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

O.E.C.D. No. 1013



Agricultural Tractor
HOLDER C 65 (4WD)
Type denomination 520

Manufacturer
Gebr. Holder GmbH & Co.
D-7430 Metzingen

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: December 1985 till March 1986
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 July 1986 O.E.C.D. No. 1013

The tractor HOLDER C 65 is also sold under the trade name A 65.

The only difference concerns the color:

C 65 orange
A 65 green.

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
HOLDER C 65

Test-No. 85-258

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*) All stated dimensions referring to tyre size 11.2 R 24 and track width 1186 mm at front and at rear

PRÜFUNGS-ABTEILUNG
HOLDER C 65 Test-No. 85-258

Tractor manufacturer:	GEBR. HOLDER GMBH & CO D-7430 Metzingen
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running in:	Metzingen and Groß-Umstadt
Duration of running in:	Engine 100 hours, remaining tractor 22 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	HOLDER
Trade name:	C 65; type denomination 520
Type:	Four-wheel-drive tractor, articulated steering
Serial No.:	520 10 111
Start of series:	520 10 001

Engine

Make:	HOLDER
Model:	6001-4
Type:	Supercharged 4-stroke Diesel-engine, direct injection, water cooling
Serial No.:	6410 821
Cylinders:	3, vertical in-line, bore 100 mm, stroke 100 mm; displacement 2356 cm^3, compression ratio 16,5:1, cylinders not replaceable
Valves:	Overhead
Fuel system:	Fuel feeding by gravity; BOSCH in-line injection pump PES 3A 80D 410/3 RS 1336; serial No. 54721002, manufacturer's production setting 56,5 mm^3/stroke at rated engine speed and full load; injection timing 32+1° before TDC; BOSCH multihole injection nozzles DLLA 156 S 911, injection pressure 185+8 bar; MANN fuel filter P 70/70, replaceable; capacity of fuel tank 40 l

Governor:	BOSCH centrifugal variable speed governor RSV 400-1250 AOC 2193 L; governed range of engine speed 800 to 2670 1/min, rated engine speed 2500 1/min
Supercharger:	KKK, exhaust driven supercharger K24; max. supercharge pressure 660 mbar
Air cleaner:	MANN, dry paper element filter with precleaner, replaceable cartridge, acoustic maintenance indicator; air intake at front below bonnet
Exhaust silencer:	HOLDER multichamber reflexion-absorption type silencer; 115 mm dia, 407 mm long; vertical, on the left above bonnet; mouth showing upwards, mouth 2095 mm above ground
Lubrication system:	Forced-feed lubrication with gear pump, MANN oil filter in full flow, replaceable; engine oil and filter change period every 150 operating hours, oil capacity 6 l; specified oil quality API-CC respectively MIL-L-46152; recommended oil viscosities: below -10°C SAE 10W; from -10°C to +20°C SAE 20W/20; over +20°C SAE 30
Cooling system:	Water cooling with centrifugal pump and overpressure relief valve, set to 1,0 bar; by-pass thermostat; fan with 4 blades, 300 mm dia; water capacity 9 l
Starting system:	Electrical BOSCH solenoid pre-engaged-drive-starting motor JF 12V 2,4 kW; BERU heating spiral in intake pipe; depressed clutch pedal as safety device

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Electrical equipment: 12 Volt, negative earth;
BOSCH 3 phase alternator G1 14V 33A 27, 460 W;
1 lead acid battery 88 Ah at 20 hours rating

Transmission

Clutch: FICHTEL & SACHS
dry single disc clutch MF 240,
for travel drive only;
disc 240 mm dia, hydraulically operated
by pedal

Gear box: HOLDER
consisting of 2 gear boxes, connected to each other by universally-jointed propeller shafts;
synchromesh gear box with 4 speeds,
group gear with 3 synchronized forward ranges (L,M,S) and 1 collar shifted reverse range (R), 2 shift levers;
total 12 forward and 4 reverse speeds

Axle and final drives: HOLDER
all-wheel drive, not disengageable;
at front and at rear each:
crown wheel and pinion, bevel gear differential with hydraulically by hand lever engageable lock, planetary final drives;
differential locks shiftable in common, self-disengaging

Lubrication:

	Oil quality MIL-L-	Oil viscosity SAE	Oil capacity l	Oil change operating hours
Gear box with rear axle	2105	80	6,2	1500
Front axle			10	
Final drives at front and at rear			0,5 each	600

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Total ratios and speeds

Gear	Range	Total ratio engine : driving wheel	Nominal travelling speed at rated engine speed km/h *)
1	L	387,53	1,25
2		271,93	1,79
3		165,83	2,93
4		107,76	4,50
1	M	251,54	1,93
2		176,16	2,76
3		107,64	4,51
4		69,94	6,94
1	S	57,35	8,46
2		40,16	12,09
3		24,54	19,78
4		15,95	30,44
1	R	155,55	3,12
2		108,94	4,45
3		66,56	7,29
4		43,25	11,22

*) calculated with the radius index 515 mm

Power take-off

Main p.t.o.: Independent p.t.o.
driven by hand lever operated wet multi-plate clutch, 116 mm dia,
additional claw clutch;
at rear of tractor in tractor's median plane, 580 mm above ground, 304 mm behind rear wheels centre line;
35 mm dia, 6 splines, ISO 500/DIN 9611 type 1,
rotation speed not changeable;
612 1/min at rated engine speed,
standard p.t.o. speed 540 1/min at engine speed 2205 1/min;
p.t.o. transmission ratio 4,0833;
sense of rotation clockwise (viewed to tractor's rear)

