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

O.E.C.D. No. 669



Agricultural Tractor HOLDER 5200

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

Deutsche Landwirtschafts-Gesellschaft e.V.
Zimmerweg 16 · D-6000 Frankfurt a. M. 1
Telefon: (0611) 72 07 11 · Telex: 04 131 85 dlg-d

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: February till December 1979

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.N.E.E.M.A., France) as being in accordance with the O.E.C.D. STANDARD CODE.

Date of Approval: 10th March 1980 O.E.C.D. No. 669

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
HOLDER 5200

Test No. 78-323

Tractor manufacturer:	GEBR. HOLDER GmbH und Co. D-7430 Metzingen
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Metzingen
Duration of running-in:	Engine and tractor appr. 80 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	HOLDER
Model:	5200
Type:	Wheel tractor, articulated steering, all-wheel driven
Serial-No.:	5200216

Engine

Make:	Own make
Model:	6001-3
Type:	4-stroke Diesel-engine, direct injection, water-cooled
Serial-No.:	6310154
Cylinders:	3, in line, bore 100 mm, stroke 100 mm, displacement 2356 cm^3, compression ratio 16,6 cylinder liners not replaceable
Valves:	Overhead
Fuel system:	Fuel feed by gravity; BOSCH in line injection pump: PES 3A 80D 410/3 RS 1313, manufacturer's production setting 52 mm^3/stroke at rated engine speed; injection timing 32° before TDC; BOSCH multihole injection nozzles DLLA 150 S 764, injection pressure 185 bar; MANN fuel filter with replaceable cartridge; capacity of fuel tank 40 l
Governor:	BOSCH centrifugal variable speed governor: EP/RSV 400-1250 AOB 1123L, governed range of speed 800 to 2680 rev/min, rated engine speed 2500 rev/min

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Air cleaner:	MANN dry paper element filter with precleaner, with replaceable cartridge and acoustically operating maintenance-indicator
Exhaust silencer:	Own make reflexion-absorption type silencer, 115 mm dia, 407 mm long, on the left side above engine cowling, mouth showing upward, mouth 2070 mm above ground
Lubrication system:	Forced feed from gear pump; strainer in sump; MANN oil filter in full flow with replaceable cartridge and by-pass valve; cartridge change at all oil changes; oil capacity 6 l; recommended oil quality MIL-L-2104 B, MIL-L-46152 or for hard working conditions MIL-L-2104C; recommended oil viscosities: below -10°C SAE 10W from -10°C to +20°C SAE 20W/20 above +20°C SAE 30
Cooling system:	Water cooling with overpressure relief valve, adjusted to 0,4 bar, impeller assisted; by-pass thermostat; fan with 4 blades, 300 mm Ø; water capacity 9 l
Starting system:	Electrical BOSCH screw-push starter motor JF 12V/2,4 kW; BERU spiral-type glow plug in intake manifold
Electrical equipment:	12 Volt, negative earth; BOSCH 3-phase alternator G1 14V/33A; 1 lead acid battery 88 Ah at 20 hours rating

Transmission

Clutch:	FICHTEL UND SACHS AG dry single-plate type clutch MF 240, disc diameter 240 mm, hydraulically pedal operated
Gear box:	Own make consisting of 2 gear boxes, connected with each other by universally-jointed propeller shafts; speed change gear with 4 speeds, synchronized; group gear with 3 synchronized forward groups and 1 collar shifted reverse group; totally 12 forward and 4 reverse speeds
Axle and final drives:	All-wheel drive, not disengageable; at front and at rear: bevel gear drive with crown wheel and pinion, bevel gear type differentials with locks, in common hydraulically engageable by pedal, self-disengaging; planetary final drives
Transmission lubrication:	Transmission oil SAE 80 MIL-L-2105/API GL-4 front gear box with front axle 10 l rear gear box with rear axle 6,2 l final drives each 0,4 l oil changing interval all 1500 hours, no oil changing for final drives

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Total ratios and speeds

Group	Gear	Total ratio engine : driving wheel	Nominal travelling speed *) at rated engine speed km/h
Forward speeds			
L	1	469,27	1,03
	2	328,63	1,48
	3	200,81	2,42
	4	130,48	3,72
M	1	304,59	1,59
	2	213,31	2,28
	3	130,34	3,72
	4	84,70	5,73
S	1	69,45	6,99
	2	48,64	9,98
	3	29,72	16,33
	4	19,31	25,14
Reverse speeds			
R	1	188,36	2,58
	2	131,91	3,68
	3	80,60	6,02
	4	52,38	9,27

*) calculated with the RADIUS INDEX 515 mm

Power-take-off

Main p.t.o.:	Independent p.t.o., driven by a wet multi disc clutch, operated by hand lever; at rear of tractor, in tractor's median plane, 581 mm above ground, p.t.o. shaft end 304 mm behind rear axle centre line; 35 mm dia, 6 splines DIN 9611 and ISO 500 type 1; 612 rev/min at rated engine speed, standard p.t.o. speed 540 rev/min at 2205 rev/min engine speed; direction of rotation clockwise viewed from tractor rear
Secondary p.t.o.:	In front of front axle; drive and p.t.o. stub shaft type same as for main p.t.o.; 426 mm above ground, in tractor's median plane, p.t.o. shaft end 212 mm before front axle centre line; 1061 rev/min at rated engine speed, standard p.t.o. speed 1000 rev/min at 2357 rev/min engine speed; direction of rotation counterclockwise viewed from tractor rear; p.t.o. speeds may be set by aid of tractormeter

