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

O.E.C.D. No. **849**



Agricultural Tractor DEUTZ-FAHR D 7007 (2 WD)

type denomination D 1058-S

Manufacturer
Klöckner-Humboldt-Deutz AG
D-5000 Köln-Deutz

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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: November 1981 till June 1982
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: 25th November 1982 O.E.C.D. No. 849

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/cm^2 or 1 kp/cm^2	= 0,981 bar
	1000 mbar = 750,1 mm Hg		

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PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR D 1058-S

Test No. 82-84

Tractor manufacturer:	KLÖCKNER-HUMBOLDT-DEUTZ AG D-5000 Köln-Deutz
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running in:	Köln and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 100 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	DEUTZ-FAHR
Trade name:	D 7007
Type denomination:	D 1058-S
Type:	Wheel tractor, unit construction, rear wheel driven
Serial No.:	7718 0001

Engine

Make:	DEUTZ
Model:	F4L 912
Type:	4-stroke Diesel-engine, direct injection, air cooled
Serial No.:	6606820
Cylinders:	4, in-line, bore 100 mm, stroke 120 mm; displacement 3770 cm^3, compression ratio 17; replaceable ribbed cylinders
Valves:	Overhead
Fuel system:	PIERBURG fuel feed pump PE 15252 BOSCH in-line injection pump PES 4A 80D 410/3 RS 1300; manufacturer's production setting 54,3 mm^3/stroke at rated engine speed and full load; start of pump delivery 28° before TDC; BOSCH multihole injection nozzles DLLA 149 S 774 injection pressure 175 + 8 bar; MANN fuel filter, replaceable; capacity of fuel tank 92 l

Governor: BOSCH mechanical variable-speed governor
EP/RSV 325-1150 A8B 657 DL,
governed range 700 to 2450 rev/min;
rated engine speed 2300 rev/min

Air cleaner: DEUTZ-SICCOPUR
dry paper element filter with precleaner
and replaceable cartridge,
electrically operating maintenance indicator

Exhaust silencer: ROTH
multichamber absorption-expansion type
silencer 125 to 60 mm dia, 800 mm long,
on the left hand side above engine bonnet;
mouth showing upwards, 2530 mm above ground

Lubrication system: Forced feed with gear pump,
strainer in sump;
MANN oil filter in full flow with by-pass valve,
filter replaceable;
change period 200 operating hours; oil capacity
8,5 l

recommended oil qualities and oil change periods:

API-CC	change every 250 operating hours
API-CD	change every 500 operating hours

specified oil viscosities:

below	- 5°C			SAE 10W
over	-10°C	to	+10°C	SAE 20W/20
over	-10°C	to	+25°C	SAE 15W/40
over	+ 5°C	to	+30°C	SAE 30
over	+25°C			SAE 40

oil cooler inside of engine cooling-air baffle

Cooling system: Air cooling
V-belt driven axial blower

Starting system: Electrical
BOSCH solenoid pre-engaged-drive starting
motor JD 12V 3 kW;
BOSCH flame glow plug in intake manifold

Electrical equipment:	12 Volt, negative earth; BOSCH 3-phase alternator G1-14V 33A 27, 462 W; 1 lead acid battery, 110 Ah at 20 hours rating

Transmission

Clutch:	LAMELLEN- UND KUPPLUNGSBAU GMBH A2 031 078 00 dry dual disc clutch; travel drive pedal operated, disc 310 mm dia p.t.o. drive hand lever operated, disc 280 mm dia
Gear box:	DEUTZ-FAHR TW 56.10-S synchromesh speed change gear with 4 speeds, optionally collar shifted available; collar shifted group gear with 3 forward groups (L, M and H) and 1 reverse group (R); totally 12 forward and 4 reverse speeds
Rear axle and final drive:	DEUTZ-FAHR bevel gear drive to intermediate shaft, bevel gear differential with pedal operated selfdisengaging lock on intermediate shaft; cylindrical gear transmissions from intermediate shaft to rear axle half shafts
Front axle:	Not propelled
Gear lubrication:	Oil capacity for complete gearbox, final drives included 33 l, recommended oil gear oil SAE 90 API-GL4 or engine oil SAE 15W/40 API-CC or API-CD oil change at least once a year or every 2000 operating hours

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Total ratios and speeds (tyres 16.9 - 34)

Group	Gear	Total ratio engine : driving wheels	Nominal travelling speed *) at rated engine speed km/h
L	1	298,57	2,16
	2	192,50	3,36
	3	137,88	4,68
	4	93,78	6,89
M	1	124,62	5,18
	2	80,35	8,04
	3	57,55	11,22
	4	39,14	16,50
H	1	68,24	9,47
	2	44,00	14,68
	3	31,52	20,50
	4	21,44	30,14
R	1	92,89	6,95
	2	59,89	10,79
	3	42,90	15,06
	4	29,18	22,14

*) calculated with the radius index 745 mm

Power-take-off

Independent p.t.o.
driven by the second disc of the dual disc clutch;
at rear of tractor in tractor's median plane,
693 mm above ground,
420 mm behind rear axle centre line,
35 mm dia, 6 splines ISO 500/DIN 9611 type 1

2 speeds are preselectable by hand lever:

540 rev/min p.t.o.

613 rev/min at rated engine speed,
standard p.t.o. speed 540 rev/min at engine speed 2025 rev/min

1000 rev/min p.t.o.

