

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



O.E.C.D. No.

967



Agricultural Tractor
MB trac turbo 900 (4WD)
Type denomination 440169 S

Manufacturer
Daimler-Benz AG
D-7560 Gaggenau

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: April till July 1985

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: 15th October 1985

O.E.C.D. No. 967

This is an OECD-report on a retest of the agricultural tractor MB trac 900 (see OECD-report no. 840).

Retesting has been necessary due to the following changes:

helical gear teeth, gearbox ratios partially changed,
p.t.o. ratio changed (2,196 instead of 2,333 resp. 4,009 instead of 4,259),
newly designed cab.

The tractor is offered in 4 transmission-variants

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

axle drive ratio: variants 1 to 3 24:7 - variant 4 22:7.

Variant 1 has 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/cm ²	or 1 kp/cm ²	=	0,981 bar
	1000 mbar	=	750.10 mm Hg			

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Printed in the Federal Republic of Germany
November 1985; DLG-No. 210



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**PRÜFUNGS-ABTEILUNG**

MB-trac turbo 900

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Test No. 85-91

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 120 hours and
tractor appr. 100 hours

SPECIFICATION OF TRACTORTractor

Make: MERCEDES-BENZ

Trade name: MB-trac turbo 900

Type
denomination: 440169 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.: 440169 00 114542

1st Serial No.: 440169 00 090001

Engine

Make: MERCEDES-BENZ

Model: OM 314 A.I/1

Type: 4-stroke Diesel-engine with direct injection,
watercooled, turbo-supercharged

Serial No.: 314970 10 469724

Cylinders: 4, in-line, bore 97 mm, stroke 128 mm, no liners,
displacement 3784 cm³, compression ratio 17 $\pm$ 0,5/1

Valves: Overhead

Fuel system: BOSCH fuel supply pump,
BOSCH in-line injection pump PES 4A 90D410
RS 2570 EP 3002, with timing device;
Serial No.: 44670765;
manufacturer's production setting 58 $\pm$ 1 mm³/stroke
at rated engine speed and full load;
injection timing 15 $\pm$ 8° before TDC;
BOSCH multihole injection nozzles DLLA 142 S 791,
injection pressure 200 $\pm$ 8 bar;
KNECHT (optional BOSCH or H-FILTER) dual fuel
filter FB 733 CC with replaceable cartridges;
capacity of fuel tank 120 l



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MB-trac turbo 900

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- Governor:** BOSCH centrifugal variable speed governor
RSV 350-1200 A2B 1147-L-RS 3100,
governed range of engine speed 700 to
2680 1/min,
rated engine speed 2400 1/min
- Supercharger:** Exhaust driven supercharger
GARRET TA 3114
max. supercharge pressure 660 mbar
- Air cleaner:** KNECHT FP 9008, optional MANN
dry paper element filter with pre-cleaner,
replaceable cartridge with safety cartridge,
maintenance pilot lamp,
air intake above engine bonnet
- Exhaust silencer:** GILLET KG
multi chamber expansion type silencer
98 x 238 mm oval, 425 mm long,
on the left hand side below bonnet,
mouth showing upwards,
mouth 2770 mm above ground
- Lubrication system:** Forced-feed lubrication with gear type pump,
MANN oil filter in full flow, replaceable
cartridge;
engine oil and filter change period 300
operating hours, oil capacity 11 l;
specified oil quality API-CD respectively
MIL-L-2104 C,
recommended oil viscosities
winter SAE 10W, 20W/20, 20W/30 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 7 blades, 470 mm dia;
water capacity 16,5 l
- Starting system:** Electrical
BOSCH solenoid pre-engaged-drive starting
motor JD 12 V 3 kW; STARTPILOT start
assisting device
- Safety device:** Travel- and p.t.o. clutch disengaged,
p.t.o. selector in neutral position
- Electrical equipment:** 12 Volt, negative earth;
BOSCH 3-phase alternator K1-14 V 55 A 770 W,
1 lead acid battery 120 Ah at 20 hours rating,
154 Ah optional



Transmission

- Clutch:** LUK
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:** MERCEDES-BENZ
UG 2/30-8/11,19 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
ranges H and L, shifted automatically by
depressing clutch pedal; 2 levers and
1 preselector on speed change lever,
total 16 forward and 8 reverse speeds;
optionally available additional creeper range
or super creeper range gear box
- Rear axle and
final drives:** MERCEDES-BENZ
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:** MERCEDES-BENZ
portal axle, by coil springs, shock absorbers
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 24:7 or 22:7, tested
tractor with transmission ratio 24:7;
differential locks in rear and front axle
may be pneumatically engaged and disengaged
in common under load by rotary knob

**PRÜFUNGS-ABTEILUNG**

MB-trac turbo 900

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Test No. 85-91

Total ratios and speeds (tyres 16.9 R 24)