Secondary p.t.o.:	Drive and shaft like main p.t.o., in front of tractor, in tractor's median plane, 427 mm above ground, 785 mm before front wheels centre line; rotation speed not changeable; 1060 1/min at rated engine speed, standard p.t.o. speed 1000 1/min at engine speed 2358 1/min; p.t.o. transmission ratio 2,3575; sense of rotation clockwise (viewed to tractor's front)
Power lift	HOLDER hydraulic power lift, desintegrated construction
Hydraulic system:	Open centre system BOSCH gear type pump HY ZFS 11/16, directly driven by engine, delivery 16 cm³ per pump revolution; relief valve setting 180 + 10 bar
Rear power lift:	BUCHER control valve for lifting, lowering and floating position, no automatic control; 2 single acting cylinders with 60 mm bore and 160 mm stroke, without safety valve and lowering throttle
Front power lift:	BUCHER control valve for lifting, lowering and floating position, no automatic control; 2 single acting cylinders with 60 mm bore and 120 mm stroke, without safety valve and lowering throttle
Remote circuit:	1 single acting BUCHER control valve with coupling at tractor's rear, 2 double acting BUCHER control valves with 4 couplings at tractor's front; by oil tappings may be taken off up to 3,5 l if tractor is travelling and 11 l if tractor is stationary

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Hydraulic oil:	Separate hydraulic oil tank with 14 l capacity; hydraulic oil HLP or engine oil MIL-L-2104 B SAE 10W/30 or 20W/20; 1 oil filter in suction line, oil and filter change yearly resp. every 1500 operating hours; 1 oil filter in high-pressure line, filter change every 300 operating hours
Implement linkage at rear:	See on pages 10 and 11
Implement linkage at front:	Linkage of own system with 2 laterally stabilized lower links, hitch points category 1 acc. to ISO 730/I or DIN 9674

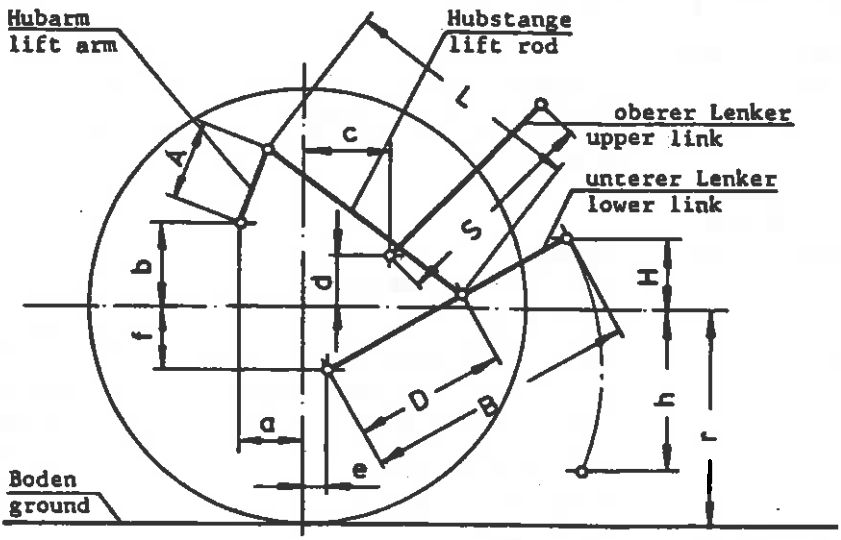
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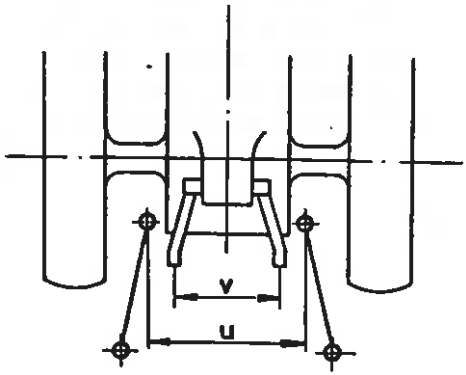
Trailer hitch:	CRAMER, KU 814 non automatical; hitch point above ground 690, 730 or 770 mm behind rear wheel centre line horizontally 446 mm behind p.t.o. horizontally 142 mm above p.t.o. vertically 110, 150 or 190 mm hitch hole diameter 33 mm permissible vertical load 800 kg
Holed drawbar:	Short bar, length between joint balls 825 mm, thickness 30 mm, width 70 mm, 9 holes 33 mm dia with 80 mm distance each, holes centres behind p.t.o. 623 mm (with horizontal lower links), height above ground (measured without load) minimum 195 mm maximum 855 mm
Towing hitch:	None

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Implement linkage
at rear: Three point linkage, category 2
acc. to ISO 730/I resp. DIN 9674





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Dimensions of rear implement linkage (projected lengths in mm, underlined dimensions are valid for power lift measurements p. 25)

Rear tyres	radius index	(r)	515
Front tyres	radius index	(r')	515
Length of lift arms		(A)	250
Length of lower links		(B)	760
Distance of lift arm pivot points from rear wheel centre	horizontal	(a)	-182
	vertical	(b)	270
Horizontal distance between lower link pivot points		(u)	250
Horizontal distance between lift arm end points		(v)	440
Length of upper link		(S)	430 to 720, <u>661</u>
Distance of upper link pivot point from rear wheel centre	horizontal	(c)	285
	vertical	(d)	170, 210, 250, 290, <u>330</u>
Distance of lower link pivot point from rear wheel centre	horizontal	(e)	167
	vertical	(f)	70
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	340
Length of lift rods		(L)	325
right hand lift rod adjustable			295 to 355

