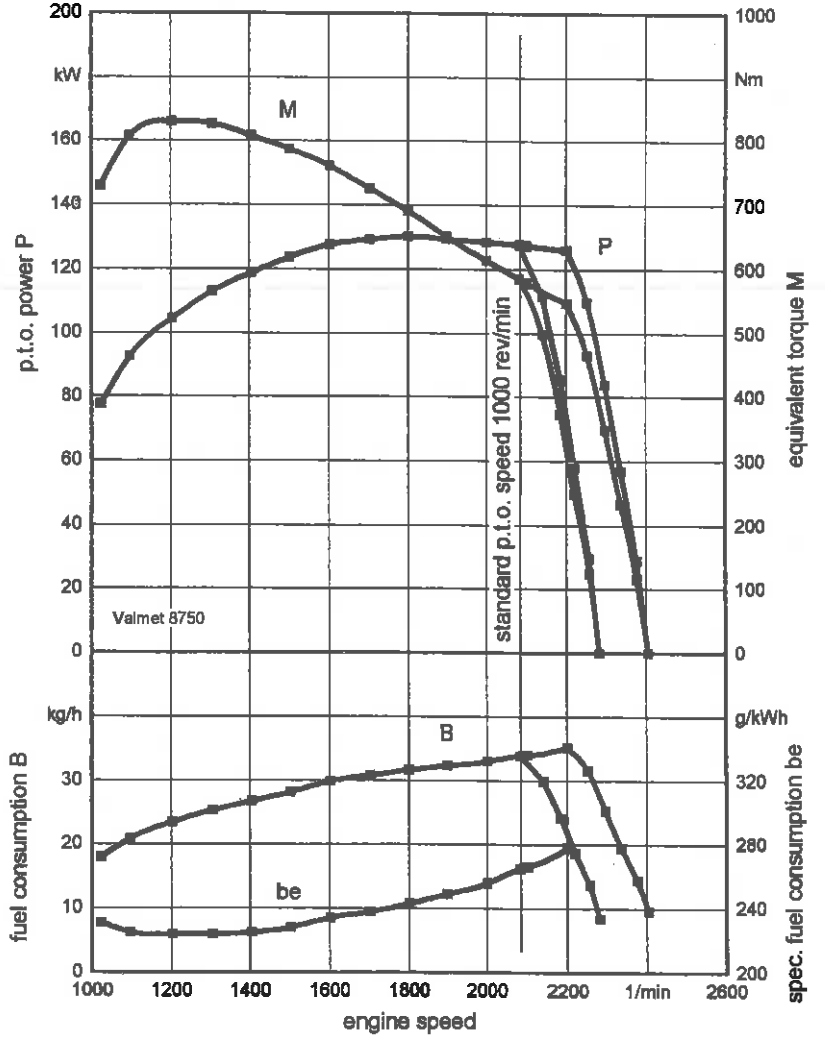
No load maximum engine speed:	2404	rev/min
Equivalent flywheel torque at rated engine speed:	547	Nm
Equivalent flywheel torque at 2-hour test:	691	Nm
at engine speed:	1800	rev/min
Maximum equivalent flywheel torque:	830	Nm
at engine speed:	1202	rev/min

