Report on test in accordance with O.E.C.D. STANDARD CODE

O.E.C.D. No. 941



Agricultural Tractor LANDINI R 8830 (2WD)

Type denomination TL 23 N/E

submitted for test by
Landini Trattori S.P.A.
7 Fabbrico (R.E.), Italy

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This bulletin is based on engineering tests in accordance with the O.E.C.D. STANDARD CODE for the Official Testing of Agricultural Tractor Performance. It does not contain an evaluation of the tractor performance on practical work.

Duration of Tests: August till November 1984
DLG-Testing-Station for Agricultural Machinery, Max-Eyth-Weg 1,
D-6114 Groß-Umstadt

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.

Date of Approval: 20th June 1985 O.E.C.D. No. 941

The tractor LANDINI 8830, serial-no. 223 F0 0001, had been tested in 2 variants
— as model DT 8830 (4WD)
— as model R 8830 (2WD)
Complete front axle and front axle drive had been changed. In the rest the 2 variants are identical.
This report refers to the model R 8830.

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 daN = 10 N	=	1,02 kp	or 1 kp	= 0,981 daN
Powers	1 kW	=	1,36 PS	or 1 PS	= 0,736 kW
Pressures	1 bar	=	1,02 kp/cm²	or 1 kp/cm²	= 0,981 bar
	1000 mbar	=	750,10 mm Hg		

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Printed in the Federal Republic of Germany
July 1985; DLG-No. 199

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*) All stated dimensions refer to tyre sizes 7.50 - 20 at front and 16.9 R 34 at rear, as well as to track widths 1420 mm at front and 1524 mm at rear

PRÜFUNGS-ABTEILUNG
LANDINI R 8830

Test No. 84-211

Tractor manufacturer:	MASSEY-FERGUSON S.P.A. LANDINI DIVISION, WORKS OF FABBRICO (R.E.), Italy
Submitted for test by:	LANDINI TRATTORI S.P.A., 7 FABBRICO (R.E.), Italy
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Fabbrico and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 80 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	LANDINI
Trade name:	R 8830
Type denomination:	TL 23 N/E
Type:	Wheel tractor, unit construction, rear wheel driven
Serial No.: *)	223 FO 0001 start of series 123 EO 0001

Engine

Make:	PERKINS
Model:	A4.248
Type:	Watercooled 4-stroke Diesel-engine, direct injection
Serial No.:	LF 22575 U 855 292 J
Cylinders:	4, in line, bore 101 mm, stroke 127 mm, displacement 4070 cm³, compression ratio 16/1; replaceable wet cylinder liners
Valves:	Overhead
Fuel system:	AC-DELCO fuel supply pump; CAV distributor injection pump DPA 3241 F102; manufacturer's production setting 63±2 mm³/stroke at rated engine speed and full load, injection timing 24°±2° before TDC; CAV 4 hole-injection nozzles BKBL 67 S 5151, injection pressure 177±5 bar, CAV fuel filter 296 with replaceable paper element; capacity of fuel tank 60,5 l
Serial No. of injection pump:	R 11 414 XY

*) see note on page 2

Governor:	CAV centrifugal variable speed governor, governed range of engine speed 600 to 2210 1/min, rated engine speed 2100 1/min
Air cleaner:	FISPA oil bath air filter, cyclone pre-cleaner; oil capacity 0,7 l, oil change every 100 operating hours, no maintenance indicator; air intake in front of engine, below bonnet
Exhaust silencer:	MASSEY FERGUSON expansion type silencer, 100 mm dia, 660 mm long; on the right, beside of engine bonnet, mouth showing upwards, 2337 mm above ground
Lubrication system:	Forced feed with gear pump; strainer in sump, PERKINS oil filter in full flow, replaceable filter, filter change every 250 operating hours; oil capacity 7 l; recommended oil quality API-CC, MIL-L-2104 B, oil change every 250 operating hours, specified oil viscosities: winter SAE 10W, 20W or 10W/30 summer SAE 20W or 20W/30 tropics SAE 30, 20W/40 or 20W/50 or for all conditions SAE 15W/40
Cooling system:	Water cooling with impeller pump, overpressure relief valve set to 0,7 bar, thermostat with by-pass; fan with 4 blades with 412 mm dia, water capacity 15 l
Starting system:	Electrical, LUCAS solenoid pre engaged-drive starter motor 2,5 kW; depressed pedal of clutch as safety device; CAV flame plug in intake manifold

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Electrical equipment: 12 Volt, negative earth;
LUCAS 3-phase alternator 12 V 500 W;
1 lead acid battery, 100 Ah at 20 hours rating

Transmission

Clutch: OMG
dry dual-disc clutch;
pedal operated travel drive, disc 279 mm dia;
hand lever operated p.t.o. drive,
disc 279 mm dia

Gear box: MASSEY FERGUSON
synchronized speed change gear with 4 gears, range gear with 3 forward ranges (L-range sliding gear, M- and H-ranges collar shifted) and 1 sliding gear shifted reverse range; total 12 forward and 4 reverse speeds, 2 gear shift levers;
optionally available creeper group

Rear axle and final drives: MASSEY FERGUSON
bevel gear drive,
bevel gear differential with pedal operated lock, self disengaging;
spur gear final drives

Front axle: MASSEY FERGUSON, not driven

Lubrication:

	oil quality API-MIL-L-	oil viscosity SAE	oil capacity l	oil change interval operating hours
gear box including rear axle	CC 2104 B	15W/40	33	1500
final drives at rear	GL 4 2105 (A)	80W or 80W/90	3,6 each	