Height of lower link hitch points relative to rear wheel centre line (situated 515 mm above ground), these data are valid for unloaded power lift:

Length of lift rods	(L)	325
Linkage distance of lift rods	(D)	340
Lowest position	(h)	320
Highest position	(H)	340
Transport position	(H')	340

Type of transport lock: Hydraulic-mechanical

Steering	HOLDER and DANFOSS, OSPB 100; articulated steering, hydrostatic; oil-circuit in common with power lift; BUCHER flow control valve, max. pressure 100 bar; 2 double acting WEBER cylinders with 55 mm bore and 114 mm stroke each between front and rear part of tractor
Brakes	
Service brake:	HOLDER and KNOTT; pedal operated muscle power brake with mechanical transmission, acting on rear axle and simultaneously by undisengageable 4-wheel drive on front axle; 1 brake drum with 180 mm dia and 60 mm width each on rear differential half shafts
Parking brake:	Acting on the brake drums of service brake, mechanical operated by hand lever with ratchet
Steering brake:	None
Trailer braking take-off:	None
Wheels	
Driving wheels:	At front and at rear, 4 radial-ply tyres 11.2 R 24 8 ply PIRELLI TM 200, max. permissible load per tyre 1225 kg at 2,4 bar inflation pressure and 30 km/h; track width adjustable from 1086 to 1486 mm in steps of 100 mm each; adjustable gauge bowl wheels W10 x 24
Wheel base:	1600 mm

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Cab	HOLDER, safety cab with integrated safety frame 520-1, OECD tested, approval-no. CSD 0933/2; antivibration mounted by 4 silent blocks on tractor; 1 door each on the left and right, driver's platform 580 mm above ground; windscreen tiltable, rear window divided, panes shiftable; combined heating-ventilation system with 2-stage blower and cooling water heat exchanger incorporated in roof, air intake above rear window, air outlet jets in the cab roof and at the middle cab uprights			
Noise reduction materials:	Floor	rubber mat	4	mm
	seat support lower front wall	imitation leather	2,5	mm
	doors, mudguards	imitation leather with foam	7	mm
	rear wall	imitation leather with foam	20	mm
	side walls, upper front wall, rear part of roof	perforated foil with foam	20	mm
	front and side part of roof	perforated foil with foam	3	mm
	hollow space between gear box and cab floor	stuffed with foam		
Seat:	BOSTROM, model XH/U 2 upholstered seat with adjustable back rest, adjustable spring and shock absorber; height of unloaded seat above platform adjustable in 6 steps from 490 up to 560 mm; longitudinal adjustment 150 mm			

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

	Dimensions mm	Height above ground of centre mm	Distance from outside edge of tractor to centre mm
Head lights	140 x 75	1105	593
Auxiliary lamps	140 x 75	2080	413
Side lights	70 x 20	2070	258
Rear lights	90 x 40	1130	228
Reflectors			
1st pair	90 x 45	1070	228
2nd pair	90 x 45	700	398

Running-time meter — Mechanical, combined with tachometer, driven by camshaft of engine; reference engine speed for one really counted hour 1670 1/min

Number of grease points — 22

Overall dimensions — (without ballast)

Total length : 3800 mm with front linkage
Total width : 1475 mm
Total height : 2160 mm to top of cab roof
Ground clearance: 350 mm below front axle

Permissible tyre sizes

at front and at rear in each case

9.5 - 24	8 ply
11.2 - 24	6 or 8 ply
14.5 - 20 MPT	10 ply
14.5/75 - 20 Impl.	8 ply
12.5/80 - 20 Impl.	8 ply
400 - 22.5	8 ply
400/55 - 22.5	8 ply

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TEST CONDITIONS

Track setting 1186 mm at front and at rear

Weights		Without driver	With driver
Without ballast:	front	1415 kg	1425 kg
	rear	815 kg	885 kg
	total	2230 kg	2310 kg
Front ballast:	1 concrete weight, fitted on front implement linkage		670 kg
Rear ballast:	1 concrete weight, fitted on rear implement linkage		1020 kg
With ballast:	front	1990 kg	2000 kg
	rear	1930 kg	2000 kg
	total	3920 kg	4000 kg
Technically permissible axle loads:		at front	2000 kg
		at rear	2000 kg
Technically permissible total weight:			4000 kg

Fuels and lubricants used in tests

Fuel:	ARAL Diesel-fuel DIN 51601 density at 15°C at engine- and p.t.o. tests 0,830 kg/l at drawbar tests 0,832 kg/l
Engine oil:	MOBIL DELVAC 1120 SAE 20W/20
Gear oil:	MOBIL SAE 80
Hydraulic oil:	MOBIL DTE 16, in power lift and steering
Grease:	Multi-purpose grease

Repairs and remarks None

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HOLDER C65 Test No. 85-258

COMPULSORY TESTS

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

Date of tests: 12th December 1985
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						
38.3	2500	612	12.72	10.55	275	3.01
At rated engine speed						
38.3	2500	612	12.72	10.55	275	3.01
At standard p.t.o. speed						
36.9	2205	540	11.42	9.48	257	3.23
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						
38.3	2500	612	12.72	10.55	275	3.01
(ii) 85% of the torque obtained in (i)						
33.1	2544	623	10.90	9.05	273	3.04
(iii) 75% of the torque defined in (ii)						
25.2	2577	631	8.77	7.28	289	2.87
(iv) 50% of the torque defined in (ii)						
17.0	2608	639	6.84	5.68	334	2.48
(v) 25% of the torque defined in (ii)						
8.6	2633	645	5.06	4.20	489	1.70
(vi) unloaded						
-	2662	652	3.24	2.69	-	-