1062 rev/min at rated engine speed,
standard p.t.o. speed 1000 rev/min at engine speed 2167 rev/min

sense of rotation clockwisely, viewed from tractor rear

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Power lift	DEUTZ-FAHR K 45.1 DEUTZ-TRANSFERMATIC-System hydraulic power lift in unit construction; draft- and position control, floating position; top link sensing
Hydraulic system:	Open centre system; PLESSEY gear pump TF/217-50 S/A directly driven by engine; delivery 42 l/min at rated engine speed, hydraulic oil filter incorporated in power lift unit, filter change period 500 operating hours
	DEUTZ-FAHR control valve; maximum working pressure 200 + 8 bar, single acting cylinder with 90 mm bore and 152 mm stroke; overpressure relief valve in cylinder set to 240 + 70 bar
	1 single acting additional DEUTZ-FAHR control valve with oil tap and return pipe at rear of tractor; maximum 3 single or double acting additional control valves available
	hydraulic oil reservoir with 14 l capacity in power lift unit, additional tank with 14 l capacity optionally available; by oil tap may be taken off 7 l if tractor is standing or travelling and 21,5 l if additional tank is fitted
Hydraulic oil:	Recommended engine oil SAE 20W/20 API-CC or API-CD
	oil change at least once a year or every 1000 operating hours

Implement linkage:	Three point linkage, joint balls according to ISO 730/I category 2; lift rods adjustable from 620 to 780 mm; with mean length 700 mm of lift rods lifting range above ground from 403 to 910 mm

Pull attachment

Trailer hitch:	DEUTZ-FAHR AK 56, non automatical; height above ground adjustable to 800, 845, 865 or 910 mm by shifting respectively turning; coupling pin 32 mm dia; distance of hitch hole centre: to rear axle centre line 526 mm to p.t.o. shaft end 106 mm; permissible vertical load 1250 kg automatical trailer hitch optionally available
Swinging drawbar:	Optional, not fitted on tractor tested
Drawbar:	Short bar, fitted on clevis of lower links of three point linkage; length between the joint balls 820 mm, thickness 30 mm, width 80 mm; centre hole and 4 holes in 80 mm distance each on either side, all holes 33 mm dia; distance of holes' centre line with lower links in horizontal position: from rear axle centre 975 mm from p.t.o. shaft end 555 mm with lift rods mean length 700 mm: height above ground adjustable by power lift in the range from 418 to 925 mm; the drawbar may be mechanically-hydraulically fixed in the height of 530 mm above ground this datas were determined at the surface of the bar
Towing hitch:	Height above ground 720 mm

Steering	Hydrostatic, ZAHNRADFABRIK FRIEDRICHSHAFEN AG SERVOSTAT 8451 oil circuit in common with power lift, WABCO flow dividing valve; 1 differential cylinder acting by linkage lever and steering track rod on front wheels
Brakes	
Parking brake:	Mechanical internal-expanding-shoe brake acting on intermediate shaft, operated by pulling handle with ratchet; 2 brake drums with 180 mm dia and 40 mm width on the left and right outside of gearbox
Service brake:	KNOTT, internal-expanding-shoe brake; pedal operated muscle power brake with hydraulical transmission, by intermediate shaft acting on rear axle 2 brake drums with 254 mm dia and 70 mm width on the left and right outside of gearbox, on intermediate shaft
Steering brake:	Divided pedal of foot brake, for normal use locked together
Wheels	
Steering wheels:	at front, 2 pneumatics 7.50 - 20 6 ply maximum permissible load per tyre 875 kg at 2,25 bar inflation pressure and 30 km/h travelling speed; track width adjustable from 1415 to 1915 mm in steps of 100 mm each by extending telescopic half axles; rims 5.50 F x 20
Driving wheels:	at rear, 2 pneumatics 16.9 - 34 6 ply diagonal type tyre casing; maximum permissible load per tyre 2015 kg at 1,3 bar inflation pressure and 30 km/h travelling speed; track width adjustable from 1520 to 2020 mm in steps of 100 mm each by offset lug type rims; rims W 15L x 34
Wheel base:	2170 mm

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Safety frame: FRITZMEIER, model 901
OECD-tested, approval No. CSD 0526/3-a(F)

Seat: GRAMMER
model DS 20D 3H
upholstered seat with back rest, adjustable spring with shock absorber;
height of driver's platform 950 mm above ground,
height of unballasted seat in front- and lowermost position 440 mm above platform;
seat on an inclined plane adjustable in longitudinal direction by 230 mm and simultaneously in the height by 125 mm;
additional independent height adjustment of 125 mm in 8 steps

Number of grease points: 14

Dimensions

Total length: 3770 mm without ballast
4100 mm with ballast

Total width: 1960 mm without ballast
2340 mm with ballast

Total height: 2530 mm to top of safety frame and to top of exhaust silencer

Ground clearance: 470 mm below front axle

Available tyres

Tyre size	
at front	at rear
7.50 - 18 6 ply or 7.50 - 20 6 ply	9.5 - 44 8 ply 12.4 - 38 6 ply 13.6 - 36 6 ply 13.6 - 38 6 ply 16.9 - 30 6 ply 16.9 - 34 6 ply

all tyre sizes at front and at rear may be combined with each other

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Lighting equipment — Electrical, 12 Volt
in accordance with the German legislation

	Dimensions mm	Height of centre above ground mm	Distance from outside edge of tractor to centre mm
Head lights	130 dia	970	820
Side lights	85 x 30	1610	260
Rear lights	85 x 30	1490	255
Reflectors	75 dia	1150	155

