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

O.E.C.D. No. 710



Agricultural Tractor MB trac 1500

Manufacturer
Daimler Benz AG, Postfach 1220
D-7560 Gaggenau

Deutsche Landwirtschafts-Gesellschaft e. V.
Zimmerweg 16 · D-6000 Frankfurt a. M. 1
Telefon: (0611) 71 68-0 · 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: May till August 1980

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: 23rd February 1981 O.E.C.D. No. 710

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 = 750,1 mm Hg		

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Printed in the Federal Republic of Germany
April 1981; DLG-No. 157

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PRÜFUNGS-ABTEILUNG
MB-trac 1500

Test No. 79-293

Tractor manufacturer:	DAIMLER-BENZ-AG D-7560 Gaggenau
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Gaggenau and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 50 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	DAIMLER-BENZ AG
Model:	MB-trac 1500
Type:	Four wheel drive tractor, chassis construction, spring suspended front axle, rotatable driver's seat for driving in two directions
Serial No.:	443 162 00 011339

Engine

Make:	Own make
Model:	OM 352 A. LIII/3 model 353 976
Type:	Supercharged 4-stroke Diesel-engine with direct injection, watercooled
Serial No.:	353 976-10-570781
Cylinders:	6, vertical, in-line, bore 97 mm, stroke 128 mm; displacement 5675 cm^3; compression ratio 16
Valves:	Overhead valves
Fuel system:	BOSCH fuel-feed pump FP/KE 22AD 112/2 BOSCH in-line injection pump with timing device EP:3300; manufacturer's production setting 68 mm^3/stroke; at rated engine speed and full load; injection timing 19° before TDC + 8° range; BOSCH multihole injection nozzles; injection pressure 200 bar; BOSCH dual fuel filter with replaceable cartridges; capacity of fuel tank 170 l
Governor:	BOSCH centrifugal variable speed governor: RS 3300; governed range of engine speed 700 to 2730 rev/min rated engine speed 2500 rev/min

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Supercharger:	Exhaust driven supercharger; KÜHNLE, KOPP UND KAUSCH K27-352; máx. supercharge pressure appr. 580 mbar; (optional GARRET TO4 B81); without air intercooler
Air cleaner:	MANN (optional KNECHT); dry paper element filter with pre-cleaner; electrical service indicator;
Exhaust silencer:	ROTH KG multi-chamber expansion type muffler; 210 x 115 mm oval, 700 mm long; above engine cowling; mouth 2965 above ground
Lubrication system:	Forced feed from gear pump; strainer in sump; MANN (optional KNECHT) dual oil filter in full flow with replaceable cartridges and by-pass valve; oil capacity 13 l; oil and oilfilter changing interval 200 hours; recommended oil viscosities: from -20°C to 0°C SAE 10W from -10°C to 20°C SAE 20W/20 over 5°C SAE 30 recommended quality MIL-L-46 152; engine oil-coolant heat exchanger
Cooling system:	Pressurized water cooling, impeller assisted; dual-circuit-thermostat valve and overpressure relief valve set at 0,4 bar; fan with 6 blades, 515 mm dia; water capacity 21 l
Starting system:	Electrical; BOSCH screw-push starter motor JD 3KW; startpilot PRO-COMBUR VISO F 27
Electrical equipment:	12 V, negative earth; BOSCH three phase alternator K1-14V 35A; 1 lead acid battery 110 Ah at 20 hours rating

Transmission

Clutch:	LAMELLEN UND KUPPLUNGSBAU GMBH dry dual disc clutch DT 330/310G; tractor drive disc with 330 mm dia, hydraulically operated by pedal; p.t.o. drive disc with 310 mm dia, pneumatically operated by hand valve on the instrument panel
Gear box:	Own make synchromesh speed change gear with pneumatically operated planetary group for duplication, 2 x 4 = 8 speeds; 7th and 8th speed locked; optional additional planetary group gear for field and creep speeds available; on tractor tested fitted with field speeds only; synchronized reversing gear for all speeds; totally 12 forward and 12 reverse speeds fitted on tractor tested
Rear axle and final drives:	Own make rigidly fitted to tractor chassis; bevel gear drive driven by joint shaft; bevel gear type differential, lockable; planetary final drives in wheel hubs
Front axle and final drives:	Own make coil spring suspended with shock absorber and traverse stabilizer; driven by joint shaft in the thrust tube and double joints in the steering knuckles; pneumatically engageable and disengageable under load; bevel gear type differential, lockable; planetary final drives in wheel hubs
Both axles:	Driving axle ratio optionally available 27 : 7 or 25 : 8, tractor tested fitted with ratio 25 : 8; differential locks in front and rear axles pneumatically engageable in common under load, not selfdisengaging

Oil capacity:		
Speed change gear and field group	12 l	
differentials	2 l	each
final drives	1,5 l	each

Oil qualities:	Speed change gear and field group gear	transmission oil SAE 80 MIL-L-2105
	differentials and final drives	transmission oil SAE 90 MIL-L-2105 B
Oil changing interval:	400 operating hours	

Power take-off

Main p.t.o.: Independent p.t.o. at rear of tractor, driven by the second disc of the dual clutch;
670 mm above ground, 20 mm to the right side of median plane of tractor;
470 mm behind rear axle center;
p.t.o. shaft interchangeable:

35 mm dia, 6 splines DIN 9611/ISO 500, type 1

35 mm dia, 21 splines DIN 9611/ISO 500, type 2

45 mm dia, 20 splines DIN 9611/ISO 500, type 3

45 mm dia, 6 splines

2 speeds 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 2203 rev/min of engine

1000 rev/min p.t.o.
1079 rev/min at rated engine speed;
standard p.t.o. speed 1000 rev/min at 2318 rev/min of engine

direction of rotation clockwise, viewed from rear of tractor

Secondary p.t.o.: 213 mm to the left side of tractor's median plane, appr. 990 mm above ground, distance from front wheel center 1100 mm;
drive, profile, speeds and direction of rotation like main p.t.o.

Main p.t.o. and secondary p.t.o. can be driven separately or together

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Total ratios and speeds (tyres 18,4-34)

Group	Gear	Total ratio engine : driving wheels 1)	Total ratio engine : driving wheels 2)	Nominal travelling speed at rated engine speed km/h *) 1)	Nominal travelling speed at rated engine speed km/h *) 2)
Forward speeds					
Field group (A)	1	367,70	453,84	1,97	1,60
	2	264,77	326,80	2,74	2,20
	3	194,00	239,45	3,74	3,03
	4	142,36	175,72	5,10	4,13
	5	101,55	125,35	7,15	5,79
	6	73,13	90,26	9,92	8,04
Road group (S)	1	115,36	142,38	6,29	5,10
	2	83,06	102,52	8,74	7,08
	3	60,86	75,12	11,92	9,66
	4	44,66	55,13	16,25	13,16
	5	31,86	39,32	22,78	18,45
	6	22,94	28,32	31,63	25,63
Reverse speeds					
Field group (A)	1	356,17	439,61	2,04	1,65
	2	256,47	316,55	2,83	2,29
	3	187,92	231,95	3,86	3,13
	4	137,90	170,21	5,26	4,26
	5	98,37	121,42	7,38	5,98
	6	70,83	87,43	10,25	8,30
Road group (S)	1	111,74	137,92	6,49	5,26
	2	80,46	99,31	9,02	7,31
	3	58,96	72,77	12,31	9,97
	4	43,26	53,40	16,77	13,59
	5	30,86	38,09	23,52	19,05
	6	22,22	27,43	32,66	26,46

