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

O.E.C.D. No. **951**



Agricultural Tractor
LANDINI R 7830 (2WD)
Type denomination TL 20 N/F

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

Deutsche Landwirtschafts-Gesellschaft e. V.
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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: 16th September 1985 O.E.C.D. No. 951

The tractor LANDINI 7830, serial-no. 220 F0 0001, had been tested in 2 variants

— as model DT 7830 (4WD)
— as model R 7830 (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 7830

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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PRÜFUNGS-ABTEILUNG
LANDINI R 7830

Test No. 84-209

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*) All stated dimensions refer to tyre sizes 7.50 - 20 at front and 18.4 R 30 at rear, as well as to track widths 1420 mm at front and 1524 mm at rear

PRÜFUNGS-ABTEILUNG
LANDINI R 7830

Test No. 84-209

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. 85 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	LANDINI
Trade name:	R 7830
Type denomination:	TL 20 N/F
Type:	Wheel tractor, unit construction, rear wheel driven
Serial No.: *)	220 F00001
Start of series:	120 F0 0001

Engine

Make:	PERKINS
Model:	A4.236
Type:	Watercooled 4-stroke Diesel-engine, direct injection
Serial No.:	LD 22574 U 86270 8 J
Cylinders:	4, in line, bore 98,4 mm, stroke 127 mm, displacement 3863 cm^3, compression ratio 16/1; replaceable wet cylinder liners
Valves:	Overhead
Fuel system:	AC-DELCO fuel supply pump; CAV distributor injection pump DPA 3241 F490; manufacturer's production setting 66,5 $\pm$ 2 mm^3/stroke at rated engine speed and full load, injection timing $23^{\circ}\pm2^{\circ}$ before TDC; CAV 4 hole-injection nozzles BKBL 67 S 5151, injection pressure 177$\pm$5 bar, CAV fuel filter 296 with replaceable paper element capacity of fuel tank 60,5 l
Serial No. of injection pump:	R 154 42 GA

*) see note on page 2

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Governor:	CAV centrifugal variable speed governor, governed range of engine speed 600 to 2390 1/min, rated engine speed 2200 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, 2335 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 and final drives: MASSEY FERGUSON

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	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	1,71
	2	223,48	2,67
	3	173,20	3,45
	4	117,62	5,08
M	1	142,80	4,18
	2	91,42	6,53
	3	70,85	8,43
	4	48,12	12,41
H	1	57,97	10,30
	2	37,12	16,09
	3	28,77	20,76
	4	19,53	30,57
R	1	133,87	4,46
	2	85,71	6,97
	3	66,43	8,99
	4	45,11	13,24

*) calculated with the radius index 720 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 712 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
	611	2200	
1000	1000	1917	1,9167
	1148	2200	

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	0,4571	9,899
1000	0,2433	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 D directly driven by engine,
delivery 37,4 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	505, 600, 730 or 825 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 (measured without load)

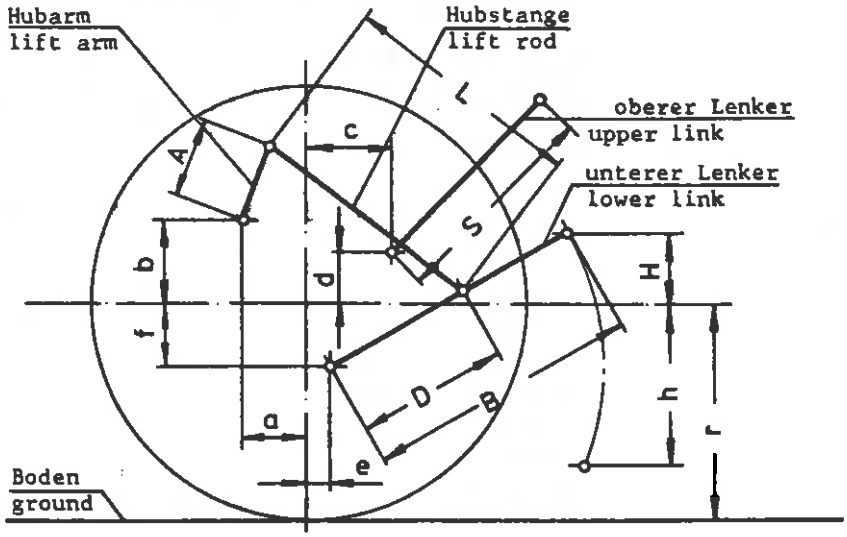
minimum	185 mm
maximum	1110 mm
holes' centre line behind p.t.o. shaft end (lower links in horizontal position)	770 mm