Power lift

Hydraulic system:	Own make hydraulic power lift in disintegrated construction; BOSCH gear type pump HY/ZFS, delivery 14 cm³/rev or 35 l/min at rated engine speed, driven by the engine; pressure relief valve set to 190 bar
Power lift at rear:	BUCHER control valve for lifting and lowering; 2 single-acting rams with 60 mm bore and 160 mm stroke without overpressure relief valves in the rams, without lowering throttle

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Power lift at front:	Optionally available, fitted on tractor tested; BUCHER control valve for lifting and lowering; 2 single-acting rams with 60 mm bore and 120 mm stroke, without overpressure relief valves in the rams, without lowering throttle Up to 5 single or double acting additional control valves with oil tappings available
Hydraulic fluid:	Hydraulic oil tank with 14 l capacity, 3,5 l may be taken off through oil tappings when tractor is working driving, 11 l when tractor is working stationary; recommended oil quality: engine oil HD SAE 20W/20, no oil changing
Implement linkage at rear:	Three point linkage category I DIN 9674, category II optionally, right lift rod adjustable about ± 40 mm, lifting height above ground 200 to 785 mm
Implement linkage at front:	Linkage of own construction, rams acting on 2 laterally stabilized arms
Holed bar:	Short bar, fitted on clevis lf lower links; length between the joint balls 683 mm, width 70 mm, thickness 30 mm; centre hole and 3 holes in 80 mm distance each on either side, all holes 33 mm dia; height above ground adjustable by power lift in the range from 215 to 800 mm, measured at the surface of the bar; distance of holes centre line with lower links in horizontal position: from rear axle centre 765 mm from p.t.o. shaft end 461 mm

Pull attachment

Trailer hitch:	ROCKINGER height above ground adjustable by shifting to 730, 770 and 810 mm, hitch hole 33 mm dia; distance of hitch hole centre from rear axle centre 436 mm; permissible vertical load 900 kg
Towing hitch:	560 mm above ground

Steering

Own make in cooperation with DANFOSS, optionally ZAHNRADFABRIK FRIEDRICHSHAFEN;
Type OSPB 100,
hydrostatic articulated steering,
connected with flow-control valve to the hydraulic system of power lift;
2 double-acting cylinders with 55 mm bore and 114 mm stroke between front and rear parts of the tractor

Brakes

Parking brake:	Mechanically acting on the drums of the service brake, operated by pedal with ratchet
Service brake:	Own make in cooperation with KNOTT mechanically acting internal-expanding-shoe brake with 180 mm dia, on each differential half shaft of the rear axle, pedal operated

Wheels

Driving wheels:	At front and at rear, 4 pneumatics 11,2 R 24 8 ply, radial type tyre casing; maximum permissible load per tyre 1225 kg at 2,4 bar inflation pressure and 30 km/h; track widths 1010 or 1258 mm, adjustable by turning wheels; rims W8 x 24

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Wheel base:	1600 mm
Cab	Own make OECD-tested safety cab, approval no. CSD 0085/1-a(C); antivibration mounts, front windshield tiltable, sliding rear windows, inside of cab covered with noise damping materials; doors on both sides of the cab; heat exchanger with blower in the roof of the cab, connected to the engine cooling system
Seat	BOSTROM XH - BALTIC upholstered seat with back rest; adjustable spring with shock absorber; height of driver's platform above ground 595 mm; height of unloaded seat above platform adjustable to 6 positions between 420 and 500 mm; for and aft adjustable about 150 mm
Number of grease points	7
Track setting during test	Front and rear axle 1258 mm

Dimensions

Total length:	3456 mm	without ballast
	4396 mm	with ballast
Total width:	1542 mm	without ballast
	1590 mm	with ballast
Total height:	2105 mm	to top of cab
Ground clearance:	355 mm	below clutch housing

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Lighting equipment — Electrical 12 Volt as per German legislation

	Dimensions mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Head lights	140 x 75	1110	590
Side lights	70 x 20	2020	345
Rear lights	90 x 40	1120	290
Reflectors			
1st pair	90 x 45	1070	290
2nd pair	45 x 90	580	414

Permissible total weights and axle loads

for all available wheel equipment

Type dimensions at front and at rear	Permissible total weight kg	Permissible axle load at front and at rear kg
9,5-24 8 ply	3600	2000
11,2-24 6 or 8 ply		
14,5-20 MPT 10 ply		
14,5/75-20 Impl. 8 ply		
400-22,5 8 ply		
12,5/80-20 Impl. 8 ply		

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Weights — Ready for use, as tested

		without driver	with driver
Without ballast:	front	1185 kg	1195 kg
	rear	745 kg	820 kg
	total	1930 kg	2015 kg
Front ballast:	1 weight per wheel 50 kg each		100 kg
	1 concrete weight in front implement linkage		580 kg
Rear ballast	3 weights per wheel 50 kg each		300 kg
	1 concrete weight in rear implement linkage		605 kg
With ballast:	front	2005 kg	2010 kg
	rear	1510 kg	1590 kg
	total	3515 kg	3600 kg