*) Calculated with INDEX RADIUS 770 mm

1) Tractor tested with driving axle ratio 25 : 8

2) Optionally driving axle ratio 27 : 7 available

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Power lift

Hydraulic system:	BOSCH-DAIMLER-BENZ hydraulic power lift, desintegrated construction; open center system; ECKERLE internal gear type pump IPSF-3-13644 V-belt driven by engine displacement 13 cm³/rev or 45 l/min at rated engine speed; 2 single acting rams, 100 mm dia, 200 mm stroke; BOSCH control valve for raising, lowering, floating position, draft control, position control and mixing control; max. pressure 200 + 10 bar; lowering throttle; 2 double acting BOSCH-auxiliary control valves with 4 oil tappings each at front and at rear of tractor and one separate pressureless return line at rear; optional up to 3 BOSCH auxiliary control valves with 6 oil tappings and one separate pressureless return line each at front and rear of tractor available; MANN hydraulic oil filter; hydraulic tank capacity 42 l, 27 l can be taken out recommended oil: engine oil SAE 10W, MIL-L-46152; oil and filter changing period 800 operat. hours; optional available: BOSCH-DAIMLER-BENZ power lift, double acting; BOSCH control valve for raising, lowering and floating with automatical release of lever; ECKERLE internal gear-type-pump IPSF-3-16664, displacement 16 cm³/rev or 55 l/min at rated engine speed; hydraulic lock by shutoff valve with adjustable throttle effect; hydropneumatic accumulator as shockabsorber, 125 bar pressure; mechanical acting load transfer system SERVOTRAC

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Implement linkage at rear:	Three point linkage DIN 9674/ISO 730/I, cat.3, with quick couplers; lift rods adjustable from 665 mm to 1140 mm, lifting range above ground with short lift rods from 425 mm to 1140 mm long lift rods from 145 mm to 935 mm, hydraulic lock for transport by lowering throttle
Implement linkage at front:	Optional, fitted only for power lift measurement; clevis as per DIN 9674/ISO 730/I, cat. 2; 2 double acting rams supplied by auxiliary circuit, acting directly on laterally stabilized lower links, lifting range above ground from 387 mm to 1092 mm, measured at tractor without load; hydraulic lock for transport by shutoff valve
Holed drawbar:	Short bar, fitted on clevis of rear lower links; length between ball joints 965 mm; thickness 30 mm, width 120 mm; centre hole and 5 holes on either side, 80 mm distance each, diameter 33 mm; height above ground from 160 mm to 1155 mm, measured on surface of drawbar, depending on length of lift rods; adjustable by power lift; distance of centre hole at horizontal lower links: from rear axle centre 1127 mm from p.t.o. shaft end 660 mm

Pull attachment

Swinging drawbar:	Optional, as specified by manufacturer: height above ground 400 resp. 500 mm, changed by inverting drawbar; pin hole dia 33 mm; distance from centre of pin hole: to rear axle centre 917 mm to p.t.o. shaft end 450 mm, swinging range to either side 240 mm; pivot position 240 mm in front of rear axle centre; swinging drawbar can be interchanged with rigid hitch hook
Trailer hitch:	ROCKINGER model 279 D, automatic; optional model 277 C, not automatic;

height above ground adjustable from 850 mm to 1020 mm in 3 steps of appr. 55 mm each;
hitch hole diameter 33 mm;
distance of hitch hole from:
rear axle centre 612 mm
p.t.o. shaft end 145 mm;
permissible vertical load 1500 kg

Towing hitch: At front of tractor;
height above ground appr. 800 mm at tractor with no load

Steering

ZAHNRADFABRIK FRIEDRICHSHAFEN AG
hydrostatic steering SERVOSTAT 8453
ZF vane type high pressure pump,
controlled oil flow 19 l/min (+30%) at engine speeds of more than 1000 rev/min,
V-belt driven by engine;
2 double acting rams, bore 58 mm,
stroke 250 mm; mounted at differential housing and acting on steering levers;
own oil-circuit with filter and reservoir,
capacity 3 l;
recommended oil SAE 10 MIL-L-46 152;
oil and filter change interval 2600 operat.hours

Brakes

Compressed air equipment: Air compressor, own make;
directly driven by engine;
2 air-brake reservoirs on the right hand side of chassis, capacity 40 l total;
working pressure 8,1 bar

Parking brake: Spring-type brake actuator,
pneumatically actuated by hand valve,
locked by pressure release and acting on the brake shoes of the service brakes at rear axle

Service brake: Power-brake system;
combined pneumatic-hydraulic braking device transmission
(optional dual-circuit-braking system);
brake drums with 410 mm dia fitted to all wheels, pedal operated

Steering brake: None

Trailer brake:	WABCO/BOSCH combined single-dual line type; pneumatically controlled

Wheels

Steering wheels:	In front
Driving wheels:	In front and in the rear, front wheel drive disengageable (see page 6); 4 pneumatics 18,4 R 34 10 ply; radial typ carcass; maximum permissible load per tyre 2990 kg at 1,8 bar inflation pressure and 30 km/h; track width 1870 mm; (optionally offset lug type rims available for all wheel equipment excluding wheel size 18,4-34, track widths 1800, 1870, 2004 mm); rims W16L x 34
Wheel base:	2650 mm

Cab	Own make OECD-tested safety cab, approval-no. CSD 0277/1 all-steel construction of molded elements, welded and bolted together; antivibration mounted by 4 silent blocks on chassis; doors on the right and left hand side with crank operated windows; all windows of single pane safety glass; (optional windscreen of compound glass; front and rear window tiltable); mounting steps: 3 on either side with tyres 18,4 R 34, otherwise 2 steps on either side; roof: foam rubber with fabric coating 30 mm; doors: nappa coated fibre board; floor: rubber mat 5 mm; (optionally additional available: front and rear wall covered with plastic coated foam 15 mm, floor rubber mat with foam 12 mm, and roof hatch with plastic coated foam); engine coolant heat exchanger combined with ventilation system incorporated in the roof, suction inlet on right hand side of the roof; air outlet jets incorporated in front and at rear of roof panel; electrical wipers for windscreen (optional for rear window)

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Driver's seat

GRAMMER DS 85 H/3A
(on tractor tested, no more available)

ISRINGHAUSEN 5000/385
upholstered seat with back rest and arm rests, adjustable spring and shock absorber;
parallelogram suspension;
height of cab platform above ground appr. 1450 mm;
height of non ballasted seat above platform from 470 mm to 530 mm adjustable in 2 steps;
inclination of back rest variable by 15°;
longitudinal adjustment 160 mm;
(optional: rotatable driver's seat and instrument panel;
range: 15° to the right, 30° to the left and 180° for reverse driving operation)

Passenger's seat

Left from driver's seat;
upholstered with back rest, folding seat;
not suspended, not adjustable

Central implement mounting area

Behind cab,
between rear mudguards

Number of grease points 22

Weights

		Without driver	With driver
Without ballast:	front	3370 kg	3420 kg
	rear	2800 kg	2865 kg
	total	6170 kg	6285 kg
Front ballast:	frame	60 kg	
	1 weight	500 kg	
	1 weight	1000 kg	
Rear ballast:	frame	135 kg	
	2 weights 1000 kg	each 2000 kg	
With ballast:	front	5930 kg	5980 kg
	rear	3935 kg	4000 kg
	total	9865 kg	9980 kg

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Dimensions

Total length:	5040 mm	without ballast
	5795 mm	with ballast
Total width:	2470 mm	with and without ballast
Total height:	3000 mm	up to cab roof
	2965 mm	up to exhaust mouth
Ground clearance:	600 mm	below front shield

Track setting during tests	front axle	1870 mm
	rear axle	1870 mm

Lighting equipment: Electrical, 12 V
in accordance with German legislation

	Dimensions mm	Height of centre above ground mm	Distance from outside edge of tractor to centre mm
Head lamps	140 x 125	1087	710
Additional head lamps	140 x 125	2862	665
Side lamps	30 x 58	1864	105
Rear lamps	82 x 50	1516	322
Reflectors 1st pair	75 dia	1295	152
2nd pair	75 dia	752	792