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Total ratios and speeds

Range	Gear	Total ratio engine : driving wheel	Nominal travelling speed *) at rated engine speed km/h
L	1	349,05	1,69
	2	223,48	2,64
	3	173,20	3,41
	4	117,62	5,01
M	1	142,80	4,13
	2	91,42	6,45
	3	70,85	8,32
	4	48,12	12,26
H	1	57,97	10,17
	2	37,12	15,89
	3	28,77	20,50
	4	19,53	30,19
R	1	133,87	4,41
	2	85,71	6,88
	3	66,43	8,88
	4	45,11	13,07

*) calculated with the radius index 745 mm

Power-take-off

Main p.t.o.: Shiftable by hand lever (collar shifting) to independent or ground speed p.t.o. and by second hand lever to 540 or 1000 1/min;

1 p.t.o. shaft at rear of tractor, in tractor's median plane;
height above ground 737 mm,
horizontal distance to rear axle centre line 223 mm;
35 mm Ø, 6 splines, ISO 500/DIN 9611, type 1

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Independent p.t.o.: Driven by second plate of dry dual-disc clutch; sense of rotation clockwise, viewed to tractor's rear

p.t.o	p.t.o. speed 1/min	engine speed 1/min	transmission ratio engine : p.t.o.
540	540	1944	3,6000
	583	2100	
1000	1000	1917	1,9167
	1096	2100	

Ground speed p.t.o.: Driven by rear axle drive, sense of rotation clockwise, at forward movement

p.t.o.	travel distance per p.t.o. revolution m	number of p.t.o. revolutions per rear wheel revolution
540	0,4729	9,899
1000	0,2518	18,591

Power lift

MASSEY FERGUSON
hydraulic power lift, unit construction;
draft and position control, floating position;
adjustable raise control,
top link sensing

Hydraulic system:

Open centre system
TUROLLA (PLESSEY) gear type pump TFP 200/11 S directly driven by engine, delivery 36 l/min at rated engine speed;
hydraulic oil circuit in common with gear box with 33 l capacity,
6 l can be taken off when tractor is working stationary or moving,
hydraulic oil filter within suction line, filter change every 250 operating hours

MASSEY FERGUSON control valve 3306 467, relief valve pressure setting 170±5 bar; single acting cylinder with 100 mm bore and 130 mm stroke, overpressure relief valve in cylinder set to 200 bar;
1 assister ram or 2 assister rams, single acting, with 40 mm bore and 207 mm stroke optionally available;
tested tractor fitted out with 2 assister rams;
with a change-over valve 1 oil coupling may be controlled by the a.m. MF control valve;

2 OMC additional control valves 2-1180 (adjustable to single or double acting), with 2 oil couplings each at rear of tractor

Implement linkage: See pages 10 and 11

Pull attachment

Trailer hitch: MASSEY FERGUSON, non automatical;
hitch point
above ground 530, 625, 755 or 850 mm
behind rear axle centre line 360 mm
above p.t.o. shaft end 18 or 113 mm
below p.t.o. shaft end 112 or 207 mm
permissible vertical load 1500 kg

Swinging drawbar: Optionally available (not fitted on tested tractor)

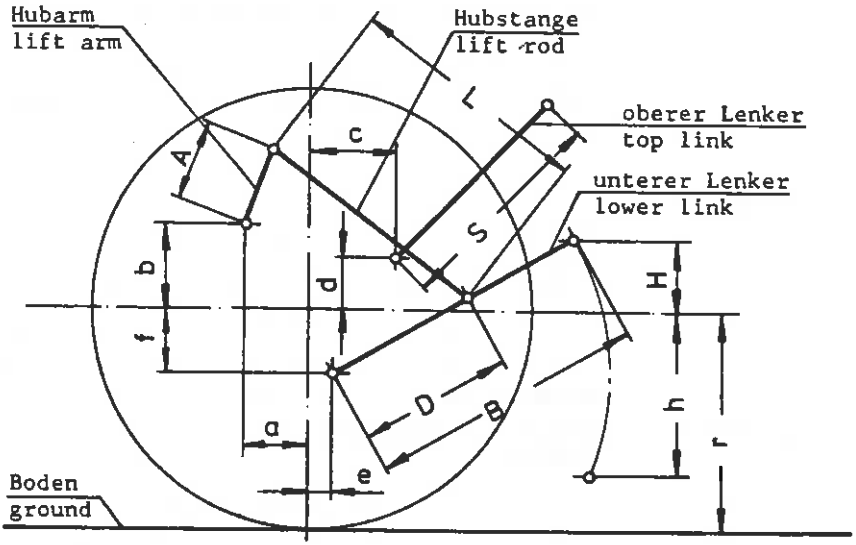
Holed drawbar: Length 1500 mm, thickness 30 mm, width 80 mm, length between joint balls 770 mm;
7 holes between joint balls with 80 mm distance each, 2 holes outside of joint balls on either side with 120 mm distance each, holes diameter 22 mm and 24 mm alternately; at each end of the bar 1 hole with 32 mm dia;
height above ground minimum 210 mm
maximum 1135 mm
holes' centre line behind p.t.o. shaft end 770 mm
(lower links in horizontal position)

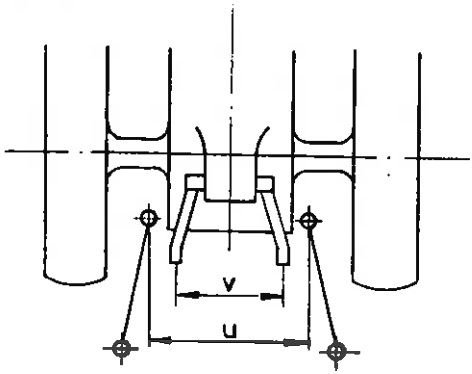
Towing hitch: At front, height above ground 752 mm

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Implement linkage: Three point linkage,
joint balls category 2 acc. to
ISO 730/I, DIN 9674





