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

O.E.C.D. No. **893**

Agricultural Tractor MB trac 1000 (4WD)

Type denomination D 441161 S

Manufacturer
Daimler-Benz AG
D-7560 Gaggenau

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: July till October 1983
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: 12th March 1984 O.E.C.D. No. 893

The tractor is offered in 4 variants

1 - max. 40 km/h
2 - max. 25 km/h: 4th speed locked in range II
3 - max. 32 km/h: Rotational-speed limiter when using 4th II-H gear
4 - max. 30 km/h: 4th speed locked in range II

axle drive ratio: variants 1, 2 and 3 29:7
variant 4 24:7

Variants 1 and 2 have been tested

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		

Printed in the Federal Republic of Germany
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PRÜFUNGS-ABTEILUNG
MB-trac 1000

Test No. 83-154

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. 70 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	MERCEDES-BENZ
Trade name:	MB-trac 1000
Type denomination:	441161 S
Type:	Four wheel drive agricultural tractor, chassis construction with implement mounting area above rear axle, 4 equal sized wheels, spring suspended front axle
Serial No.:	441161 00 099198

Engine

Make:	MERCEDES-BENZ
Model:	OM 352.XVIII/1
Type:	4-stroke Diesel-engine with direct injection, watercooled
Serial No.:	35 3985-10-712650
Cylinders:	6, in-line, bore 97 mm, stroke 128 mm, displacement 5675 cm^3, compression ratio 17/1
Valves:	Overhead
Fuel system:	BOSCH fuel supply pump, BOSCH in-line injection pump PES 6A 90D410RS2293-EP 3250, with timing device; manufacturer's production setting 48-2,5 mm^3/stroke at rated engine speed and full load; injection timing 18 + 8° before TDC; BOSCH multihole injection nozzles DLLA 150S 187, injection pressure 200 + 8 bar; BOSCH dual fuel filter with replaceable cartridges; capacity of fuel tank 135 l
Governor:	BOSCH centrifugal variable speed governor EP/RSV 350-1200 AOBV 15853-RS 3250; governed range of engine speed 700 to 2600 rev/min, rated engine speed 2400 rev/min

Air cleaner:	KNECHT, optional MANN dry paper element filter with pre-cleaner, replaceable cartridge with safety cartridge, electrically operating maintenance indicator, air intake above engine bonnet
Exhaust silencer:	GILLET KG multi chamber expansion type silencer 118 x 228 mm oval, 570 mm long, on the left hand side below bonnet, mouth showing upwards, mouth 2810 mm above ground
Lubrication system:	Forced-feed lubrication with gear type pump, strainer in sump, engine oil cooling water heat exchanger; MANN oil filter in full flow, replaceable cartridge; engine oil and filter change period 300 operating hours, oil capacity 12 l; specified oil quality API-CC respectively MIL-L-46152, recommended oil viscosities winter SAE 10W, 20W/20, 10W/20, 10W/40 or 15W/40 summer SAE 30 or 15W/40 tropics SAE 40
Cooling system:	Water cooling with centrifugal pump and thermostat, overpressure relief valve set to 0,4 bar; fan with 9 blades, 515 mm dia; water capacity 21 l
Starting system:	Electrical BOSCH solenoid pre-engaged-drive starting motor JF 12 V 3 kW; STARTPILOT starting assisting device
Electrical equipment:	12 Volt, negative earth; BOSCH 3-phase alternator K1-14 V 55 A 770 W, 1 lead acid battery 110 Ah at 20 hours rating, 154 Ah optional

Transmission

Clutch:	LAMELLEN- UND KUPPLUNGSBAU GMBH, dry dual disc clutch DT 330/310 G; travel drive hydraulically operated by pedal, disc 330 mm dia; p.t.o. drive pneumatically operated by hand valve, disc 310 mm dia
Gear box:	DAIMLER-BENZ AG, UG 2/30-11,26 GA; synchromesh gear box with 4 speeds; synchromesh range gear with 2 forward ranges (I and II) and 1 reverse range (R); close stepped range gear with pre-selecting of range H and L, by clutch operating pneumatically shifted; total 16 forward and 8 reverse speeds in the 40 km/h version; in the 25 km/h version the 4th speed is locked when using the range II, total 14 forward and 8 reverse speeds; optionally available additional creeper range or super creeper range gear box
Rear axle and final drives:	DAIMLER-BENZ AG portal axle, rigidly fitted to tractor's chassis, driven by universally jointed propeller shaft; bevel gear drive, bevel gear differential; spur gear final drives
Front axle and final drives:	DAIMLER-BENZ AG portal axle, by coil springs, shock absorber and PANHARD rod linked to chassis, driven by universally jointed propeller shaft in thrust tube, under load pneumatically engageable and disengageable by rotary knob; bevel gear drive, bevel gear differential; spur gear final drives
Both axles:	Axle drives are optionally available with transmission ratios 29:7 or 24:7, tested tractor with transmission ratio 29:7; differential locks in rear and front axle may be pneumatically engaged and disengaged in common under load by rotary knob

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Total ratios and speeds (tyres 16.9 - 26)

Range		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)
I	L	1	213,08	176,35	2,74	3,31
		2	126,27	104,50	4,62	5,58
		3	77,93	64,49	7,49	9,05
		4	47,31	39,16	12,33	14,90
	H	1	167,15	138,33	3,49	4,22
		2	99,05	81,97	5,89	7,12
		3	61,13	50,59	9,55	11,54
		4	37,11	30,71	15,72	19,00
II	L	1	85,23	70,54	6,85	8,27
		2	50,51	41,80	11,55	13,96
		3	31,17	25,80	18,72	22,62
		4	18,93	-	30,84	-
	H	1	66,86	55,33	8,73	10,55
		2	39,62	32,79	14,73	17,80
		3	24,45	20,24	23,87	28,84
		4	14,85	-	39,31	-
R	L	1	163,36	135,20	3,57	4,32
		2	96,81	80,12	6,03	7,28
		3	59,74	49,44	9,77	11,80
		4	36,27	30,02	16,09	19,44
	H	1	128,14	106,05	4,55	5,50
		2	75,94	62,84	7,69	9,29
		3	46,86	38,78	12,45	15,05
		4	28,45	23,55	20,51	24,78

*) calculated with the radius index 645 mm

1) tested variant with axle transmission ratio 29:7 (25 resp. 40 km/h)

2) optionally available variant with axle transmission 24:7

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Gear oils:

	oil quality API MIL-L	oil viscosity SAE	oil capacity l	oil change interval operating hours
gear box	GL - 4 2105	80 or 80 W/85	7,5	1200
rear axle	GL - 5 2105 B	90 or 85 W/90	4,5	1200
rear final drives	GL - 5 2105 B	90 or 85 W/90	1,6	1200
front axle	GL - 5 2105 B	90 or 85 W/90	4,5	1200
front final drives	GL - 5 2105 B	90 or 85 W/90	1,6	1200

Power-take-off

Main p.t.o.