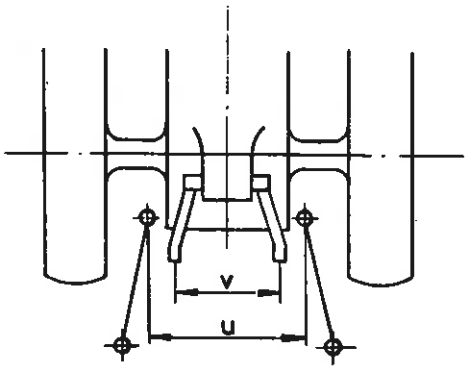
Towing hitch: At front, height above ground 728 mm

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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 18.4 - 30)	radius index	(r)	720
Front tyres (size 7.50 - 20)	static radius	(r')	425
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, 731
Distance of upper link pivot point from rear wheel centre line	horizontally	(c)	224
	vertically	(d)	253 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, 627

Height of lower link hitch points relative to rear axle centre line (situated 720 mm above ground) in mm

These data are valid for unloaded power lift

		Lift rod length L		
		545 mm	627 mm	665 mm
Lowest position	(h)	305 mm	520 mm	610 mm
Highest position	(H)	315 mm	155 mm	100 mm
Transport position	(H')	315 mm	155 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 24,2 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 8 ply KLEBER cross-ply tyres;
maximum permissible load per tyre 1020 kg at 2.7 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 18.4 R 30 142 A8 PIRELLI radial-ply tyres;
maximum permissible load per tyre 2836 kg at 1.6 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 30

Wheel base: 2240 mm

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Brakes

Parking brake:	Mechanically actuated by hand lever with ratchet, acting on service brake
Service brake:	MASSEY FERGUSON 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 no trailer braking take-off
Steering brake:	Divided pedals of service brake, for normal use locked together

Number of grease points: 16

Overall Dimensions

Total length:	3750 mm without ballast 3975 mm with ballast
Total width:	2000 mm without ballast 2000 mm with ballast
Total height:	2400 mm to top of safety frame
Ground clearance:	535 mm below gear box

Available wheel equipment

Tyre sizes	
front	rear
7.50 - 16 6 ply	16.9 - 30 13.6 - 36 6 ply
7.50 - 18 6 ply	16.9 - 30 13.6 - 36 6 ply
7.50 - 20 6 ply	18.4 - 30 16.9 - 34 6 ply

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Safety frame	LANDINI TS9 OECD tested safety frame OECD approval no. CSD 0700/8
Seat	GRAMMER DS 20/4 H upholstered seat with back rest, adjustable suspension and shock absorber; height of driver's platform above ground 825 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	1150	835
Side lights	70 x 60	1545	290
Rear lights	80 x 60	1530	350
Reflectors			
1st pair	80 ø	1430	200
2nd pair	80 ø	640	605

Running-time meter	Mechanical, combined with tachometer, driven by camshaft of engine; reference engine speed for one real counted hour 1600 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	930 kg	940 kg
	rear	1785 kg	1845 kg
	total	2715 kg	2785 kg
Front ballast:	9 weights, total		275 kg
Rear ballast:	2 weights per wheel, total		240 kg
	water in the tyres		605 kg
With ballast:	front	1250 kg	1260 kg
	rear	2585 kg	2645 kg
	total	3835 kg	3905 kg

Fuels and lubricants used in tests

Fuel: ARAL Diesel-fuel DIN 51 601
density at 15°C
at engine test 0,834 kg/l
at p.t.o. test 0,841 kg/l
at drawbar test 0,835 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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COMPULSORY TESTS

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

Date of tests: 28th 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						
49.0	2200	1148	15.62	13.13	268	3.14
At standard p.t.o. speed						
46.7	1917	1000	13.92	11.70	251	3.36
At rated engine speed						
49.0	2200	1148	15.62	13.13	268	3.14
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						
42.6	2254	1176	13.56	11.41	267	3.14
(ii) unloaded						
-	2379	1241	4.78	4.02	-	-
(iii) 50% of the load defined in (i)						
21.9	2312	1206	8.75	7.36	337	2.50
(iv) maximum power						
49.0	2200	1148	15.62	13.13	268	3.14
(v) 25% of the load defined in (i)						
11.1	2346	1224	6.74	5.67	512	1.64
(vi) 75% of the load defined in (i)						
32.2	2265	1182	10.91	9.17	285	2.95