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dimensions of rear implement linkage (projected lengths, in mm)
underlined dimensions are valid for power lift test page 25

Rear tyres (size 16.9 - 34)	radius index	(r)	745
Front tyres (size 7.50 - 20)	static radius	(r')	426
Length of lift arms		(A)	272
Length of lower links		(B)	910
Distance of lift arm pivot point from rear wheel centre line	horizontally	(a)	12
	vertically	(b)	310
Horizontal distance between the 2 lower link points		(u)	390
Horizontal distance between the 2 lift arm end points		(v)	525
Length of upper link		(S)	640 to 840, <u>735</u>
Distance of upper link pivot point from rear wheel centre line	horizontally	(c)	224
	vertically	(d)	<u>253</u> or 295
Distance of lower link pivot point from rear wheel centre line	horizontally	(e)	43
	vertically	(f)	138
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	495
Length of lift rods		(L)	545 to 665, <u>640</u>

Height of lower link hitch points relative to rear axle centre line (situated 745 mm above ground) in mm

These data are valid for unloaded power lift

		lift rod length L		
		545 mm	640 mm	665 mm
Lowest position	(h)	305 mm	545 mm	610 mm
Highest position	(H)	315 mm	135 mm	100 mm
Transport position	(H')	315 mm	135 mm	100 mm

Steering

MASSEY FERGUSON
hydrostatic steering;
separate oil circuit with 2,3 l capacity,
specified oil ATF,
oil change every 1000 operating hours, oil filter cleaning every 500 operating hours,
TUROLLA gear type pump at front of engine,
driven by crankshaft, delivery 23,1 l/min at rated speed, working pressure 100 bar;
1 double acting differential ram,
45 mm bore, 165 mm stroke, piston rod 20 mm dia;
acting on steering levers of front axle

Wheels

Steering wheels: At front, 2 pneumatics 7.50 - 20 6 ply GOODYEAR cross-ply tyres;
maximum permissible load per tyre 875 kg at 2.8 bar inflation pressure and 30 km/h;
track width 1420 mm, by extending telescopic half axles, adjustable in steps of 100 mm up to 1920 mm;
rims 5.00 F - 20

Driving wheels: At rear
2 pneumatics 16.9 R 34 6 ply PIRELLI radial-ply tyres;
maximum permissible load per tyre 2015 kg at 1.3 bar inflation pressure and 30 km/h;

track width variable by adjustable-gauge wheels in steps of 100 mm each from 1324 to 1824 mm, or after turning the wheels from 1506 to 2006 mm

rims W14 L x 34

Wheel base: 2300 mm

Brakes

Parking brake:	Mechanically actuated by hand lever with ratchet, acting on service brake
Service brake: *)	Pedal operated muscle power brake with mechanical transmission, acting on rear axle of tractor; wet disc brakes on the differential half shafts with 5 lining discs each, with 178 mm dia
Steering brake:	Divided pedals of service brake, for normal use locked together

Number of grease points: 16

Overall dimensions

Total length:	3850 mm without ballast 4090 mm with ballast
Total width:	1950 mm without ballast 1950 mm with ballast
Total height:	2405 mm to top of safety frame
Ground clearance:	560 mm below gear box

Available wheel equipment

Tyre sizes	
front	rear
7.50 - 20 6 ply	18.4 - 30 6 ply
	16.9 - 34 6 ply
	13.6 - 38 6 ply

*) without trailer braking take-off

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Safety frame	LANDINI TS9 OECD tested safety frame OECD approval no. CSD 0700/4
Seat	GRAMMER DS 20/4 H upholstered seat with back rest, adjustable suspension and shock absorber; height of driver's platform above ground 850 mm, height of unloaded seat above platform from 530 to 590 mm infinitely adjustable; longitudinal seat adjustment 200 mm
Lighting equipment	Electrical 12 Volt, in accordance with Italian legislation

	Dimensions mm	Height above ground of centre mm	Distance from outside edge of tractor to centre mm
Head lights	130 Ø	1160	797
Side lights	70 x 60	1570	275
Rear lights	80 x 60	1560	325
Reflectors			
1st pair	80 Ø	1450	190
2nd pair	80 Ø	650	595

Running-time meter	Mechanical, combined with tachometer, driven by camshaft of engine; reference engine speed for one really counted hour 1500 1/min

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TEST CONDITIONS

Track setting 1420 mm at front
1524 mm at rear

Weights

		without driver	with driver
Without ballast:	front	965 kg	975 kg
	rear	1855 kg	1940 kg
	total	2820 kg	2915 kg
Front ballast:	9 weights, total		275 kg
Rear ballast:	1 weight per wheel, total		120 kg
	water in the tyres		585 kg
With ballast:	front	1305 kg	1315 kg
	rear	2495 kg	2580 kg
	total	3800 kg	3895 kg

Fuels and lubricants used in tests

Fuel:	ARAL Diesel-fuel DIN 51 601	
	density at 15°C	
	at engine test	0,822 kg/l
	at p.t.o. and at drawbar test	0,834 kg/l
Engine oil and Transmission oil:	MF SUPER UNIVERSALOIL 20W/30	
Steering oil:	MOBIL ATF 200	

Remarks and repairs None

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Test No. 84-210
84-211

COMPULSORY TESTS

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

Date of tests: 21st September 1984
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 l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
At 2-hour test						
53.3	2100	1096	15.59	13.01	244	3.42
At standard p.t.o. speed						
50.4	1917	1000	14.39	12.00	238	3.50
At rated engine speed						
53.3	2100	1096	15.59	13.01	244	3.42
Part loads, the governor hand lever in the position corresponding to the maximum power at full load (curve a)						
(i) 85% of the torque at maximum power at 2-hour test						
46.3	2144	1118	13.59	11.34	245	3.41
(ii) unloaded						
-	2209	1152	4.06	3.39	-	-
(iii) 50% of the load defined in (i)						
23.5	2179	1137	8.40	7.01	298	2.80
(iv) maximum power						
53.3	2100	1096	15.59	13.01	244	3.42
(v) 25% of the load defined in (i)						
11.9	2195	1145	6.21	5.18	436	1.91
(vi) 75% of the load defined in (i)						
35.0	2163	1129	10.75	8.97	256	3.26