Independent p.t.o., driven by the second disc of dual disc clutch;
1 p.t.o. shaft at rear of tractor, 630 mm above ground, 25 mm to the left of tractor's median plane, 448 mm behind rear axle centre line;
45 mm dia, 6 splines (not in accordance with ISO recommendations); direction of rotation clockwise, viewed to tractor's rear;
optionally available p.t.o. shafts:
35 mm dia, 6 splines ISO 500/DIN 9611, type 1 (in series),
35 mm dia, 21 splines ISO 500/DIN 9611, type 2

2 speeds preselectable by hand lever:

540 rev/min p.t.o.
599 rev/min at rated engine speed, standard p.t.o. speed 540 rev/min at 2165 rev/min of engine

1000 rev/min p.t.o.
1093 rev/min at rated engine speed, standard p.t.o. speed 1000 rev/min at 2196 rev/min of engine

Secondary p.t.o.: Optionally available, installed to tested tractor,
1 p.t.o. shaft at front of tractor, 1000 mm above ground, 205 mm to the left of tractor's median plane, 900 mm before front axle centre line, 45 mm dia, 6 splines (not in accordance with ISO recommendations);
sense of rotation, drive, deliverable profiles and speeds like main p.t.o.

By p.t.o. change over lever both p.t.o. shafts can be operated simultaneously or separately

Power lift: DAIMLER-BENZ AG
hydraulic power lift, desintegrated construction

Hydraulic system: Open centre system,
ECKERLE internal gear pump IPSE-3-13644, directly driven by V-belt through engine, delivery 40 l/min at rated engine speed, maximum working pressure 180 + 10 bar;
hydraulic oil filter in return line, filter change period 1800 operating hours

Power lift at rear: BOSCH control valve SR 60,
draft control and position control, infinitely mixable, floating position;
lower link sensing, lowering throttle;
2 single acting rams with 175 mm stroke and 80 mm bore

Power lift at front: Optionally available, installed to tested tractor;
connected by couplings to double acting additional BOSCH control valve SRZ 60;
2 double acting rams with 140 mm stroke and 63 mm bore, directly acting on laterally stabilized lower links;
stop valve in pressure line for safety during transport

Remote circuit: Up to 3 double acting additional BOSCH control valves available (installed to tested tractor), with 2 couplings each at front and at rear;
1 additional return line coupling each at front and at rear; up to 15 l oil may be taken off by tappings if tractor is working stationary as well as tractor is travelling, up to 20 l on horizontal ground

Hydraulic oil:	Separate oil tank with 30 l capacity; recommended engine oil SAE 10W API-CC or MIL-L-46152, or hydraulic oil HLP/HLP-D46(ISO-VG); oil change interval 1800 operating hours
Implement linkage:	
at rear	Three point linkage with quick couplers (optional), joint balls category 2 acc. to ISO 730/I, DIN 9674; lift rods adjustable from 585 to 760 mm; lifting range with mean lift rod length of 673 mm from 275 mm to 835 mm above ground; length of top link adjustable from 645 to 865 mm, length of lower links 960 mm
at front	Three point linkage, joint balls category 2 acc. to ISO 730/I, DIN 9674; lifting range if axle suspension system is locked, from 336 to 920 mm above ground; length of top link adjustable from 645 mm to 865 mm; length of lower links 880 extensible to 1030 mm

Pull attachment

Swinging drawbar:	Optionally available, not fitted on tested tractor
Holed bar:	Short bar, fitted on lower link hitch points of implement linkage at rear; length between the joint balls 830 mm, thickness of bar 25 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 line 1178 mm from p.t.o. shaft end 730 mm; height above ground adjustable by power lift in the range from 288 to 848 mm with lift rods length 673 mm, measured at the surface of the bar
Trailer hitch:	ROCKINGER, type 248 B design A, automatical; height above ground adjustable from 825 to 999 mm in 3 steps; coupling pin 30 mm dia, permissible vertical load 1500 kg; distance of hitch hole centre to rear axle centre line 576 mm, to p.t.o. shaft end 128 mm;

	tractor may be fitted out optionally with trailer hitch ROCKINGER type 278B, type 279B or type 248B design B
Towing hitch:	At front, 820 mm above ground
Steering	ZAHNRADFABRIK FRIEDRICHSHAFEN AG; hydrostatic steering, SERVOSTAT 8453; ZF vane type pump, V-belt driven by engine, delivery 19 l/min; own oil circuit with filter, oil capacity 3 l; specified engine oil SAE 10W API-CC or MIL-L-46152; oil filter and oil change interval 2400 operating hours; 2 double acting differential rams, acting on steering levers
Brakes	
Service brake:	DAIMLER-BENZ AG pedal operated single circuit power assisted brake (compressed air assisted), with hydraulic transmission; dual circuit brake optionally available; at each wheel 1 caliper disc brake disc 420 mm dia, at front wheels 2 brake calipers per disc
Parking brake:	By hand valve operated spring loaded brake with mechanical transmission, acting on discs of service brake at rear wheels
Steering brake:	None
Trailer brake:	Optionally available; combined single/dual line typ, compressed air controlled; optional hydraulic brake for some countries
Source of energy:	DAIMLER-BENZ AG single-cylinder type compressor, directly driven by engine, 2 air reservoirs with 26 and 9,5 l capacity, working pressure 8,1 bar; optional additional compressor
Wheels	
Steered wheels:	At front
Driving wheels:	At front and at rear 4 pneumatics 16.9-26 AS 135 A8 cross-ply tyres; maximum permissible load per tyre 2180 kg at 1,8 bar inflation pressure and 40 km/h;

track widths at front and at rear 1650 mm, with other wheels 1800 mm;
adjustable-gauge bowl wheels for track widths 1658, 1802 and 2002 mm available;
rims DW 14 x 26

Wheel base: 2600 mm

Cab

DAIMLER-BENZ AG, model 441.82
OECD-tested, approval no. CSD 0568/1;
welded sheet steel structure, antivibration mounted by 3 silent blocks on chassis, tiltable;
1 door and 2 steps each on the left and right hand side, steps 620 and 970 mm above ground, optional 3 steps;
driver's platform 1260 mm above ground;
roof hatch tiltable, rear sliding, optional tilting window;
drop windows in the doors, windscreen fixed, optionally tiltable;
hot water heating, in circuit with cooling system;
heat exchanger and ventilation system combined, incorporated below instrument panel;
in roof incorporated ventilation system with lateral air intake optionally available;

air outlet jets at cab floor, at instrument panel and at wind screen;
cab optionally available with air conditioner

noise reduction materials:

floor	rubber mat with foam	20 mm
doors, side walls and rear wall	foil-coated hard-board	2,5 mm
roof	flame resistant foam on cardbord with fabric coating	30 mm
floor-bottom side and front wall	PVC damping material (sprayed on outside)	4 mm

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Seat	ISRINGHAUSEN, model 5000/386 *) upholstered seat with back rest and arm rests, adjustable spring with shock absorber, additional horizontal suspension, lockable; height of unloaded seat above platform adjustable from 460 to 525 mm in 6 steps, height adjustment may be executed at front, at rear or simultaneously at front and at rear longitudinal adjustment 150 mm
Implement mounting area	Behind cab, above rear axle; width between mudguards 970 mm, length of bottom plate 850 mm
Number of grease points	22