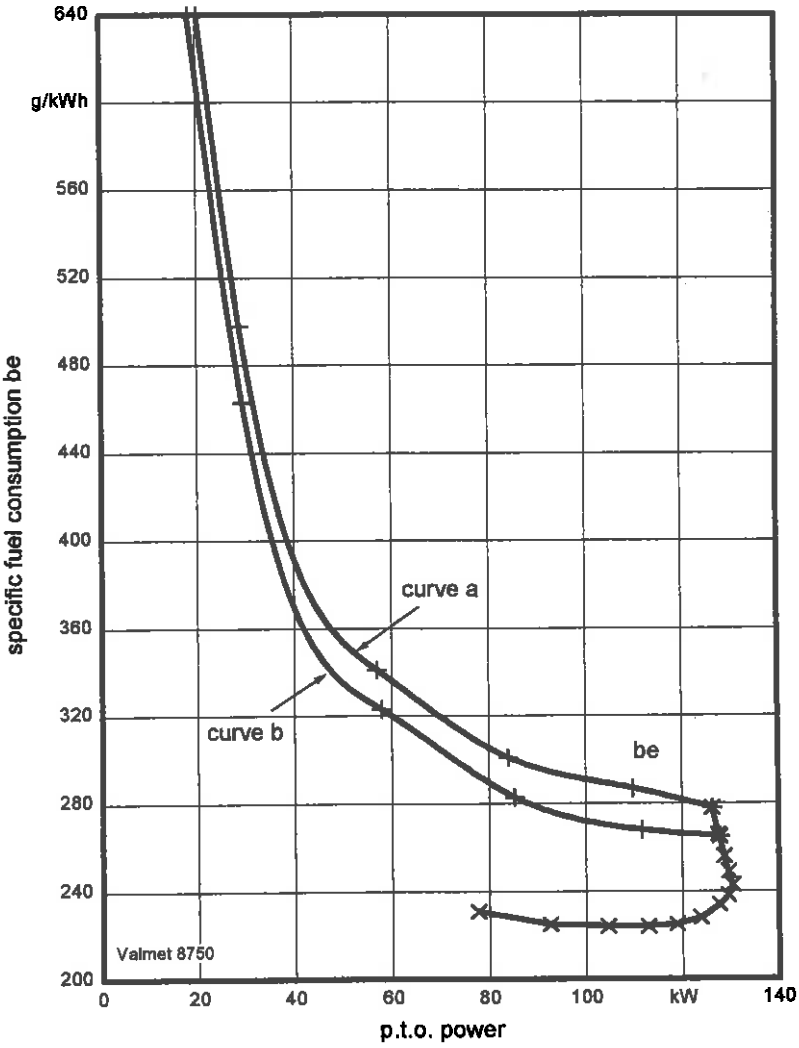
Mean atmospheric conditions

temperature:	21	°C
pressure:	999	hPa
relative humidity:	45	%

Maximum temperatures

coolant:	84	°C
oil:	117	°C
fuel:	46	°C
air intake:	27	°C


200
kW
160
140
120
100
80
60
40
20
0
p.t.o. power P
M
P
Valmet 8750
standard p.t.o. speed 1000 rev/min
1000
Nm
800
700
600
500
400
300
200
100
0
equivalent torque M
kg/h
30
20
10
0
fuel consumption B
B
be
g/kWh
320
280
240
200
spec. fuel consumption be
1000
1200
1400
1600
1800
2000
2200
1/min
2600
engine speed


640
g/kWh
560
520
480
440
400
360
320
280
240
200
specific fuel consumption be
curve a
curve b
be
Valmet 8750
0
20
40
60
80
100
kW
140
p.t.o. power

2 HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 14th to 16th April 1997

2.1 Hydraulic power test

Sustained pressure with relief valve open 19.7 Mpa
Pump delivery rate at minimum pressure 74.2 dm³/min

	Hydraulic power kW	Flow rate dm³/min	Pressure MPa	Oil temperature °C
At 90% of the actual relief valve setting	11.6	39.3	17.7	65
Maximum	19.2	71.9	16.0	65

Tapping point used for test: At rear of tractor, connected with additional control valve no.1 and the low pressure return line

2.2 Power lift test

	At the hitch points	On the frame
Height of lower hitch points above ground in down position	230 mm	
Vertical movement without lifting forces with lifting forces	755 mm 730 mm	944 mm 895 mm
Max. corrected force exerted through full range	66.6 kN	45.5 kN
Corresponding pressure	17.7 MPa	
Moment about rear axle	-	81.3 kNm
Max. tilt angle of mast from vertical		12°

Lifting heights relative to horizontal lower links

mm	-440	-400	-370	-300	-200	-100	0	+100	+200	+300	+360	+400	+455
Lifting forces at hitch points, corrected to 17.7 MPa													
kN			68.4	68.1	67.6	67.5	67.2	67.1	66.9	66.6	66.6		
Lifting forces at standard frame, corrected to 17.7 MPa													
kN	55.8	55.8		55.6	54.9	54.0	53.1	51.8	50.7	48.9		46.8	45.5