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Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
(i) 85% of the torque at maximum power at standard p.t.o. speed						
43.7	1956	1021	12.29	10.25	235	3.55
(ii) unloaded						
-	2034	1061	3.34	2.78	-	-
(iii) 50% of the load defined in (i)						
22.3	2000	1043	7.60	6.34	284	2.94
(iv) maximum power						
50.4	1917	1000	14.39	12.00	238	3.50
(v) 25% of the load defined in (i)						
11.3	2020	1054	5.41	4.51	399	2.09
(vi) 75% of the load defined in (i)						
33.3	1985	1036	9.83	8.20	246	3.39

Standard specific fuel consumption (g/kWh): 245/298/235/284

No load maximum engine speed: 2209 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 243 Nm
Maximum equivalent crankshaft torque: 274 Nm at 1208 rev/min of the engine

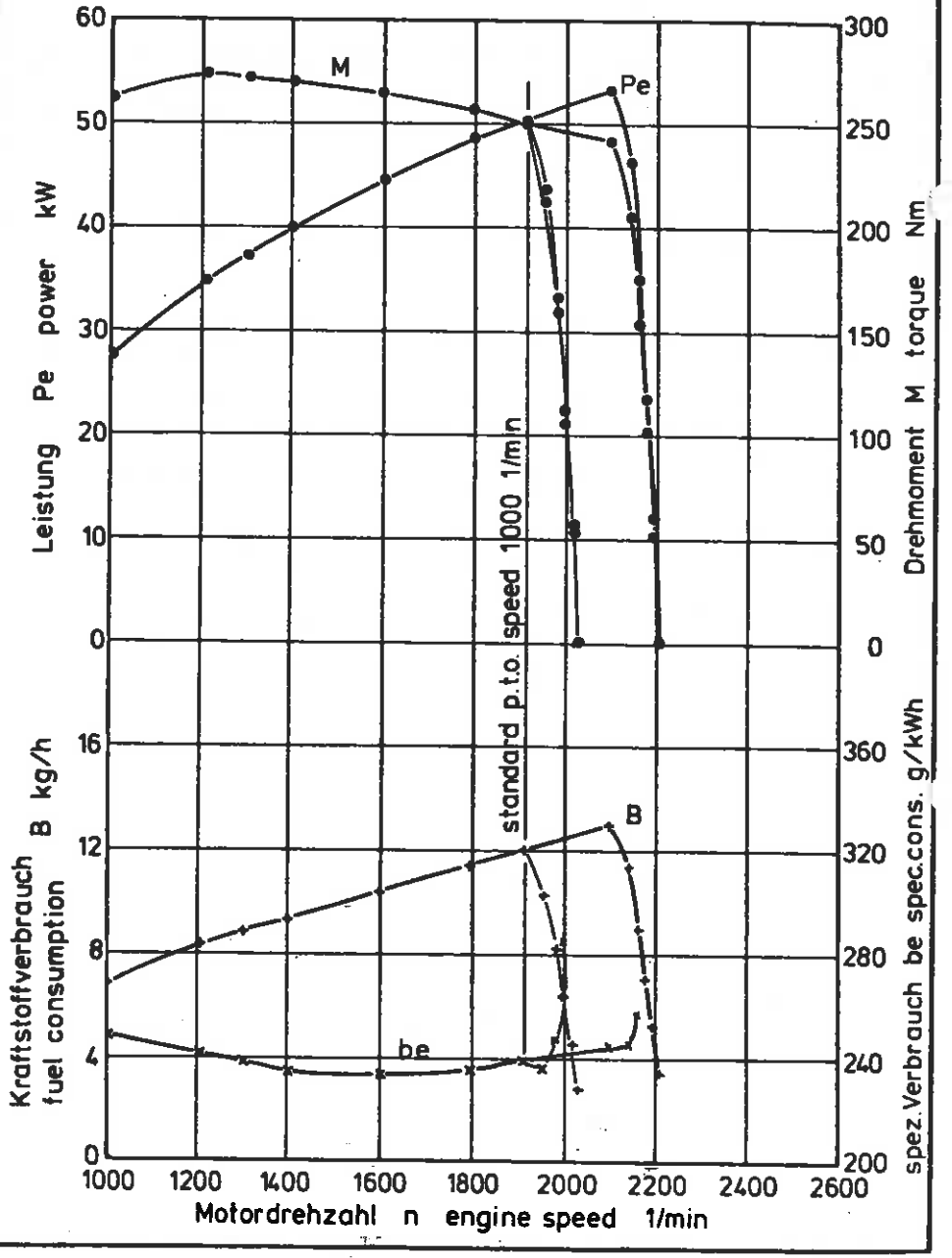
Mean atmospheric conditions:	temperature	21 °C
	pressure	991 mbar
	relative humidity	50 %
Maximum temperatures:	coolant	96 °C
	engine oil	110 °C
	fuel	23 °C
	engine air intake	23 °C