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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						
40.4	1949	1017	11.84	9.96	247	3.41
(ii) unloaded						
-	2150	1122	3.84	3.23	-	-
(iii) 50% of the load defined in (i)						
21.3	2058	1074	7.75	6.52	306	2.75
(iv) maximum power						
46.7	1917	1000	13.92	11.70	251	3.36
(v) 25% of the load defined in (i)						
10.9	2108	1100	5.74	4.83	442	1.90
(vi) 75% of the load defined in (i)						
31.1	2000	1043	9.65	8.12	261	3.22

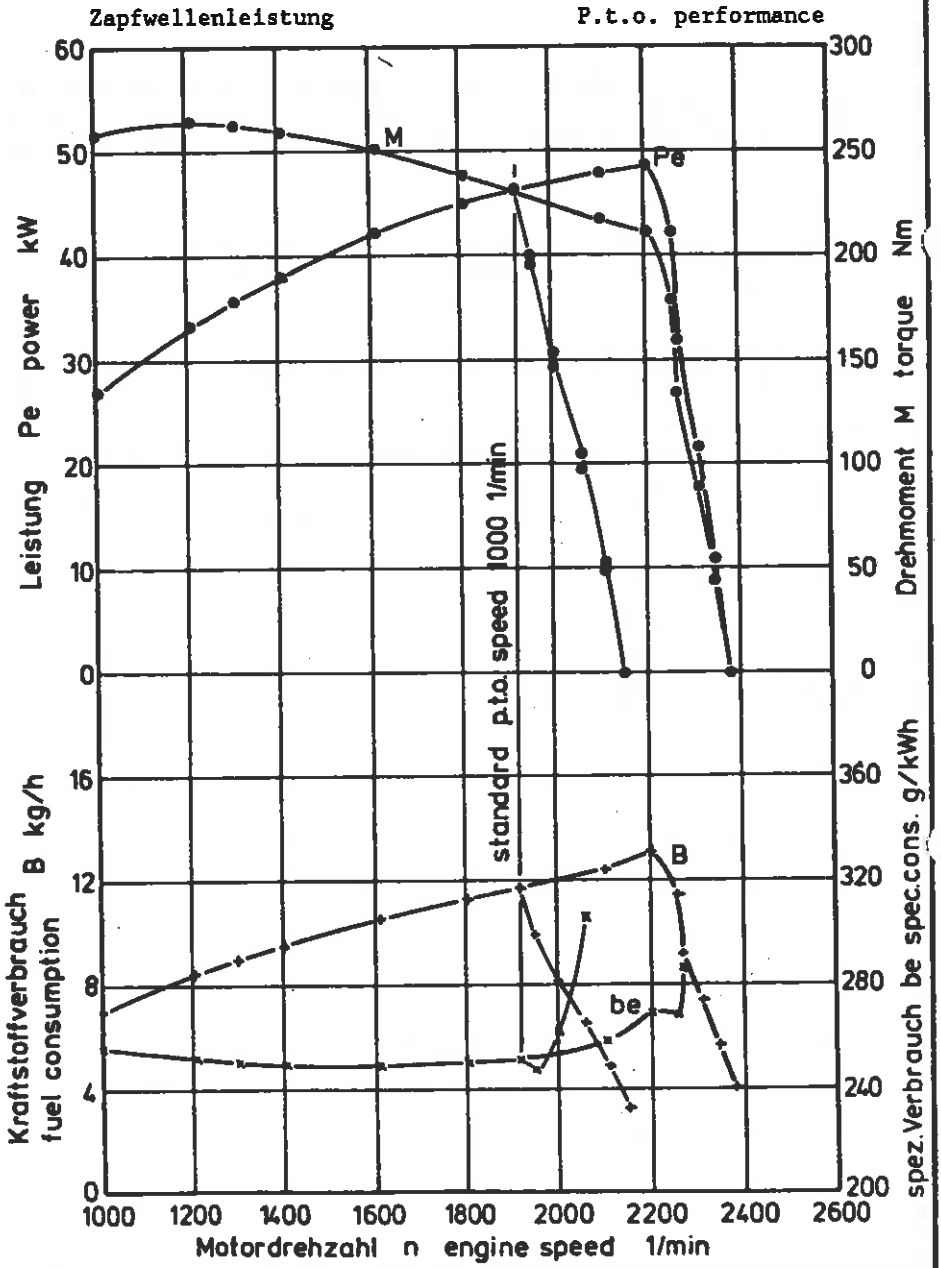
Standard specific fuel consumption (g/kWh): 267/337/247/306

No load maximum engine speed: 2379 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 213 Nm
Maximum equivalent crankshaft torque: 266 Nm at 1204 rev/min of the engine