Range	Close step range	Gear	Total ratio Engine : driving wheels		Nominal travelling speed at rated engine speed *)	
			1)	2)	km/h	
I	L	1	200,08	183,41	2,80	3,06
		2	118,56	108,68	4,73	5,16
		3	73,17	67,07	7,67	8,36
		4	44,42	40,72	12,63	13,78
	H	1	156,95	143,87	3,57	3,90
		2	93,01	85,25	6,03	6,58
		3	57,39	52,61	9,77	10,66
		4	34,85	31,95	16,10	17,56
II	L	1	80,53	73,81	6,97	7,60
		2	47,72	43,74	11,75	12,82
		3	29,45	27,00	19,05	20,78
		4	17,88	16,39	31,37 **)	34,22
	H	1	63,17	57,91	8,88	9,69
		2	37,43	34,32	14,99	16,35
		3	23,10	21,18	24,28	26,49
		4	14,03	12,86	40,00 +) **)	-
R	L	1	154,34	141,48	3,63	3,97
		2	91,46	83,84	6,13	6,69
		3	56,44	51,74	9,94	10,84
		4	34,27	31,71	16,37	17,86
	H	1	121,07	110,98	4,63	5,05
		2	71,74	65,76	7,82	8,53
		3	44,28	40,59	12,67	13,82
		4	26,89	24,65	20,87	22,76
I	Creep range ++)	1	1471,05	1348,44	0,38	0,42
		2	871,73	799,08	0,64	0,70
		3	537,98	493,17	1,04	1,14
II		1	592,07	542,72	0,95	1,03
		2	350,86	321,62	1,60	1,74
		3	216,53	198,49	2,59	2,83
R		1	1134,80	1040,22	0,49	0,54
		2	672,48	616,43	0,83	0,91
		3	415,02	380,43	1,35	1,48

*) calculated with the radius index 620 mm

1) tested variant with axle transmission ratio 24:7

2) optionally available variant with axle transmission 22:7

+) optionally available with maximum speed 30 km/h or 32 km/h
by automatic engine speed limitation in 4th II H-gear

**) locked in 25 km/h-version

++) not fitted

**PRÜFUNGS-ABTEILUNG**

MB-trac turbo 900

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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, 80W 80W/85	7,5	1200
rear axle	GL - 5 2105 B	90 or 85W/90	2,0	
rear final drives			0,6 each	
front axle			2,0	
front final drives			0,6 each	

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, 620 mm above ground, 25 mm to the left of tractor's median plane, 420 mm behind rear axle centre line;
 direction of rotation clockwise,
 viewed to tractor's rear;
 35 mm dia, 6 splines ISO 500/DIN 9611, type 1;
 optionally available
 35 mm dia, 21 splines ISO 500/DIN 9611, type 2
 or 45 mm dia, 6 splines
 2 speeds preselectable by hand lever:

p.t.o.	p.t.o. speed 1/min	engine speed 1/min	ratio engine : p.t.o.
540	540	2165	4,0093
	599	2400	
1000	1000	2196	2,1962
	1093	2400	

**Secondary
p.t.o.:**

Optionally available, installed to tested tractor,
 1 p.t.o. shaft at front of tractor, 1080 mm above ground, 213 mm to the left of tractor's median plane, 750 mm before front axle centre;
 sense of rotation, drive, available profiles and speeds like main p.t.o.;
 front and rear p.t.o. shaft operation can be shifted simultaneously or separately



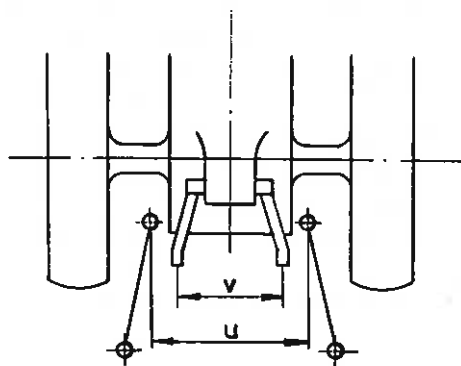
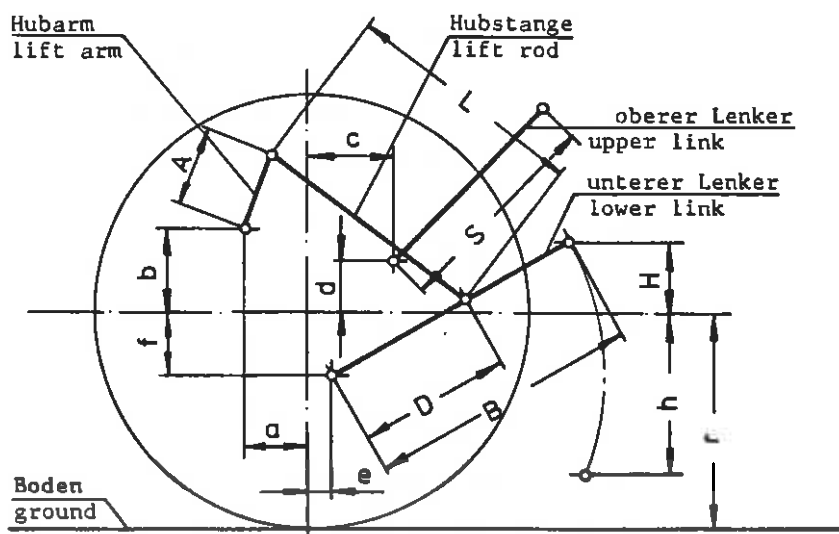
- Power lift** **MERCEDES-BENZ**
hydraulic power lift, desintegrated construction
- Hydraulic system:** Open centre system,
ECKERLE internal gear pump IPSF-3-13144,
directly driven by V-belt by engine,
delivery 42 l/min at rated engine speed,
relief valve pressure setting 180 + 10 bar;
hydraulic oil 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 WEBER rams with 150 mm
stroke and 80 mm bore, no safety valve
- Power lift at front:** Optionally available, installed to tested
tractor, only for power lift measurements;
connected by couplings to double acting
additional BOSCH control valve SRZ 60;
2 double acting WEBER 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 SRZ 60 available (installed to tested
tractor), with 4 couplings at front and
6 couplings 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

*) at front end of chassis



Implement linkage
at rear:

Three point linkage with (optional)
WALTERSCHEID quick-couplers; coupler
points categorie 2 acc. to ISO 730/I,
DIN 9674