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

TEST CONDITIONS

Track of wheels — At front 1415 mm
at rear 1520 mm

Weights — As used for drawbar performance test

		Without driver	With driver
Without ballast:	front	1065 kg	1070 kg
	rear	1820 kg	1890 kg
	total	2885 kg	**2960** kg
Front ballast:	13 weights, total		560 kg
Rear ballast:	water in the tyres		590 kg
	9 weights per rear wheel, total		890 kg
With ballast:	front	1745 kg	1750 kg
	rear	3180 kg	3250 kg
	total	4925 kg	5000 kg

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Fuel and lubricants used in tests

Fuel:	ARAL Diesel fuel DIN 51601	
	specific gravity at 15°C	
	at engine test	0,828 kg/l
	at p.t.o. test	0,836 kg/l
	at drawbar performance test	0,831 kg/l
Engine oil:	SHELL ROTELLA SAE 20W/20	
Gear oil:	ESSOLUBE SAE 90	
	gearbox inclusive of rear axle	
Hydraulic oil:	SHELL ROTELLA SAE 20W/20	

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COMPULSORY TESTS

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

Date of tests: 14th May 1982
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						
50.0	2300	1062	14.98	12.52	251	3.33
At standard p.t.o. speed						
48.0	2167	1000	14.16	11.83	246	3.39
At the speed recommended for drawbar work						
50.0	2300	1062	14.98	12.52	251	3.33
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						
43.3	2348	1084	13.04	10.90	251	3.32
(ii) unloaded						
-	2442	1127	3.63	3.04	-	-
(iii) 50% of the load defined in (i)						
22.1	2394	1105	7.78	6.50	294	2.84
(iv) maximum power						
50.0	2300	1062	14.98	12.52	251	3.33
(v) 25% of the load defined in (i)						
11.1	2414	1114	5.61	4.68	421	1.99
(vi) 75% of the load defined in (i)						
32.9	2378	1098	10.17	8.50	258	3.24

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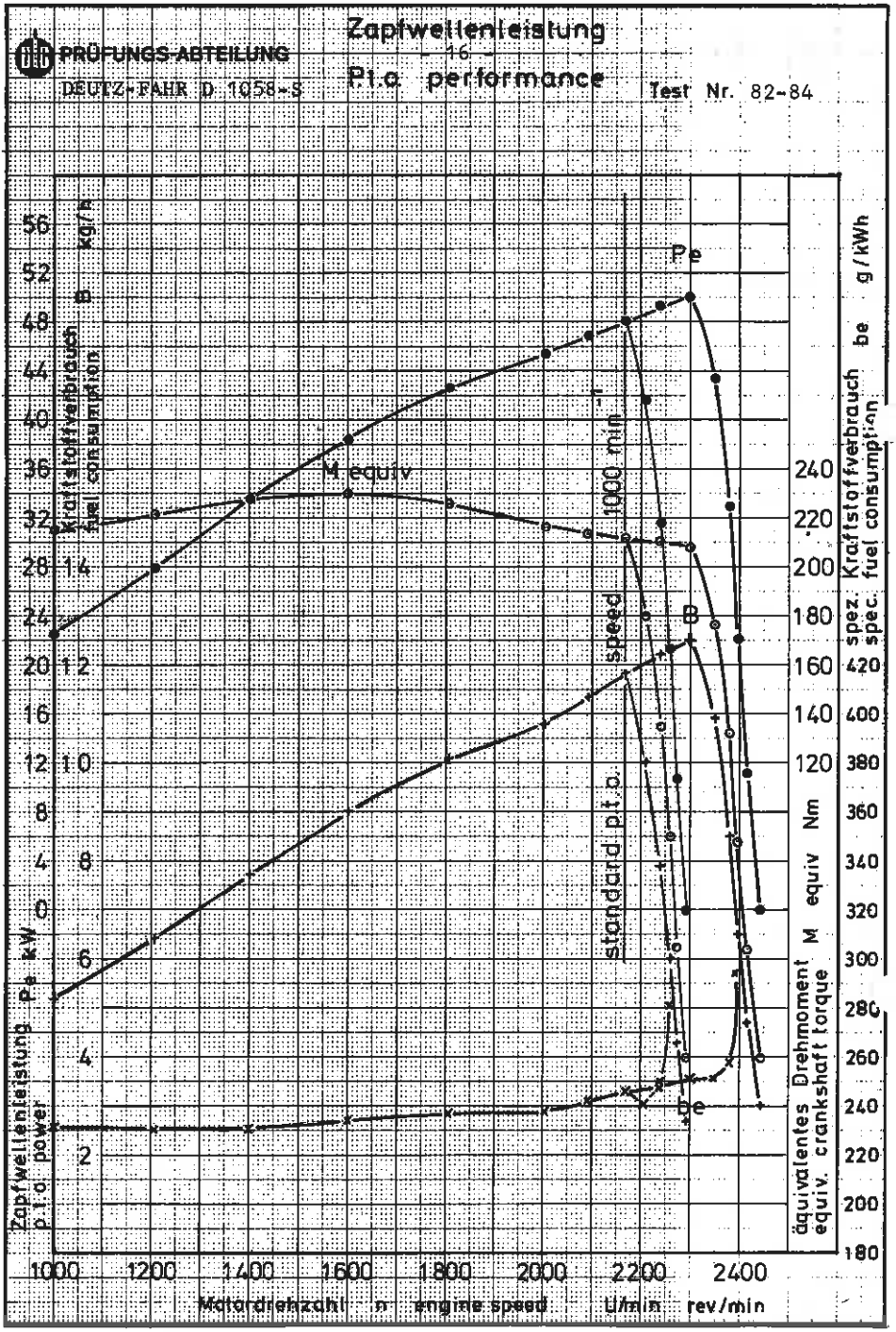
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Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
(i) 85% of the torque at maximum power at standard p.t.o. speed						
41.6	2208	1019	11.98	10.01	241	3.47
(ii) unloaded						
-	2293	1058	3.24	2.71	-	-
(iii) 50% of the load defined in (i)						
21.3	2258	1042	7.17	5.99	281	2.97
(iv) maximum power						
48.0	2167	1000	14.16	11.83	246	3.39
(v) 25% of the load defined in (i)						
10.7	2272	1049	5.12	4.28	400	2.09
(vi) 75% of the load defined in (i)						
31.6	2238	1033	9.46	7.91	250	3.34