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Zapfwellenleistung

P.T.O. Performance

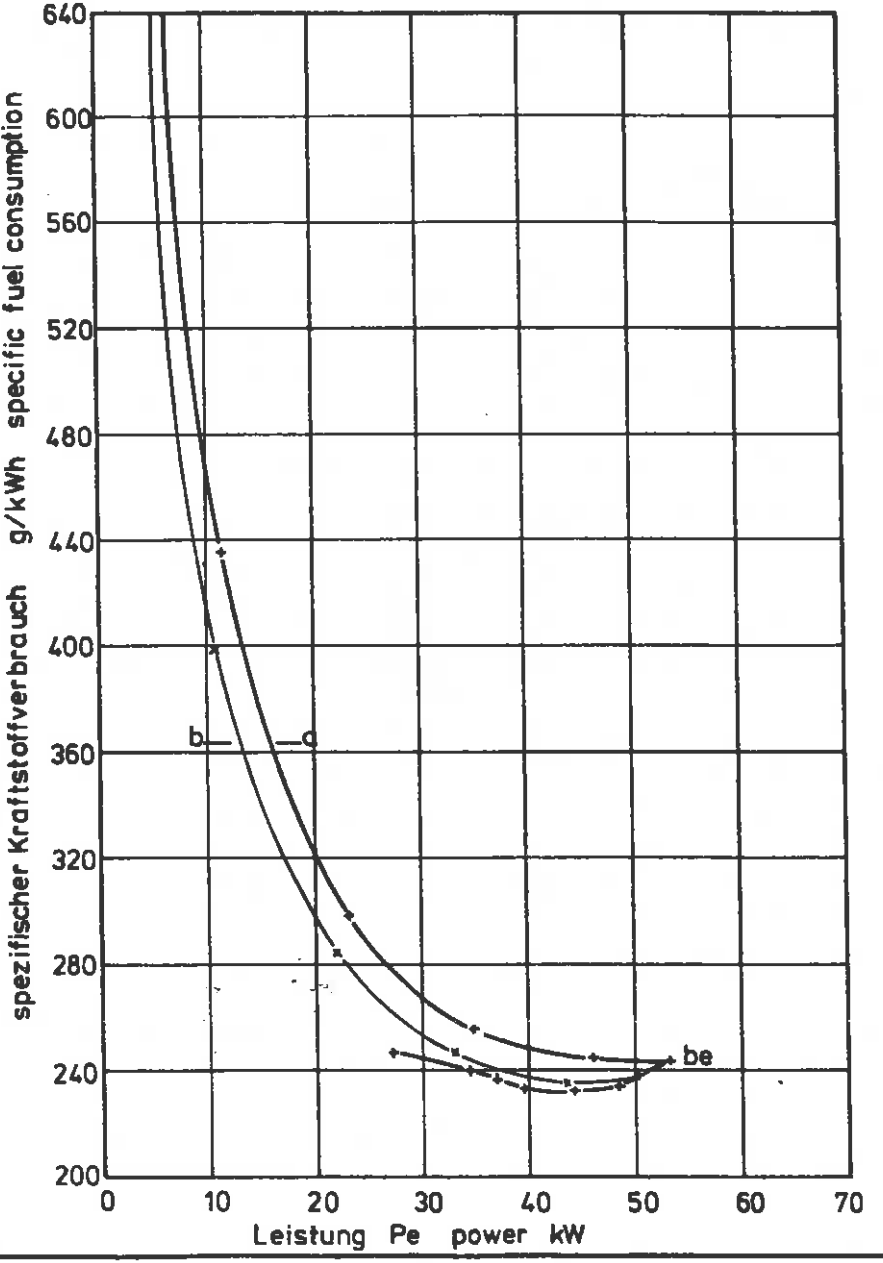


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Zapfwellenleistung

P.T.O. Performance



PRÜFUNGS-ABTEILUNG
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(2) DRAWBAR PERFORMANCE

Date of tests: 26th September till 1st November 1984
Type of track: Concrete

Gear no.	Driving speed km/h	Power kW	Drawbar pull daN	Engine speed rev/min	Slip of wheels %
(i) MAXIMUM POWER (unballasted) height of drawbar above ground 620 mm					
4 L	4,45	34,6	2799	2162	15,0
2 M	5,53	42,8	2786	2098	15,0
3 M	7,68	45,8	2149	2102	8,7
1 H	9,56	46,5	1752	2098	7,0
4 M	11,69	45,6	1405	2098	5,5
2 H	15,32	45,8	1076	2098	4,0
(ii) MAXIMUM POWER (ballasted) height of drawbar above ground 660 mm					
1 L	1,54	15,0	3504	2226	15,0
2 L	2,40	23,2	3485	2215	14,9
3 L	3,07	29,8	3496	2200	14,9
1 M	3,65	35,4	3489	2170	15,1
4 L	4,39	42,6	3493	2145	15,0
2 M	5,94	44,9	2720	2104	8,8
3 M	7,85	45,4	2080	2096	6,2
1 H	9,71	45,7	1695	2096	4,8
4 M	11,84	45,1	1371	2099	3,8
2 H	15,50	44,5	1034	2103	2,9
(iii) FIVE-HOUR-TEST*) at 75 % of pull at maximum power in 2 M gear					
2 M	6,46	36,8	2050	2152	4,0
(iv) FIVE-HOUR-TEST*) at pull corresponding to 15 % wheel slip in test (ii)					
3 L	3,10	38,5	4465	2145	-

Total oil consumption during ten hours duration of tests (iii) and (iv) 20 g/h

*) The tests (iii) and (iv) were carried out with the 4WD-version DT 8830

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Tyre size front: 7.50 - 20 6 ply
rear: 16.9 R 34 6 ply