Dimensions of rear implement linkage (projected lengths in mm, underlined dimensions are valid for power lift measurements p. 29)

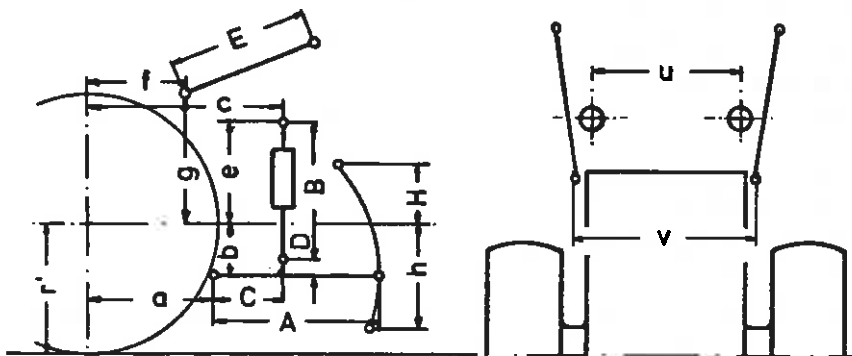
Rear and front tyres	radius index	(r)	620
Length of lift arms		(A)	378
Length of lower links		(B)	890
Distance of lift arm pivot points from rear axle centre	horizontal	(a)	-208
	vertical	(b)	253
Horizontal distance between lower link pivot points		(u)	480
Horizontal distance between lift arm end points		(v)	760
Length of upper link		(S)	553 to 753, <u>707</u>
Distance of upper link pivot point from rear axle centre	horizontal	(c)	393
	vertical	(d)	<u>373</u> , 431
Distance of lower link pivot point from rear axle centre	horizontal	(e)	205
	vertical	(f)	62
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	<u>605</u> , 701
Length of lift rods		(L)	455 to 630, <u>556</u>
Height of lower link hitch points relative to rear axle centre line (situated 620 mm above ground), these data are valid for unloaded power lift:			

Length of lift rods (L)	<u>556</u>	630 (max)		455 (min)	
Linkage distance of lift rods (D)	<u>605</u>	605	701	701	605
Lowest position (h)	420	554	437	221	100
Highest position (H)	238	110	165	368	410
Transport position (H')	238	110	165	368	410



Implement linkage

at front:

 Three point linkage, all dimensions in mm,
underlined dimensions are valid for power
lift measurement


category 2 acc. to ISO 730/I resp. DIN 9611

Front tyres	radius index	(r')	620
Length of lower links	(A)	<u>878</u> , 1008	
Length of rams	(B)	365 to 505	
Distance of lower link pivot point to fixing point of ram	(C)	178, <u>213</u> , 248	
Distance of ram's fixing point to lower link	(D)	64	
Length of upper link	(E)	<u>687</u> , 553 to 753	
Distances of front axle centre to	horizontal	vertical	
pivot point of lower link	(a) 670	(b) -12	
pivot point of ram	(c) 743	(e) 440	
pivot point of upper link	(f) 880	(g) 430	
Horizontal distance of lower links' pivot points	(v)	760	
Horizontal distance of rams' pivot points	(u)	810	
Range of position of lower links' coupling points	high (H)	341 to 500	
(depending on A and C)	low (h)	105 to 265	

Pull attachment

Swinging drawbar: Optionally available, not fitted on tested tractor

Holed bar: Short bar,
length between joint balls 830 mm
thickness 25 mm, width 80 mm,
9 holes, 33 mm dia with 80 mm distance
each, height above ground minimum 66 mm
maximum 1030 mm
centre of holes behind p.t.o.
shaft end 675 mm

Trailer hitch: ROCKINGER, type 248 B, automatical;
coupling pin 30 mm dia,
hitch point
above ground 790, 848, 906 or 964 mm
behind rear axle centre 552 mm
above p.t.o. 170, 228, 286 or 344 mm
behind p.t.o. shaft end 132 mm
permissible vertical load 1500 kg
optional: trailer hitch ROCKINGER 278 B
or 279 B

Towing hitch: At front; 810 mm above ground

Steering

ZF
hydrostatic steering, SERVOSTAT 8493;
ZF vane type pump, V-belt driven by engine,
delivery 16 l/min; working pressure 100 bar;
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 BOSCH differential rams,
240 mm stroke, 45 mm dia,
acting on steering levers

Brakes

- Service brake:** MERCEDES-BENZ
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 optionally 2 brake calipers per disc available (fitted)
- Parking brake:** Spring loaded brake operated by hand valve 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, oil pressure supplied by hydraulic system
- Source of energy:** MERCEDES-BENZ
single-cylinder type compressor, directly driven by engine, 2 air reservoirs with 26 and 9,5 l capacity, working pressure 8,1 bar

Wheels

- Steered wheels:** At front
- Driving wheels:** At front and at rear
4 pneumatics 16.9 R 24 134 A8 MICHELIN BIB X, radial-ply tyres;
maximum permissible load per tyre 2120 kg at 1,6 bar inflation pressure and 40 km/h;
track width 1608 mm or 1768 mm at front and at rear;
adjustable-gauge bowl wheels for track widths 1598, 1800 and 1984 mm available
rims 13.0 x 24
- Wheel base:** 2400 mm