FUELS AND LUBRICANTS USED IN TESTS

Fuel:	ARAL Diesel-fuel DIN 51601	
	specific gravity at 15°C	
	at engine and p.t.o. tests	0,828 kg/l
	at drawbar tests	0,826 kg/l
Engine:	MOBIL engine oil DELVAC 1120	SAE 20W/20
Transmission, axles and final drives:	MOBIL transmission oil	SAE 80
Hydraulic system and steering:	MOBIL engine oil DELVAC 1120	SAE 20W/20

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COMPULSORY TESTS

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

Date of tests: 3rd and 4th May 1979
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
At 2-hour test						
32.7	2500	612	11.71	9.69	296	2.79
At standard p.t.o. speed						
30.3	2205	540	10.66	8.82	292	2.84
At the speed recommended for drawbar work						
32.7	2500	612	11.71	9.69	296	2.79
Part loads the governor hand lever in the position corresponding to the maximum power at full load						
(i) 85% of the torque at maximum power at 2-hour test						
28.4	2557	626	9.25	7.65	269	3.07
(ii) unloaded						
-	2680	656	2.59	2.14	-	-
(iii) 50% of the load defined in (i)						
14.6	2629	644	5.59	4.63	317	2.61
(iv) maximum power						
32.7	2500	612	11.71	9.69	296	2.79
(v) 25% of the load defined in (i)						
7.4	2657	651	4.11	3.40	461	1.79
(vi) 75% of the load defined in (i)						
21.7	2604	638	6.97	5.76	265	3.12

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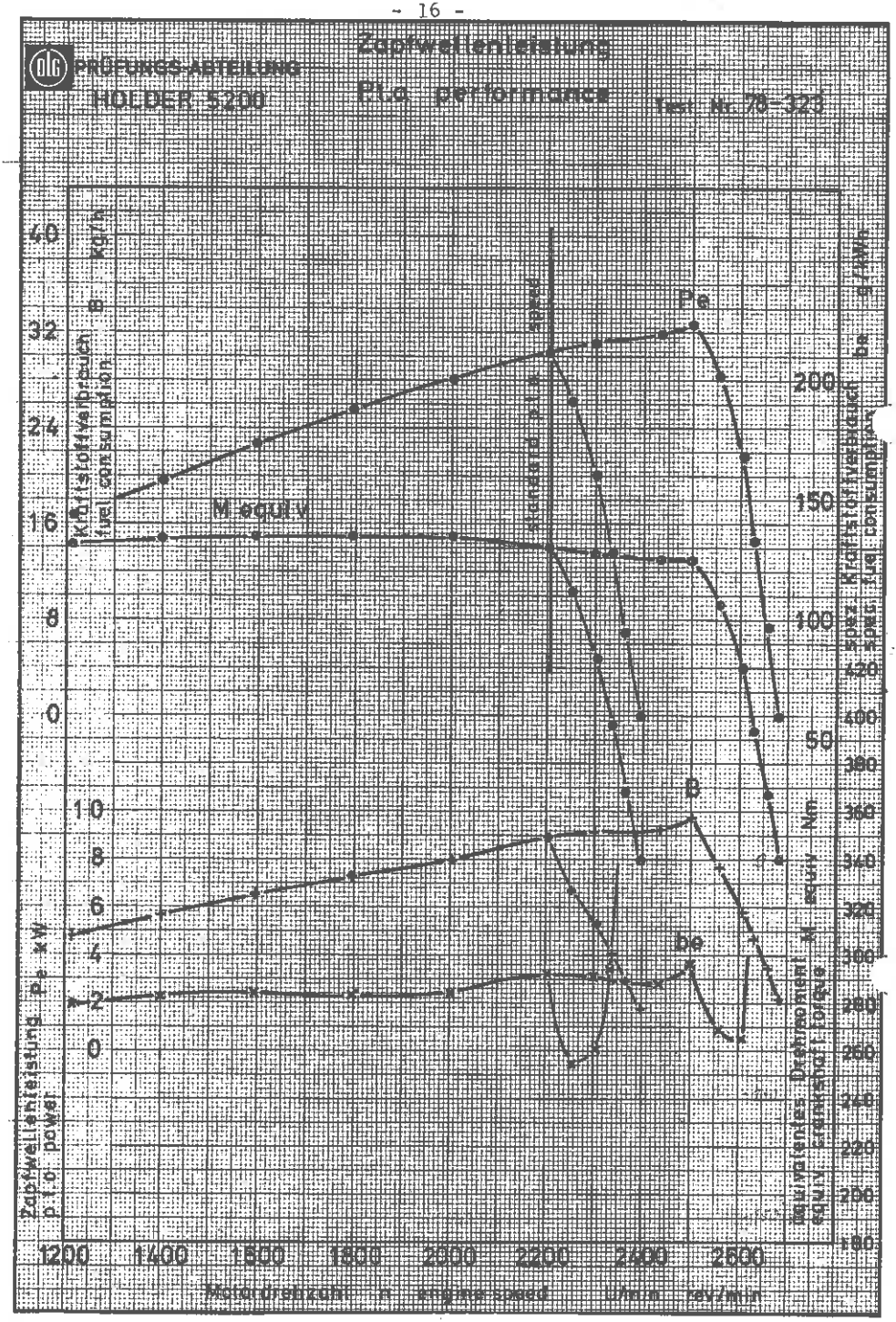
Test No. 78-323

