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

O.E.C.D. No. 947



# Agricultural Tractor
# LANDINI R 6830 (2WD)
## Type denomination TL 21 N/L

submitted for test by
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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: October 1984 till April 1985
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: 2nd August 1985 O.E.C.D. No. 947

The tractor LANDINI 6830, serial-no. 221 MO 0001, had been tested in 2 variants

— as model DT 6830 (4WD)
— as model R 6830 (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 6830

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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 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 6830

Test No. 84-207

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*) All stated dimensions refer to tyre sizes 7.50 - 18 at front and 16.9 R 30 at rear, as well as to track widths 1420 mm at front and 1500 mm at rear

**PRÜFUNGS-ABTEILUNG**
LANDINI R 6830

Test No. 84-207

| | |
|---|---|
| Tractor manufacturer: | MASSEY-FERGUSON S.P.A.<br>LANDINI DIVISION,<br>WORKS OF FABBRICO (R.E.), Italy |
| Submitted for test by: | LANDINI TRATTORI S.P.A.,<br>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. 83 hours |

## SPECIFICATION OF TRACTOR

### Tractor

| | |
|---|---|
| Make: | LANDINI |
| Trade name: | R 6830 |
| Type denomination: | TL 21 N/L |
| Type: | Wheel tractor, unit construction, rear wheel driven |
| Serial No.: *) | 221MO 0001 |
| Start of series: | 121 LO 0001 |

### Engine

| | |
|---|---|
| Make: | PERKINS |
| Model: | A4.236 |
| Type: | Watercooled 4-stroke Diesel-engine, direct injection |
| Serial No.: | LD 22573 U 861 080 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;<br>CAV distributor injection pump DPA 3241 F490;<br>manufacturer's production setting<br>55,3±1,5 $mm^3$/stroke at rated engine speed and full load,<br>injection timing $23^{\circ}\pm2^{\circ}$ before TDC;<br>CAV 4 hole-injection nozzles BKBL 67 S 5151,<br>injection pressure 177±5 bar,<br>CAV fuel filter 296 with replaceable paper element; capacity of fuel tank 60,5 l |
| Serial No. of injection pump: | R 16802 TZ |

*) see note on page 2

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| | |
|---|---|
| Governor: | CAV centrifugal variable speed governor,<br>governed range of engine speed 600 to 2290 1/min,<br>rated engine speed 2100 1/min |
| Air cleaner: | FISPA<br>oil bath air filter,<br>cyclone pre-cleaner; oil capacity 0,7 l,<br>oil change every 100 operating hours, no<br>maintenance indicator;<br>air intake in front of engine, below bonnet |
| Exhaust silencer: | MASSEY FERGUSON<br>expansion type silencer,<br>100 mm dia, 660 mm long; on the right,<br>beside of engine bonnet, mouth showing<br>upwards, 2304 mm above ground |
| Lubrication system: | Forced feed with gear pump;<br>strainer in sump,<br>PERKINS oil filter in full flow,<br>replaceable filter, filter change every<br>250 operating hours;<br>oil capacity 7 l;<br>recommended oil quality API-CC, MIL-L-2104 B,<br>oil change every 250 operating hours,<br>specified oil viscosities:<br>winter SAE 10W, 20W or 10W/30<br>summer SAE 20W or 20W/30<br>tropics SAE 30, 20W/40 or 20W/50<br>or for all conditions SAE 15W/40 |
| Cooling system: | Water cooling with impeller pump,<br>overpressure relief valve set to 0,7 bar,<br>thermostat with by-pass;<br>fan with 4 blades with 412 mm dia,<br>water capacity 15 l |
| Starting system: | Electrical,<br>LUCAS solenoid pre engaged-drive starter motor<br>2,5 kW; depressed pedal of clutch as safety<br>device;<br>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<br>2104 B | 15W/40 | 33 | 1500 |
| final drives | GL 4<br>2105 (A) | 80W or 80W/90 | 2,1 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 | 315,19 | 1,75 |
| | 2 | 201,80 | 2,73 |
| | 3 | 156,39 | 3,52 |
| | 4 | 106,21 | 5,18 |
| M | 1 | 128,94 | 4,27 |
| | 2 | 82,55 | 6,66 |
| | 3 | 63,98 | 8,60 |
| | 4 | 43,45 | 12,66 |
| H | 1 | 52,35 | 10,51 |
| | 2 | 33,52 | 16,42 |
| | 3 | 25,97 | 21,18 |
| | 4 | 17,64 | 31,19 |
| R | 1 | 120,88 | 4,55 |
| | 2 | 77,39 | 7,11 |
| | 3 | 59,98 | 9,17 |
| | 4 | 40,73 | 13,51 |

*) calculated with the radius index 695 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 680 mm,
horizontal distance to rear axle centre line 265 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 | 0,4886 | 8,938 |
| 1000 | 0,2601 | 16,787 |

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 36 1/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

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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;
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 | 480, 575, 705 or 800 mm |
| behind rear axle centre line | 395 mm |
| above p.t.o. shaft end | 25 or 120 mm |
| below p.t.o. shaft end | 105 or 200 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 | 110 mm |
| maximum | 1090 mm |
| holes' centre line behind p.t.o. shaft end | 710 mm |