Cab

MERCEDES-BENZ, model 441.82;
OECD-tested, approval no. CSD 0568/2;
welded sheet steel structure, antivibration
mounted by 3 silent blocks on chassis,
tiltable for maintenance;
1 door and 2 steps on each side,
steps 590 and 940 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;
combined heating/ventilating system with
cooling water heat exchanger and 2 step-
blower, incorporated below instrument panel,
air outlet jets at cab floor, instrument panel
and wind screen;
additional ventilating system with 3-step-
blower, incorporated in roof (optionally
available), air intake at both sides of the
roof, 6 air outlet jets at the roof;
cab optionally available with air conditioner

noise reduction materials:

floor	rubber mat	4 mm
	with foiled foam	10 mm
doors, side walls and rear wall	foil-coated hard- board	2,5 mm
	flame resistant foam on cardbord with fabric coating	30 mm
instrument panel	ABS-coating	2,5 mm
hydraulic control valves' cover	heavy layer foil	2,5 mm
	PVC damping material (sprayed on outside)	4 mm

optional: cab with reduced height, total
height reduced by 170 mm
(see OECD report No. CSD 0862/2,
DAIMLER-BENZ cab 441.825)



Seat

ISRINGHAUSEN, model 6500/516
upholstered seat with back rest and arm rests,
pneumatic suspension with shock absorber,
additional horizontal suspension, lockable;
height of front end and rear end of
seat above platform adjustable in
6 steps each from 430 to 480 mm,
longitudinal adjustment 185 mm

basic model:

ISRINGHAUSEN model 6000/516 with steel spring
suspension

Implement
mounting area

Behind cab, above rear axle;
width between mudguards 970 mm,
length of bottom plate 900 mm

Number of
grease points

21

Overall Dimensions

Total length: 4550 mm without front power lift, without ballast
5045 mm with front power lift, with and without ballast

Total width: 2090 mm with and without ballast

Total height: 2840 mm to top of cab roof
2770 mm to mouth of exhaust silencer

Ground clearance: 500 mm below lower links pivotal points

Available tyres

Tyre sizes at front and at rear	
9.5 - 32	10 ply *)
12.4 - 28	8 ply *)
13.6 - 28	8 ply *)
14.9 - 24	8 ply or 10 ply *)
16.9 - 24	8 ply or 12 ply *)
14.9/80 - 24	10 ply or 12 ply
14.9 R 24	126 A8
16.9 R 24	134 A8
17.5 LR 24	139 A8 **)
14.5 - 24	MPT 16 ply *) **)
16/70 - 24	MPT 14 ply **)

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

***) not for agricultural purposes

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	510
Auxiliary lamps	135 x 120	2700	525
Side lamps	30 x 58	1510	145
Rear lamps	60 x 65	1315	300
Reflectors			
1st pair	75 dia	950	300
2nd pair	75 dia	700	530

Running-time
meter

Electronic, controlled by 3-phase
alternator;
reference engine speed for one really
counted hour 1600 rev/min

TEST CONDITIONS

Track setting 1608 mm at front and at rear

Weights

		without driver	with driver
Without ballast:	front	2385 kg	2420 kg
	rear	1745 kg	1785 kg
	total	4130 kg	4205 kg
Front ballast:	front power lift and 1 weight		610 kg
	water in the tyres		249 kg
Rear ballast:	weights on the implement		
	mounting area, total		1426 kg
With ballast:	front	3715 kg	3750 kg
	rear	2700 kg	2740 kg
	total	6415 kg	6490 kg

Fuels and lubricants used in tests

Fuel:	ARAL Diesel-fuel DIN 51601	
	density at 15°C	
	at engine test	0,836 kg/l
	at p.t.o. test	0,836 kg/l
Engine oil:	at drawbar test	0,849 kg/l
	SCHLEIFENBAUM PENAXOLINE	SAE 15W/40

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

Hydraulic oil: SCHLEIFENBAUM PENAXOLINE DBU SAE 10W

Grease: Multi-purpose grease

Repairs None


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

Date of tests: 19th April 1985
 Location of tests: DLG-Testing-Station Groß-Umstadt
 Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed		Fuel consumption		Specific energy kWh/l
	engine 1/min	p.t.o. 1/min	hourly l/h	kg/h	

MAXIMUM POWER

At 2-hour test

58.6	2400	1093	16.79	14.04	240	3.49
------	------	------	-------	-------	-----	------

At rated engine speed

58.6	2400	1093	16.79	14.04	240	3.49
------	------	------	-------	-------	-----	------

At standard p.t.o. speed

57.7	2196	1000	16.04	13.41	232	3.60
------	------	------	-------	-------	-----	------

Part loads, the governor hand lever in the position
 corresponding to the maximum power at full load (curve a)

(i) the torque corresponding to maximum power at rated speed

58.6	2400	1093	16.79	14.04	240	3.49
------	------	------	-------	-------	-----	------

(ii) 85% of the torque obtained in (i)

51.1	2459	1120	15.14	12.66	248	3.37
------	------	------	-------	-------	-----	------

(iii) 75% of the torque defined in (ii)

39.1	2510	1143	12.50	10.45	267	3.13
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(iv) 50% of the torque defined in (ii)

26.6	2566	1168	10.07	8.42	316	2.65
------	------	------	-------	------	-----	------

(v) 25% of the torque defined in (ii)

13.6	2612	1189	7.55	6.32	466	1.79
------	------	------	------	------	-----	------

(vi) unloaded

-	2655	1209	5.07	4.24	-	-
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**PRÜFUNGS-ABTEILUNG**

MB-trac 900

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Test No. 85-91

Power kW	Speed		Fuel consumption		specific g/kWh	Specific energy kWh/l
	engine 1/min	p.t.o. 1/min	hourly 1/h	kg/h		
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
(i) the torque corresponding to maximum power						
57.7	2196	1000	16.04	13.41	232	3.60
(ii) 85% of the torque obtained in (i)						
50.0	2236	1018	14.09	11.78	236	3.55
(iii) 75% of the torque defined in (ii)						
38.4	2291	1043	11.65	9.74	254	3.29
(iv) 50% of the torque defined in (ii)						
26.2	2343	1067	9.21	7.70	294	2.84
(v) 25% of the torque defined in (ii)						
13.4	2391	1089	6.70	5.60	419	2.00
(vi) unloaded						
-	2458	1119	4.40	3.68	-	-