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total 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						
(i) 85% of the torque at maximum power at standard p.t.o. speed						
26.3	2253	552	8.08	6.69	254	3.25
(ii) unloaded						
-	2394	586	2.07	1.71	-	-
(iii) 50% of the load defined in (i)						
13.6	2336	572	4.85	4.01	294	2.81
(iv) maximum power						
30.3	2205	540	10.66	8.82	292	2.84
(v) 25% of the load defined in (i)						
6.9	2363	579	3.42	2.83	411	2.01
(vi) 75% of the load defined in (i)						
20.2	2305	564	6.35	5.26	261	3.17

Standard specific fuel consumption (g/kWh): 269/317/254/294

No load maximum engine speed: 2680 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 125 Nm
Maximum equivalent crankshaft torque: 136 Nm at 1594 rev/min of the engine

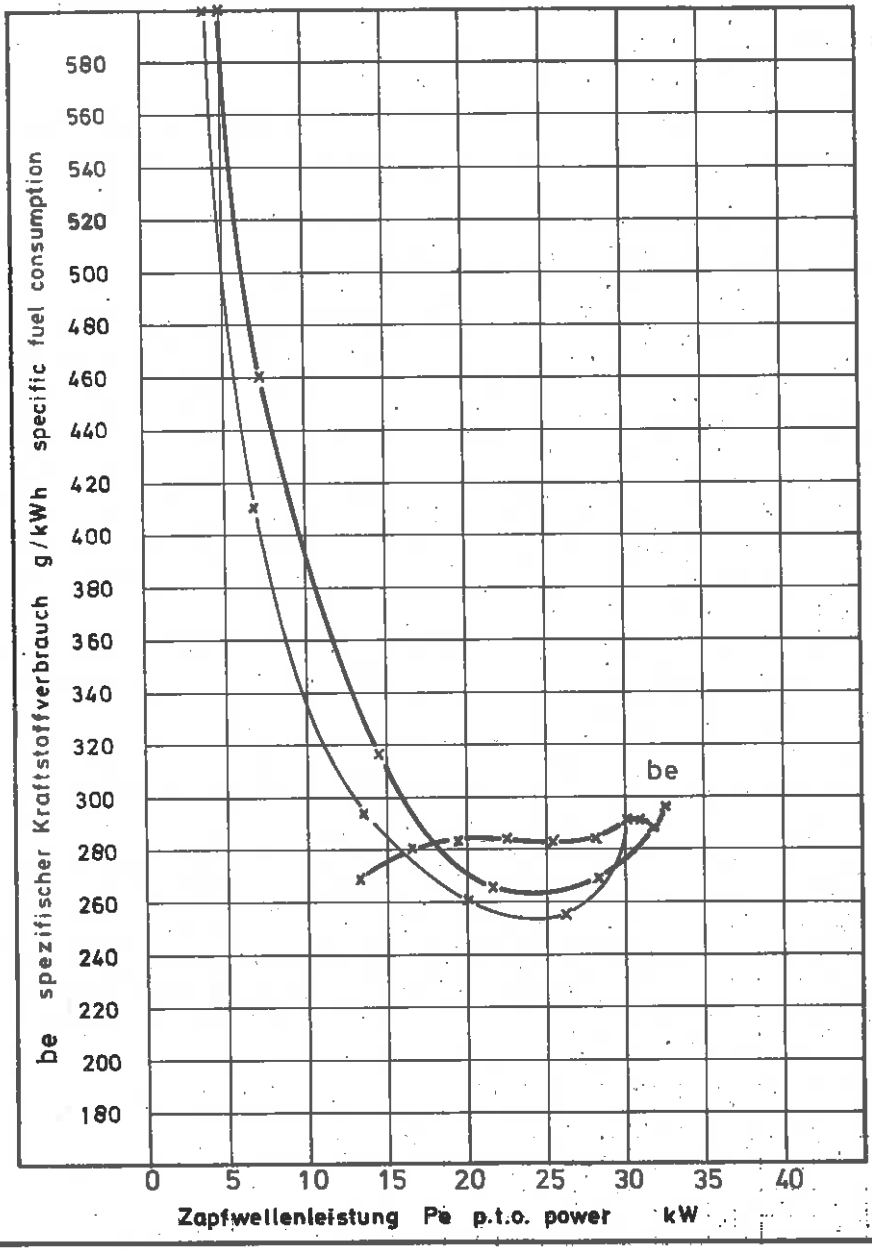
Mean atmospheric conditions:	temperature	18 °C
	pressure	992 mbar
	relative humidity	45 %
Maximum temperatures:	coolant	71 °C
	engine oil	104 °C
	fuel	22 °C
	engine air intake	23 °C


Zapfwellenleistung
PTO performance
PRÜFUNGS-ABTEILUNG
HOLDER 5200
Versuch Nr. 78-323
Pe
M equiv
Be
Zapfwellenleistung Pe kW
PTO 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

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Zapfwellenleistung
P.t.o. performance