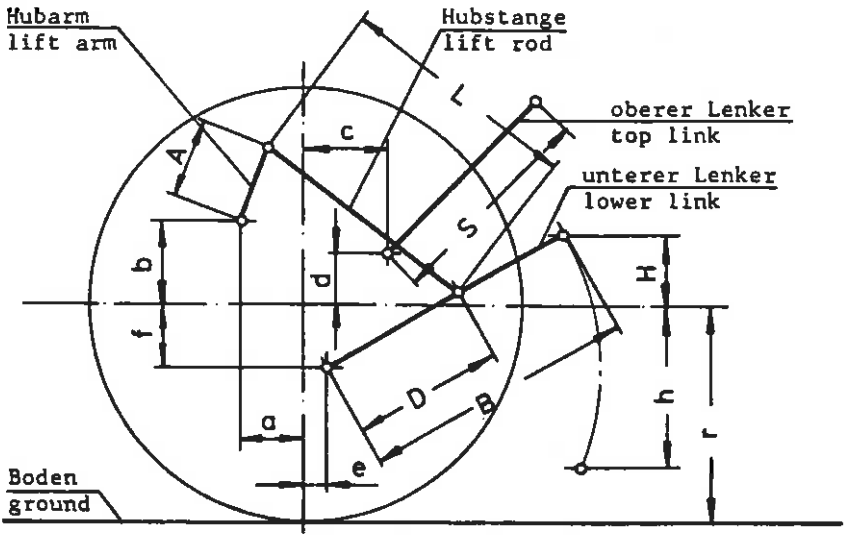
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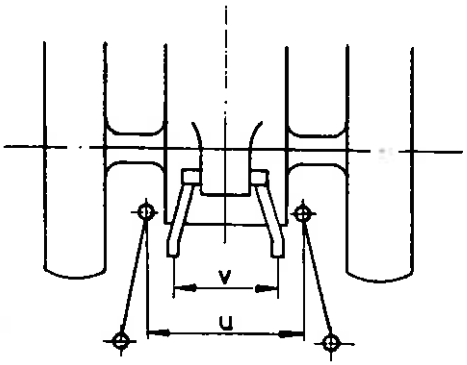
Towing hitch: At front, height above ground 718 mm

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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 - 30) | radius index | (r) | 695 |
| Front tyres (size 7.50 - 18) | static radius | (r') | 403 |
| Length of lift arms | | (A) | 272 |
| Length of lower links | | (B) | 865 |
| 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) | 590 to 790, 693 |
| Distance of upper link pivot point from rear wheel centre line | horizontally | (c) | 224 |
| | vertically | (d) | 256 or 301 |
| Distance of lower link pivot point from rear wheel centre line | horizontally | (e) | 70 |
| | vertically | (f) | 138 |
| Distance of lower link pivot points to lift rod pivot points on lower links | | (D) | 455 |
| Length of lift rods | | (L) | 545 to 665, 606 |

Height of lower link hitch points relative to rear axle centre line (situated 695 mm above ground) in mm

These data are valid for unloaded power lift

| | | lift rod length L | | |
|---|---|---|---|---|
| | | 545 mm | 606 mm | 665 mm |
| Lowest position | (h) | 355 mm | 495 mm | 660 mm |
| Highest position | (H) | 320 mm | 197 mm | 105 mm |
| Transport position | (H') | 320 mm | 197 mm | 105 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 23,5 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 - 18 6 ply GOODYEAR, cross-ply tyres;
maximum permissible load per tyre 810 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 5.50 F - 18

Driving wheels: At rear
2 pneumatics 16.9 R 30 6 ply PIRELLI radial-ply tyres;
maximum permissible load per tyre 1900 kg at 1.3 bar and 30 km/h;

track width variable by adjustable-gauge wheels in steps of 100 mm each from 1200 to 1500 mm, or after turning the wheels from 1600 to 1900 mm

rims W13 x 30

Wheel base: 2210 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 4 lining discs each, with 178 mm dia |
| Steering brake: | Divided pedals of service brake, for normal use locked together |

**Number of grease points** 14

## Overall dimensions

| | |
|---|---|
| Total length: | 3750 mm without ballast<br>3940 mm with ballast |
| Total width: | 1915 mm without ballast<br>1960 mm with ballast |
| Total height: | 2330 mm to top of safety frame |
| Ground clearance: | 395 mm below front axle differential |

## Available wheel equipment

| Tyre sizes | |
|---|---|
| front | rear |
| 11.2 - 24 6 ply | 14.9 - 30 6 ply<br>12.4 - 36 6 ply<br>16.9 - 30 6 ply |
| 12.4 - 20 6 ply | 14.9 - 28 6 ply |
| 12.4 - 24 6 ply | 12.4 - 36 6 ply<br>16.9 - 30 6 ply |

*) Trailer braking take-off: None

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| | |
|---|---|
| Safety frame | LANDINI<br>TS9<br>OECD tested safety frame<br>OECD approval no. CSD 0700/12 |
| Seat | GRAMMER<br>DS 20/4 H<br>upholstered seat with back rest,<br>adjustable suspension and shock absorber;<br>height of driver's platform above ground<br>805 mm, height of unloaded seat<br>above platform from 530 to 590 mm<br>infinitely adjustable;<br>longitudinal seat adjustment 200 mm |
| Lighting equipment | Electrical 12 Volt, in accordance with<br>Italian legislation |

| | Dimensions<br>mm | Height above ground of centre<br>mm | Distance from outside edge of tractor to centre<br>mm |
|---|---|---|---|
| Head lights | 130 ø | 1130 | 782 |
| Side lights | 70 x 60 | 1495 | 245 |
| Rear lights | 70 x 60 | 1465 | 295 |
| Reflectors<br>1st pair | 80 ø | 1370 | 175 |

| | |
|---|---|
| Running-time meter | Mechanical, combined with tachometer,<br>driven by camshaft of engine;<br>reference engine speed for one real<br>counted hour 1600 1/min |