Tread bar height at the beginning of drawbar tests
95 % of the value when new

Specific fuel consumpt. g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 0,8 bar at rear							
312	2,67	19	83	90	13	92	993
307	2,72	25	82	92	14	90	993
289	2,89	26	82	93	15	84	993
281	2,96	26	81	93	15	84	993
286	2,91	25	82	94	15	84	993
286	2,92	25	83	92	15	85	993
tyre inflation pressure 0,8 bar at rear							
426	1,96	34	81	95	18	80	988
351	2,37	26	81	94	16	89	988
327	2,55	30	80	94	20	90	989
317	2,63	34	80	94	18	82	988
314	2,65	33	82	94	21	79	987
292	2,85	33	83	93	21	79	986
288	2,89	34	84	94	22	81	986
285	2,93	34	83	94	22	84	986
290	2,88	33	82	93	22	82	986
292	2,85	34	82	95	22	83	986
287	2,91	26	89	96	10	100	1005
-	-	26	91	96	10	98	1010

Test (iv) was carried out with additional ballast,
the figures not quoted are therefore irrelevant

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(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 7.50 - 20
rear: 16.9 R 34

Track of wheels front: 1420 mm
rear: 1524 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	3,95	3,88	4,58	4,40
Radius of turning circle	3,65	3,56	4,28	4,08

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	856 mm
Distance forward from rear axle centre	772 mm
Distance from tractor's median plane, to the right	3 mm

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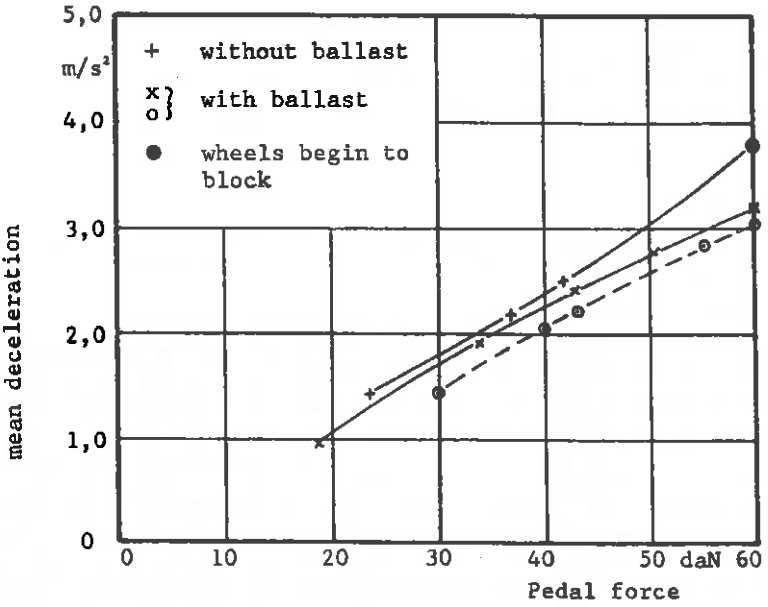
(5) Braking

Date of tests: 11th and 12th October 1984

Tractor masses during tests with driver:	front kg	rear kg	total kg
without ballast	975	1940	2915
with ballast	1315	2580	3895

A) Service brake

Type-0-test (cold brakes) ——, Type-I-(fade)test – – –



Speed before application of brakes, without ballast 32,2 km/h
with ballast 32,2 km/h

The brakes were heated by towing of the tractor for 1 km
Comments on deviation and vibration: None

B) Parking brake

	Ballasted tractor on 18%-slope		Unballasted tractor on 12%-slope with trailer of 2915 kg	
	up	down	up	down
Braking device control force daN	24	25	24	25

(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 27th September 1984
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2203

Results of test

Gear: 4 H
Travelling speed before acceleration: 24,1 km/h
Sound level: 89,0 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 27th September 1984
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

tractor fitted out with LANDINI safety frame model TS9

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed nominal km/h	Travelling speed effective km/h	Sound level dB(A)
1 L	2644	1,69	1,52	94,5
2 L	2667	2,64	2,39	95,5
3 L	2671	3,41	3,08	96,0
1 M	2650	4,13	3,72	97,0
4 L	2688	5,01	4,44	98,0
2 M	2697	6,45	5,49	99,5
3 M *)	2112	8,32	7,75	99,5
3 M *)	light load	8,32	8,91	93,5
1 H	1743	10,17	9,56	98,5
4 M	1385	12,26	11,72	99,0
2 H	1062	15,89	15,43	98,5
4 H	light load	30,19	32,19	95,5

*) the 3rd M gear corresponds to the nominal travelling speed nearest to 7,5 km/h

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(8) POWER LIFT TEST AND HYDRAULIC POWER TEST

Date of tests: 24th October 1984

Power Lift

	Height of lower hitch point above ground in down pos. mm	Vertical movement mm	Max. force exerted through full range daN	Corresp. pressure of hydraul. fluid bar	Moment about rear axle daNm	Max. tilt angle of mast over range of lift degrees
At hitch points	200	655	2370	153	-	-
On the frame	200	760	2260	153	3532	11,5

Temperature of hydraulic fluid at start of test 25 °C *)
Main linkage dimensions see on pages 10 and 11

Lifting heights relative to horizontal lower links

mm	-467	-407	-400	-300	-200	-100	0	+100	+200	+248	+293
Lifting forces at hitch points											
daN		2370	2390	2610	2770	2880	2940	2990	3010	3010	
Lifting forces at test frame											
daN	2370		2430	2500	2520	2500	2450	2410	2320		2260

Hydraulic power test

Sustained pressure with relief valve open 170 bar

Pump delivery rate at minimum pressure and maximum engine speed. 35,3 l/min

hydraulic power	kW	flow rate l/min	pressure bar	oil temperature °C
at 90% of the actual relief valve setting	8,75	34,3	153	25 *)
maximum	8,84	34,2	155	25 *)

tapping point used for test: at rear of tractor

*) oil temperature in suction line of hydraulic pump more than 60 °C

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OPTIONAL TESTS

(9) ENGINE PERFORMANCE

Date of tests: 31st August 1984
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