Test Nr. 78-323



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(2) DRAWBAR PERFORMANCE

Date of tests: 5th till 21st December 1979
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 with ballast -height of drawbar above ground 400 mm					
1.L	0,93	8,8	3385	2647	15,1
2.L	1,32	12,4	3379	2629	15,0
1.M	1,42	13,4	3390	2625	15,0
2.M	2,00	18,7	3376	2584	15,0
3.L	2,10	19,8	3386	2567	15,0
4.L	3,38	26,8	2851	2500	8,7
3.M	3,39	26,4	2800	2501	8,5
4.M	5,44	26,6	1763	2498	4,3
1.S	6,69	27,8	1495	2501	3,4
2.S	9,68	27,2	1012	2499	1,9
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 1st S gear					
1.S	7,00	21,8	1121	2585	2,2
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)					
3.L	2,15	20,2	3390	-	-
(iv) MAXIMUM POWER without ballast height of drawbar above ground 440 mm					
4.L	3,24	18,8	2093	2586	15,1
3.M	3,26	18,9	2090	2590	15,1
4.M	5,12	26,4	1853	2499	10,2
1.S	6,48	27,7	1537	2498	6,6
2.S	9,54	27,9	1051	2502	3,7
3.S	15,87	25,2	571	2498	1,8

Total oil consumption during ten hours duration of tests (ii) and (iii) 13 g/h

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Tyres size front and rear 11,2 R 24

Tread bar height at the beginning of drawbar tests 85% of the value when new at front, 82% at rear

Specific energy kWh/l	Specific fuel consumpt. g/kWh	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 1,7 bar at front; 1,2 bar at rear							
1,73	477	17	71	80	15	80	1004
1,98	417	17	71	81	14	76	1004
2,06	400	17	72	83	15	76	1004
2,28	362	17	73	84	15	75	1004
2,25	366	17	73	83	16	78	1004
2,30	359	14	70	76	12	72	970
2,27	365	14	70	75	12	72	971
2,29	360	15	72	83	14	70	970
2,39	345	14	70	78	12	72	971
2,34	353	14	70	79	12	72	971
2,52	328	15	72	83	8	78	971
-	-	14	74	91	7	65	999
tyre inflation pressure 0,8 bar at front and at rear							
2,24	369	15	71	81	9	75	1006
2,25	367	15	71	80	10	73	1006
2,27	364	14	70	79	11	66	1006
2,37	348	14	70	81	10	74	1006
2,39	345	14	72	82	11	69	1006
2,17	382	14	70	79	12	68	1006

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

(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: 1258 mm

	Left-hand m	Right-hand m
Radius of turning space	3,93	3,92
Radius of turning circle	3,75	3,74

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	745 mm
Distance forward from rear axle centre	949 mm
Distance from tractor's median plane, to the left	5 mm

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(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 10th and 14th August 1979
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 3600 kg

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	24,8	24,8
Deceleration	m/s^2	4,7	7,5
Stopping distance	m	6,2	4,0
Force on pedal	daN	62	51
Force on pedal to achieve a deceleration of 2,5 m/s^2	daN	33	16

Brake fade characteristics (hot test)

Deceleration	hot/cold	%	104	100
Stopping distance	cold/hot	%	100	100
Force on pedal	cold/hot	%	124	120

B) PARKING BRAKE

Tractor facing up 16% slope
Force on pedal 20 daN, tractor does not roll

Tractor facing down 16% slope
Force on pedal 18 daN, tractor does not roll

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(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 25th April 1979
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Results of test

Gear: 4th S
Travelling speed before acceleration: 20,3 km/h
Sound level: 88,5 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 23rd April 1979
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

The tractor was fitted with HOLDER safety cab

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	1996	1,03	0,85	87,5
2.L	1966	1,48	1,27	88,0
1.M	1954	1,59	1,43	88,0
2.M	1995	2,28	1,88	89,0
3.L	1938	2,42	2,14	88,5
4.L	1976	3,72	3,08	88,0
3.M	1996	3,72	3,04	90,0
4.M	1770	5,73	5,10	90,0
1.S *)	1465	6,99	6,50	89,0
2.S	963	9,98	9,64	90,0
3.S	563	16,33	16,09	90,0
4.S	light load	25,14	27,0	86,0

*) the 1st S gear corresponds to the travelling speed nearest to 7,5 km/h

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(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

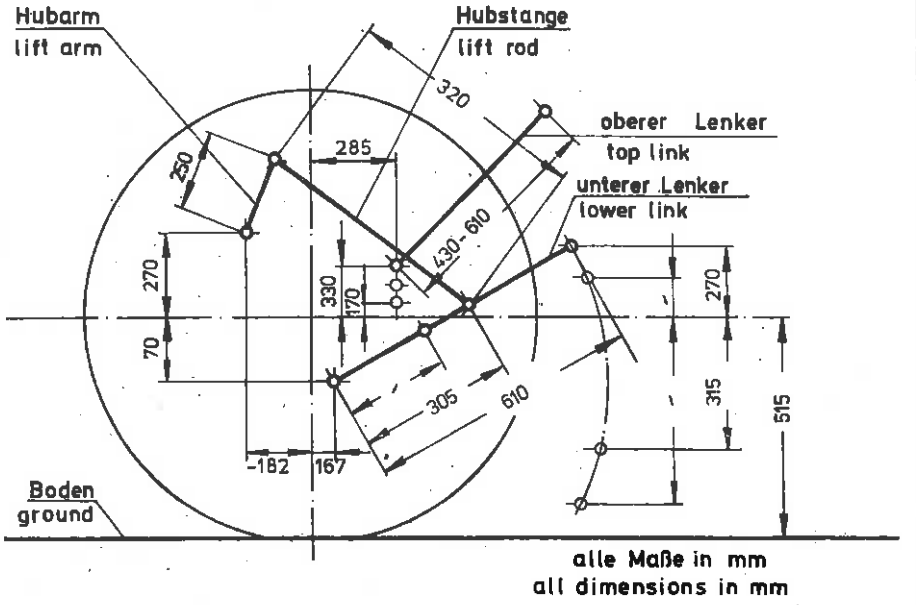
Date of tests: 2nd November 1979

HYDRAULIC PUMP

(1)	Opening pressure of relief valve in remote circuit	165 bar
	Sustained pressure by open relief valve	195 bar
(2)	Pump delivery rate at minimum pressure and rated engine speed	23,3 l/min
(3)	Pump delivery rate at max. hydraulic power	24,8 l/min
	corresponding delivery pressure	165 bar
	power	6,8 kW