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Permissible total weights and axle loads

for all available wheel equipment at maximum speed 30 km/h

Tyres	Permissible total weights kg	Permissible axle load front kg	rear kg
18,4-30 8 ply	9660	4830	4830
18,4-30 10 ply	10000	5630	5630
18,4-30 12 ply	10000	6020	6360
12,4-38 12 ply	8760	4380	4380
18,4-34 10 ply	10000	5980	5980

FUELS AND LUBRICANTS USED IN TESTS

Fuel:	ARAL-Diesel-fuel DIN 51 601 specific gravity at 15°C during all measurements 0,834 kg/l		
Engine oil:	FUCHS TITAN	SAE 30	MIL-L-46 152
Transmission:	ESSO transmission oils		
	Speed change gear and group gear	SAE 80	MIL-L-2105
	Differentials and final drives	SAE 90	MIL-L-2105B
Hydraulic:	TEXACO URSA OIL ED	SAE 10W	MIL-L-46 152
Steering:	TEXACO URSA OIL ED	SAE 10W	MIL-L-46 152

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COMPULSORY TESTS

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

Date of tests: 21th May 1980
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						
103.3	2500	1079	30.43	25.38	246	3.39
At standard p.t.o. speed						
100.4	2318	1000	28.89	24.10	240	3.48
At the speed recommended for drawbar work						
103.3	2500	1079	30.43	25.38	246	3.39
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						
89.1	2536	1094	26.98	22.50	253	3.30
(ii) unloaded						
-	2705	1167	8.06	6.72	-	-
(iii) 50% of the load defined in (i)						
45.6	2595	1119	16.69	13.92	306	2.73
(iv) maximum power						
103.3	2500	1079	30.43	25.38	246	3.39
(v) 25% of the load defined in (i)						
23.2	2645	1141	12.26	10.23	440	1.89
(vi) 75% of the load defined in (i)						
67.8	2574	1110	22.04	18.38	271	3.08

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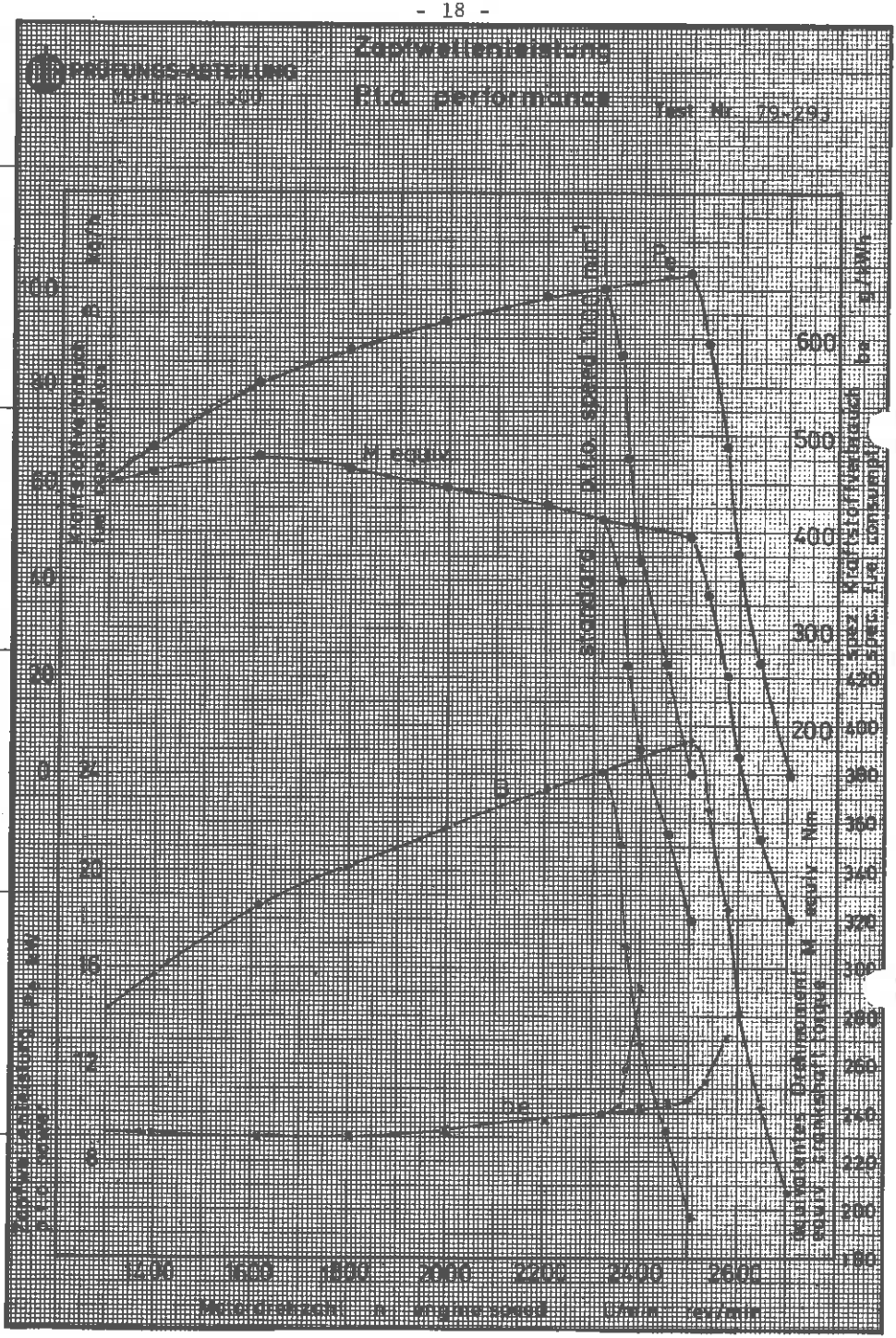
Test No. 79-293

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						
86.6	2354	1015	25.26	21.07	243	3.43
(ii) unloaded						
-	2503	1080	6.83	5.69	-	-
(iii) 50% of the load defined in (i)						
44.1	2395	1033	15.39	12.83	291	2.86
(iv) maximum power						
100.4	2318	1000	28.89	24.10	240	3.48
(v) 25% of the load defined in (i)						
22.6	2452	1057	11.08	9.24	410	2.04
(vi) 75% of the load defined in (i)						
65.4	2368	1021	20.21	16.85	258	3.23

Standard specific fuel consumption (g/kWh): 253/306/243/291

No load maximum engine speed: 2705 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 394 Nm
Maximum equivalent crankshaft torque: 478 Nm at 1612 rev/min of the engine