Standard specific fuel consumption (g/kWh): 248/316/236/294

No load maximum engine speed: 2655 1/min

Equivalent flywheel torque at maximum power (2 hours): 233 Nm

Maximum equivalent flywheel torque: 287 Nm at 1602 1/min
of the engine

Mean atmospheric conditions: temperature 19 °C
 pressure 1003 mbar
 relative humidity 48 %

Maximum temperatures: coolant 85 °C
 engine oil 113 °C
 fuel 22 °C
 engine air intake 23 °C



PRÜFUNGS-ABTEILUNG

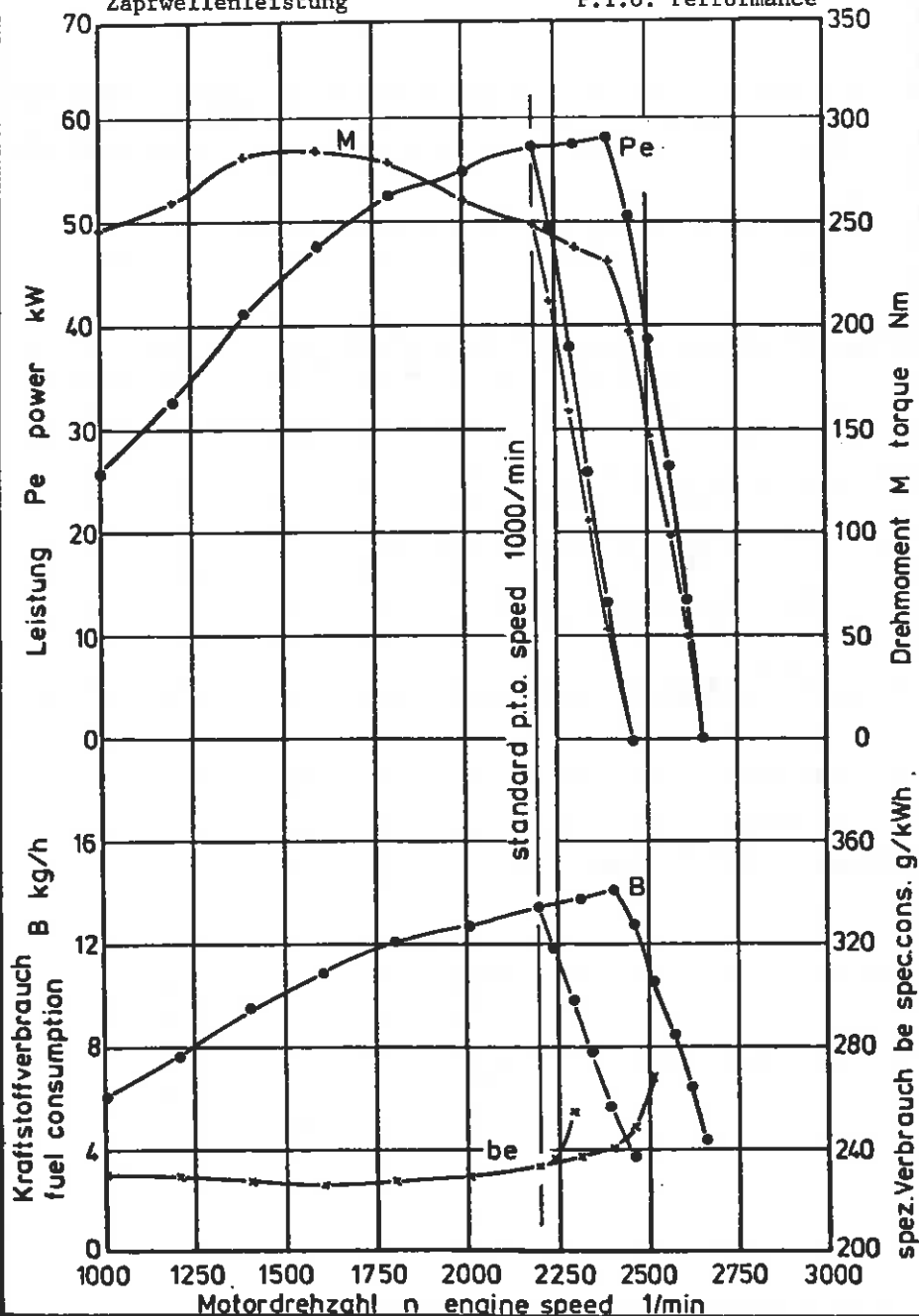
MB-trac turbo 900

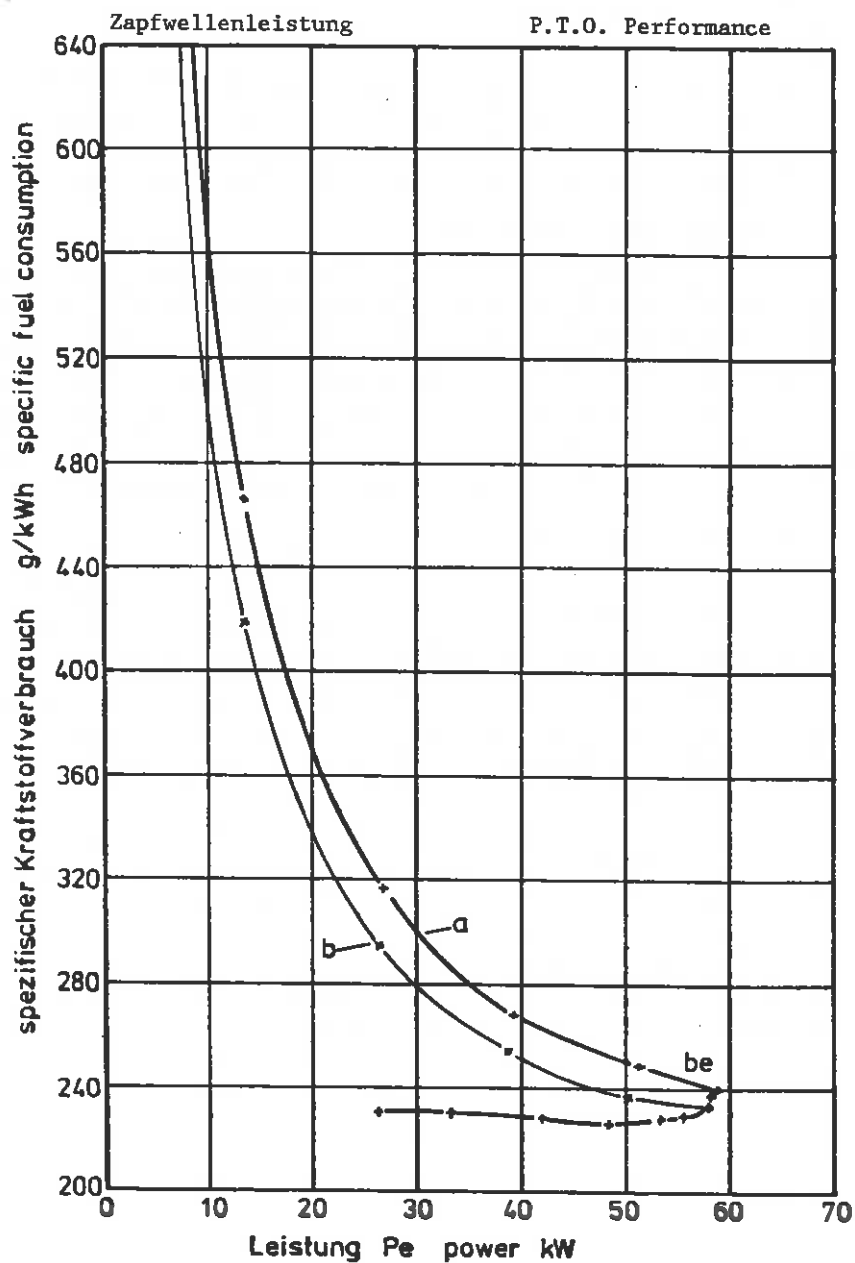
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Test No. 85-91

Zapfwellenleistung

P.T.O. Performance





**PRÜFUNGS-ABTEILUNG**

MB-trac turbo 900

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(2) DRAWBAR PERFORMANCE

Date of tests: 19th June till 2nd July 1985

Type of track: Concrete

Gear	Driving speed	Power	Drawbar pull	Engine speed	Slip of wheels
	km/h	kW	daN	1/min	%

(i) MAXIMUM POWER (unballasted)
height of drawbar above ground 515 mm

1 I L	2,45	30,0	4406	2495	15,0
1 I H	3,09	37,7	4392	2461	15,0
2 I L	4,14	46,8	4066	2398	11,4
2 I H	5,54	49,8	3239	2398	6,9
1 II L	6,52	49,3	2722	2400	5,3
3 I L	7,25	49,6	2465	2403	4,5
1 II H	8,43	50,2	2144	2398	3,8
3 I H	9,34	49,3	1901	2400	3,3

(ii) MAXIMUM POWER (ballasted)
height of drawbar above ground 510 mm

1 I L	2,37	43,4	6586	2414	14,9
1 I H	3,26	49,4	5453	2397	7,6
2 I L	4,45	50,1	4051	2398	4,7