Standard specific fuel consumption (g/kWh): 251/294/241/281

No load maximum engine speed: 2442 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 207 Nm
Maximum equivalent crankshaft torque: 230 Nm at 1596 rev/min of the engine

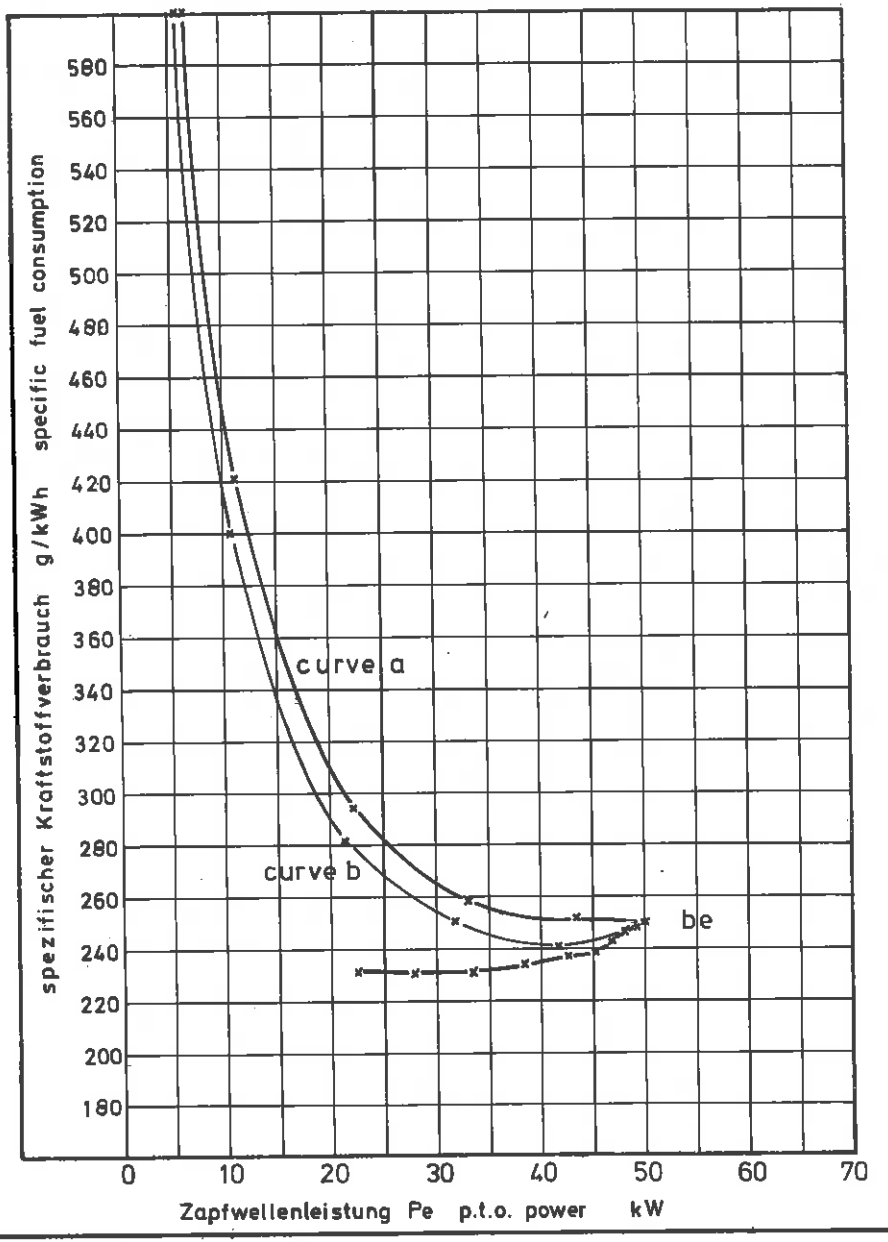
Mean atmospheric conditions:	temperature	19 °C
	pressure	1009 mbar
	relative humidity	40 %
Maximum temperatures:	cylinder head	83 °C
	engine oil	106 °C
	fuel	20 °C
	engine air intake	19 °C


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Zapfwellenleistung
- 16 -
P.t.o. performance
Test Nr. 82-84
Pe
M equiv
B
standard p.t.o. speed 1000 min⁻¹
Zapfwellenleistung Pe kW p.t.o. power
Kraftstoffverbrauch B kg/h fuel consumption
äquivalentes Drehmoment M equiv Nm equiv. crankshaft torque
spez. Kraftstoffverbrauch be g/kWh spec. fuel consumption
Motordrehzahl n engine speed U/min rev/min
1000
1200
1400
1600
1800
2000
2200
2400

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Zapfwellenleistung
P.t.o. performance