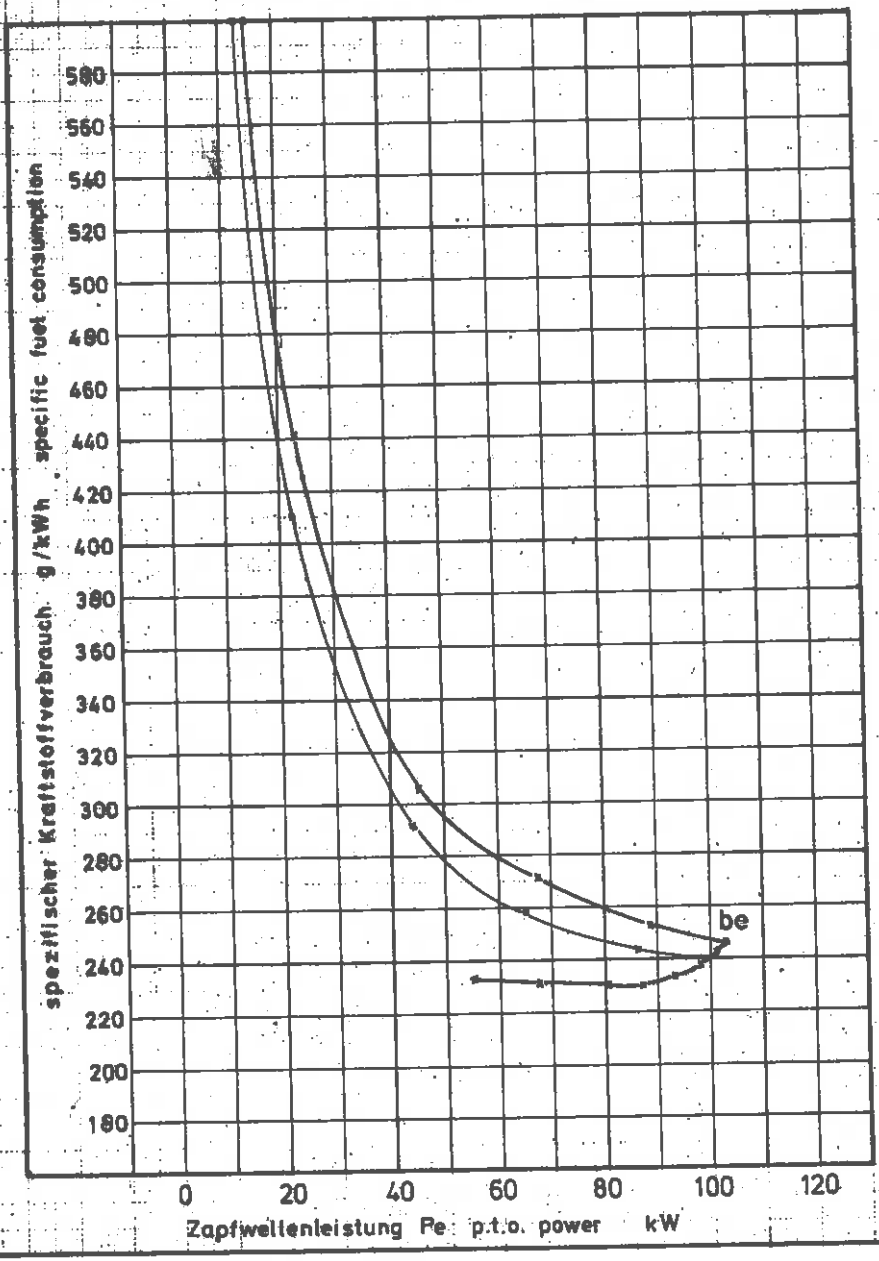
Mean atmospheric conditions:	temperature	22 °C
	pressure	991 mbar
	relative humidity	75 %
Maximum temperatures:	coolant	87 °C
	engine oil	105 °C
	fuel	25 °C
	engine air intake	27 °C


Zapfwellenleistung
PTO performance
Fabr. Nr. 79-293
PRÜFUNGS-ABTEILUNG
Motorleistung
Motor power
Drehzahl der Zapfwelle
PTO speed
Kraftstoffverbrauch
Fuel consumption
M equiv.
Motordrehzahl
Engine speed
U/min
rev/min

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Zapfwellenleistung
P.t.o. performance

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(2) DRAWBAR PERFORMANCE

Date of test: 26th June till 3rd July 1980
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 570 mm					
1.A	1,74	45,7	9460	2586	15,1
2.A	2,39	63,2	9522	2559	15,1
3.A	3,26	82,5	9114	2499	13,1
4.A	4,76	86,2	6518	2500	6,8
1.S	5,98	89,7	5397	2503	5,2
5.A	6,86	89,8	4714	2501	4,1
2.S	8,45	90,6	3860	2500	3,3
6.A	9,63	88,8	3321	2498	2,8
3.S	11,65	88,0	2719	2501	2,2
(ii) FIVE-HOUR TEST at 75% of pull at maximum power in 1st S gear					
1.S	6,21	69,8	4048	2555	3,6
(iii) FIVE HOUR-TEST at pull corresponding to 15% wheel slip in test (i)					
2.A	2,08	55,0	9522	2550	-
(iv) MAXIMUM POWER without ballast height of drawbar above ground 580 mm					
3.A	3,28	59,8	6564	2557	14,9
4.A	4,37	79,3	6536	2508	15,0
1.S	5,72	86,7	5456	2498	9,3
5.A	6,63	87,9	4772	2498	7,5
2.S	8,24	89,3	3903	2497	5,6
6.A	9,49	89,9	3409	2503	4,8
3.S	11,52	88,4	2762	2503	3,7

Total oil consumption during ten hours duration of tests (ii) and (iii) 65 g/h

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Tyres size front: 18,4 R 34 10 ply
rear: 18,4 R 34 10 ply

Tread bar height at the beginning of drawbar tests
front 97%, rear 96% of the value when new

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 front 1,8 bar, rear 1,1 bar							
2,34	355	18	83	90	17	93	986
2,59	320	19	83	89	24	77	993
2,71	305	19	83	90	19	78	987
2,83	293	18	83	91	17	91	986
2,93	283	19	84	94	18	66	993
2,94	283	18	84	94	18	86	986
2,95	281	20	84	94	20	79	986
2,90	287	17	83	92	17	90	998
2,87	290	19	83	92	19	87	999
2,80	296	22	86	99	22	71	994
-	-	22	86	100	24	64	1000
tyre inflation pressure 1,1 bar at front and at rear							
2,43	342	20	83	88	17	84	993
2,60	319	20	83	89	17	84	993
2,81	295	20	83	92	17	87	993
2,85	291	20	85	94	17	85	993
2,92	284	20	85	92	18	79	993
2,92	284	20	83	93	19	81	993
2,90	286	22	83	94	19	78	993

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

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 18,4 R 34 10 ply
rear: 18,4 R 34 10 ply

Track of wheels front: 1,87 m
rear: 1,87 m

Front wheel drive disengaged

	With brakes left-hand m	With brakes right-hand m	Without brakes left-hand m	Without brakes right-hand m
Radius of turning space	-	-	7,14	7,10
Radius of turning circle	-	-	6,85	6,81

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	1107 mm
Distance forward from rear axle centre	1442 mm
Distance from tractor's median plane to the right	6 mm

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(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 27th and 30th June 1980
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 9980 kg

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s^2	4,9	6,2
Stopping distance	m	8,0	6,6
Force on pedal	daN	28	25
Force on pedal to achieve a deceleration of 2,5 m/s^2	daN	13	12

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	106	106
Stopping distance	cold/hot	%	100	106
Force on pedal	cold/hot	%	104	100

B) PARKING BRAKE on 16%-slope
Spring-type brake actuator controlled by hand valve; tractor does not roll in both directions

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 26th June 1980
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Results of test

Gear: 6th S
Travelling speed before acceleration: 24,6 km/h
Sound level: 86,0 dB(A)

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(7) NOISE AT THE DRIVER'S EAR LEVEL

Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2607

equipped with DAIMLER-BENZ safety cab, see page 12

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)
a) Basic noise reduction equipment Date of test 20th August 1980				
1.A	6285	1,97	1,58	81,0
2.A	6285	2,74	2,22	82,0
3.A	6303	3,74	3,21	83,0
4.A	6323	5,10	4,13	84,0
1.S	5220	6,29	5,75	83,5
5.A *)	4602	7,15	6,68	84,5
2.S	3509	8,74	8,37	84,0
6.A	3224	9,92	9,53	85,0
3.S	2794	11,92	11,42	84,0
4.S	1970	16,25	15,78	83,5
6.S	light load	31,63	32,73	81,5
b) Additional noise reduction equipment at front wall, rear wall and floor Date of test 25th June 1980				
1.A	6331	1,97	1,77	80,5
2.A	6429	2,74	2,39	82,0
3.A	6389	3,74	3,31	82,0
4.A	6396	5,10	4,34	81,0
1.S	5233	6,29	5,69	81,0
5.A *)	4673	7,15	6,61	81,5
2.S	3848	8,74	8,23	82,5
6.A	3223	9,92	9,56	83,5
3.S	2755	11,92	11,49	81,5
4.S	1961	16,25	15,79	81,5
6.S	light load	31,63	32,73	80,5