Mean atmospheric conditions:	temperature	20 °C
	pressure	995 mbar
	relative humidity	45 %
Maximum temperatures:	coolant	85 °C
	engine oil	104 °C
	fuel	20 °C
	engine air intake	20 °C

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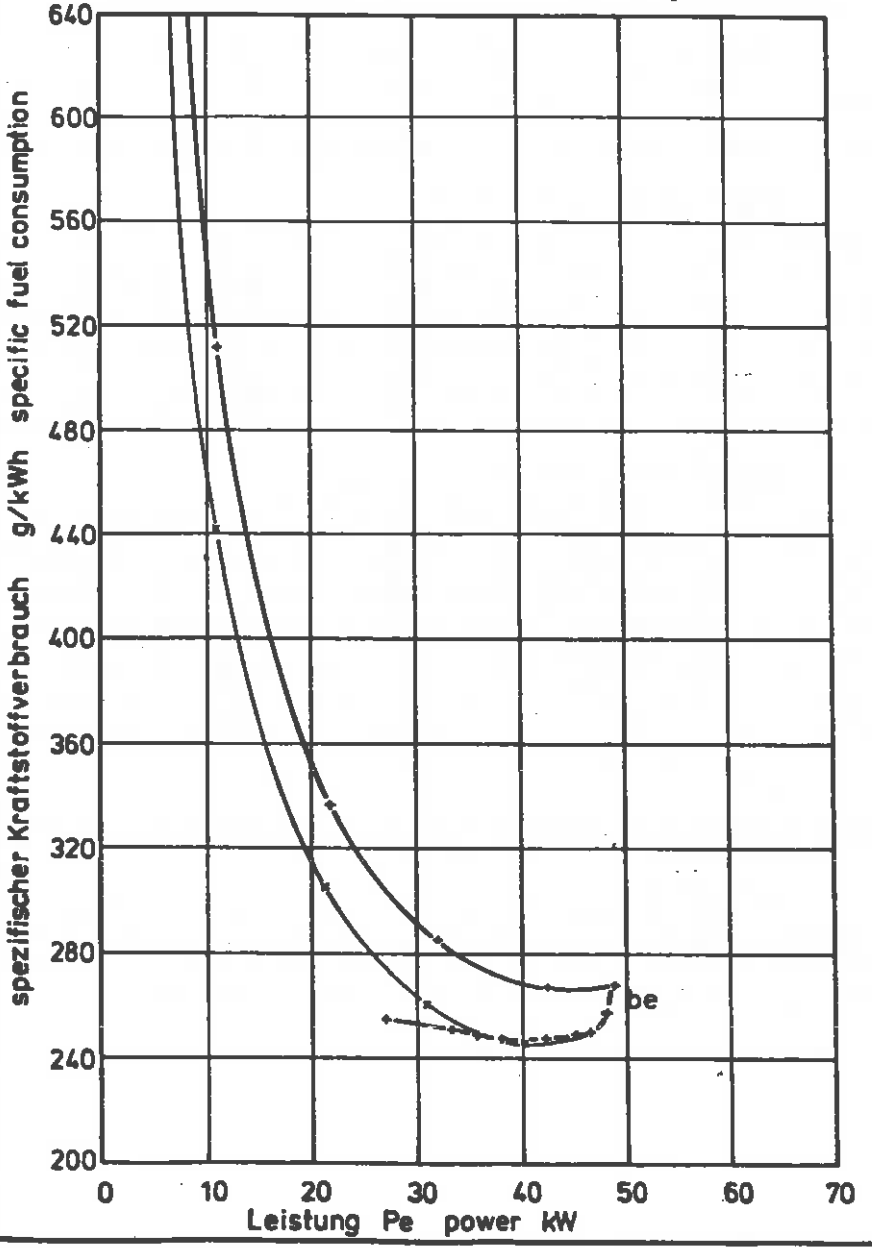
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Zapfwellenleistung P.t.o. performance