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## TEST CONDITIONS

**Track setting**

1420 mm at front
1500 mm at rear

**Weights**

| | | without driver | with driver |
|---|---|---|---|
| Without ballast: | front | 825 kg | 835 kg |
| | rear | 1515 kg | 1585 kg |
| | total | 2340 kg | 2420 kg |
| Front ballast: | 8 weights, total | | 240 kg |
| Rear ballast: | 2 weights per wheel, total | | 240 kg |
| | water in the tyres | | 530 kg |
| With ballast: | front | 1115 kg | 1125 kg |
| | rear | 2235 kg | 2305 kg |
| | total | 3350 kg | 3430 kg |

**Fuels and lubricants used in tests**

| | | |
|---|---|---|
| Fuel: | ARAL Diesel-fuel DIN 51 601 | |
| | density at 15°C | |
| | at engine test and | |
| | at p.t.o. test | 0,841 kg/l |
| | at drawbar test | |
| | with ballast | 0,836 kg/l |
| | without ballast | 0,834 kg/l |
| Engine oil and Transmission oil: | MF SUPER UNIVERSALOIL 20W/30 | |
| Steering oil: | MOBIL ATF 200 | |

**Remarks and repairs** None

**PRÜFUNGS-ABTEILUNG**
LANDINI DT 6830
R 6830

Test No. 84-206
84-207

## COMPULSORY TESTS

### (1) MAIN POWER TAKE-OFF PERFORMANCE ( 540 1/min)

Date of tests: 11th October 1984
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

| Power kW | Speed engine 1/min | Speed p.t.o. 1/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 | | | | | | |
| 46.0 | 2100 | 583 | 13.88 | 11.68 | 254 | 3.31 |
| At rated engine speed | | | | | | |
| 46.0 | 2100 | 583 | 13.88 | 11.68 | 254 | 3.31 |
| At standard p.t.o. speed | | | | | | |
| 44.7 | 1944 | 540 | 13.11 | 11.03 | 247 | 3.41 |
| **Part loads, the governor hand lever in the position corresponding to the maximum power at full load (curve a)** | | | | | | |
| (i) the torque corresponding to maximum power at rated speed | | | | | | |
| 46.0 | 2100 | 583 | 13.88 | 11.68 | 254 | 3.31 |
| (ii) 85% of the torque obtained in (i) | | | | | | |
| 40.2 | 2163 | 601 | 12.39 | 10.42 | 259 | 3.25 |
| (iii) 75% of the torque defined in (ii) | | | | | | |
| 30.7 | 2197 | 610 | 10.22 | 8.60 | 280 | 3.00 |
| (iv) 50% of the torque defined in (ii) | | | | | | |
| 20.5 | 2203 | 612 | 8.12 | 6.83 | 333 | 2.52 |
| (v) 25% of the torque defined in (ii) | | | | | | |
| 10.4 | 2247 | 624 | 6.18 | 5.19 | 497 | 1.69 |
| (vi) unloaded | | | | | | |
| - | 2283 | 634 | 4.38 | 3.68 | - | - |

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| Power kW | Speed engine 1/min | Speed p.t.o. 1/min | Fuel consumption hourly 1/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) the torque corresponding to maximum power | | | | | | |
| 44.7 | 1944 | 540 | 13.11 | 11.03 | 247 | 3.41 |
| (ii) 85% of the torque obtained in (i) | | | | | | |
| 39.2 | 2009 | 558 | 11.73 | 9.87 | 251 | 3.34 |
| (iii) 75% of the torque defined in (ii) | | | | | | |
| 29.7 | 2030 | 564 | 9.49 | 7.98 | 268 | 3.13 |
| (iv) 50% of the torque defined in (ii) | | | | | | |
| 20.2 | 2065 | 574 | 7.55 | 6.35 | 315 | 2.67 |
| (v) 25% of the torque defined in (ii) | | | | | | |
| 10.3 | 2106 | 585 | 5.67 | 4.77 | 464 | 1.81 |
| (vi) unloaded | | | | | | |
| - | 2160 | 600 | 3.92 | 3.29 | - | - |