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(2) DRAWBAR PERFORMANCE

Date of tests: 3rd till 23rd June 1982
Type of track: Concrete

Gear no. and group	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 600 mm					
3 L	3,97	32,9	2985	2343	15,0
1 M	4,36	36,4	3008	2325	15,0
4 L	6,17	41,3	2411	2301	8,1
2 M	7,33	42,1	2069	2298	6,5
1 H	8,71	42,8	1770	2296	5,5
3 M	10,46	42,6	1465	2299	4,6
2 H	13,82	42,7	1111	2300	3,5
4 M	15,51	42,0	975	2297	3,2
(ii) MAXIMUM POWER (ballasted) height of drawbar above ground 600 mm					
1 L	1,85	25,5	4952	2364	15,0
2 L	2,84	38,5	4878	2299	13,6
3 L	4,18	40,6	3493	2302	8,6
1 M	4,68	41,2	3165	2305	7,5
4 L	6,33	41,9	2381	2304	5,6
2 M	7,48	41,9	2014	2302	4,7
1 H	8,85	42,0	1708	2302	4,0
3 M	10,57	40,8	1390	2301	3,2
2 H	13,90	40,2	1042	2299	2,4
(iii) FIVE-HOUR-TEST at 75% of pull at maximum power in 2nd M-gear					
2 M	7,74	32,5	1511	2354	3,6
(iv) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (ii)					
1 L	1,87	25,7	4952	2348	-

Total oil consumption during ten hours duration of tests (iii) and (iv) 44 g/h

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

Tread bar height at the beginning of drawbar tests 67 % of the value when new

Specific fuel consumpt. g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Cylinder-head °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure mbar
tyre inflation pressure o,8 bar							
316	2,63	30	70	92	25	70	1001
317	2,62	32	73	98	25	65	1001
301	2,76	25	70	90	21	63	1002
295	2,82	26	70	91	24	85	1002
291	2,86	26	72	89	23	84	1002
293	2,84	25	71	92	23	82	1002
292	2,84	27	71	88	24	81	1002
296	2,81	27	72	91	24	79	1002
tyre inflation pressure 0,9 bar							
356	2,34	19	69	78	17	89	998
326	2,55	20	70	85	17	89	998
309	2,69	21	70	84	17	90	998
304	2,74	24	73	90	21	82	996
299	2,78	22	70	84	18	90	997
302	2,75	22	70	84	18	94	997
299	2,78	22	70	86	18	96	996
308	2,70	22	71	86	18	94	996
312	2,67	25	70	84	20	90	996
305	2,72	22	72	90	18	90	996
-	-	34	74	99	28	61	996

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 - 20 6 ply
rear: 16.9 - 34 6 ply

Track of wheels front: 1415 mm
rear: 1520 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	3,50	3,47	4,07	3,93
Radius of turning circle	3,29	3,21	3,86	3,67

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	870 mm
Distance forward from rear axle centre	784 mm
Distance from tractor's median plane, to the right	1 mm

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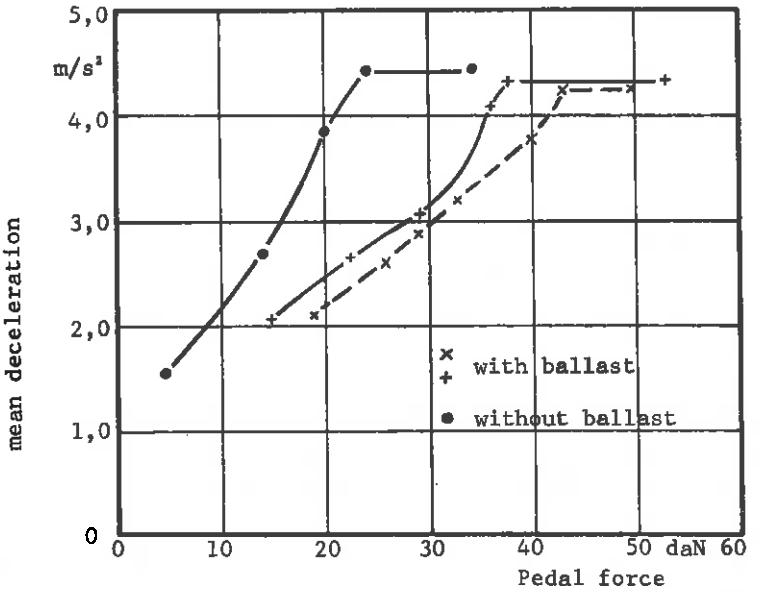
(5) Braking

Date of tests: 16th and 18th June 1982

Tractor masses during tests with driver:	front kg	rear kg	total kg
without ballast	1070	1890	2960
with ballast	1750	3250	5000

A) Service brake

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



Speed before application of brakes, without ballast 30,6 km/h
with ballast 30,2 km/h

The brakes were heated by towing of the tractor for 1 km

B) Parking brake

	Ballasted tractor on 18%-slope		Unballasted tractor on 12%-slope with trailer of 2960 kg	
	up	down	up	down
Braking device control force daN	27	28	25	25

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(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 4th June 1982
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2203

Results of test

Gear: 4th H
Travelling speed before acceleration: 22,9 km/h
Sound level: 88,0 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 3rd June 1982
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

with FRITZMEIER safety frame, model 901, without plastic-roof

Results of tests

Gear no. and group	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	2922	2,16	1,81	94,5
2 L	2899	3,36	2,94	94,5
3 L	2912	4,68	3,92	95,0
1 M	2901	5,18	4,21	96,0
4 L	2368	6,89	6,19	95,5
2 M*)	light load	8,04	8,24	94,0
2 M*)	2035	8,04	7,35	96,0
1 H	1744	9,47	8,71	95,5
3 M	1418	11,22	10,47	97,5
2 H	1075	14,68	13,84	95,5
4 M	939	16,50	15,56	97,5
4 H	light load	30,14	30,59	95,5