Dimensions

Total length:	4990 mm without front power lift and without ballast
	5580 mm with front power lift without ballast
	5695 mm with front power lift and with ballast
Total width:	2180 mm with and without ballast
Total height:	2860 mm to top of cab roof
	2810 mm to mouth of exhaust silencer
Ground clearance:	470 mm below lower links pivotal points

*) optional: ISRINGHAUSEN model 6500/516 with pneumatic suspension

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Available tyres

Tyre sizes at front and at rear	
9.5 - 36 AS	10 ply *)
500/60 - 26.5	12 ply
14.5 - 24 MPT	16 ply *)
16/70 - 24 MPT	14 ply
16.9 - 24 AS	8 ply *)
16.9 R 24 AS	134 A8
16.9 - 26 AS	10 ply *)
16.9 - 26 AS	135 A8 *)

*) available as cross-ply or radial-ply tyres

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

	Dimensions mm	Height above ground to centre mm	Distance from outside edge to centre mm
Head lamps	135 x 120	880	565
Auxiliary lamps	135 x 120	2690	560
Side lamps	30 x 58	1500	120
Rear lamps	50 x 80	1350	290
Reflectors			
1st pair	75 dia	1000	290
2nd pair	75 dia	700	520

Running-time meter — Electronical, controlled by 3-phase alternator;
reference engine speed for one really counted hour 1600 rev/min

TEST CONDITIONS

Track setting: 1650 mm at front and at rear

Weights

		without driver	with driver
Without ballast:	front	2605 kg	2645 kg
	rear	1905 kg	1945 kg
	total	4510 kg	4590 kg
Front ballast:	front power lift		90 kg
	4 weights, total		620 kg
Rear ballast:	5 weights on the implement mounting area, total		1700 kg
With ballast:	front	3965 kg	4005 kg
	rear	2955 kg	2995 kg
	total	6920 kg	7000 kg

Fuels and lubricants used in tests

Fuel: ARAL Diesel-fuel DIN 51601
density at 15°C
at engine and p.t.o. test 0,855 kg/l
at drawbar test 0,852 kg/l

Engine oil: ARAL MULTI-TURBORAL SAE 15W/40

Transmission oil: ESSO GP-D 80 SAE 80
in gear box and range gear
ESSO HYPOID GX-D 90
in differentials and final drives at front and at rear

Hydraulic oil: SCHLEIFENBAUM PENAXOLINE DBU
in hydraulic and steering system

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COMPULSORY TESTS

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

Date of tests: 9th August 1983
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						
65.0	2400	1093	20.10	17.18	264	3.24
At standard p.t.o. speed						
61.8	2196	1000	18.39	15.73	255	3.36
At rated engine speed						
65.0	2400	1093	20.10	17.18	264	3.24
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						
56.5	2453	1117	17.88	15.29	270	3.16
(ii) unloaded						
-	2586	1178	6.42	5.49	-	-
(iii) 50% of the load defined in (i)						
29.1	2524	1149	11.83	10.11	348	2.46
(iv) maximum power						
65.0	2400	1093	20.10	17.18	264	3.24
(v) 25% of the load defined in (i)						
14.7	2558	1165	9.11	7.79	529	1.62
(vi) 75% of the load defined in (i)						
43.1	2491	1134	14.74	12.61	293	2.92

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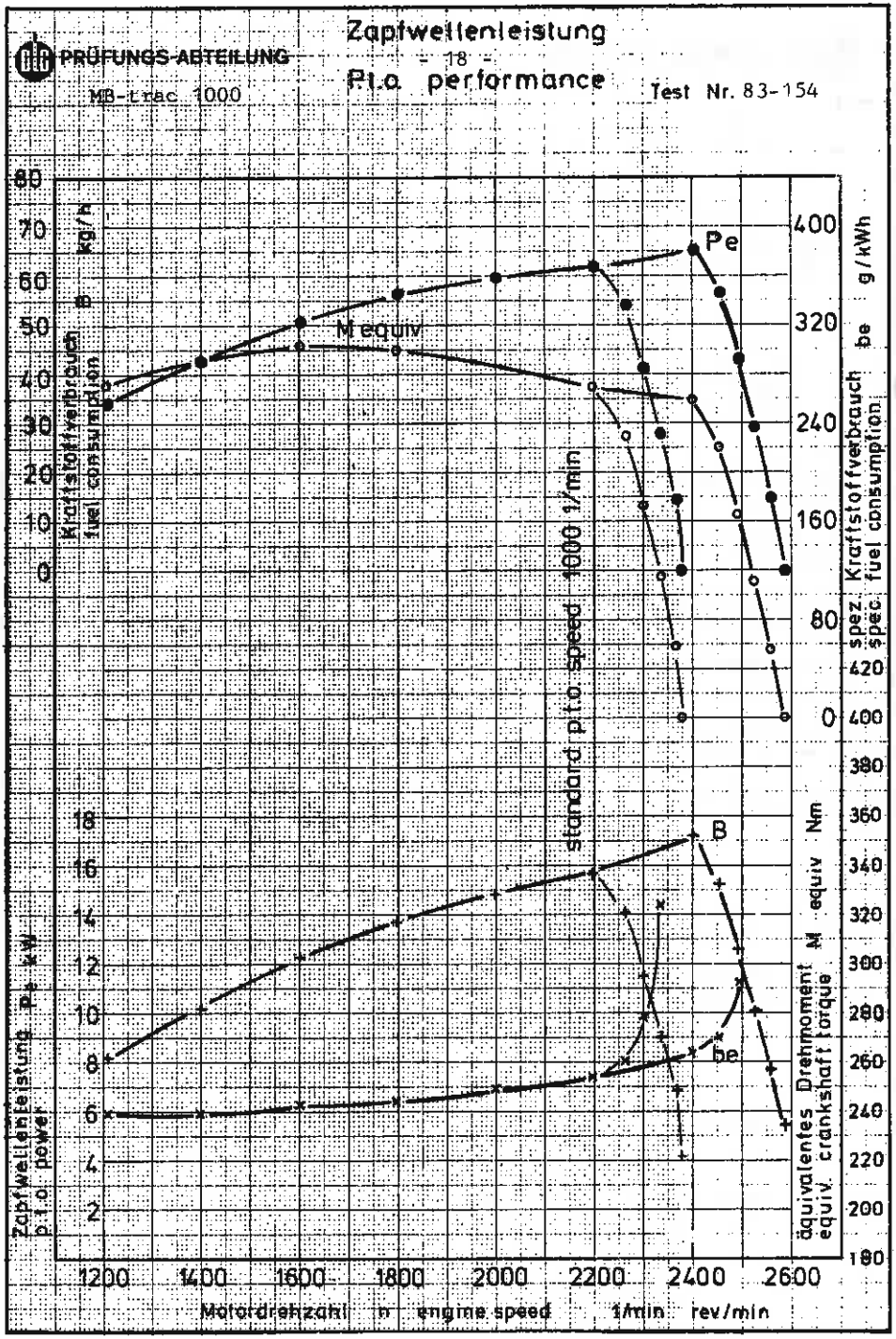
Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
(i) 85% of the torque at maximum power at standard p.t.o. speed						
54.1	2263	1031	16.53	14.13	261	3.27
(ii) unloaded						
-	2380	1084	2.39	2.04	-	-
(iii) 50% of the load defined in (i)						
27.9	2335	1063	10.60	9.06	325	2.63
(iv) maximum power						
61.8	2196	1000	18.39	15.73	255	3.36
(v) 25% of the load defined in (i)						
14.2	2368	1078	8.07	6.90	486	1.76
(vi) 75% of the load defined in (i)						
41.3	2300	1047	13.48	11.52	279	3.06