Standard specific fuel consumption (g/kWh): 259/333/251/315

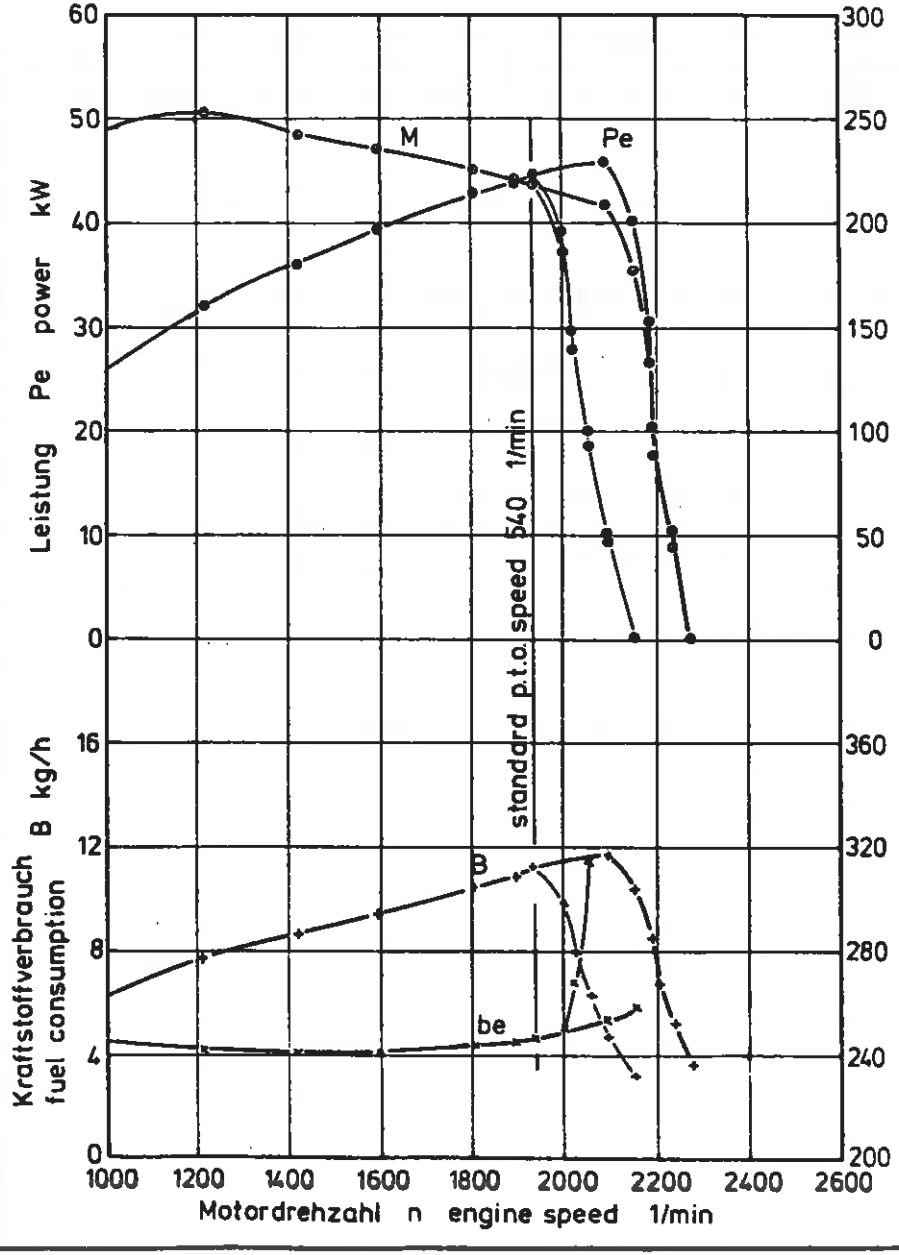
No load maximum engine speed: 2283 1/min
Equivalent flywheel torque at maximum power (2 hours): 209 Nm
Maximum equivalent flywheel torque: 254 Nm at 1209 1/min of the engine

| | | |
|---|---|---|
| Mean atmospheric conditions: | temperature | 19 °C |
| | pressure | 1003 mbar |
| | relative humidity | 93 % |
| Maximum temperatures: | coolant | 85 °C |
| | engine oil | 105 °C |
| | fuel | 20 °C |
| | engine air intake | 20 °C |

**PRÜFUNGS-ABTEILUNG**
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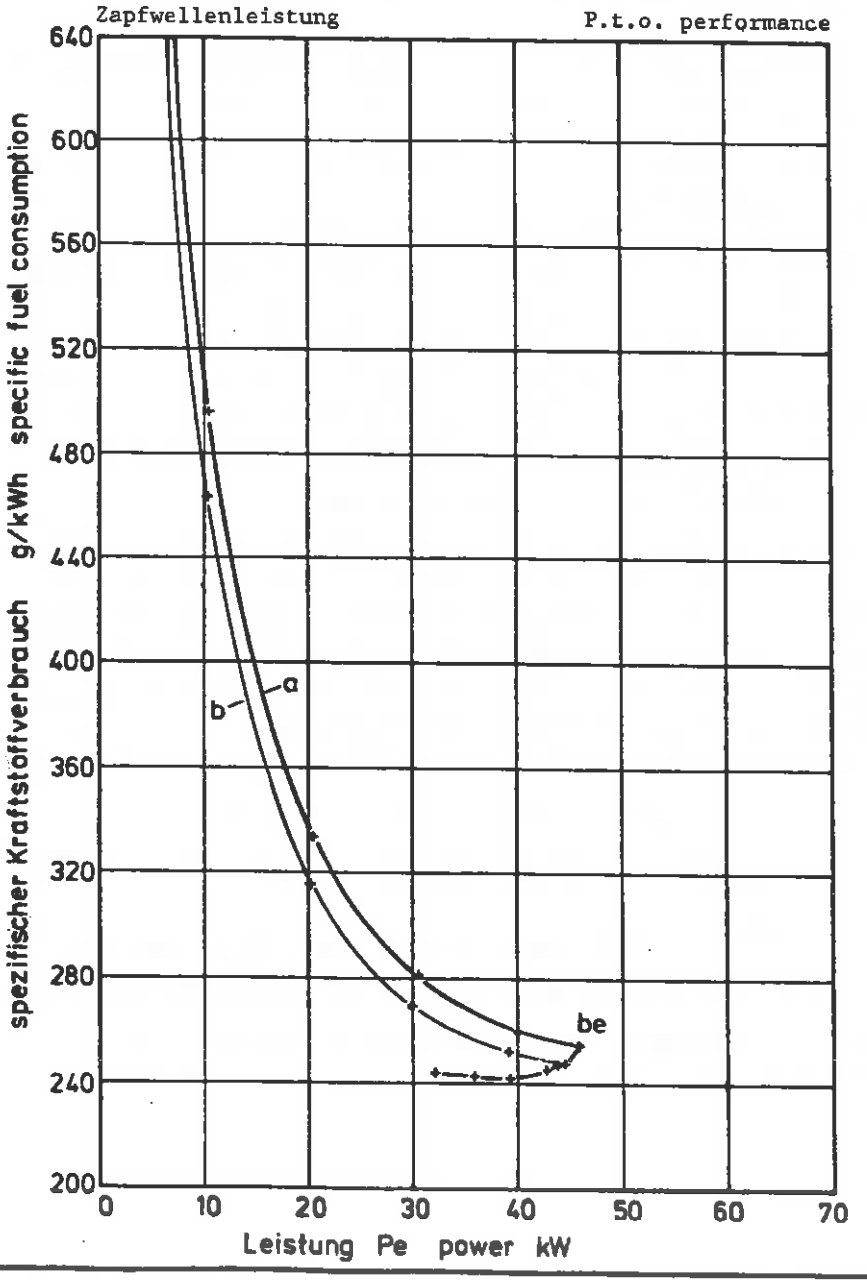
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Zapfwellenleistung — P.t.o. performance