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(2) DRAWBAR PERFORMANCE

Date of tests: 5th till 8th November 1984
Type of track: Concrete

Gear	Driving speed km/h	Power kW	Drawbar pull daN	Engine speed 1/min	Slip of wheels %
(i) MAXIMUM POWER (unballasted) height of drawbar above ground 615 mm					
1 M	3,77	27,8	2658	2290	15,0
4 L	4,49	33,2	2661	2247	15,0
2 M	5,85	40,3	2479	2197	11,8
3 M	7,88	41,4	1891	2201	7,9
1 H	9,83	42,1	1541	2201	6,1
4 M	12,00	40,9	1228	2200	4,9
2 H	15,76	40,1	916	2204	3,6
(ii) MAXIMUM POWER (ballasted) height of drawbar above ground 610 mm					
1 L	1,56	15,0	3457	2332	14,9
2 L	2,41	23,3	3478	2309	14,9
3 L	3,10	29,9	3470	2308	14,9
1 M	3,70	35,7	3476	2265	14,9
4 L	4,56	40,6	3204	2200	10,9
2 M	6,16	42,3	2473	2203	6,5
3 M	8,10	41,6	1847	2202	4,5
1 H	9,99	41,8	1508	2204	3,6
(iii) FIVE-HOUR-TEST *) at 75 % of pull at maximum power in 2 M gear					
2 M	6,63	33,8	1837	2272	3,8
(iv) FIVE-HOUR-TEST *) at pull corresponding to 15 % wheel slip in test (ii)					
3 L	3,10	37,5	4355	2239	-

Total oil consumption during ten hours duration of tests (iii) and (iv) 19 g/h

*) The tests (iii) and (iv) were carried out with the 4 WD-version DT 7830

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Tyre size front: 7.50 - 20 8 ply
rear: 18.4 R 30 142 A8

Tread bar height at the beginning of drawbar tests
92 % 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							
356	2,35	29	70	92	11	89	990
341	2,45	30	75	91	9	95	990
326	2,56	28	77	92	11	90	990
318	2,62	30	78	94	11	89	990
310	2,70	30	86	95	11	91	990
319	2,61	31	84	94	13	86	990
330	2,53	31	83	92	13	81	990
tyre inflation pressure 0,8 bar at rear							
462	1,81	31	79	92	13	78	994
379	2,20	31	82	92	13	77	994
353	2,36	30	79	91	13	78	994
342	2,44	27	84	89	13	76	994
323	2,59	31	82	93	13	78	994
310	2,70	31	83	95	14	77	994
314	2,66	30	82	91	12	84	993
311	2,69	30	83	93	12	82	993
320	2,63	34	81	95	15	78	994
-	-	32	80	94	14	77	1004

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: 18.4 R 30

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	3,89	3,58	4,47	4,06
Radius of turning circle	3,74	3,42	4,32	3,90

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	834 mm
Distance forward from rear axle centre	756 mm
Distance from tractor's median plane, to the right	4 mm

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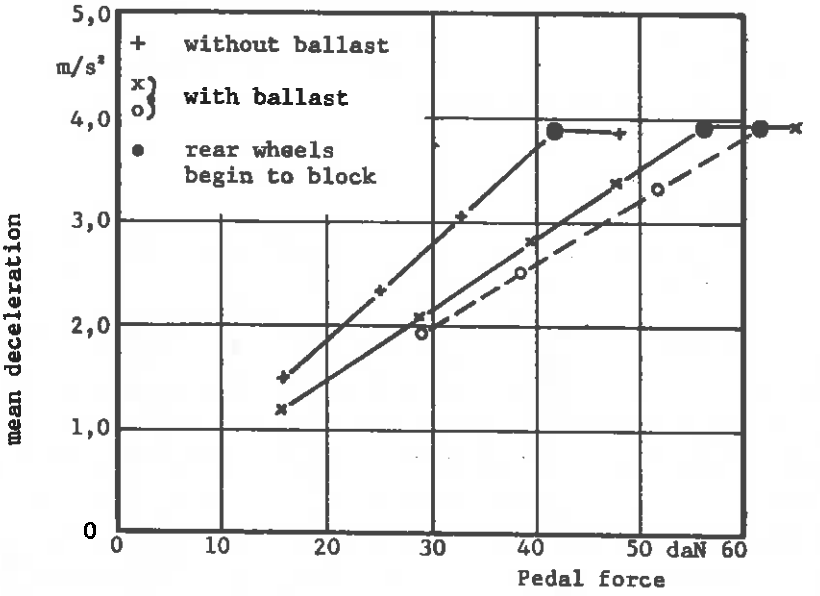
(5) Braking

Date of tests: 7th November 1984

Tractor masses during tests with driver:	front kg	rear kg	total kg
without ballast	940	1845	2785
with ballast	1260	2645	3905

A) Service brake

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



Speed before application of brakes, without ballast 32,8 km/h
with ballast 32,3 km/h

The brakes were heated by towing of the tractor for 1 km; no deviation, no abnormal vibrations

B) Parking brake

	Ballasted tractor on 18%-slope		Unballasted tractor on 12%-slope with trailer of 2785 kg	
	up	down	up	down
Braking device control force daN	22	22	22	22