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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
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						
36.9	2205	540	11.42	9.48	257	3.23
(ii) 85% of the torque obtained in (i)						
31.8	2240	549	9.74	8.09	254	3.27
(iii) 75% of the torque defined in (ii)						
24.3	2277	558	7.70	6.39	263	3.15
(iv) 50% of the torque defined in (ii)						
16.5	2320	568	5.86	4.86	295	2.81
(v) 25% of the torque defined in (ii)						
8.3	2350	575	4.10	3.41	408	2.03
(vi) unloaded						
-	2384	584	2.44	2.03	-	-

Standard specific fuel consumption (g/kWh): 273/334/254/295

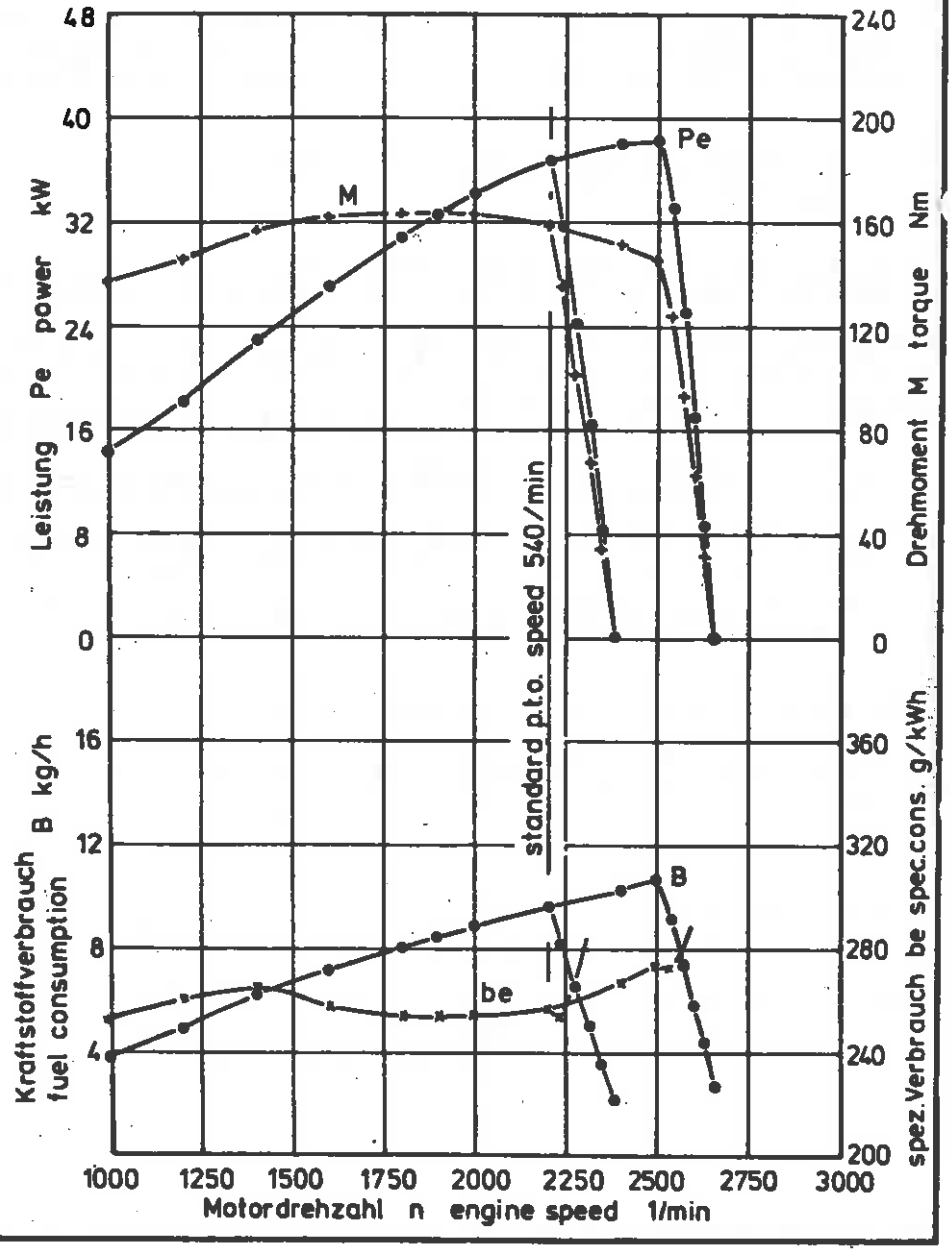
No load maximum engine speed: 2662 1/min
Equivalent flywheel torque at maximum power (2 hours): 146 Nm
Maximum equivalent flywheel torque: 164 Nm at 1900 1/min of the engine

Mean atmospheric conditions:	temperature	18 °C
	pressure	1005 mbar
	relative humidity	45 %
Maximum temperatures:	coolant	96 °C
	engine oil	117 °C
	fuel	20 °C
	engine air intake	20 °C