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**PRÜFUNGS-ABTEILUNG**
LANDINI DT 6830

## (2) DRAWBAR PERFORMANCE

Date of tests: 30th November till 11th December 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 495 mm | | | | | |
| 1 M | 3,83 | 29,4 | 2764 | 2179 | 15,0 |
| 4 L | 4,56 | 35,1 | 2771 | 2141 | 15,1 |
| 2 M | 6,11 | 38,0 | 2238 | 2104 | 9,7 |
| 3 M | 8,12 | 38,7 | 1717 | 2102 | 7,1 |
| 1 H | 10,05 | 39,3 | 1406 | 2102 | 5,7 |
| 4 M | 12,26 | 38,1 | 1118 | 2103 | 4,5 |
| 2 H | 16,03 | 37,9 | 852 | 2104 | 3,3 |
| (ii) MAXIMUM POWER (ballasted) height of drawbar above ground 480 mm | | | | | |
| 1 L | 1,58 | 17,3 | 3943 | 2205 | 15,1 |
| 2 L | 2,45 | 26,9 | 3947 | 2192 | 14,9 |
| 3 L | 3,10 | 34,0 | 3954 | 2160 | 15,1 |
| 1 M | 3,82 | 38,5 | 3625 | 2096 | 11,0 |
| 4 L | 4,80 | 39,0 | 2928 | 2098 | 7,9 |
| 2 M | 6,29 | 39,4 | 2256 | 2099 | 5,9 |
| 3 M | 8,27 | 39,6 | 1723 | 2101 | 4,3 |
| 1 H | 10,16 | 39,3 | 1394 | 2099 | 3,5 |
| 4 M | 12,34 | 37,7 | 1099 | 2101 | 2,8 |
| (iii) FIVE -HOUR-TEST at 75 % of pull at maximum power in 2 M gear | | | | | |
| 2 M | 6,66 | 31,3 | 1692 | 2184 | 4,3 |
| (iv) FIVE -HOUR-TEST at pull corresponding to 15 % wheel slip in test (ii) | | | | | |
| 3 L | 3,11 | 34,2 | 3954 | 2160 | - |

**Total oil consumption during ten hours duration of tests (iii) and (iv) 25 g/h**

**PRÜFUNGS-ABTEILUNG**

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Tyre size front: 7.50 - 18
rear: 16.9 R 30

Tread bar height at the beginning of drawbar tests:
88% 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 | | | | | | | |
| 347 | 2,40 | 26 | 80 | 96 | 7 | 80 | 994 |
| 339 | 2,46 | 26 | 80 | 98 | 7 | 80 | 994 |
| 314 | 2,65 | 28 | 83 | 100 | 7 | 80 | 994 |
| 300 | 2,78 | 26 | 83 | 103 | 7 | 84 | 994 |
| 292 | 2,85 | 24 | 84 | 103 | 6 | 80 | 1002 |
| 299 | 2,78 | 18 | 85 | 103 | 6 | 83 | 1002 |
| 304 | 2,75 | 20 | 83 | 100 | 6 | 85 | 1002 |
| tyre inflation pressure 0,8 bar at rear | | | | | | | |
| 464 | 1,80 | 29 | 76 | 96 | 9 | 84 | 1000 |
| 375 | 2,23 | 28 | 77 | 96 | 9 | 84 | 1000 |
| 347 | 2,41 | 26 | 74 | 95 | 9 | 80 | 1000 |
| 325 | 2,57 | 30 | 80 | 100 | 9 | 84 | 1000 |
| 305 | 2,74 | 33 | 83 | 99 | 12 | 74 | 1015 |
| 297 | 2,82 | 34 | 82 | 105 | 14 | 78 | 1015 |
| 291 | 2,88 | 33 | 80 | 101 | 14 | 74 | 1015 |
| 289 | 2,89 | 32 | 83 | 102 | 13 | 74 | 1015 |
| 299 | 2,79 | 35 | 82 | 101 | 14 | 72 | 1015 |
| 314 | 2,68 | 30 | 76 | 104 | 11 | 87 | 1005 |
| - | - | 29 | 77 | 103 | 11 | 93 | 1008 |

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

## (3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 7.50 - 18
rear: 16.9 R 30

Track of wheels front: 1420 mm
rear: 1500 mm

| | With brakes | | Without brakes | |
|---|---|---|---|---|
| | left-hand m | right-hand m | left-hand m | right-hand m |
| Radius of turning space | 3,73 | 3,56 | 4,29 | 3,97 |
| Radius of turning circle | 3,60 | 3,43 | 4,16 | 3,84 |

## (4) LOCATION OF CENTRE OF GRAVITY

| | |
|---|---|
| Height above ground | 852 mm |
| Distance forward from rear axle centre | 766 mm |
| Distance from tractor's median plane | 0 mm |