POWER LIFT

Dimensions of linkage geometry for the table on page 26



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LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-380	-300	-275	-245	-200	-100	0
At hitch points							
daN				1780	1740	1680	1640

Max. force exerted throughout the whole range 1450 daN

Front axle does not lift

At test frame maximum mechanical advantage

daN			1630		1540	1440	1370

minimum mechanical advantage

daN	1200	1150			1100	1070	1020

Max. force exerted throughout the whole range 910 daN

Front axle does not lift

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+100	+200	+300	+340	+400	+430	+500	+600
1590	1540	1480	1450				

high top link pivot point

1290	1200	1080		950	910		

low top link pivot point

960	910	860		800		730	690

All values of forces for pressure 165 bar at max. hydraulic power, see page 23; calculated from measurements at max. oil pressure 195 bar

LINKAGE GEOMETRY when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	610 mm	610 mm
Lift arms	250 mm	250 mm
Lift rods	320 mm	320 mm
Top link	514 mm	556 mm
Distance of lift rod connection point from pivot point of lower link	305 mm	305 mm
The following dimensions are given relative to rear axle centre line 515 mm above ground		
Lower link pivot point	167 mm behind, 70 mm below	167 mm behind, 70 mm below
Top link pivot point	285 mm behind, 330 mm above	285 mm behind, 170 mm above
Lift arm pivot point	182 mm behind, 270 mm above	182 mm behind, 270 mm above
Maximum and minimum height of lower link hitch points	270 mm above, 315 mm below	270 mm above, 315 mm below
Height of lower link hitch points above ground when locked in highest transport position	785 mm	785 mm