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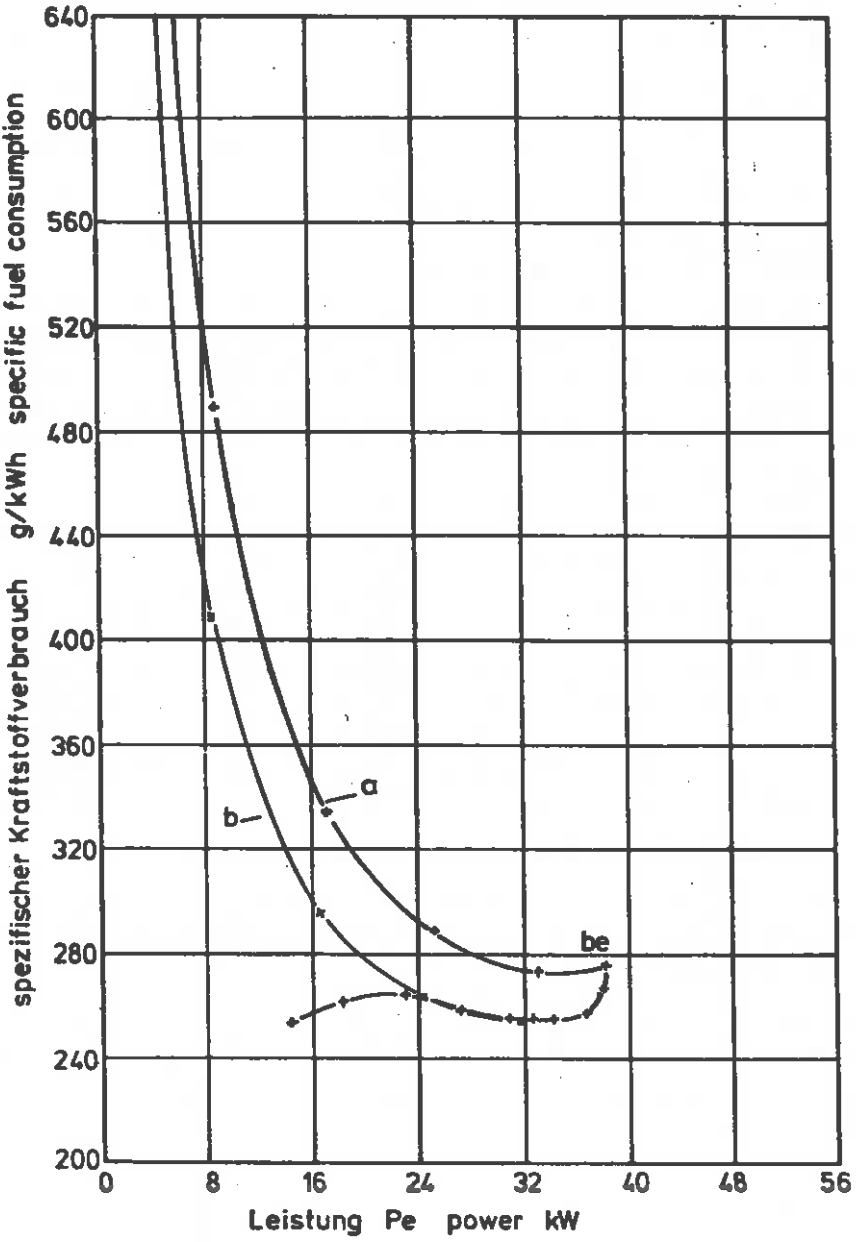
Zapfwellenleistung — P.T.O. Performance



PRÜFUNGS-ABTEILUNG
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Zapfwellenleistung P.T.O. Performance



PRÜFUNGS-ABTEILUNG
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(2) DRAWBAR PERFORMANCE

Date of tests: 3rd till 10th March 1986
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 440 mm					
4 L	3,84	24,1	2255	2554	15,1
3 M	3,85	24,2	2265	2554	14,9
4 M	6,15	30,8	1805	2500	9,6
1 S	7,66	32,4	1525	2502	7,3
2 S	11,24	31,5	1009	2502	4,7
(ii) MAXIMUM POWER (ballasted) height of drawbar above ground 425 mm					
1 L	1,10	10,3	3361	2621	14,9
2 L	1,56	14,6	3371	2601	14,9
1 M	1,67	15,6	3364	2593	15,1
2 M	2,38	22,4	3393	2568	14,9
3 L	2,51	23,4	3352	2562	15,1
4 L	3,98	31,2	2826	2497	10,3
3 M	3,99	31,2	2819	2499	10,3
4 M	6,41	32,1	1801	2501	6,0
1 S	7,90	33,0	1505	2499	5,0
2 S	11,49	32,0	1003	2501	3,1
(iii) FIVE-HOUR-TEST at 75% of pull at maximum power in 4 M gear					
4 M	6,69	25,1	1351	2564	4,4
(iv) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (ii)					
3 L	2,51	23,3	3349	2562	-

Total oil consumption during ten hours duration of tests (iii) and (iv) 9 g/h

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Tyre size at front and rear: 11.2 R 24 8 ply PIRELLI

Tread bar height at the beginning of drawbar tests: 89% at front, 82% at rear 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 front, 1,2 bar at rear							
366	2,27	16	83	92	-2	67	998
362	2,30	17	83	92	-2	57	998
342	2,43	16	82	93	-2	72	998
327	2,54	13	83	93	-1	82	998
339	2,46	16	84	93	0	84	998
tyre inflation pressure: 1,7 bar at front, 2,0 bar at rear							
506	1,65	14	80	85	-2	98	1005
423	1,97	14	80	87	-2	98	1005
411	2,02	15	80	88	-2	98	1005
367	2,27	16	84	90	-1	98	1005
366	2,27	14	80	87	-2	98	1005
338	2,46	15	83	89	-2	98	1005
337	2,47	15	83	91	-2	98	1005
330	2,52	18	84	93	0	97	1005
320	2,60	17	83	92	0	99	1005
332	2,50	17	84	92	+1	98	1005
337	2,47	20	84	98	+3	98	1003
-	-	22	82	96	+3	93	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 at front and at rear: 11.2 R 24 8 ply