Power kW	Engine speed rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
56.6	2100	16.26	13.37	236	3.48
At standard p.t.o. speed (1000 rev/min)					
53.5	1917	15.02	12.35	231	3.56
At rated engine speed					
56.6	2100	16.26	13.37	236	3.48
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
48.9	2132	13.86	11.39	233	3.53
(ii) unloaded					
-	2192	3.56	2.92	-	-
(iii) 50% of the torque defined in (i)					
24.8	2165	8.37	6.88	277	2.96
(iv) maximum power					
56.6	2100	16.26	13.37	236	3.48
(v) 25% of the torque defined in (i)					
12.5	2179	5.93	4.87	390	2.11
(vi) 75% of the torque defined in (i)					
36.9	2148	10.93	8.98	243	3.38

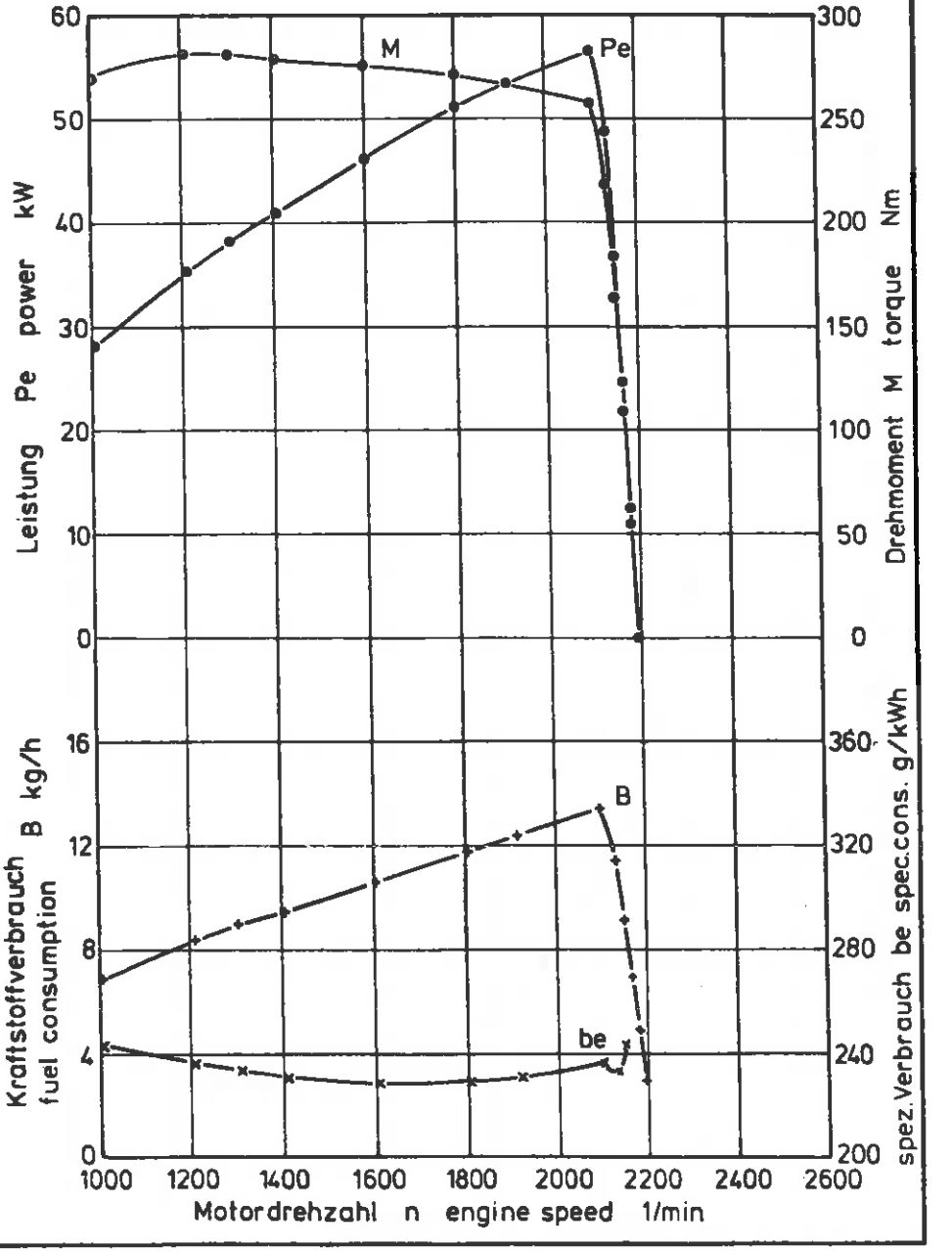
Optimum fuel consumption: 214 g/kWh at 36.1 kW and 1575 rev/min
No load maximum engine speed: 2192 rev/min
Torque at maximum power (2 hours): 258 Nm
Maximum torque: 282 Nm at 1301 rev/min of the engine

Mean atmospheric conditions:	temperature	25 °C
	pressure	998 mbar
	relative humidity	50 %
Maximum temperatures:	coolant	89 °C
	engine oil	108 °C
	fuel	28 °C
	engine air intake	25 °C

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Motorleistung — Engine Performance