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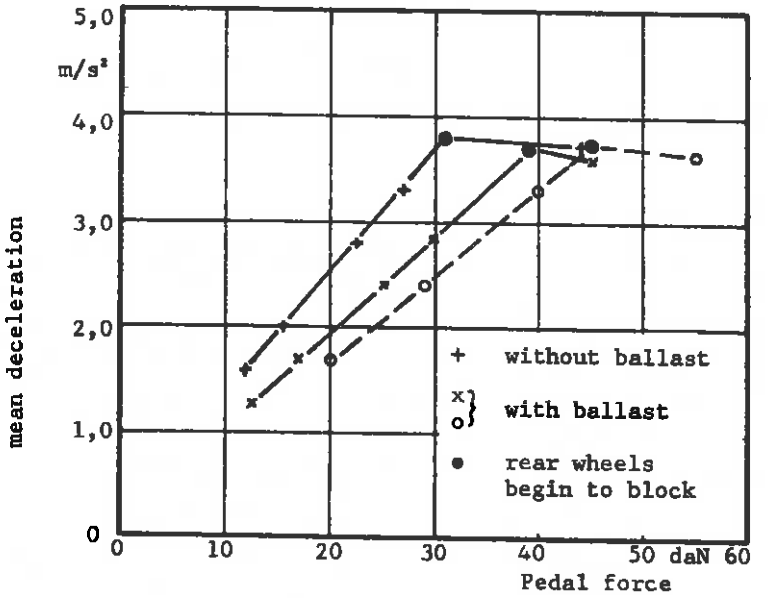
## (5) Braking

Date of tests: 4th and 9th April 1985

| Tractor masses during tests with driver: | front kg | rear kg | total kg |
|---|---|---|---|
| without ballast | 835 | 1585 | 2420 |
| with ballast | 1125 | 2305 | 3430 |

### A) Service brake

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




Speed before application of brakes, without ballast 33,1 km/h
with ballast 32,6 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 2420 kg | |
|---|---|---|---|---|
| | up | down | up | down |
| Braking device control force daN | 16 | 16 | 16 | 16 |

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(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 3rd April 1985
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2203

Results of test

Gear: 4 H
Travelling speed before acceleration: 24,8 km/h
Sound level: 88,0 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 2nd April 1985
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

tractor fitted out with LANDINI safety frame 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 | 2322 | 1,75 | 1,56 | 94,0 |
| 2 L | 2315 | 2,73 | 2,39 | 96,0 |
| 3 L | 2308 | 3,52 | 2,99 | 96,0 |
| 1 M | 2316 | 4,27 | 3,74 | 95,0 |
| 4 L | 2309 | 5,18 | 4,58 | 98,0 |
| 2 M *) | 2269 | 6,66 | 5,73 | 98,5 |
| 2 M *) | light load | 6,66 | 7,19 | 95,0 |
| 3 M | 1765 | 8,60 | 7,85 | 99,0 |
| 1 H | 1434 | 10,51 | 9,80 | 98,5 |
| 4 M | 1132 | 12,66 | 11,98 | 99,0 |
| 2 H | 876 | 16,42 | 15,62 | 99,0 |
| 4 H | light load | 31,19 | 33,10 | 96,0 |

*) the 2 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: 14th 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 | 657 | 1440 | 156 | - | - |
| On the frame | 200 | 775 | 1420 | 156 | 2194 | 13 |

Temperature of hydraulic fluid at start of test 30 °C *)
Main linkage dimensions see on pages 10 and 11

**Lifting heights relative to horizontal lower links**

| mm | -412 | -400 | -357 | -300 | -200 | -100 | 0 | +100 | +200 | +300 | +363 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lifting forces at hitch points** | | | | | | | | | | | |
| daN | | | 1440 | 1600 | 1790 | 1910 | 1970 | 2060 | 2100 | 2200 | |
| **Lifting forces at test frame** | | | | | | | | | | | |
| daN | 1420 | 1440 | | 1600 | 1670 | 1690 | 1690 | 1690 | 1670 | 1630 | 1620 |

### Hydraulic power test

Sustained pressure with relief valve open 173 bar

Pump delivery rate at minimum pressure and maximum engine speed. 37,1 l/min

| hydraulic power | kW | flow rate l/min | pressure bar | oil temperature °C |
|---|---|---|---|---|
| at 90% of the actual relief valve setting | 8,63 | 33,2 | 156 | 32 *) |
| maximum | 9,00 | 32,9 | 164 | 32 *) |

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: 4th October 1984
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