*) The 5th A gear corresponds to the travelling speed nearest to 7,5 km/h

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(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

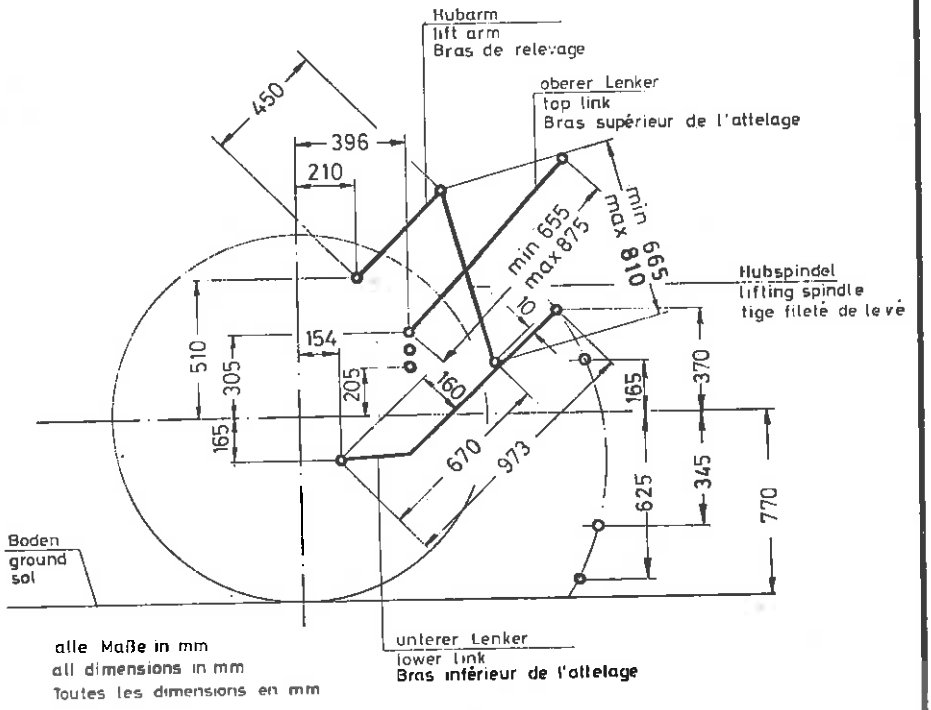
Date of tests: 17th July 1980

HYDRAULIC PUMP

(1)	Opening pressure of relief valve in remote circuit acc. to manufacturer	200 bar
	Sustained pressure by open relief valve	204 bar
(2)	Pump delivery rate at minimum pressure and rated engine speed	45,5 l/min
(3)	Pump delivery rate at max. hydraulic power	39,0 l/min
	corresponding delivery pressure	175 bar
	power	11,4 kW

POWER LIFT

Dimensions of linkage geometry category 3



alle Maße in mm
all dimensions in mm
Toutes les dimensions en mm

LIFTING FORCES at hitch points

(no measurements carried out at the test frame, because category 3 fitted)

Lifting heights relative to horizontal lower links

mm	-460	-400	-300	-200	-180	-100	0	+100	+200	+300	+330	+400	+500	+535
maximum mechanical advantage, lift rods 665 mm long														
daN					7010	6910	6770	6660	6520	6390		6220	6055	5950
minimum mechanical advantage, lift rods 810 mm long														
daN	6470	6400	6300	6200		6120	6060	6030	5920	5730	5680			

Max. force exerted throughout the whole range 5950 daN

Front of tractor does not lift

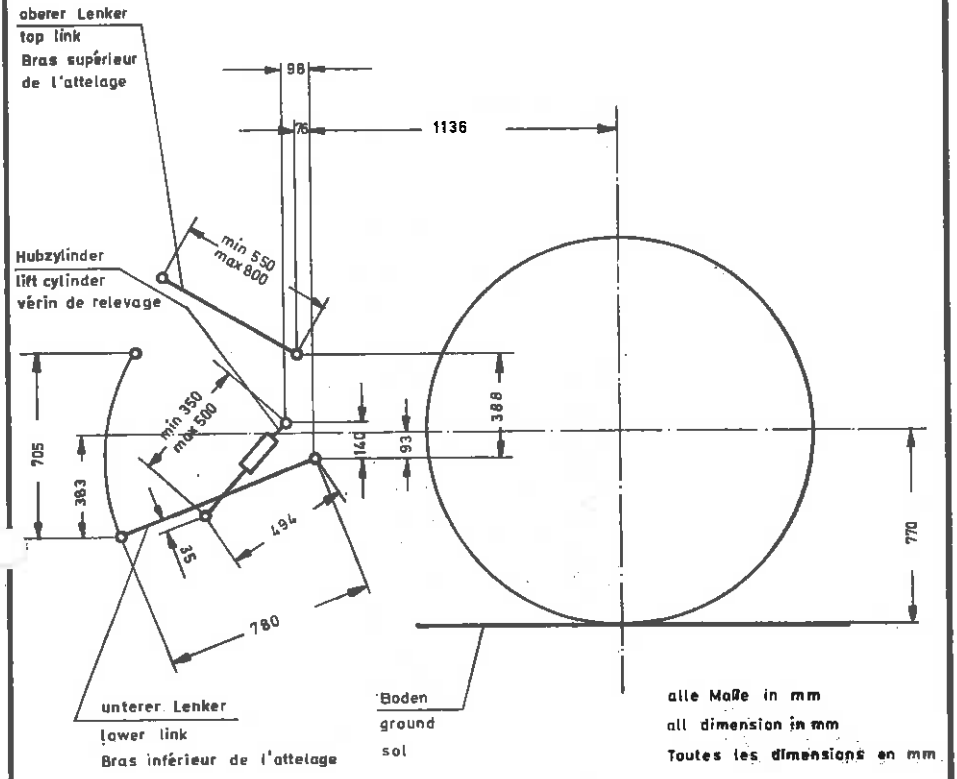
All values of forces for pressure 175 bar at max. hydraulic power, see page 25, calculated from measurements at max. oil pressure 204 bar

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POWER LIFT (at front)

Dimensions of linkage geometry for the table on page 28



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LINKAGE GEOMETRY

when connected to the standard frame (in front)

Projected length in side view:	
Lower links	780 mm
Lift ram	350 to 500 mm
Top link	708 mm
Distance of lift ram connection point from pivot point of lower link	494 mm

The following dimensions are given relative to front axle centre line 770 mm above ground

Lower link pivot point	1136 mm forward,	93 mm below
Top link pivot point	1212 mm forward,	295 mm above
Lift ram pivot point	1234 mm forward,	47 mm above
Maximum and minimum heights of lower link hitch points	322 mm above,	383 mm below
Height of lower link hitch points above ground when locked in highest transport position	1092 mm	

LIFTING FORCES (in the front)