Standard specific fuel consumption (g/kWh): 270/348/261/325

No load maximum engine speed: 2586 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 259 Nm
Maximum equivalent crankshaft torque: 302 Nm at 1602 rev/min of the engine

Mean atmospheric conditions:	temperature	25 °C
	pressure	1006 mbar
	relative humidity	65 %
Maximum temperatures:	coolant	94 °C
	engine oil	99 °C
	fuel	26 °C
	engine air intake	26 °C


Zapfwellenleistung
P.t.o. performance
Test Nr. 83-154
PRÜFUNGS-ABTEILUNG
MB-trac 1000
Pe
M equiv
B
be
standard p.t.o. speed 1000 1/min
Kraftstoffverbrauch fuel consumption kg/h
spez. Kraftstoffverbrauch spec. fuel consumption be g/kWh
Zapfwellenleistung p.t.o. power P+ kW
äquivalentes Drehmoment equiv. crankshaft torque M equiv Nm
Motordrehzahl n engine speed 1/min rev/min
80
70
60
50
40
30
20
10
0
18
16
14
12
10
8
6
4
2
400
320
240
160
80
0
420
400
380
360
340
320
300
280
260
240
220
200
180
1200
1400
1600
1800
2000
2200
2400
2600

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Zapfwellenleistung

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P.t.o. performance

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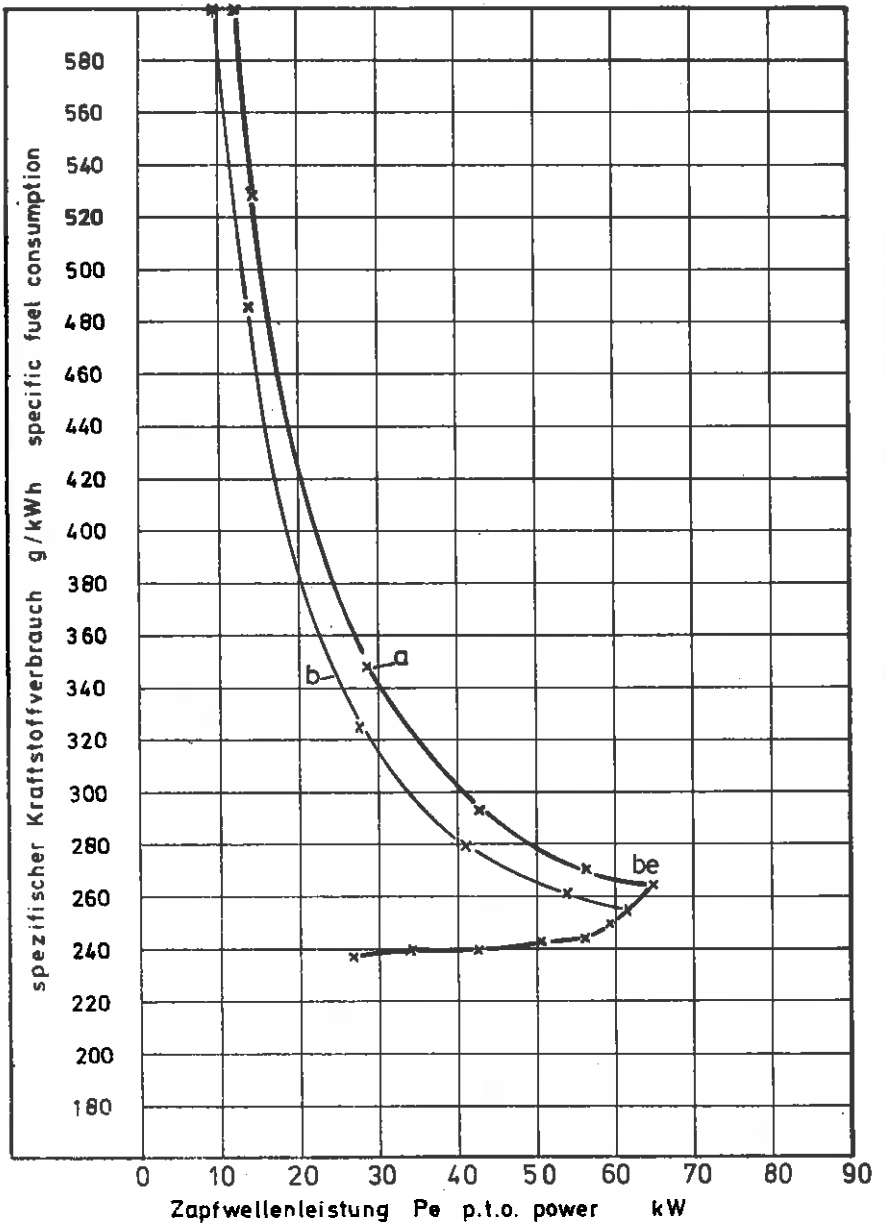

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(2) DRAWBAR PERFORMANCE

Date of tests: 6th till 15th September 1983
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 510 mm				
1 I H	3,01	39,7	4746	2466	14,9
2 I L	3,86	50,9	4743	2400	15,0
2 I H	5,22	53,8	3712	2400	10,0
1 II L	6,21	54,8	3176	2401	7,6
3 I L	6,86	54,3	2851	2397	6,6
1 II H	8,09	55,6	2476	2395	5,6
3 I H	8,93	55,1	2222	2403	4,9
2 II L	10,92	54,5	1798	2401	3,9
4 I L	11,68	54,6	1684	2402	3,7
2 II H	14,07	54,1	1384	2403	2,9
4 I H	15,04	53,5	1281	2399	2,7
(ii)	MAXIMUM POWER (ballasted) height of drawbar above ground 505 mm				
1 I L	2,33	43,7	6763	2444	15,0
1 I H	2,96	51,2	6226	2399	13,0
2 I L	4,14	53,4	4644	2399	8,8
2 I H	5,41	54,9	3651	2395	6,7
1 II L	6,36	54,9	3109	2397	5,5
3 I L	7,01	54,7	2811	2400	4,8
1 II H	8,22	55,4	2427	2399	4,1
3 I H	9,02	54,9	2192	2396	3,7
2 II L	11,01	54,0	1766	2399	3,1
4 I L	11,80	53,8	1642	2401	2,8
2 II H	14,16	53,0	1347	2402	2,3
4 I H	15,17	52,5	1246	2403	2,1
(iii)	FIVE-HOUR-TEST at 75 % of pull at maximum power in 1 II H gear				
1 II H	8,52	43,1	1820	2460	3,1
(iv)	FIVE-HOUR-TEST at pull corresponding to 15 % wheel slip in test (ii)				
1 I L	2,27	42,6	6763	2431	-

Total oil consumption during ten hours duration of tests (iii) and (iv) 66 g/h

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Tyre size at front and at rear: 16.9 - 26 AS 135 A8