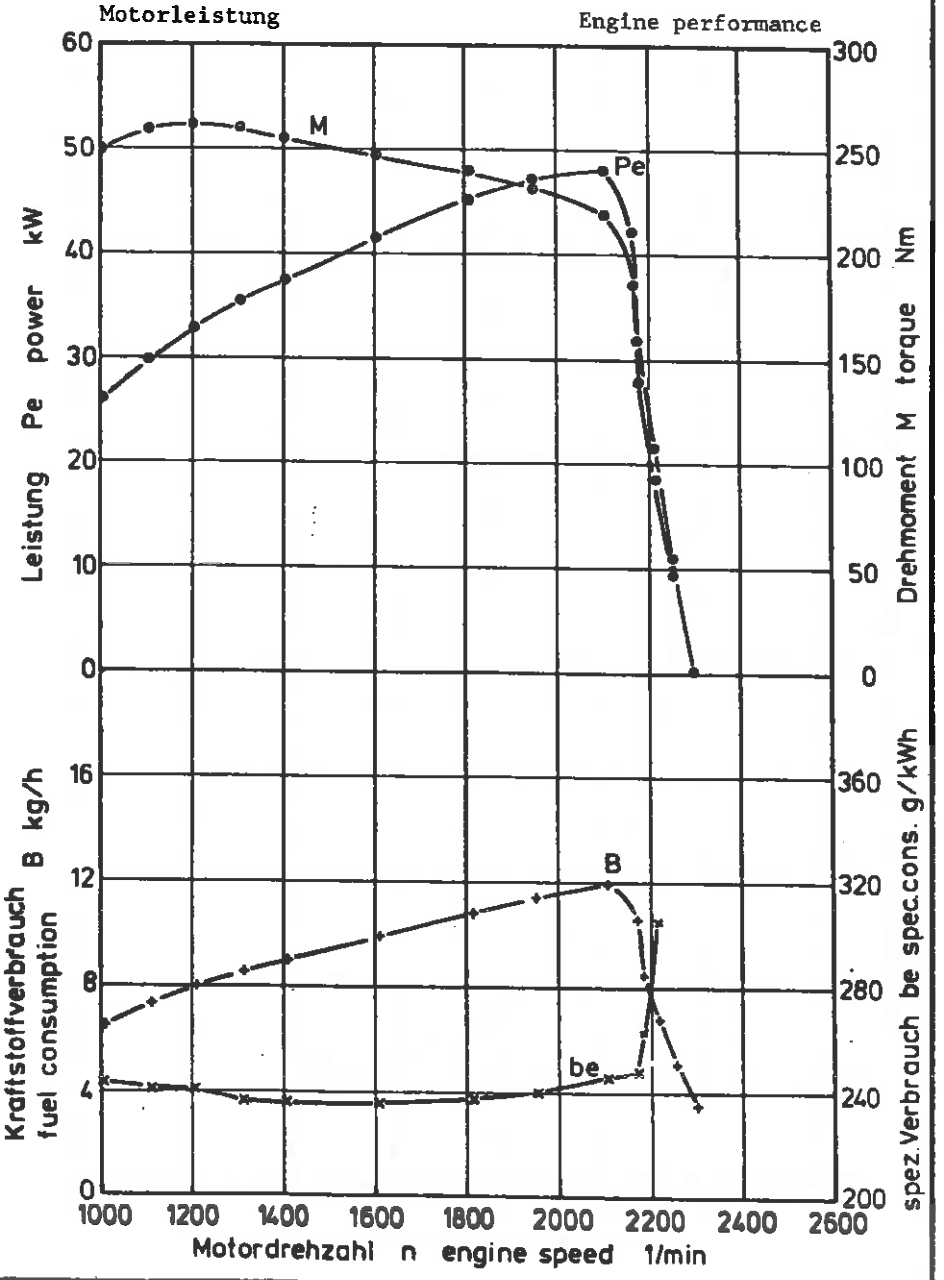
| Power kW | Engine speed 1/min | Fuel consumption hourly l/h | Fuel consumption hourly kg/h | Fuel consumption specific g/kWh | Specific energy kWh/l |
|---|---|---|---|---|---|
| **Maximum power** | | | | | |
| At 2-hour test | | | | | |
| 48.5 | 2100 | 14.05 | 11.81 | 244 | 3.45 |
| At rated engine speed | | | | | |
| 48.5 | 2100 | 14.05 | 11.81 | 244 | 3.45 |
| At standard p.t.o. speed ( 540 1/min) | | | | | |
| 47.5 | 1944 | 13.41 | 11.28 | 237 | 3.54 |
| **Part loads** | | | | | |
| (i) the torque corresponding to maximum power at rated speed | | | | | |
| 48.5 | 2100 | 14.05 | 11.81 | 244 | 3.45 |
| (ii) 85% of the torque obtained in (i) | | | | | |
| 42.4 | 2163 | 12.40 | 10.43 | 246 | 3.42 |
| (iii) 75% of the torque defined in (ii) | | | | | |
| 32.0 | 2175 | 9.94 | 8.36 | 261 | 3.22 |
| (iv) 50% of the torque defined in (ii) | | | | | |
| 21.7 | 2209 | 7.82 | 6.58 | 304 | 2.77 |
| (v) 25% of the torque defined in (ii) | | | | | |
| 11.0 | 2248 | 5.81 | 4.88 | 442 | 1.90 |
| (vi) unloaded | | | | | |
| - | 2292 | 3.94 | 3.31 | - | - |

Optimum fuel consumption: 224 g/kWh at 28.4 kW and 1365 1/min
No load maximum engine speed: 2292 1/min
Torque at rated engine speed: 220 Nm
Maximum torque: 264 Nm at 1201 1/min of the engine

| | | |
|---|---|---|
| Mean atmospheric conditions: | temperature | 20 °C |
| | pressure | 984 mbar |
| | relative humidity | 55 % |
| Maximum temperatures: | coolant | 86 °C |
| | engine oil | 105 °C |
| | fuel | 20 °C |
| | engine air intake | 20 °C |