Lifting heights relative to horizontal lower links

mm	-329	-300	-290	-200	-100	0	+100	+200	+300	+400	+415	+440
daN			3210	3100	3040	2970	2890	2780	2600	2420	2350	

at hitch points

Maximum force exerted throughout the whole range 2350 daN

The rear of tractor does not lift

at test frame

daN	3020	2990		2870	2800	2720	2600	2450	2270	2010		1880

Maximum force exerted throughout the whole range 1880 daN

Rear axle does not lift with all allowable ballast

All values of forces for pressure 175 bar at max. hydraulic power, see page 25, calculated from measurements at max. oil pressure 204 bar

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OPTIONAL TESTS

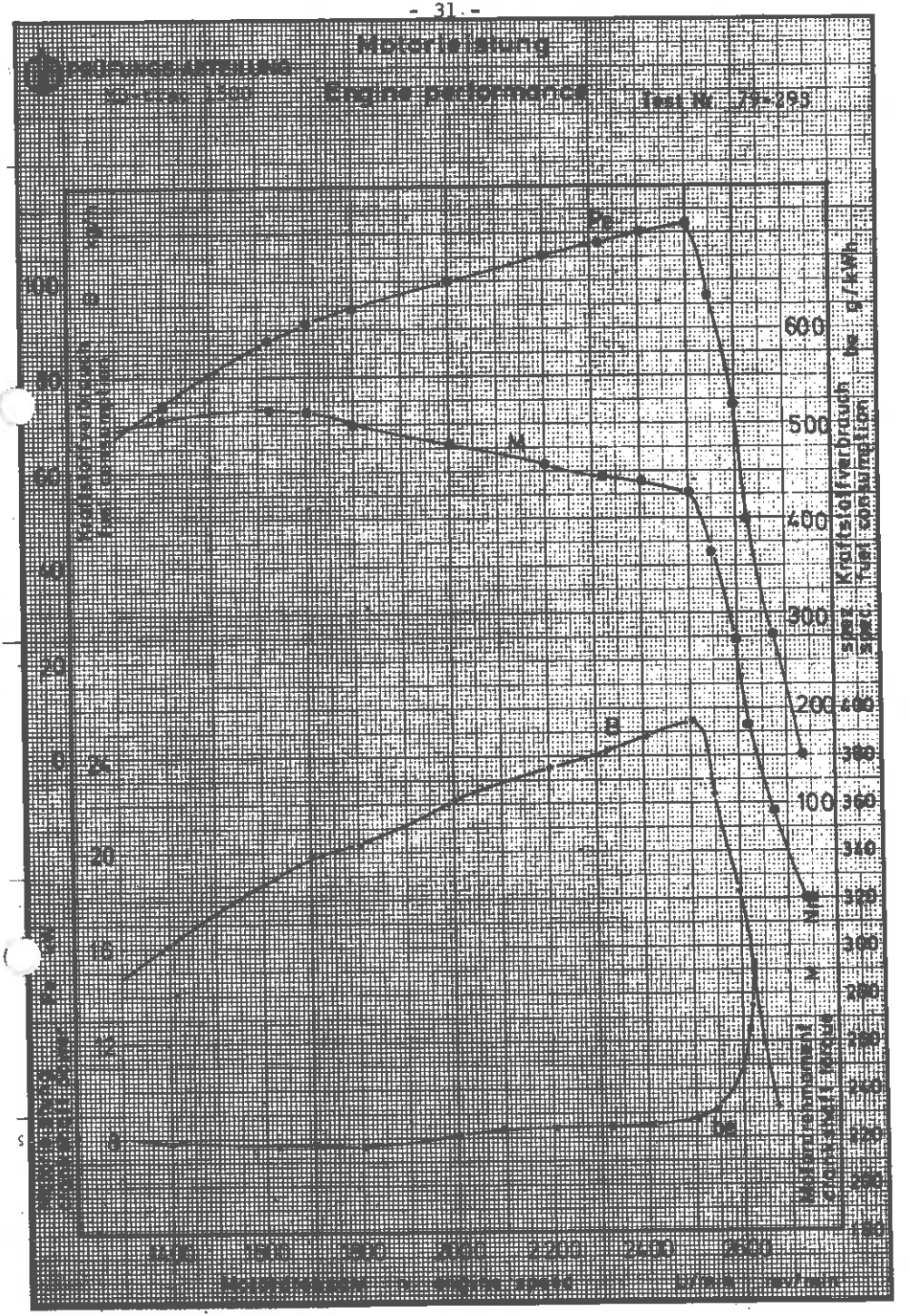
(9) ENGINE PERFORMANCE

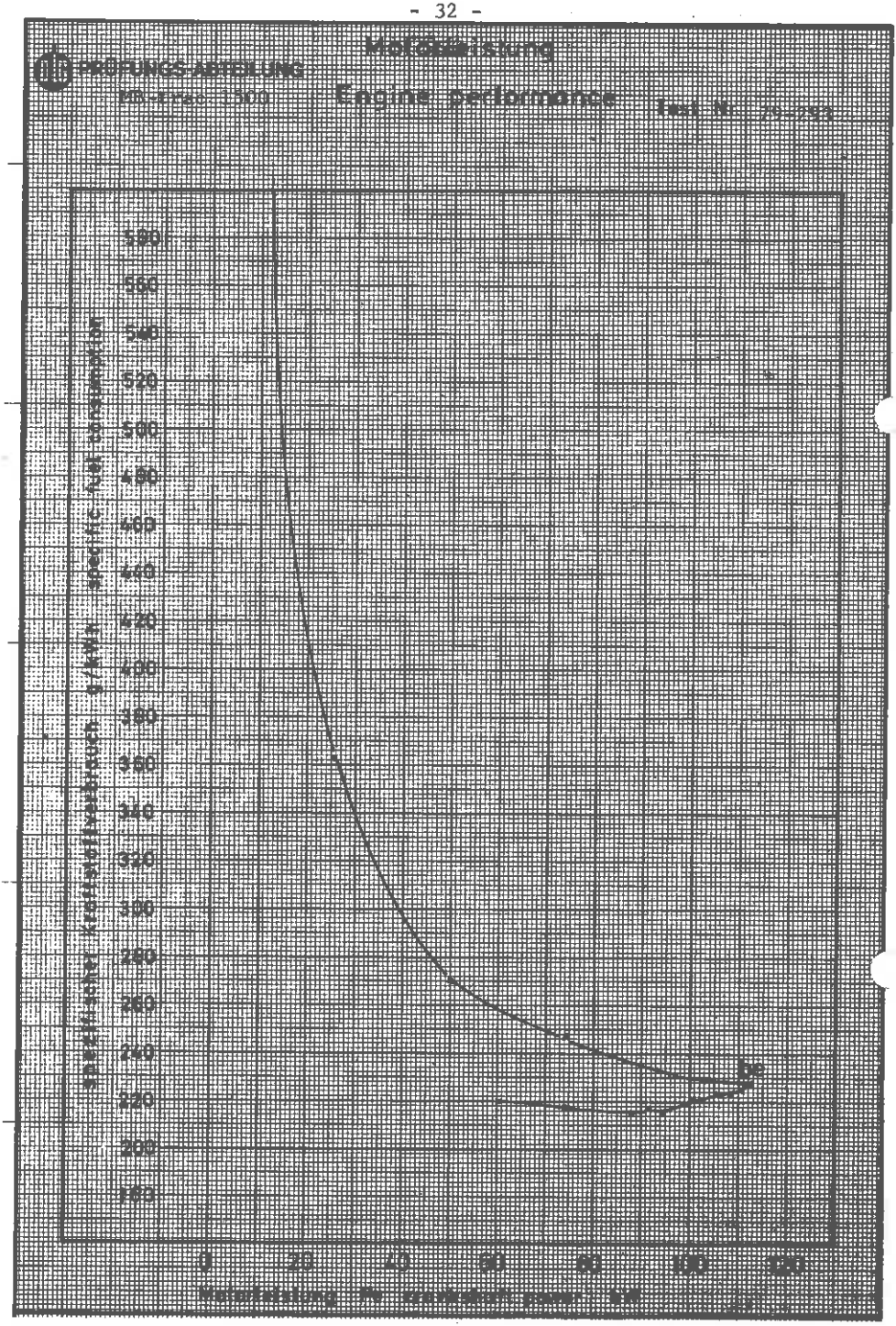
Date of tests: 16th and 19th May 1980
Type of dynamometer: SCHENCK eddy-current dynamometer W 400