2 I H	5,74	50,5	3169	2398	3,4
1 II L	6,65	50,8	2751	2400	2,9
3 I L	7,35	50,3	2466	2400	2,5
1 II H	8,54	50,4	2124	2399	2,1
3 I H	9,41	49,5	1895	2395	1,8

(iii) FIVE-HOUR-TEST at 75% of pull at maximum power
in 1 II H gear

1 II H	8,80	38,9	1592	2463	1,8
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(iv) FIVE-HOUR-TEST
at pull corresponding to 15% wheel slip in test (ii)

1 I L	2,26	41,3	6586	2411	-
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Total oil consumption during ten hours duration of tests
(iii) and (iv) 31 g/h



Tyre size front and rear: 16.9 R 24 134 A8

Tread bar height at the beginning of drawbar tests:
92% at front and at rear of the value when new

Specific fuel consumpt. g/kWh	Specific energy kWh/l	Temperatures			Atmospheric conditions		
		Fuel °C	Coolant °C	Engine- oil °C	Tempe- rature °C	Relative humidity %	Pressure mbar

tyre inflation pressure 0,8 bar at front and at rear

350	2,43	33	84	98	17	74	997
322	2,64	32	83	95	17	73	997
299	2,84	33	84	98	18	74	996
280	3,03	34	84	98	18	73	996
283	3,00	34	83	97	18	74	996
284	2,99	33	84	99	20	71	996
277	3,06	33	84	99	20	71	996
284	2,99	34	84	98	20	68	996

tyre inflation pressure 1,4 bar at front, 0,9 at rear

314	2,71	27	84	99	16	84	1000
285	2,97	27	84	103	16	84	1001
283	3,00	28	85	102	16	83	1001
278	3,05	28	84	101	18	82	1001
279	3,05	25	84	102	15	95	1002
278	3,05	25	85	100	15	95	1002
277	3,07	28	85	103	15	95	1002
286	2,97	30	85	100	18	80	1002