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Test No. 78-323

OPTIONAL TESTS

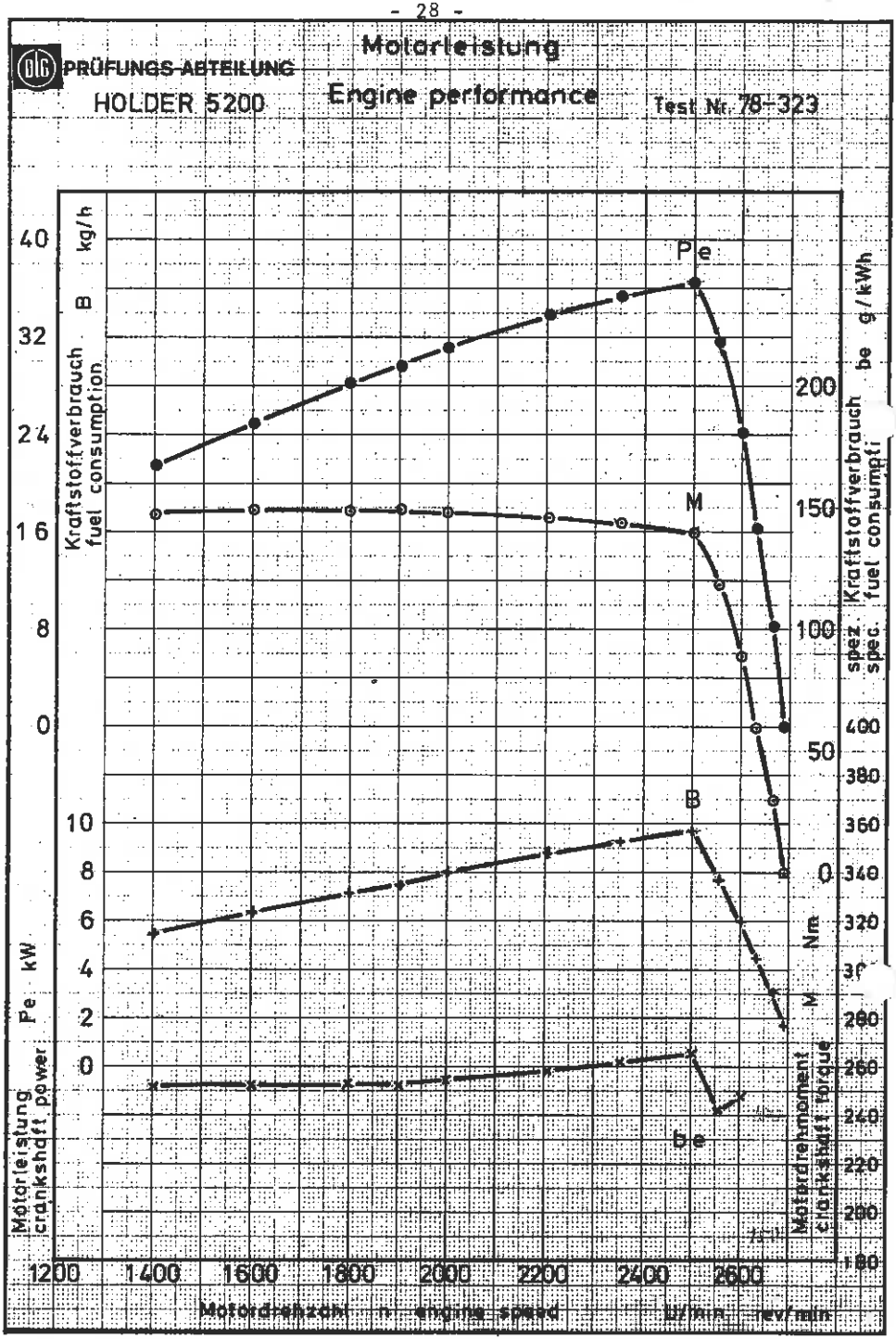
(9) ENGINE PERFORMANCE

Date of tests: 19th April 1979
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

Power kW	Engine speed rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
36.6	2500	11.72	9.70	265	3.12
At standard p.t.o. speed (540 rev/min)					
33.9	2205	10.55	8.73	258	3.21
At the speed recommended for drawbar work					
36.6	2500	11.72	9.70	265	3.12
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
31.7	2552	9.26	7.66	242	3.43
(ii) unloaded					
-	2687	2.09	1.73	-	-
(iii) 50% of the load defined in (i)					
16.4	2629	5.39	4.46	273	3.03
(iv) maximum power					
36.6	2500	11.72	9.70	265	3.12
(v) 25% of the load defined in (i)					
8.3	2664	3.72	3.08	372	2.23
(vi) 75% of the load defined in (i)					
24.2	2598	7.26	6.01	248	3.34

Optimum fuel consumption: 228 g/kWh at 21,1 kW and 1875 rev/min
No load maximum engine speed: 2687 rev/min
Torque at maximum power (2 hours): 140 Nm
Maximum torque: 150 Nm at 1797 rev/min of the engine

Mean atmospheric conditions:	temperature	22 °C
	pressure	1008 mbar
	relative humidity	40 %
Maximum temperatures:	coolant	71 °C
	engine oil	90 °C
	fuel	19 °C
	engine air intake	23 °C


PRÜFUNGS-ABTEILUNG
HOLDER 5200
Motorleistung
Engine performance
Test Nr. 78-323
Pe
M
B
be
Kraftstoffverbrauch B kg/h
fuel consumption
spez. Kraftstoffverbrauch be g/kWh
spec. fuel consumption
Motorleistung Pe kW
crankshaft power
Motordrehmoment M Nm
crankshaft torque
Motordrehzahl n engine speed U/min rev/min
1200
1400
1600
1800
2000
2200
2400
2600