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(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 12th November 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: 24,6 km/h
Sound level: 88,5 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 5th November 1984
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

tractor fitted out with LANDINI safety frame model TS 9

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	2488	1,71	1,60	96,0
2 L	2494	2,67	2,44	96,0
3 L	2487	3,45	3,01	96,0
1 M	2485	4,18	3,78	97,0
4 L	2493	5,08	4,59	98,5
2 M	2431	6,53	5,89	99,0
3 M *)	1857	8,43	7,97	98,5
3 M *)	light load	8,43	9,14	95,5
1 H	1527	10,30	9,81	98,0
4 M	1218	12,41	12,02	99,5
2 H	920	16,09	15,69	98,5
4 H	light load	30,57	32,80	97,0

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

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(8) POWER LIFT AND HYDRAULIC POWER TEST

Date of tests: 23rd 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	650	2460	153	-	-
On the frame	200	757	2230	153	3485	11,5

Temperature of hydraulic fluid at start of test 35 °C *)
Main linkage dimensions see on pages 10 and 11

Lifting heights relative to horizontal lower links

mm	-437	-400	-382	-300	-200	-100	0	+100	+200	+268	+300	+320
Lifting forces at hitch points												
daN			2460	2660	2810	2920	2990	3030	3030	3010		
Lifting forces at test frame												
daN	2280	2320		2450	2480	2500	2480	2410	2340		2260	2230

Hydraulic power test

Sustained pressure with relief valve open 170 bar

Pump delivery rate at minimum pressure and maximum engine speed 38,7 l/min

hydraulic power	kW	flow rate l/min	pressure bar	oil temperature °C
at 90% of the actual relief valve setting	9,2	35,9	153	35 *)
maximum	9,4	35,6	158	35 *)

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: 25th September 1984
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

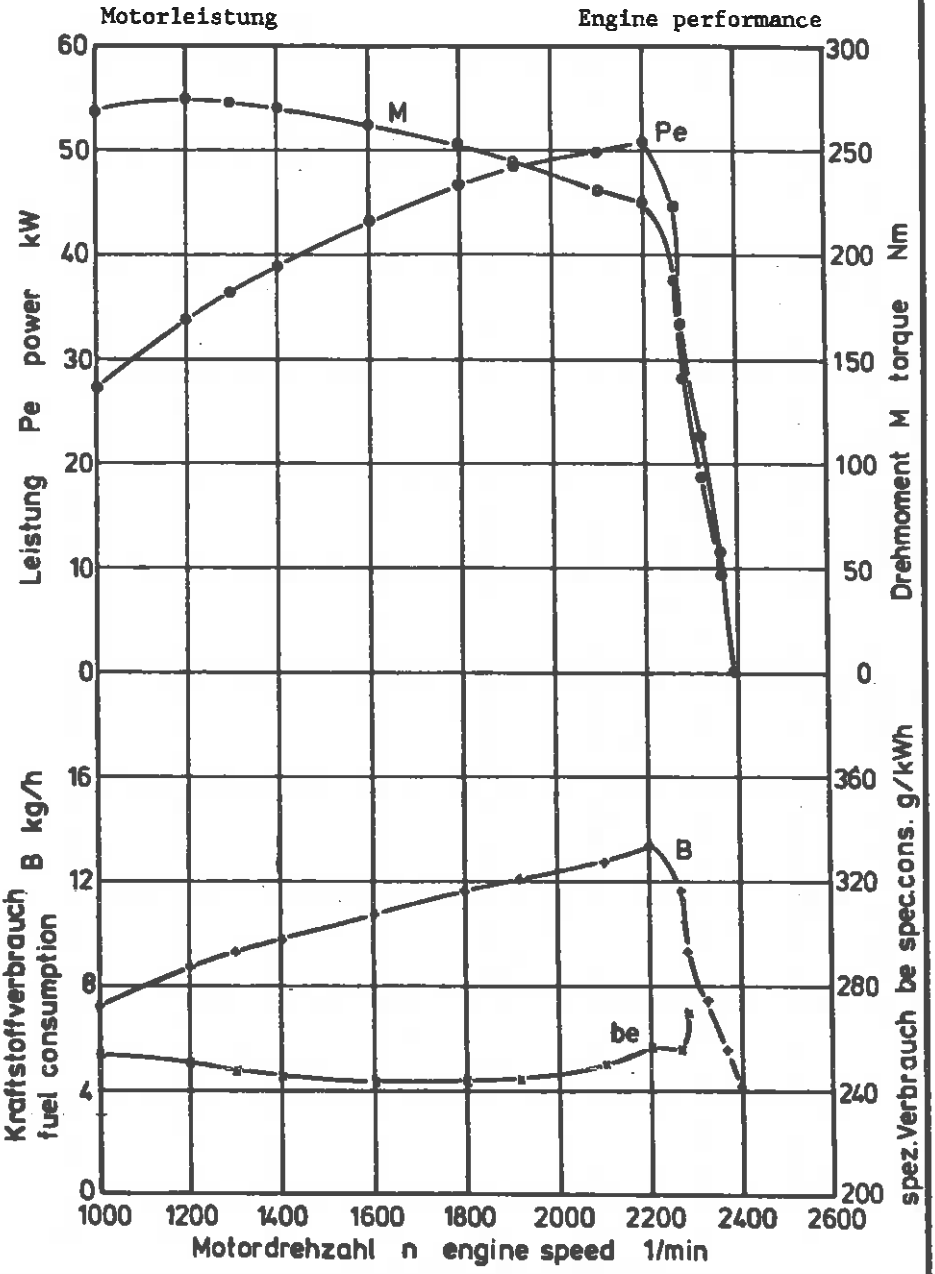
Power kW	Engine speed rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
51.6	2200	15.81	13.19	256	3.26
At standard p.t.o. speed (1000 rev/min)					
49.1	1917	14.33	11.95	243	3.43
At rated engine speed					
51.6	2200	15.81	13.19	256	3.26
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
45.1	2264	13.78	11.49	255	3.27
(ii) unloaded					
-	2390	4.77	3.98	-	-
(iii) 50% of the torque defined in (i)					
23.1	2321	8.69	7.25	313	2.66
(iv) maximum power					
51.6	2200	15.81	13.19	256	3.26
(v) 25% of the torque defined in (i)					
11.8	2361	6.43	5.37	456	1.83
(vi) 75% of the torque defined in (i)					
34.1	2278	10.97	9.15	269	3.11