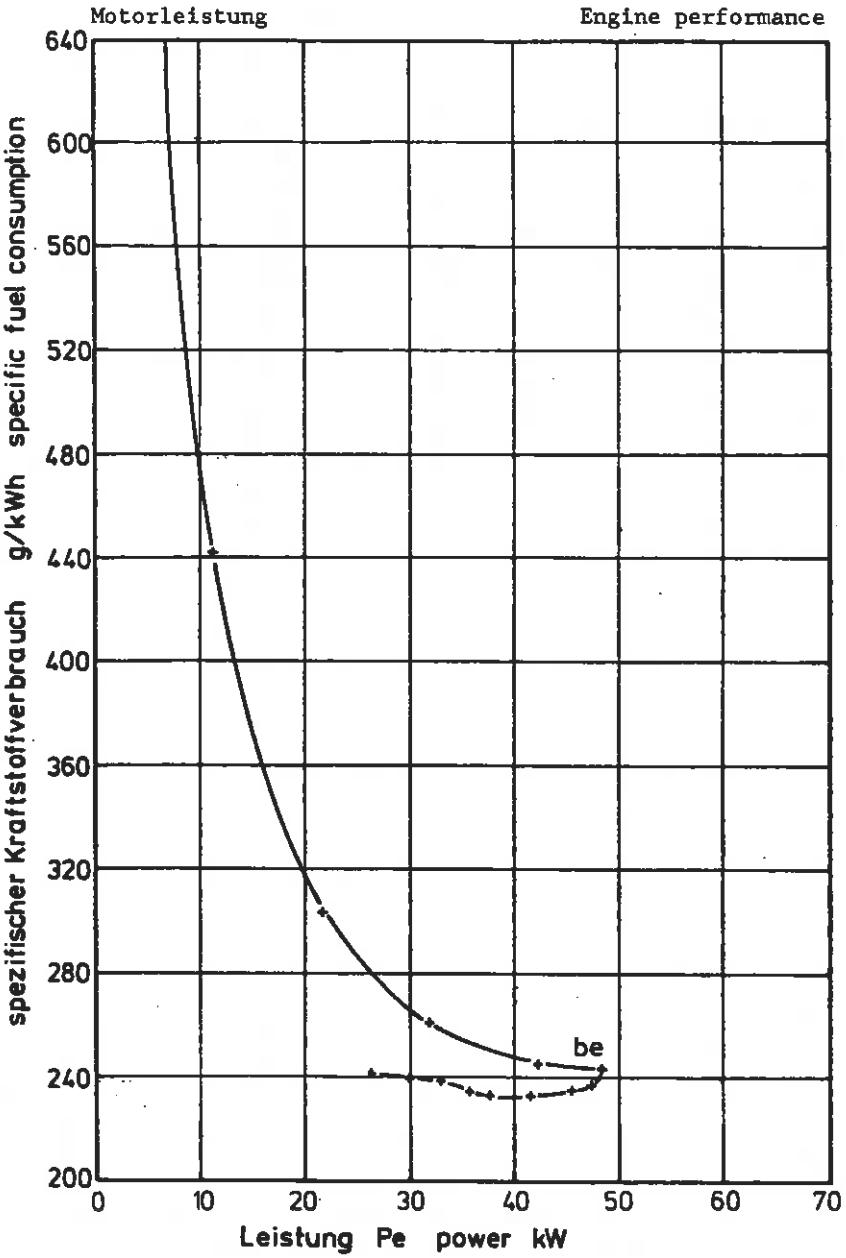
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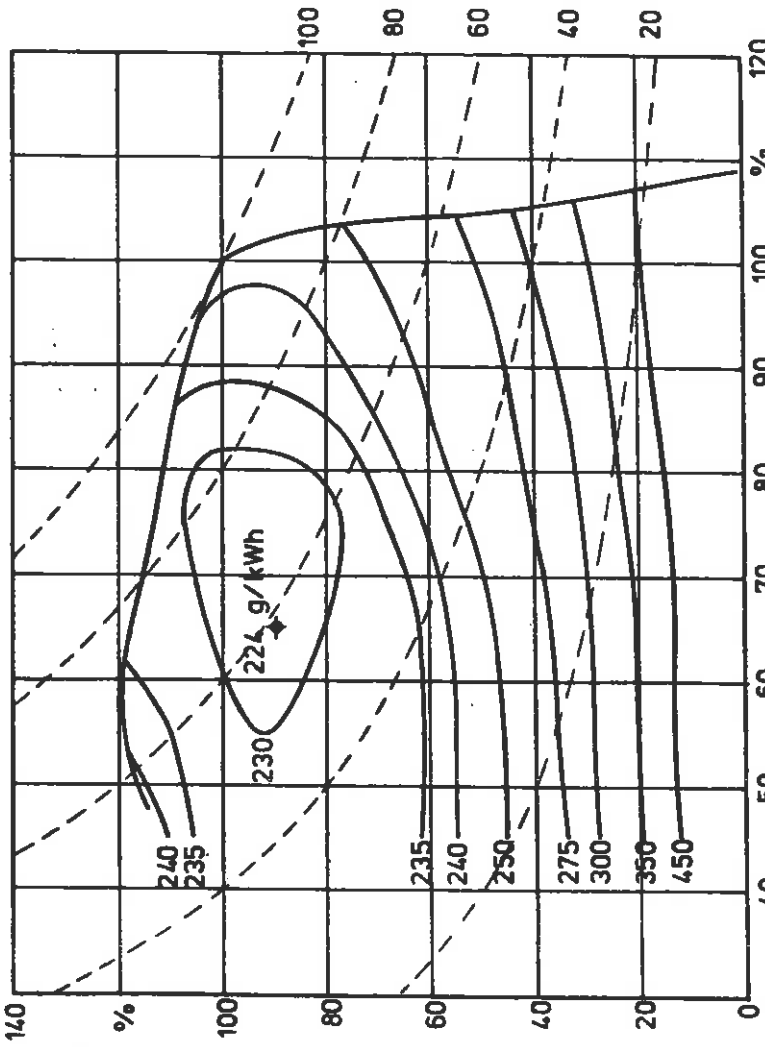
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Motorleistung in % der Leistung bei Nenndrehzahl
engine power in % of power at rated engine speed




Drehmoment bez. auf Drehmoment bei Nenndrehzahl
torque relative to torque at rated speed

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