Tread bar height at the beginning of drawbar tests:
at front and at rear 97 % 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 and at rear							
357	2,39	25	83	86	16	82	1006
336	2,54	26	84	87	16	84	1006
319	2,67	27	85	89	16	85	1006
314	2,72	27	84	89	16	88	1006
315	2,71	25	85	90	17	81	1006
311	2,74	26	85	90	17	78	1006
312	2,73	26	85	88	17	76	1006
314	2,72	28	84	89	18	72	1006
315	2,71	28	85	89	19	69	1006
315	2,71	28	85	89	20	71	1006
318	2,68	28	85	89	21	69	1006
tyre inflation pressure 1,6 bar at front; 1,0 bar at rear							
350	2,44	20	86	85	15	93	1000
335	2,55	29	84	89	19	90	993
322	2,65	29	86	91	22	75	1000
312	2,73	25	86	90	22	74	1000
312	2,73	28	86	91	22	72	1000
314	2,71	24	86	86	17	89	1000
313	2,72	25	86	90	17	88	1000
311	2,74	25	86	89	17	86	1000
321	2,66	25	85	89	19	84	1000
319	2,67	27	86	90	19	83	1000
323	2,64	26	85	88	19	79	1000
325	2,63	26	86	90	19	78	1000
327	2,60	29	86	94	17	84	1008
-	-	32	87	96	20	79	1000

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 front and rear: 16.9 - 26 AS 135 A8

Track of wheels front and rear: 1650 mm

Front axle drive disengaged

	to the left m	to the right m
Radius of turning space	6,01	6,04
Radius of turning circle	5,74	5,77

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	1058 mm
Distance forward from rear axle centre	1499 mm
Distance from tractor's median plane, to the right	7 mm

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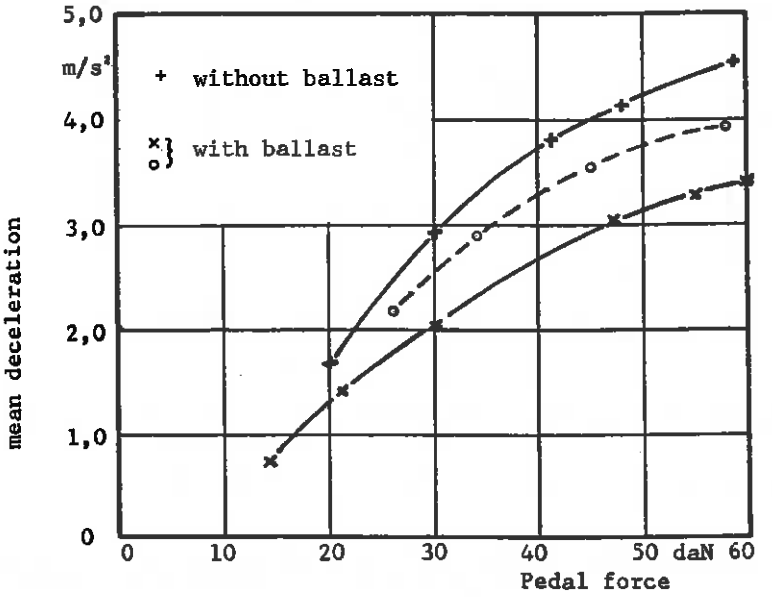
(5) Braking

Date of tests:

Tractor masses during tests with driver:	front kg	rear kg	total kg
without ballast	2645	1945	4590
with ballast	4005	2995	7000

A) Service brake 25 km/h version, front axle drive disengaged
Type-0-test (cold brakes) ——, Type-I-(fade)test – – –



Speed before application of brakes, without ballast 24,7 km/h
with ballast 24,7 km/h

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

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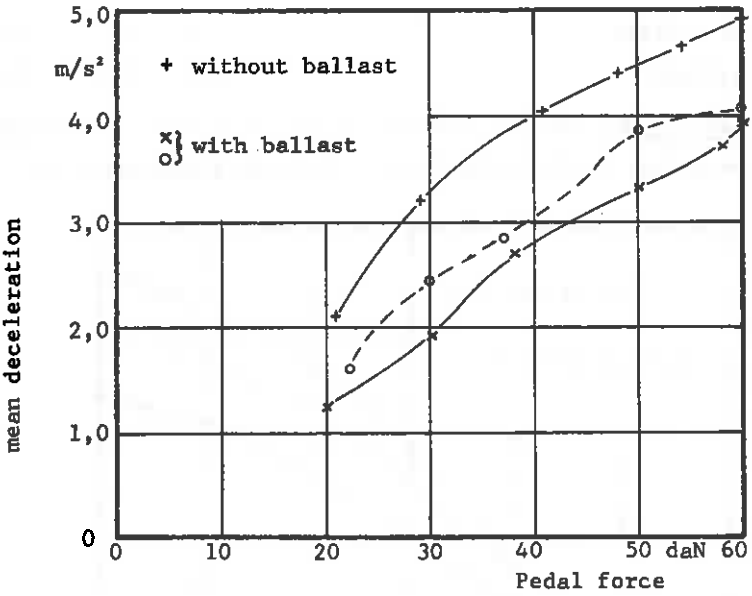
B) Service brake 40 km/h version, front axle drive disengaged
Type-0-test (cold brakes) ——, Type-I-(fade)test – – –



Speed before application of brakes, without ballast 40,3 km/h
with ballast 39,9 km/h

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

C) Parking brake 25 and 40 km/h version

	Ballasted tractor on 18%-slope		Unballasted tractor on 12%-slope with trailer of 3000 kg	
	up	down	up	down
Braking device control force daN	Parking brake pneumatically controlled by hand valve; tractor doesn't roll			

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(6) MEASUREMENT OF EXTERNAL NOISE LEVEL *)

Date of test: 7th September 1983
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2203

Results of test	25 km/h-version	40 km/h-version
Gear:	3 II H	4 II H
Travelling speed before acceleration:	18,6 km/h	30,2 km/h
Sound level:	85,5 dB(A)	84,0 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 7th September 1984
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Tractor fitted out with DB safety cab model 441.82

Results of tests

Gear no. and range	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 I L	4579	2,74	2,36	81,0
1 I H	4573	3,49	2,99	81,0
2 I L	4036	4,62	4,11	82,5
2 I H	3180	5,89	5,44	82,0
1 II L	3084	6,85	6,33	81,0
3 I L++)	2739	7,49	6,93	81,5
3 I L++)	light load	7,49	7,87	79,5
1 II H	1872	8,73	8,44	81,5
3 I H	2141	9,55	9,02	81,0
2 II L	1778	11,55	10,94	81,0
4 I L	1303	12,33	12,06	80,5
2 II H	1389	14,73	13,96	80,5
4 I H	1275	15,72	14,98	80,5
3 II L	1037	18,72	17,92	80,5
3 II H*)	light load	23,87	24,74	79,0
4 II H*)+)	light load	39,31	40,30	78,0

*) Front axle drive disengaged
++) the 3rd I L gear corresponds to the nominal travelling speed nearest to 7,5 km/h
+) locked at 25 km/h-version

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Test No. 83-154

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of tests: 29th September and 11th October 1983

Power Lift at rear

	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	275	560	3510	162	-	-
On the frame	275	587	2910	162	5203	10,5*)