*) The 2nd M gear corresponds to the nominal travelling speed nearest to 7,5 km/h

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(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of tests: 16th June 1982

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	403	507	2790	180	-	-
On the frame	403	615	2010	180	3186	12

Temperature of hydraulic fluid at start of test 65 °C

Lifting heights relative to horizontal lower links

mm	-185	-162	-100	0	+100	+200	+300	+345	+400	+430
Lifting forces at hitch points										
daN		2880	2900	2920	2900	2790	2790	2810		
Lifting forces at test frame										
daN	2630		2610	2470	2410	2260	2100		2010	2010

Hydraulic Pump Performance

Opening pressure of the relief valve in remote circuit	186 bar
Sustained pressure with relief valve open	205 bar
Pump delivery rate at minimum pressure, the governor control lever being set for max. power	32,4 l/min
Hydraulic power at 90% of relief valve setting	9,6 kW
Corresponding delivery rate	31,2 l/min
Pressure	185 bar
Temperature of hydraulic fluid	65 °C

Tapping point used for test: At rear of tractor

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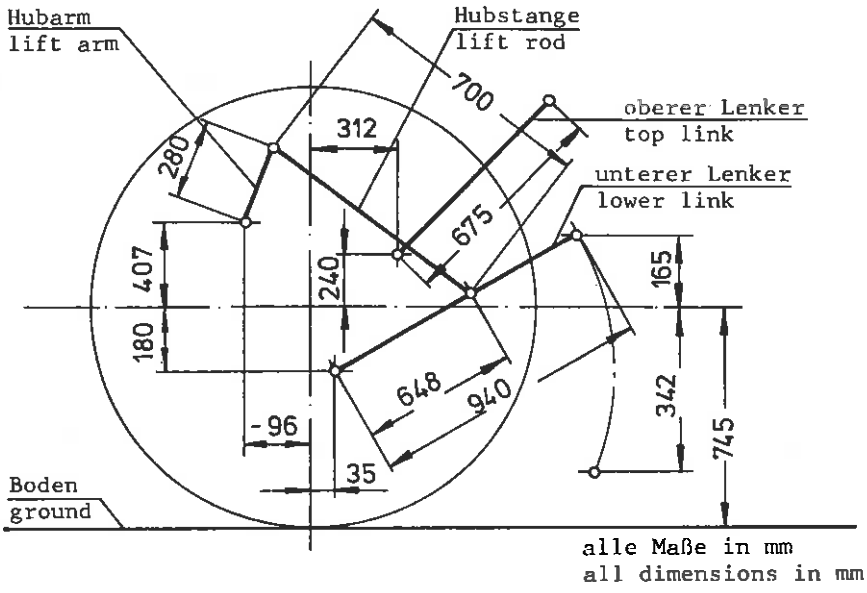
LINKAGE GEOMETRY when connected to the standard frame

Projected length in side view:

Lower links	940 mm
Lift arms	280 mm
Lift rods	700 mm
Top link	675 mm
Distance of lift rod connection point from pivot point of lower link	648 mm

The following dimensions are given relative to the rear wheel centre line, situated 745 mm above ground:

Lower link pivot point	180 mm below	35 mm behind
Top link pivot point	240 mm above	312 mm behind
Lift arm pivot point	407 mm above	96 mm behind
Maximum and minimum height of lower link hitch points	165 mm above	342 mm below
Height of lower link hitch points when locked in transport position	165 mm above or	230 mm below



alle Maße in mm
all dimensions in mm

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OPTIONAL TESTS

(9) ENGINE PERFORMANCE

Date of tests: 5th November 1981
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					
53.4	2300	15.12	12.52	234	3.53
At standard p.t.o. speed (1000 rev/min)					
51.6	2167	14.47	11.98	232	3.56
At the speed recommended for drawbar work					
53.4	2300	15.12	12.52	234	3.53
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
46.6	2363	12.82	10.61	228	3.64
(ii) unloaded					
-	2450	3.14	2.60	-	-
(iii) 50% of the load defined in (i)					
23.7	2400	7.57	6.27	265	3.13
(iv) maximum power					
53.4	2300	15.12	12.52	234	3.53
(v) 25% of the load defined in (i)					
12.0	2428	5.24	4.34	361	2.29
(vi) 75% of the load defined in (i)					
35.2	2380	10.04	8.31	236	3.51