3 DRAWBAR POWER AND FUEL CONSUMPTION

Date of test: 19th February 1997
Type of track: Concrete

Gear and range	Speed km/h	Drawbar pull kN	Power kW	Engine speed rev/min	Slip of wheels %
3.1 MAXIMUM POWER IN TESTED GEARS					
3 M PS I	5.36	55.19	82.2	2245	11.7 *)
2 M PS III	5.54	54.82	84.4	2093	11.3 *)
3 M PS II	6.89	46.06	88.2	2201	6.0
4 M PS I	6.43	49.47	88.4	1802	7.0
3 M PS III	7.03	44.92	87.7	1801	5.9
1 H PS I	7.24	45.09	90.7	1805	5.7
4 M PS II	8.14	39.41	89.1	1800	4.7
1 H PS II	9.07	35.90	90.5	1801	3.8
4 M PS III	10.28	30.84	88.1	1800	3.2
2 H PS I	10.54	30.82	90.2	1797	3.0
1 H PS III	11.36	28.29	89.3	1802	2.5
*) The max. drawbar pull was limited to avoid excessive tractor bouncing					
3.2 FUEL CONSUMPTION					
3.2.1 gear with max. drawbar power (at rated speed)					
1 H PS I	8.93	36.34	90.1	2200	3.9
3.2.1.1 75 % of pull at maximum power at rated speed					
1 H PS I	9.52	27.25	72.0	2308	2.4
3.2.1.2 50 % of pull at maximum power at rated speed					
1 H PS I	9.79	18.20	49.5	2343	2.2
3.2.1.3 next higher gear at reduced engine speed; same pull and travelling speed					
4 M PS II	9.53	27.27	72.2	2065	2.6
3.2.1.4 next higher gear at reduced engine speed; same pull and travelling speed					
4 M PS II	9.79	18.25	49.6	2095	2.2
3.2.2 in selected gear, nearest to 7,5 km/h (at rated speed)					
3 M PS II	6.89	46.06	88.2	2201	6.0
3.2.2.1 75 % of pull at maximum power at rated speed					
3 M PS II	7.42	34.58	71.3	2307	3.6
3.2.2.2 50 % of pull at maximum power at rated speed					
3 M PS II	7.70	23.01	49.2	2342	2.1
3.2.2.3 next higher gear at reduced engine speed; same pull and travelling speed					
4 M PS I	7.41	34.55	71.1	2008	3.7
3.2.2.4 next higher gear at reduced engine speed; same pull and travelling speed					
4 M PS I	7.70	23.09	49.4	2045	2.0

Height of drawbar above ground	Tyre inflation pressure Front	Rear
590 mm	80 kPa	80 kPa

Specific fuel consumption g/kWh	Specific energy kWh/dm³	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure kPa
351	2.34	35	76	101	7	65	100.5
326	2.52	34	76	101	6	65	100.5
319	2.58	34	77	100	8	65	100.5
277	2.97	31	76	98	6	65	100.5
280	2.94	33	77	98	7	65	100.5
269	3.05	33	78	100	5	65	100.5
273	3.01	33	79	100	6	65	100.5
270	3.05	34	80	101	6	65	100.5
279	2.95	32	78	100	6	65	100.5
273	3.01	34	79	101	5	65	100.5
274	3.00	34	79	102	6	65	100.5
312	2.63	34	80	101	7	65	100.5
338	2.43	37	76	105	8	65	100.5
380	2.16	37	75	105	10	65	100.5
as in 3.2.1.1							
306	2.69	36	76	102	7	65	100.5
as in 3.2.1.2							
346	2.38	35	75	101	7	65	100.5
319	2.58	35	77	103	6	65	100.5
343	2.40	38	76	106	6	65	100.5
391	2.10	37	75	105	7	65	100.5
as in 3.2.2.1							
298	2.76	36	76	101	9	65	100.5
as in 3.2.2.2							
338	2.43	35	75	100	7	65	100.5

REPAIRS	None
REMARKS	The max. drawbar pull in the gears 3 M PS I and 2 M PS III was limited to avoid excessive tractor bouncing.

Published
with the support of the Federal Ministry for Food, Agriculture and Forestry

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