Temperature of hydraulic fluid at start of test 65 °C
*) tilting angle of mast from vertical to uppermost position 9°

Lifting heights relative to horizontal lower links

mm	-266	-249	-200	-100	0	+100	+200	+300	+311	+321
Lifting forces at hitch points										
daN		3510	3650	3780	3885	3970	3985	4020	4020	
Lifting forces at test frame										
daN	3400		3430	3415	3365	3315	3230	2940		2910

Hydraulic Pump Performance

Opening pressure of the relief valve in remote circuit	171 bar
Sustained pressure with relief valve open	188 bar
Pump delivery rate at minimum pressure, the governor control lever being set for max. power	46,2 l/min
Hydraulic power at 90% of relief valve setting	10,9 kW
Corresponding delivery rate	38,7 l/min
Pressure	169 bar
Temperature of hydraulic fluid	65 °C

Tapping point used for test: at rear of tractor

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Power Lift at front

	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	336	584	1680	162	-	-
On the frame	336	693	1505	162	3516	11*)

Temperature of hydraulic fluid at start of test 65 °C
*) tilting angle of mast from vertical to uppermost position 8°

Lifting heights relative to horizontal lower links

mm	-336	-300	-297	-200	-100	0	+100	+200	+287	+300	+357
Lifting forces at hitch points											
daN			1680	1730	1805	1890	1975	2035	2120		
Lifting forces at test frame											
daN	1525	1505		1505	1525	1540	1540	1545		1525	1505

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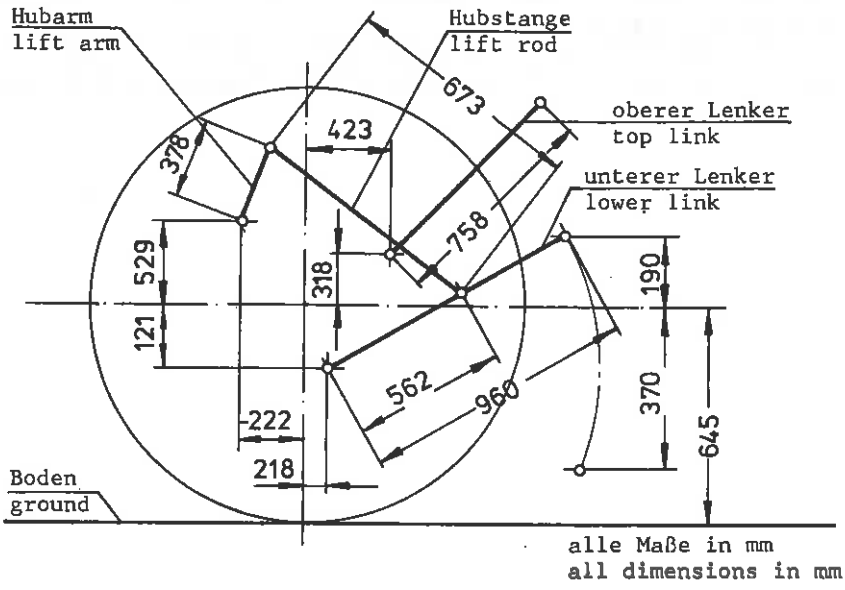
LINKAGE GEOMETRY when connected to the standard frame

Projected length in side view: (Power lift at rear)

Lower links	960 mm
Lift arms	378 mm
Lift rods	673 mm
Top link	758 mm
Distance of lift rod connection point from pivot point of lower link	562 mm

The following dimensions are given relative to the rear wheel centre line, situated 645 mm above ground:

Lower link pivot point	121 mm below,	218 mm behind
Top link pivot point	318 mm above,	423 mm behind
Lift arm pivot point	529 mm above,	222 mm behind
Maximum and minimum height of lower link hitch points	190 mm above,	370 mm below
Height of lower link hitch points when locked in transport position	190 mm above	



alle Maße in mm
all dimensions in mm

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Test No. 83-154

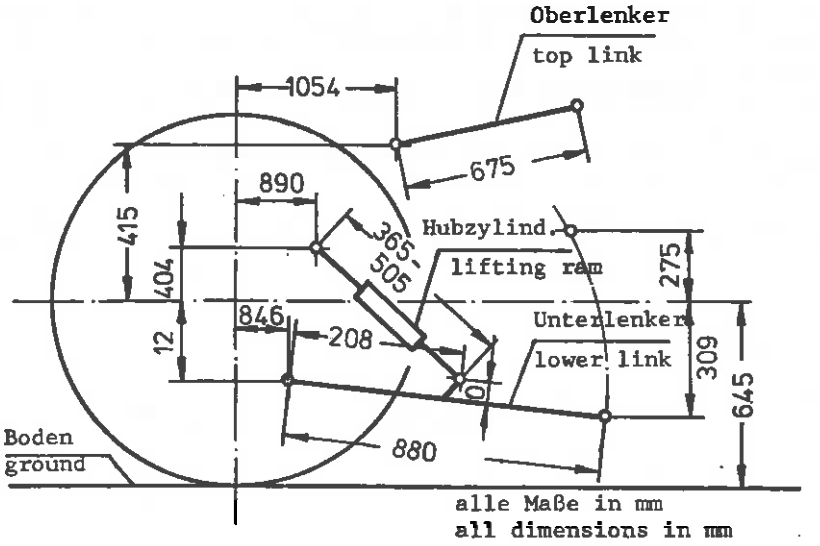
LINKAGE GEOMETRY when connected to the standard frame

Projected length in side view: (Power lift at front)

Lower links	880 mm
Lift rams	365 up to 505 mm
Top link	675 mm
Distance of lift rams' connection points from pivot points of lower links	208 mm

The following dimensions are given relative to the front wheel centre line, situated 645 mm above ground:

Lower link pivot point	846 mm before,	12 mm below
Top link pivot point	1054 mm before,	415 mm above
Lift ram pivot point	890 mm before,	404 mm above
Maximum and minimum height of lower link hitch points	275 mm above,	309 mm below
Height of lower link hitch points when locked in transport position	275 mm above	



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OPTIONAL TESTS

(9) ENGINE PERFORMANCE

Date of tests: 3rd August 1983
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current dynamometer W 400

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					
70.2	2400	20.21	17.28	246	3.47
At standard p.t.o. speed (1000 rev/min)					
68.0	2196	19.02	16.26	239	3.57
At rated engine speed					
70.2	2400	20.21	17.28	246	3.47
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
61.3	2466	18.11	15.48	253	3.38
(ii) unloaded					
-	2602	6.10	5.21	-	-
(iii) 50% of the torque defined in (i)					
31.6	2543	11.58	9.90	313	2.73
(iv) maximum power					
70.2	2400	20.21	17.28	246	3.47
(v) 25% of the torque defined in (i)					
16.0	2577	8.71	7.44	465	1.84
(vi) 75% of the torque defined in (i)					
46.7	2507	14.73	12.59	269	3.17

Optimum fuel consumption: 225 g/kWh at 26,5 kW and 1025 rev/min
No load maximum engine speed: 2602 rev/min
Torque at maximum power (2 hours): 279 Nm
Maximum torque: 328 Nm at 1603 rev/min of the engine