302	2,81	38	86	105	24	71	999
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-	-	34	86	107	21	78	999
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Test (iv) was carried out with additional ballast,
the figures not quoted are therefore irrelevant

**(3) TURNING SPACE AND TURNING CIRCLE**

Wheel equipment front: 16.9 R 24 134 A8

rear: 16.9 R 24 134 A8

Track of wheels front: 1608 mm

rear: 1608 mm

	With 4 wheel drive		With 2 wheel drive	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	6,64	6,69	6,47	6,48
Radius of turning circle	6,08	6,15	5,91	5,94

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	1011 mm
Distance forward from rear axle centre	1381 mm
Distance from tractor's median plane, to the right	9 mm

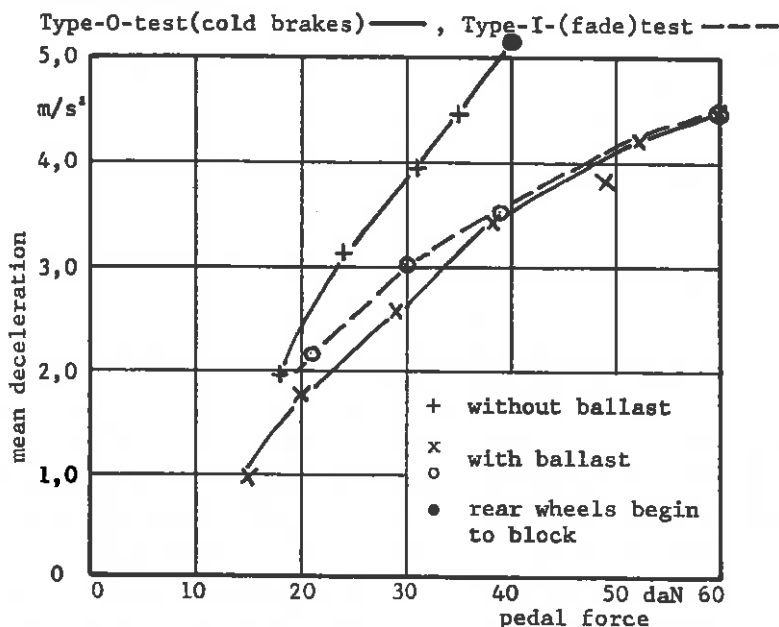


(5) **BRAKING** (Front wheel drive disengaged)

Date of tests: 22nd and 24th June 1985

	Tractor mass (with driver)			Speed before application of brakes km/h
	front kg	rear kg	total kg	
Without ballast	2420	1785	4205	41,4
With ballast	3750	2740	6490	40,7

A) **Service brake**



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

Brakes-heating: Actuating of brake for 1 km with pedal force corresponding to 1 m/s^2

B) **Parking brake**

	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 does not roll			



(6) MEASUREMENT OF EXTERNAL NOISE LEVEL *)

Date of test: 19th June 1985
Type of track: Concrete
Type of sound level meter: BRÜEL & KJÆR model 2209

Results of test

Gear: 4 II H 4 II H **)
Travelling speed before
acceleration: 31,1 km/h 24,0 km/h
Sound level: 82,0 dB(A) 81,0 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 18th June 1985
Type of track: Concrete
Type of sound level meter: BRÜEL & KJÆR model 2209
with MERCEDES-BENZ safety cab 441.82

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed		Sound level dB(A)
		nominal km/h	effective km/h	
1 I L	4206	2,80	2,40	80,0
1 I H	3975	3,57	3,28	80,5
2 I L	3113	4,73	4,51	80,5
2 I H	2351	6,03	5,92	80,5
1 II L	1868	6,97	6,85	81,5
3 I L +)	1831	7,67	7,56	82,0
3 I L +)	light load	7,67	8,28	80,5
1 II H	1551	8,88	8,81	82,5
3 I H	1269	9,77	9,79	81,0
2 II L	1148	11,75	11,69	82,0
4 I L	981	12,63	12,67	82,0
2 II H	866	14,99	14,94	81,5
4 I H	799	16,10	16,10	81,5
4 II H *)	light load	40,00	41,46	80,0

+) the 3 I L gear corresponds to the nominal travelling speed nearest to 7,5 km/h

*) front wheel drive disengaged

**) with reduced engine speed according to maximum speed 32 km/h

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Test No. 85-91

(8) LIFTING FORCES AND HYDRAULIC POWER

Date of tests: 21st and 22nd May 1985

Lifting Forces (Linkage dimensions: see page - 11 -)

	Height of lower hitch points above ground in down pos. mm	Ver- tical move- ment 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	200	628	2590	164	-	-
On the frame	200	685	2420	164	4126	8

Temperature of hydraulic fluid at start of test 65°C

Lifting heights relative to horizontal lower links

mm	-390	-358	-300	-200	-100	±0	+100	+200	+270	+295
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Lifting forces at hitch points

daN		2590	2640	2770	2900	3040	3130	3180	3150	
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Lifting forces at test frame

daN	2600		2590	2610	2640	2650	2620	2550		2420
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Hydraulic Power

Sustained pressure with relief valve open

182 bar

Pump delivery rate at minimum pressure

46,5 l/min

	Hydraulic power kW	Flow rate l/min	Pressure bar	Oil temperature °C
at 90% of the actual relief valve setting	10,7	39,2	164	65
maximum	10,8	39,2	165	65