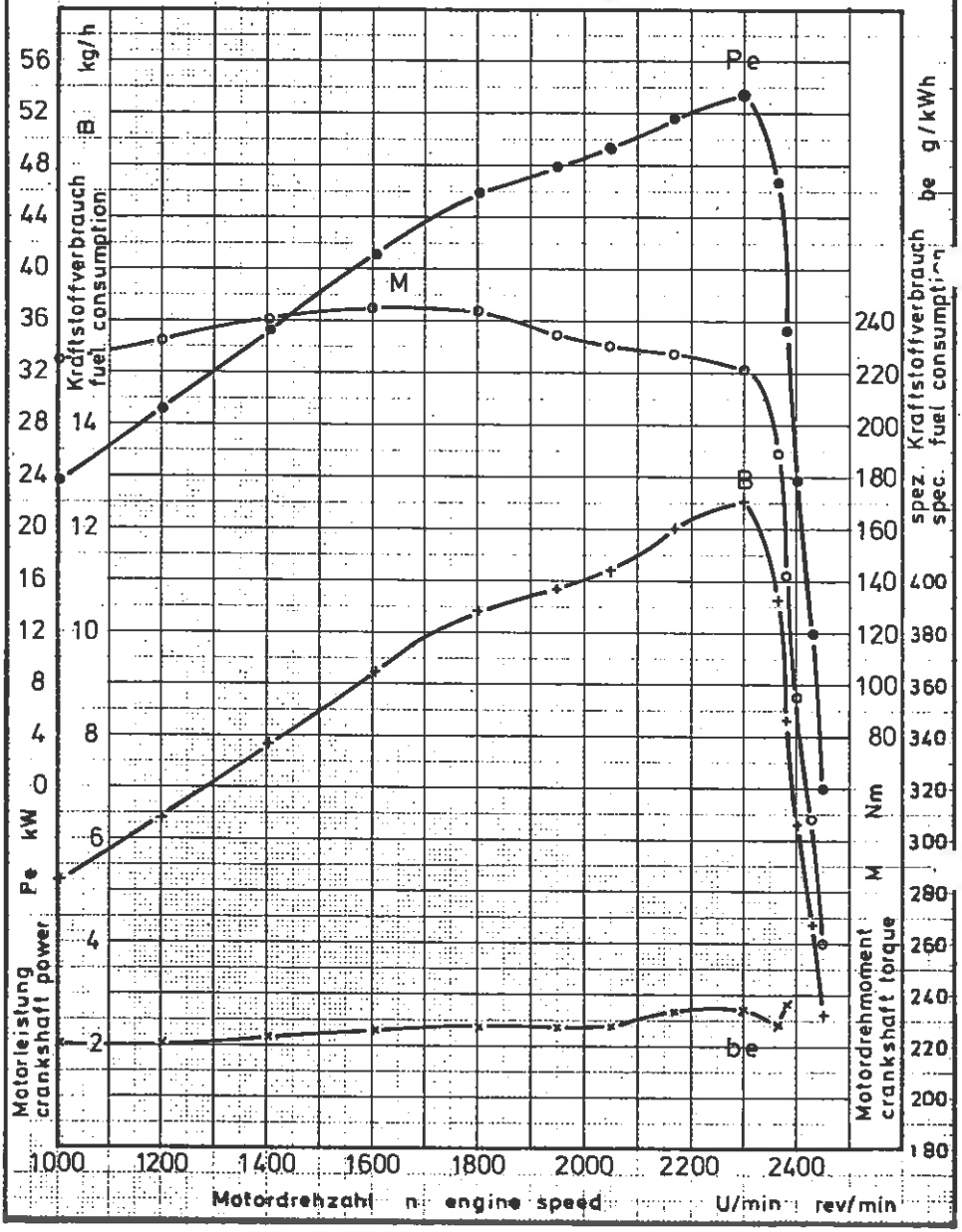
Optimum fuel consumption: 212 g/kWh at 24.9 kW and 1265 rev/min
No load maximum engine speed: 2450 rev/min
Torque at maximum power (2 hours): 222 Nm
Maximum torque: 245 Nm at 1603 rev/min of the engine

Mean atmospheric conditions:	temperature	21 °C
	pressure	1007 mbar
	relative humidity	55 %
Maximum temperatures:	cylinder head	69 °C
	engine oil	98 °C
	fuel	21 °C
	engine air intake	19 °C

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Motorleistung
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Engine performance