Mean atmospheric conditions:	temperature	23 °C
	pressure	1002 mbar
	relative humidity	50 %
Maximum temperatures:	coolant	90 °C
	engine oil	90 °C
	fuel	25 °C
	engine air intake	25 °C

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Motorleistung

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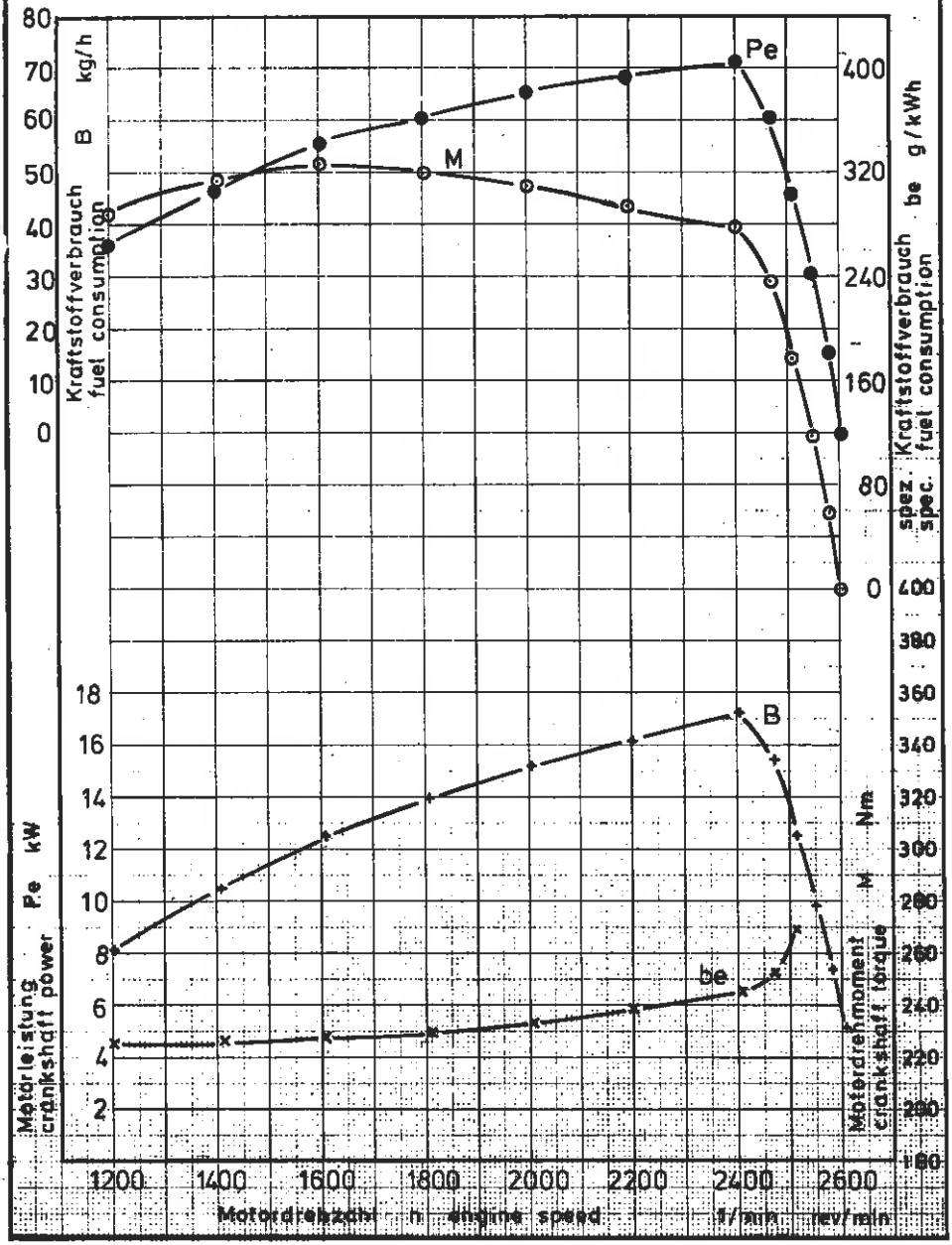
Engine performance

Test Nr. 83-154



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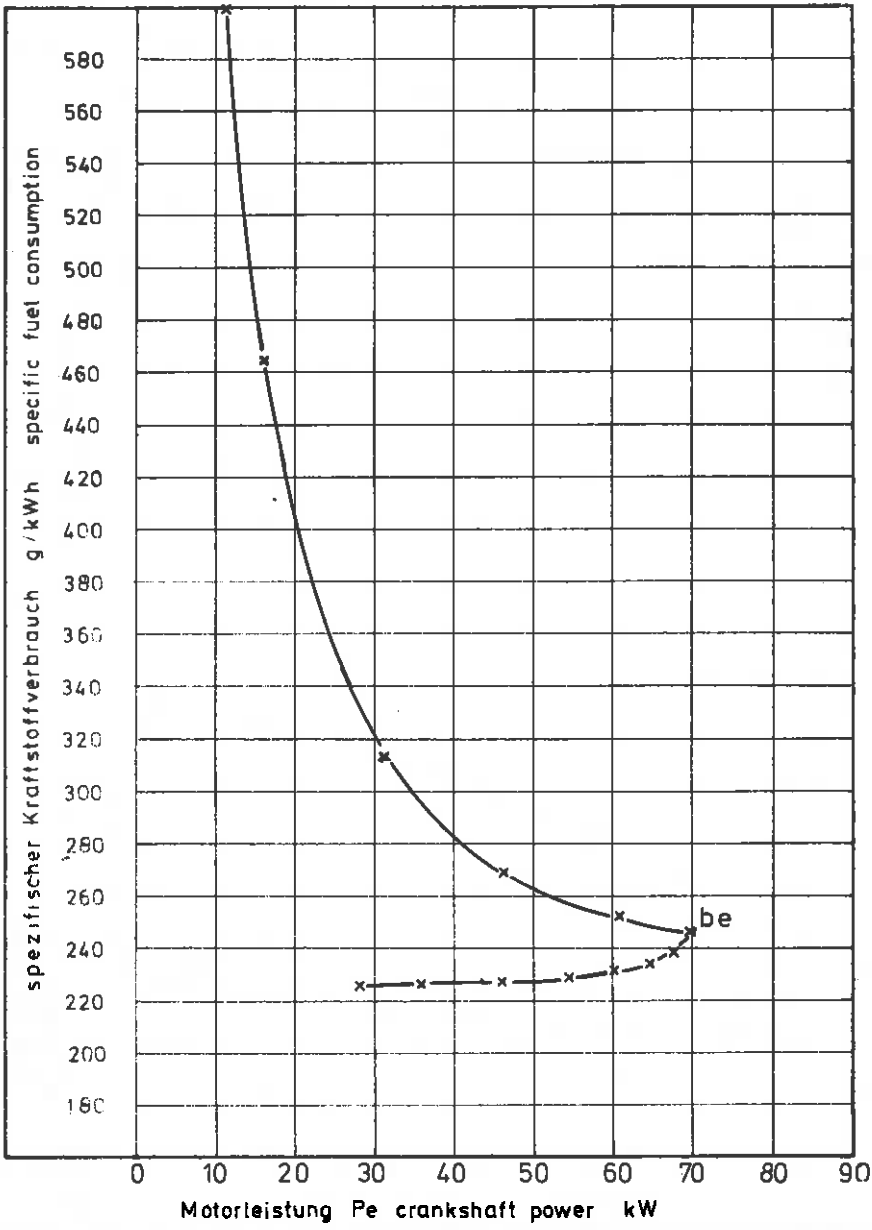
Motorleistung