Track of wheels at front and at rear: 1186 mm

	Left hand m	Right hand m
Radius of turning space	3,88	3,86
Radius of turning circle	3,71	3,69

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	747 mm
Distance forward from rear axle centre	986 mm
Distance from tractor's median plane, to the left	1 mm
Distance from the vertical plane containing the mid points of the front and rear axles with max. articulation 30° to the left to the right	10 mm to the left 0 mm

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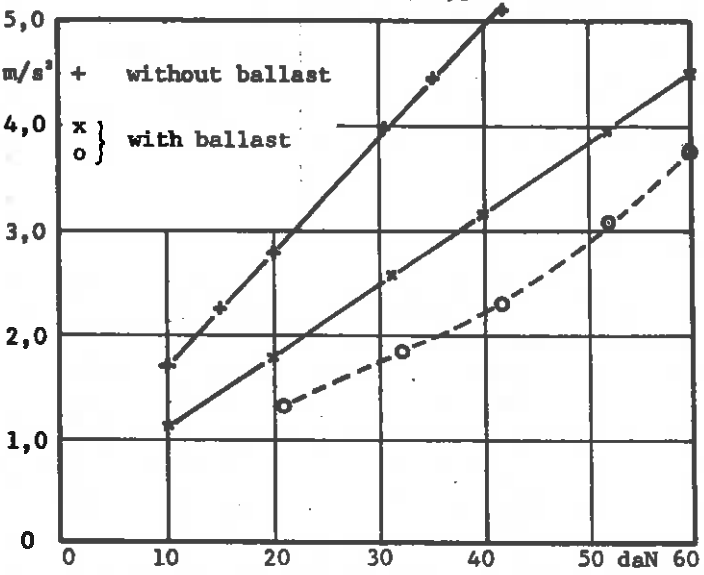
(5) Braking

Date of tests: 4th March 1986

	Tractor mass (with driver) front kg	rear kg	total kg	Speed before application of brakes km/h
Without ballast	1425	885	2310	31,6
With ballast	2000	2000	4000	31,3

A) Service brake

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



No significant deviation of tractor from original course and no abnormal vibrations

Brakes-heating: Actuating of brake for 1 km with pedal force corresponding to 1 m/s²

B) Parking brake

	Ballasted tractor on 18%-slope up	down	Unballasted tractor on 12%-slope with trailer of 2310 kg up	down
Braking device control force daN	18	18	14	15

(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 3rd March 1986
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2209

Results of test

Gear: 4 S
Travelling speed before acceleration: 23,7 km/h
Sound level: 85,5 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 28th February 1986
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2209
with HOLDER safety cab with integrated safety frame model 520-1

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	2161	1,25	1,11	83,5
2 L	2179	1,79	1,58	82,5
1 M	2191	1,93	1,69	84,0
2 M	2191	2,76	2,39	84,0
3 L	2171	2,93	2,55	83,5
4 L	2199	4,50	3,85	84,0
3 M	2217	4,51	3,84	84,0
4 M *)	1796	6,94	6,10	85,0
4 M *)	light load	6,94	7,27	80,5
1 S	1511	8,46	7,61	84,5
2 S	1009	12,09	11,20	84,0
4 S	light load	30,44	31,64	83,5

*) The 4 M gear corresponds to the nominal travelling speed nearest to 7,5 km/h

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(8) LIFTING FORCES AND HYDRAULIC POWER

Date of tests: 8th January 1986

Lifting Forces (Linkage dimensions: see pages 10 and 11)

	Height of lower hitch points 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	195	650	1300	161	-	-
On the frame	195	810	840	161	1291	16

Temperature of hydraulic fluid at start of test 65 °C

Lifting heights relative to horizontal lower links

mm	-300	-250	-200	-100	0	+100	+200	+300	+400	+500	+510
Lifting forces at hitch points											
daN		1710	1610	1530	1460	1440	1400	1360	1300		
Lifting forces at test frame											
daN	1500		1370	1280	1230	1170	1100	1030	970	860	840

Hydraulic Power

Sustained pressure with relief valve open 190 bar
Pump delivery rate at minimum pressure 33,7 l/min

	Hydraulic power kW	Flow rate l/min	Pressure bar	Oil temperature °C
at 90% of the actual relief valve setting	7,0	24,7	171	65
maximum	8,5	31,8	161	65

Tapping point used for test: at rear of tractor

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OPTIONAL TESTS

(9) ENGINE PERFORMANCE

Date of tests: 3rd December 1985
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