Optimum fuel consumption: 224 g/kWh at 24.1 kW and 1210 rev/min
No load maximum engine speed: 2390 rev/min
Torque at maximum power (2 hours): 224 Nm
Maximum torque: 274 Nm at 1201 rev/min of the engine

Mean atmospheric conditions:	temperature	19 °C
	pressure	988 mbar
	relative humidity	60 %
Maximum temperatures:	coolant	88 °C
	engine oil	98 °C
	fuel	22 °C
	engine air intake	19 °C

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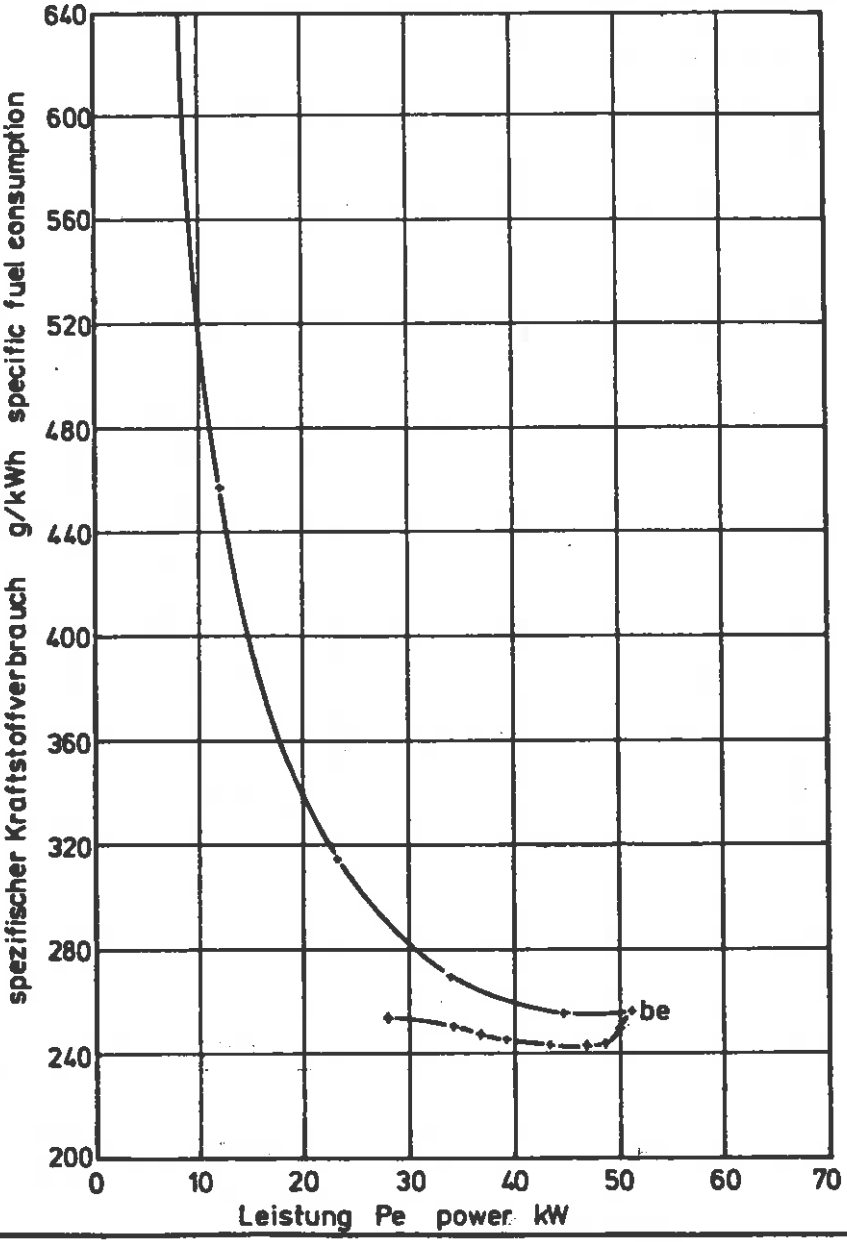
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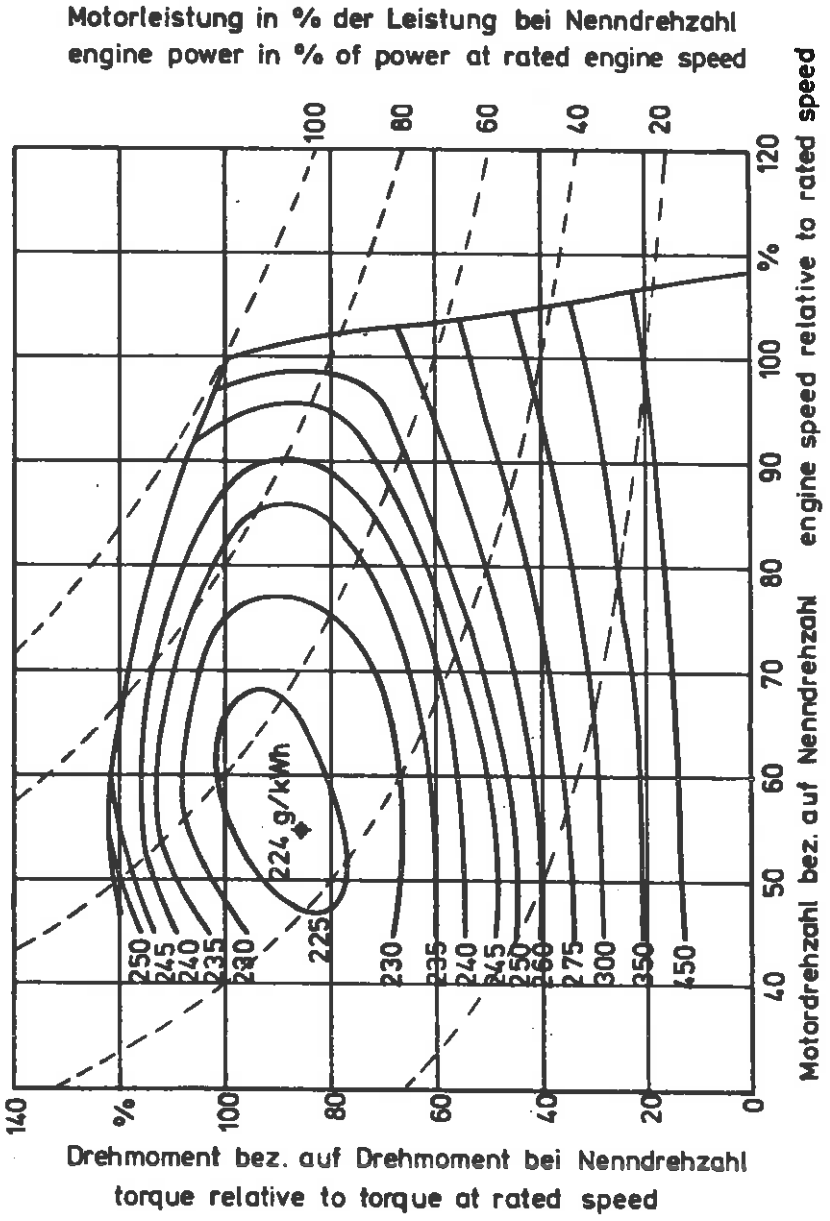
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Motorleistung — Engine performance



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