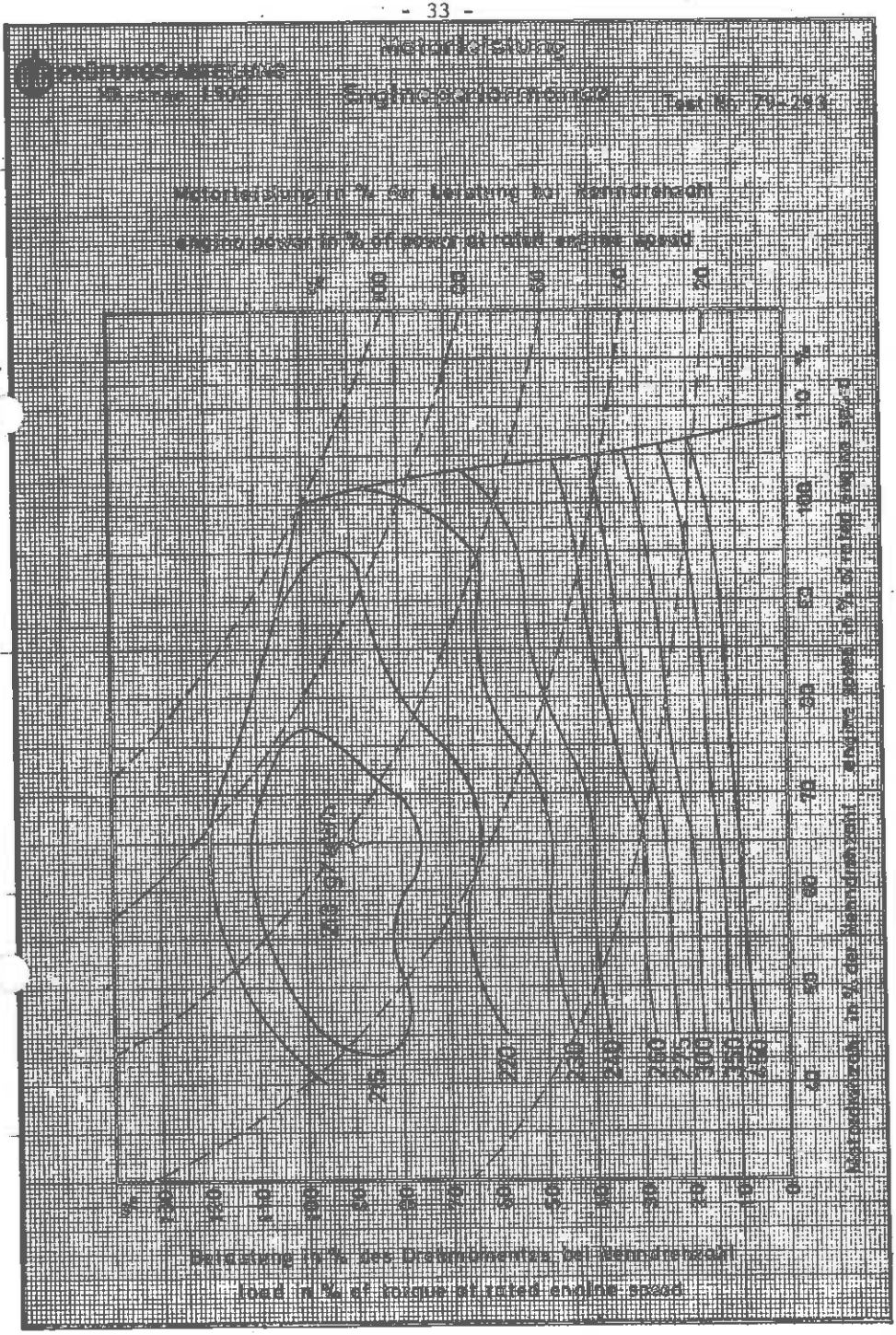
Power kW	Engine speed rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
111.8	2500	30.46	25.41	227	3.67
At standard p.t.o. speed (1000 rev/min)					
108.0	2318	28.93	24.13	223	3.73
At the speed recommended for drawbar work					
111.8	2500	30.46	25.41	227	3.67
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
96.7	2543	26.78	22.33	231	3.61
(ii) unloaded					
-	2731	6.17	5.15	-	-
(iii) 50% of the load defined in (i)					
49.7	2617	16.13	13.45	271	3.08
(iv) maximum power					
111.8	2500	30.46	25.41	227	3.67
(v) 25% of the load defined in (i)					
25.4	2670	11.03	9.20	363	2.30
(vi) 75% of the load defined in (i)					
73.9	2594	21.90	18.26	247	3.38

Optimum fuel consumption: 213 g/kWh at 65.5 kW and 1625 rev/min
No load maximum engine speed: 2731 rev/min
Torque at maximum power (2 hours): 427 Nm
Maximum torque: 516 Nm at 1624 rev/min of the engine

Mean atmospheric conditions:	temperature	21 °C
	pressure	1004 mbar
	relative humidity	34 %
Maximum temperatures:	coolant	86 °C
	engine oil	100 °C
	fuel	32 °C
	engine air intake	27 °C


Motorleistung
Engine performance
Test Nr. 79-293
Nennleistung
Nominal power
Kraftstoffverbrauch
Fuel consumption
g/kWh
Drehmoment
Torque
Nm
Motordrehzahl
Engine speed
U/min
rpm
Pe
Me
be


Motorleistung
PRÜFUNGS-ABTEILUNG
MB-trac 1500
Engine performance
Test Nr. 29-293
spezifischer Kraftstoffverbrauch g/kWh
specific fuel consumption
580
560
540
520
500
480
460
440
420
400
380
360
340
320
300
280
260
240
220
200
180
0
20
40
60
80
100
120
Motorleistung
engine power
kW


motortestanlage
engine test stand
Test Nr. 79-294
Motorleistung in % der Leistung bei Nenndrehzahl
engine power in % of power at rated engine speed
Belastung in % des Drehmoments bei Nennleistung
load in % of torque at rated engine speed

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ADDITIONAL TEST

out of the OECD CODE under the responsibility of the DLG-Testing-Station

(10) NOISE AT THE DRIVER'S EAR LEVEL

Test track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2607
Octave filter: BRÜEL AND KJAER model 1614