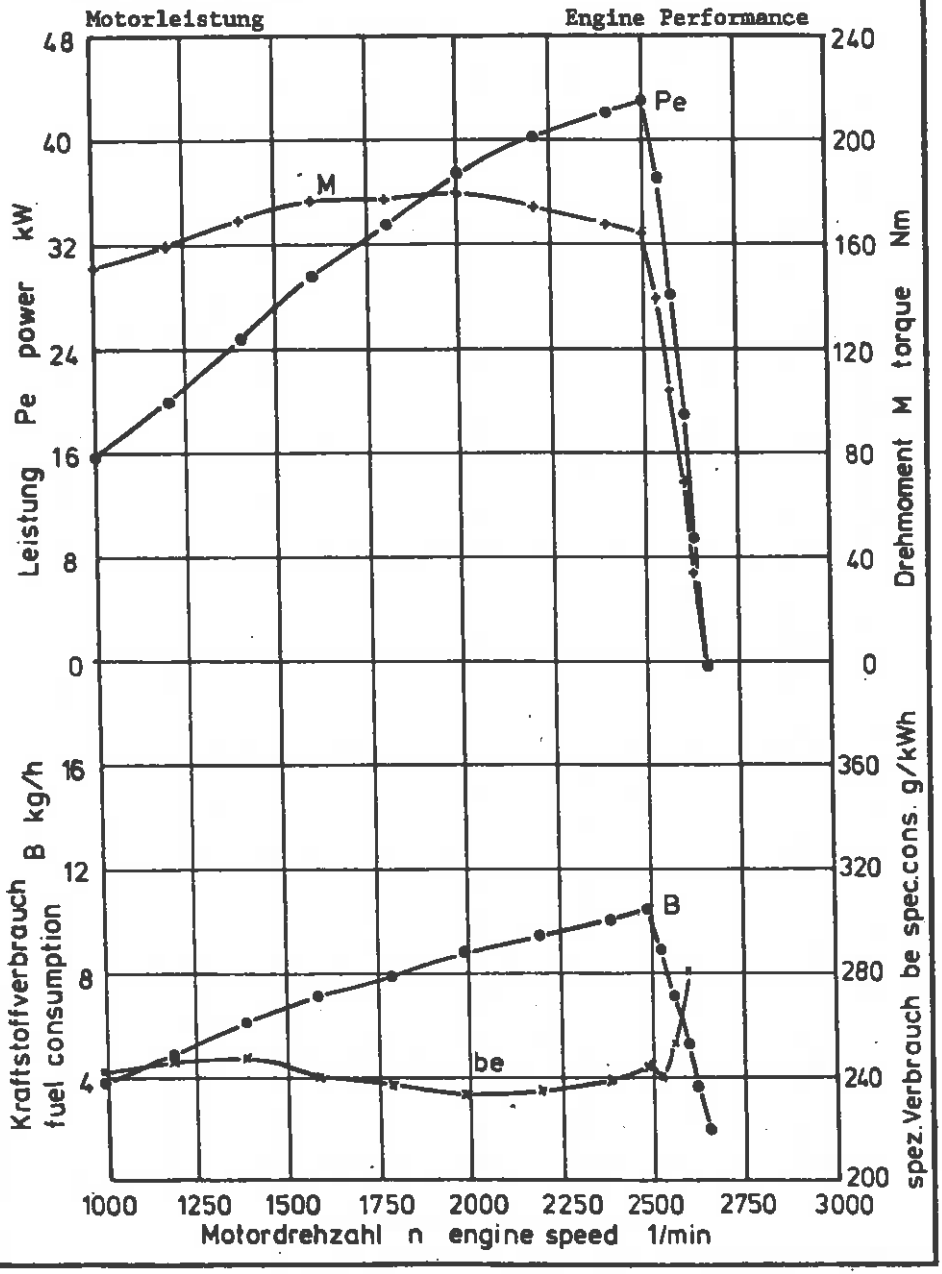
Power kW	Engine speed 1/min	Fuel consumption hourly 1/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
43.3	2500	12.79	10.62	246	3.38
At rated engine speed					
43.3	2500	12.79	10.62	246	3.38
At standard p.t.o. speed (540 1/min)					
40.5	2205	11.51	9.55	236	3.52
Part loads					
(i) the torque corresponding to maximum power at rated speed					
43.3	2500	12.79	10.62	246	3.38
(ii) 85% of the torque obtained in (i)					
37.3	2536	10.89	9.04	242	3.43
(iii) 75% of the torque defined in (ii)					
28.4	2574	8.72	7.24	255	3.26
(iv) 50% of the torque defined in (ii)					
19.2	2612	6.53	5.42	282	2.94
(v) 25% of the torque defined in (ii)					
9.7	2637	4.52	3.75	386	2.15
(vi) unloaded					
-	2674	2.52	2.09	-	-

Optimum fuel consumption: 225 g/kWh at 22.7 kW and 1750 1/min
No load maximum engine speed: 2674 1/min
Torque at rated engine speed: 165 Nm
Maximum torque: 180 Nm at 2000 1/min of the engine

Mean atmospheric conditions:	temperature	18 °C
	pressure	1000 mbar
	relative humidity	50 %
Maximum temperatures:	coolant	95 °C
	engine oil	109 °C
	fuel	21 °C
	engine air intake	23 °C