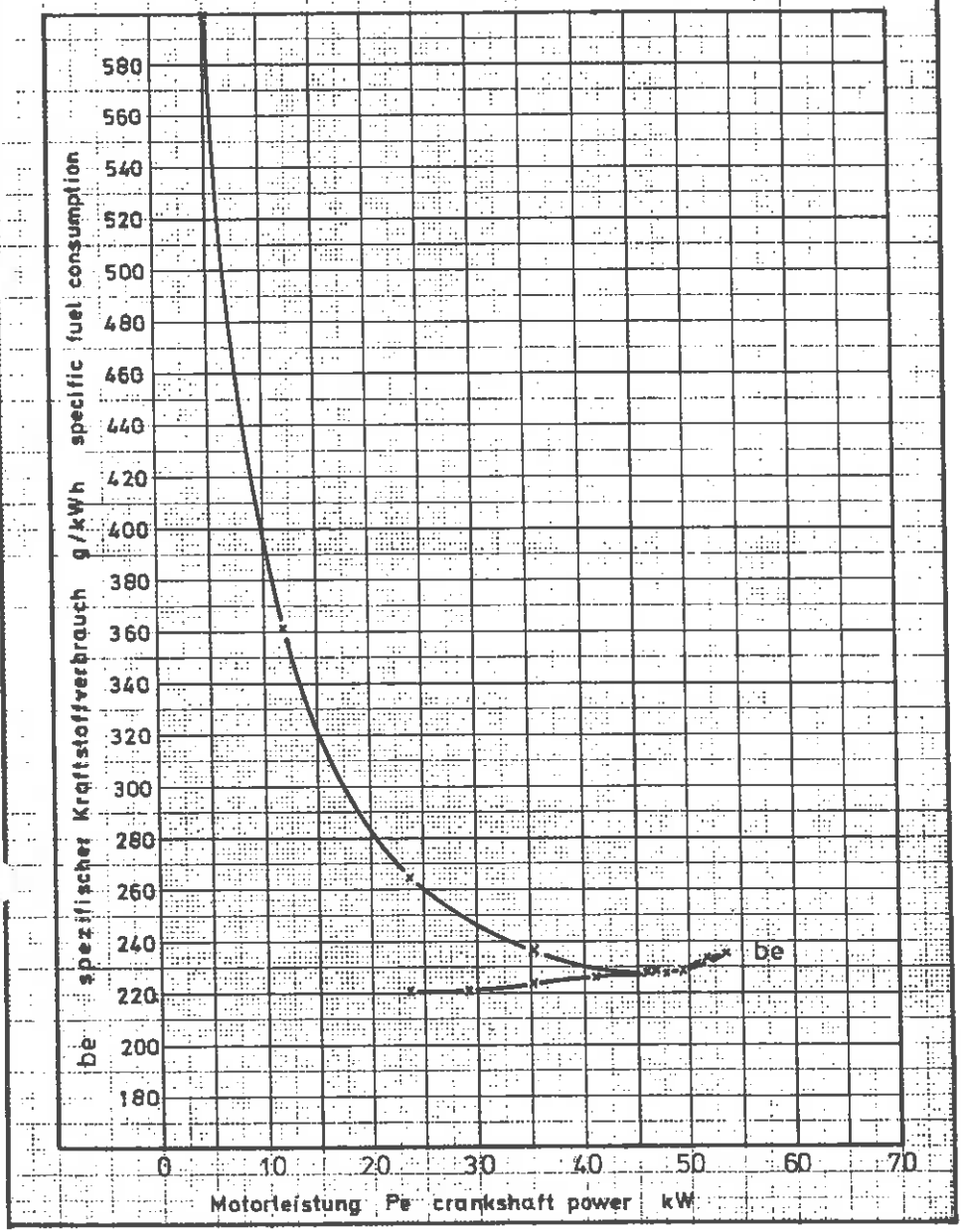
Test Nr. 82-84



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Motorleistung
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Engine performance

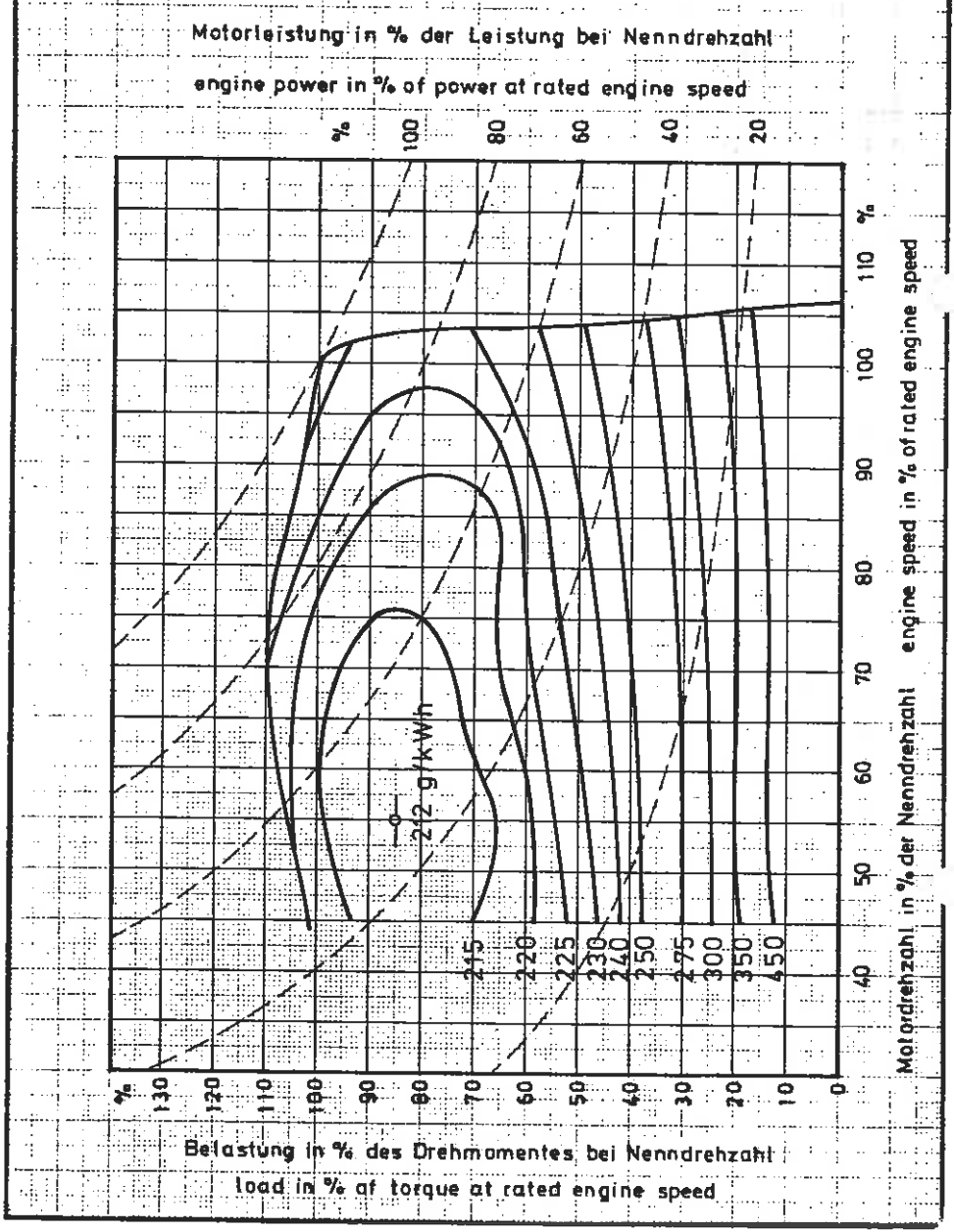
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Motorleistung
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Engine performance

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