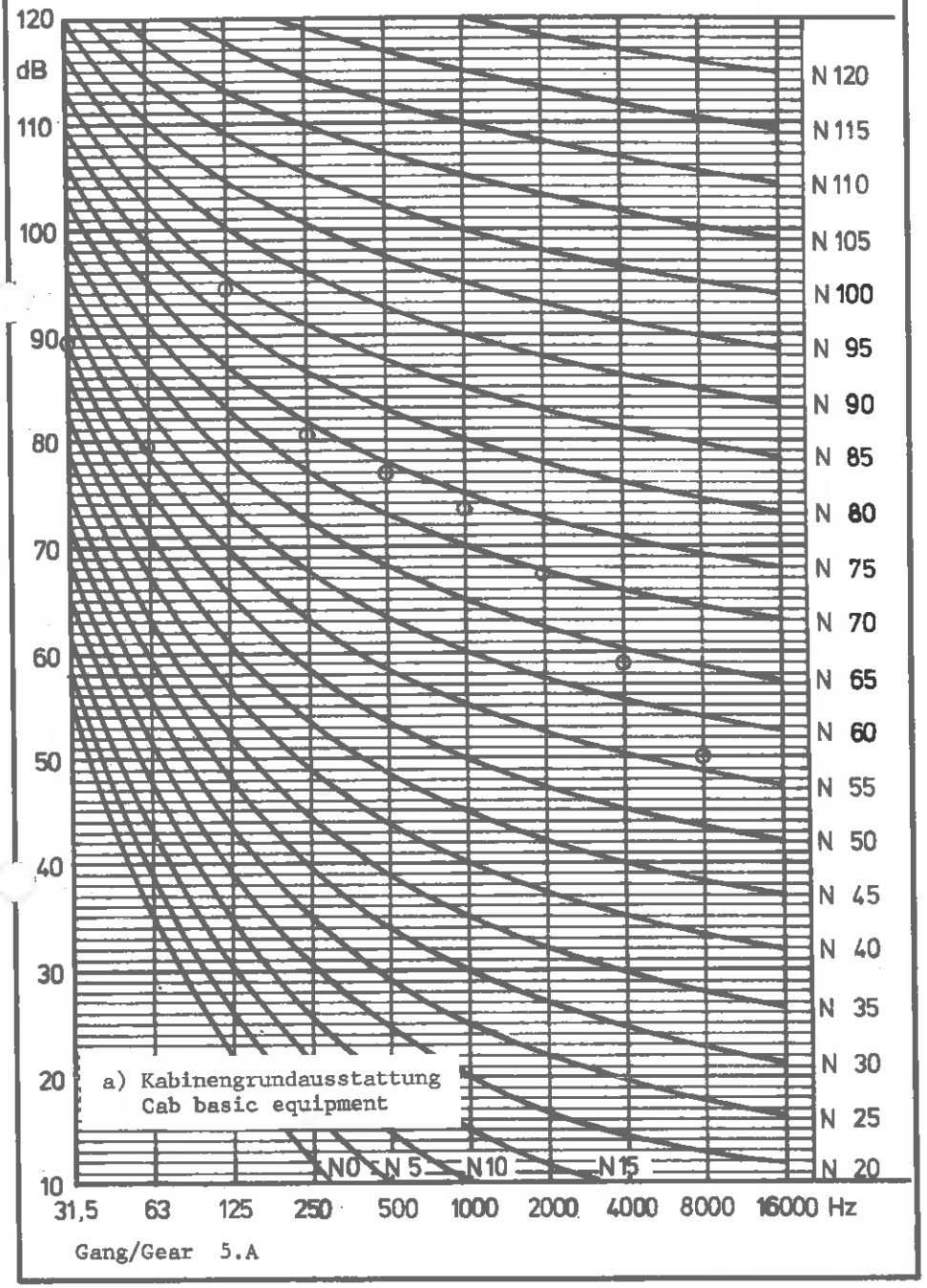
The tractor was fitted with a safety cab (see page 12)
OECD tested, Approval No. CSD 0277/1

Results of test

Gear	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed effective km/h	Sound level dB(A)	Sound level Noise Rating
a) With basic noise reduction equipment Date of test: 20th August 1980				
5.A	4602	6,68	84,5	84
There is no gear combination with a NOISE RATING NUMBER higher than 84				
b) With additional noise reduction equipment Date of test: 25th June 1980				
5.A	4632	6,61	81,5	82
2.S	3848	8,23	82,5	80
6.A	3223	9,56	83,5	80
There is no gear combination with a NOISE RATING NUMBER higher than 82				

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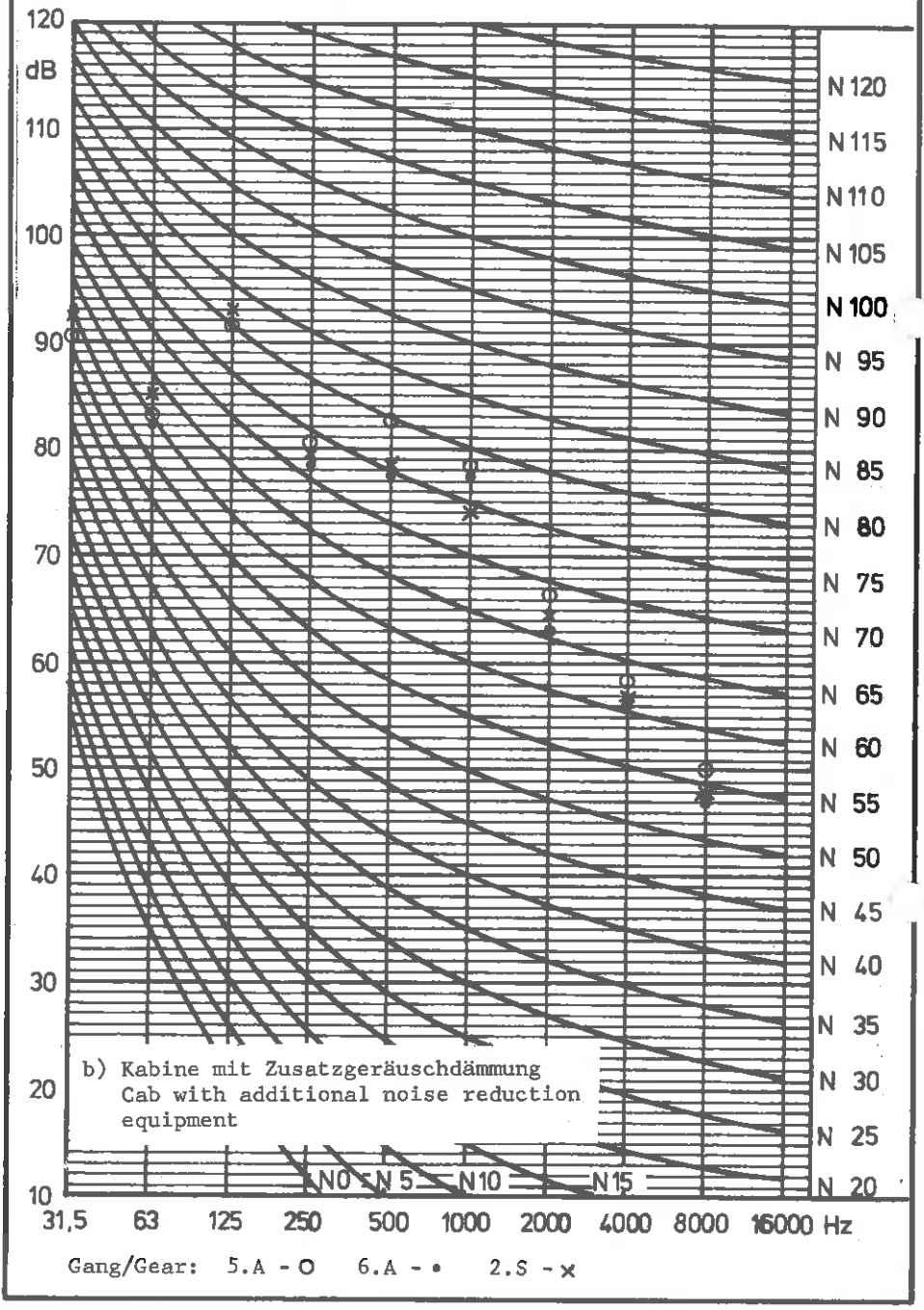


Gang/Gear 5.A

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Published
with the support of the Federal Minister for Food, Agriculture and Forestry

Deutsche Landwirtschafts-Gesellschaft e.V. (DLG)
Fachbereich Landtechnik —Prüfungsabteilung—
Zimmerweg 16 (DLG-Haus)
D-6000 Frankfurt am Main 1