Engine performance

Test Nr. 83-154



PRÜFUNGS-ABTEILUNG

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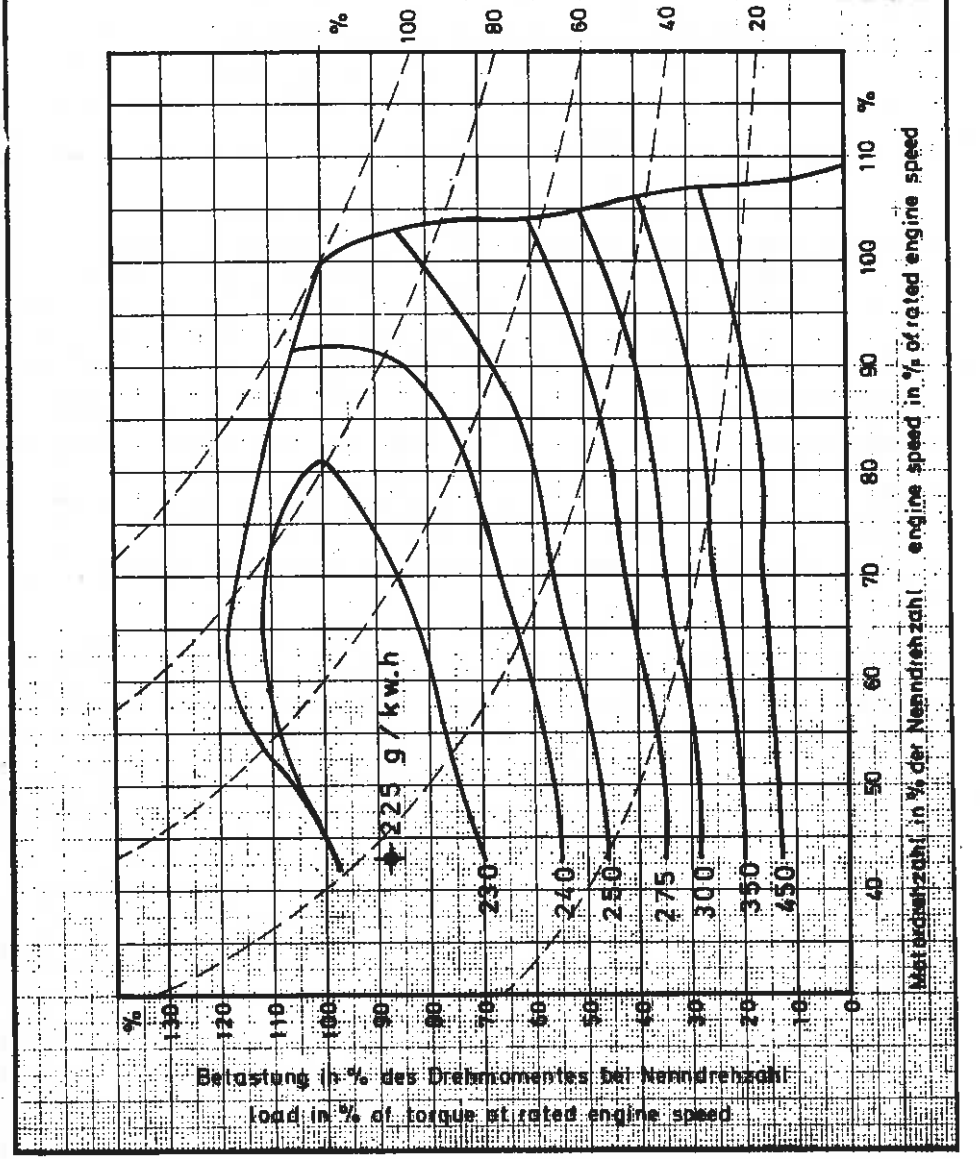
Motorleistung
- 33 -
Engine performance

Test Nr. 83-154



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ADDITIONAL TEST

(10) REAR POWER LIFT WITH MODIFIED LINKAGE GEOMETRY

(see on page 35)

Date of test: 11th October 1983

	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	345	465	4255	162	-	-
On the frame	345	397	4195	162	7500	2,5*)

Temperature of hydraulic fluid at start of test 65 °C

*) tilting angle of mast from vertical to uppermost position 0°

Lifting heights relative to horizontal lower links

mm	-179	-156	-100	0	+100	+200	+241	+286

Lifting forces at hitch points

daN	4255		4360	4410	4425	4425		4390

Lifting forces at test frame

daN		4835	4735	4580	4445	4260	4195	

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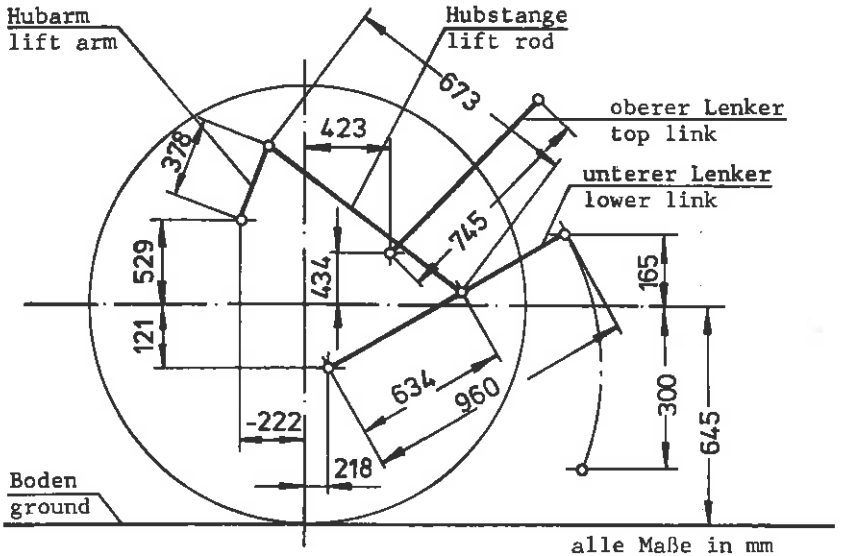
LINKAGE GEOMETRY when connected to the standard frame

Projected length in side view:

Lower links	960 mm
Lift arms	378 mm
Lift rods	673 mm
Top link	745 mm
Distance of lift rod connection point from pivot point of lower link	634 mm

The following dimensions are given relative to the rear wheel centre line, situated 645 mm above ground:

Lower link pivot point	121 mm below,	218 mm behind
Top link pivot point	434 mm above,	423 mm behind
Lift arm pivot point	529 mm above,	222 mm behind
Maximum and minimum height of lower link hitch points	165 mm above,	300 mm below
Height of lower link hitch points when locked in transport position	165 mm above	



alle Maße in mm
all dimensions in mm

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