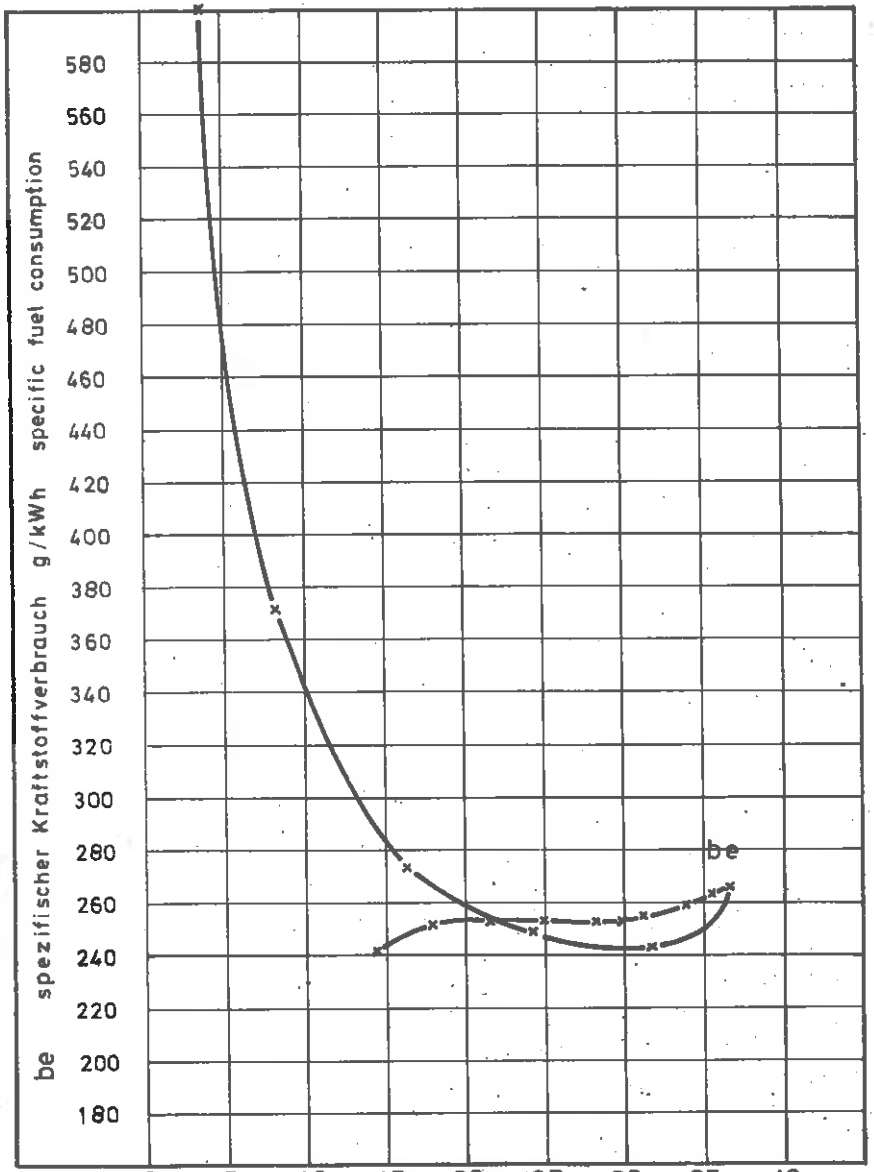
PRÜFUNGS-ABTEILUNG

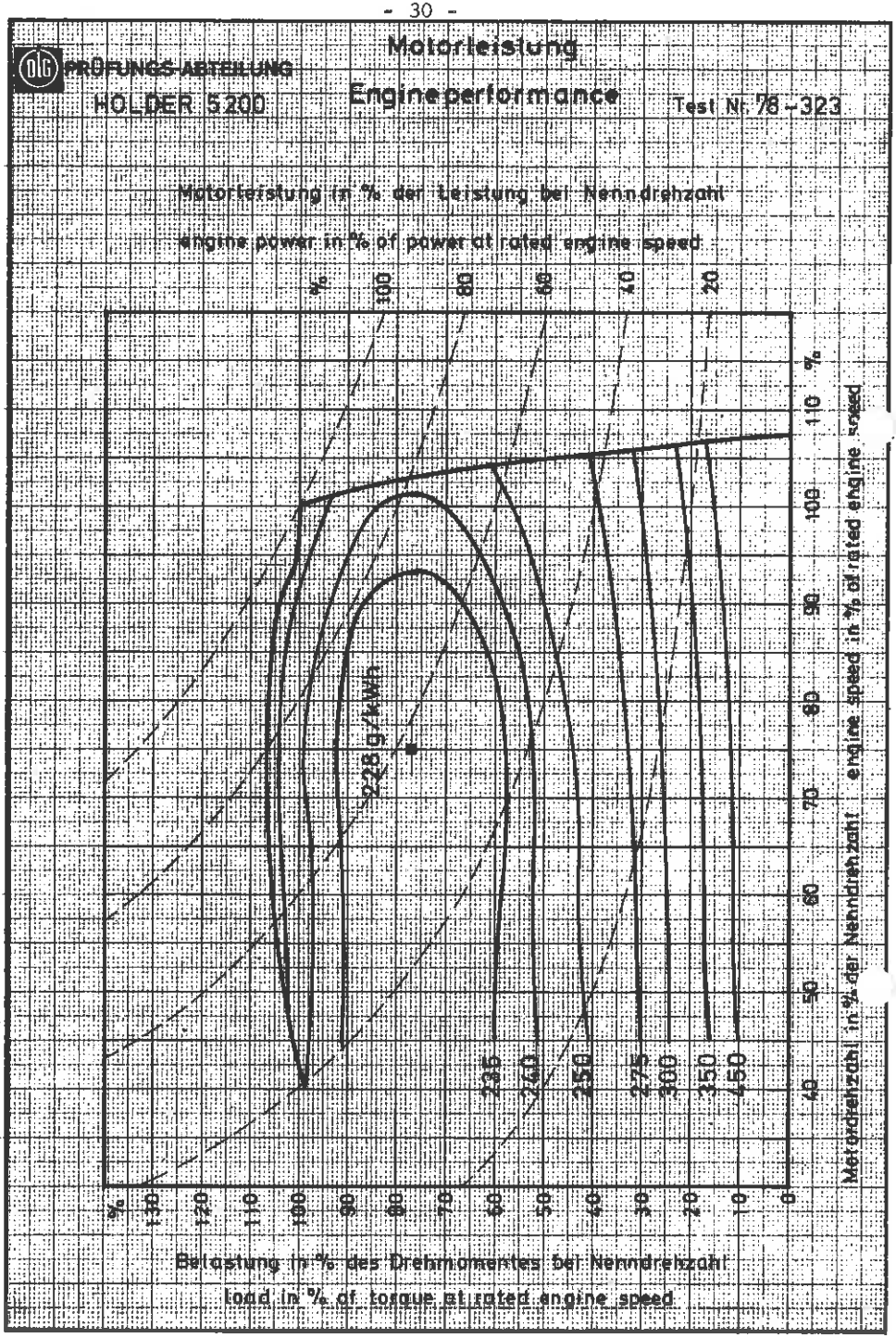
HOLDER 5200

Motorleistung

Engine performance

Test Nr. 78-323




PRÜFUNGS-ABTEILUNG
HOLDER 5200
Motorleistung
Engine performance
Test Nr. 78-323
Motorleistung in % der Leistung bei Nenndrehzahl
Engine power in % of power at rated engine speed
%
100
80
60
40
20
228 g/kWh
235
240
250
275
300
350
450
Motordrehzahl in % der Nenndrehzahl
engine speed in % of rated engine speed
110
100
90
80
70
60
50
40
30
20
10
0
Belastung in % des Drehmomentes bei Nenndrehzahl
load in % of torque at rated engine speed

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Fachbereich Landtechnik — Prüfungsabteilung —
Zimmerweg 16 (DLG-Haus)
D-6000 Frankfurt am Main 1