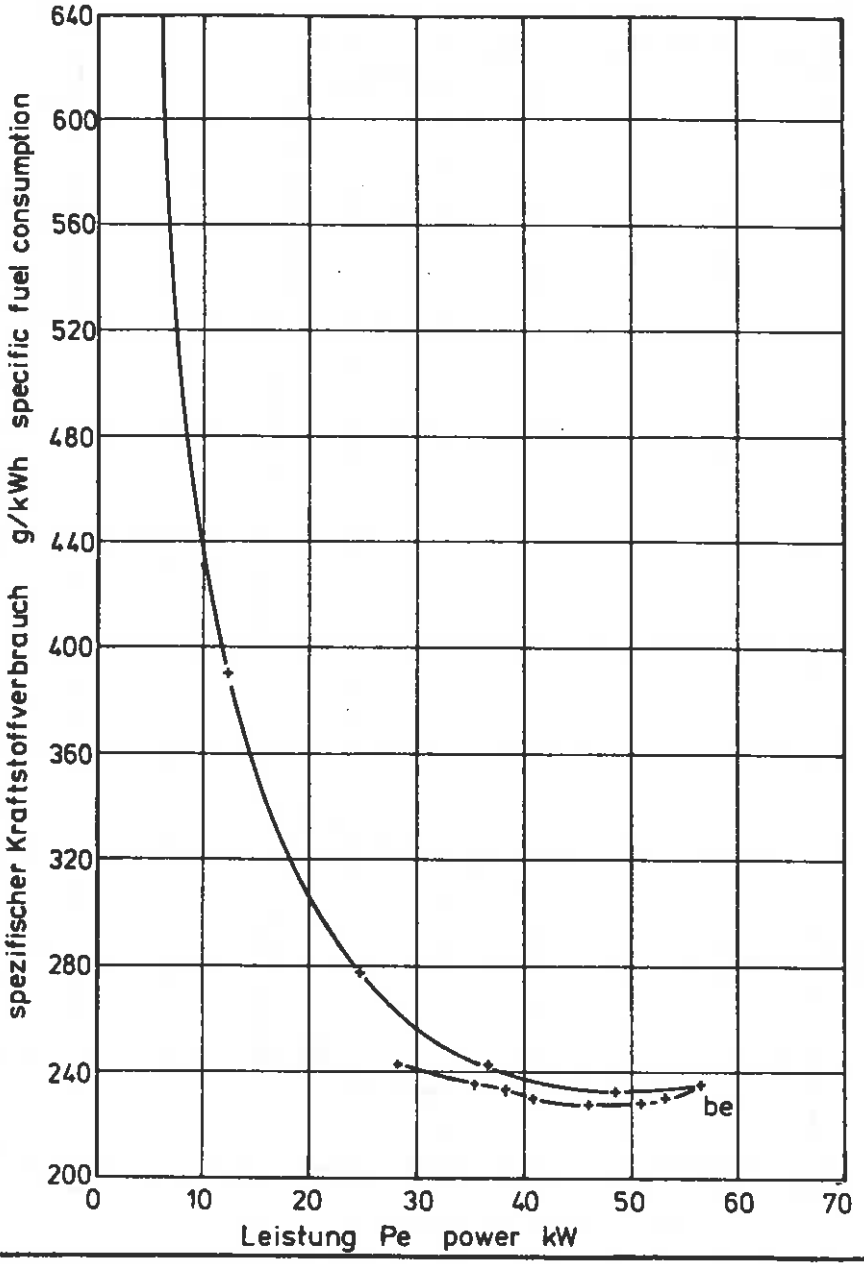


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Motorleistung

Engine Performance



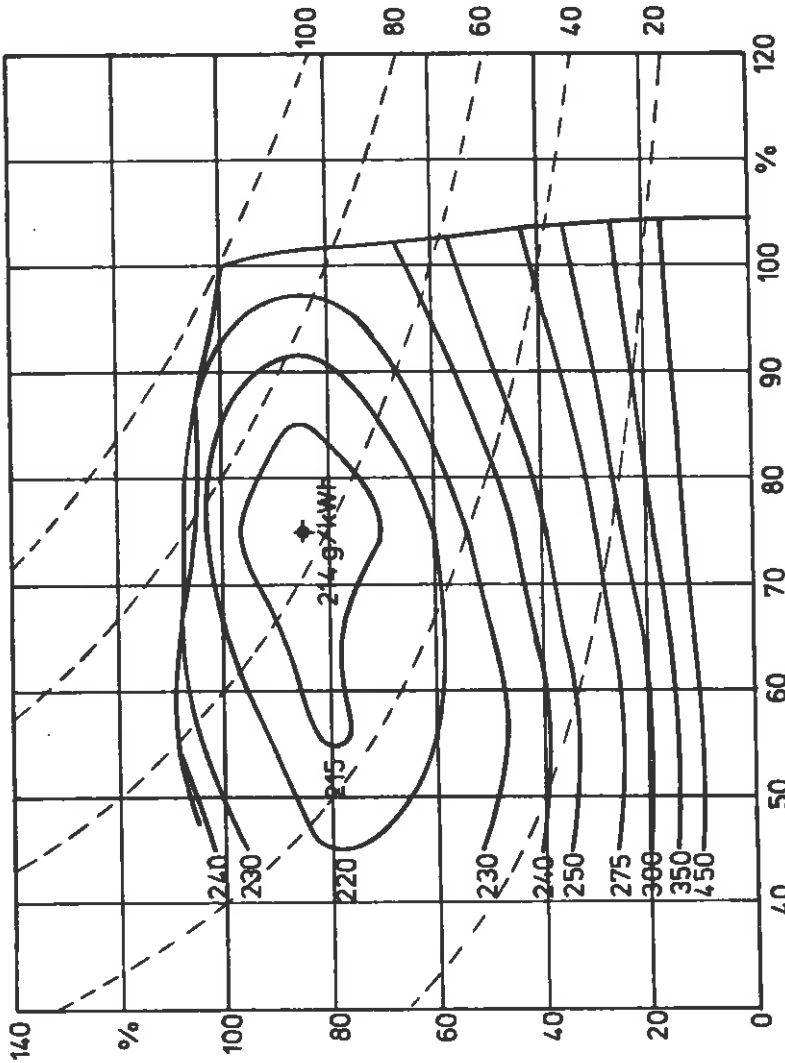
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Motorleistung

Engine Performance

Motorleistung in % der Leistung bei Nenndrehzahl
engine power in % of power at rated engine speed



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

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