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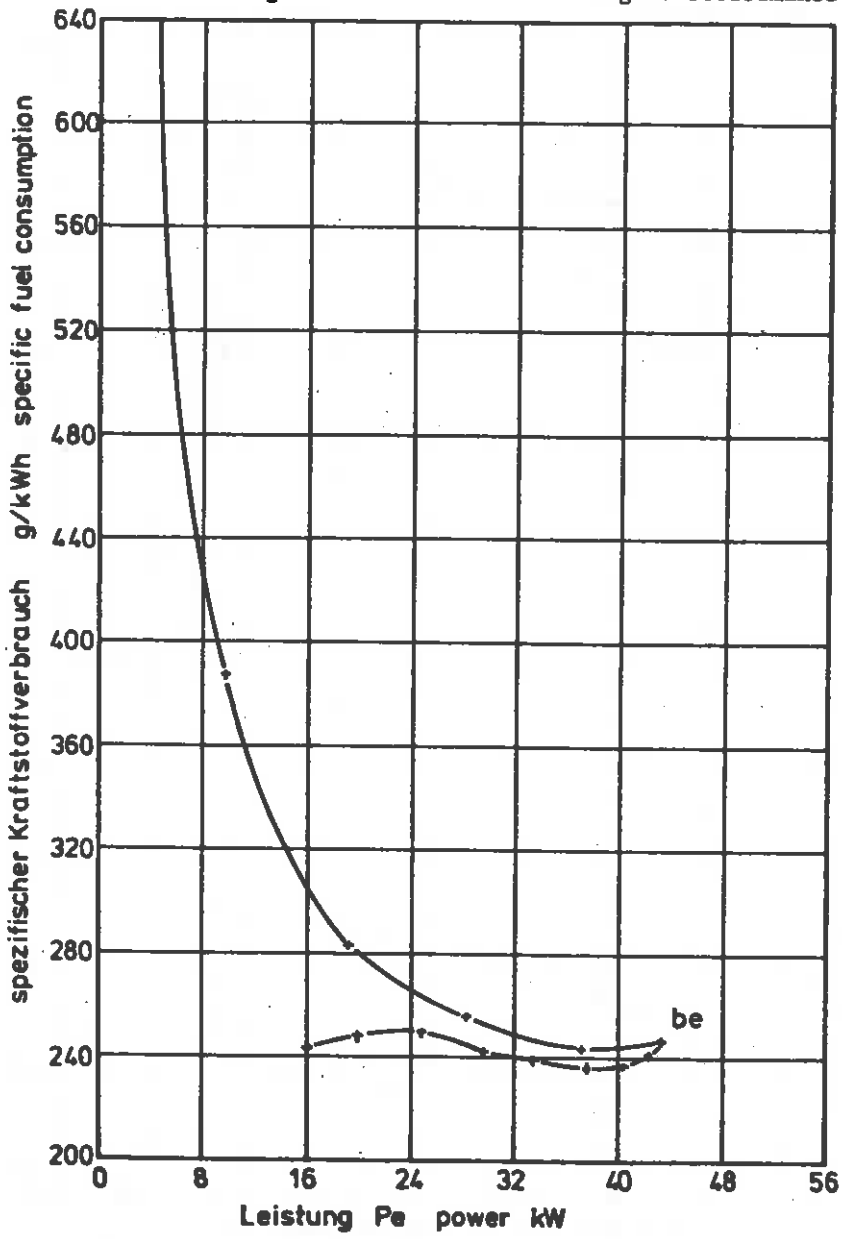
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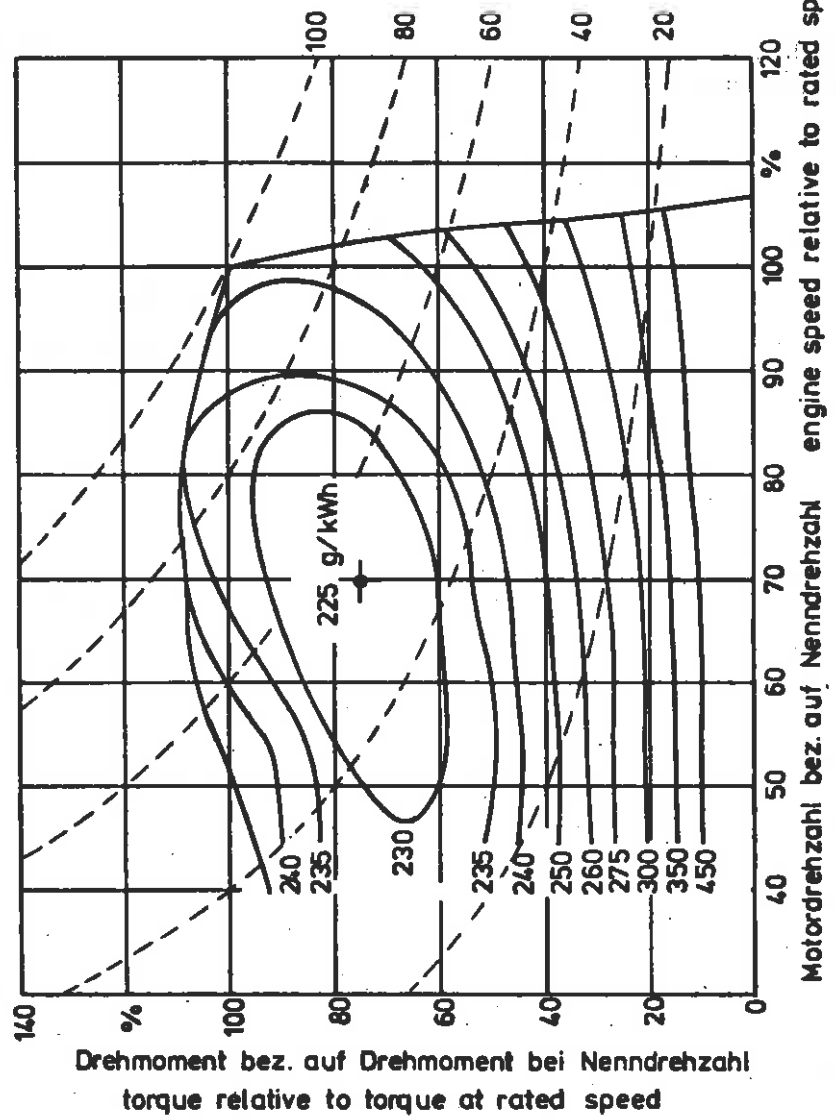
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Motorleistung — Engine Performance



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