Tapping point used for test: at rear of tractor


OPTIONAL TESTS
(9) ENGINE PERFORMANCE

Date of tests: 11th April 1985
 Location of tests: DLG-Testing-Station Groß-Umstadt
 Type of dynamometer: SCHENCK eddy-current dynamometer W 150

Power kW	Engine speed 1/min	Fuel consumption		specific g/kWh	Specific energy kWh/l
		l/h	hourly kg/h		
<u>Maximum power</u>					
At 2-hour test					
63.9	2400	16.88	14.12	221	3.79
At rated engine speed					
63.9	2400	16.88	14.12	221	3.79
At standard p.t.o. speed (1000 1/min)					
62.6	2196	16.12	13.47	215	3.89
<u>Part loads</u>					
(i) the torque corresponding to maximum power at rated speed					
63.9	2400	16.88	14.12	221	3.79
(ii) 85% of the torque obtained in (i)					
55.3	2445	14.91	12.47	225	3.71
(iii) 75% of the torque defined in (ii)					
42.6	2506	12.39	10.36	243	3.44
(iv) 50% of the torque defined in (ii)					
29.1	2567	9.73	8.14	280	2.99
(v) 25% of the torque defined in (ii)					
14.9	2627	7.04	5.89	396	2.11
(vi) unloaded					
-	2687	4.41	3.69	-	-

Optimum fuel consumption: 210 g/kWh at 43.2 kW and 1560 1/min

No load maximum engine speed: 2687 1/min

Torque at rated engine speed: 254 Nm

Maximum torque: 315 Nm at 1500 1/min of the engine

Mean atmospheric conditions: temperature 20 °C
 pressure 992 mbar
 relative humidity 53 %

Maximum temperatures: coolant 88 °C
 engine oil 105 °C
 fuel 19 °C
 engine air intake 22 °C

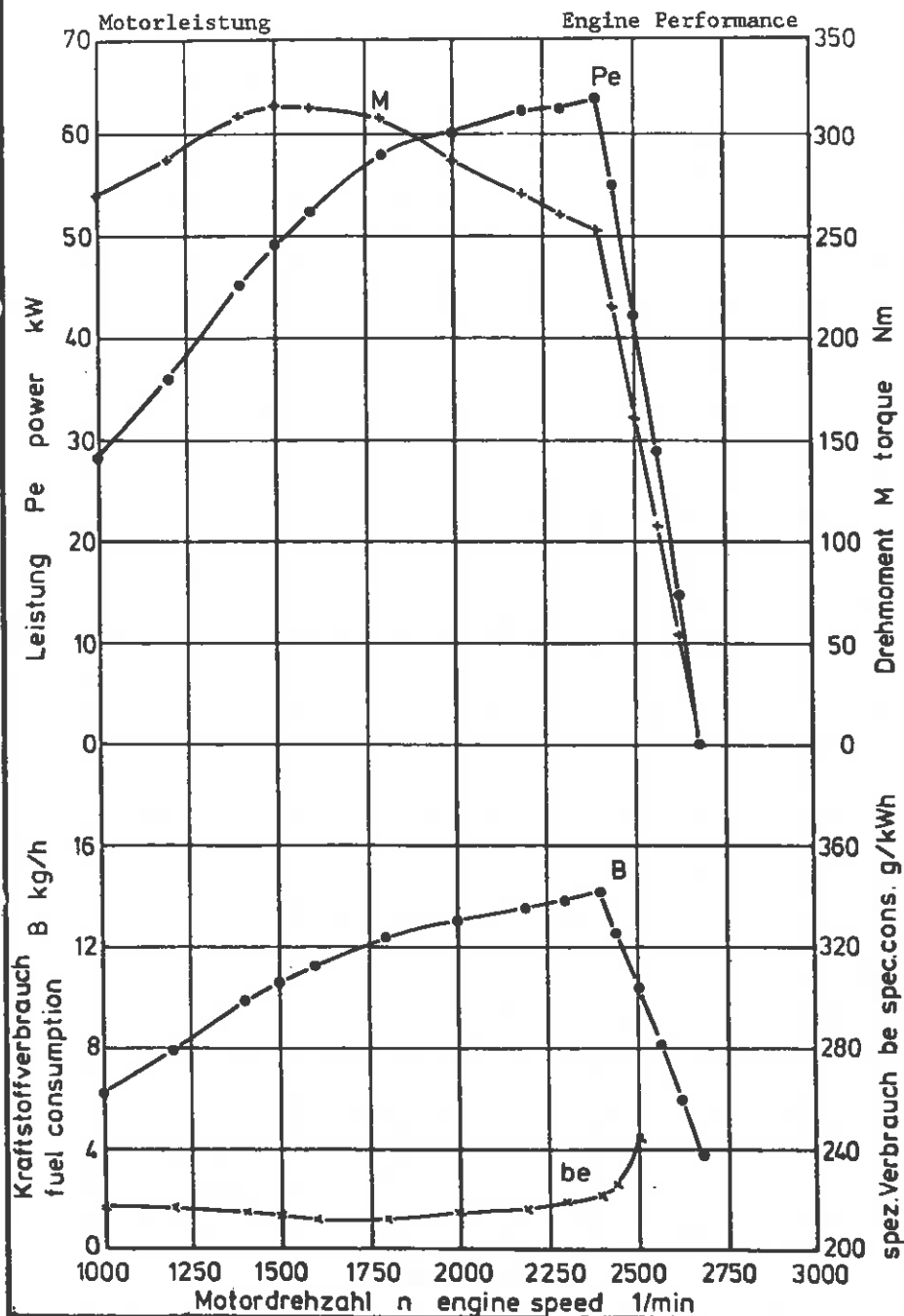


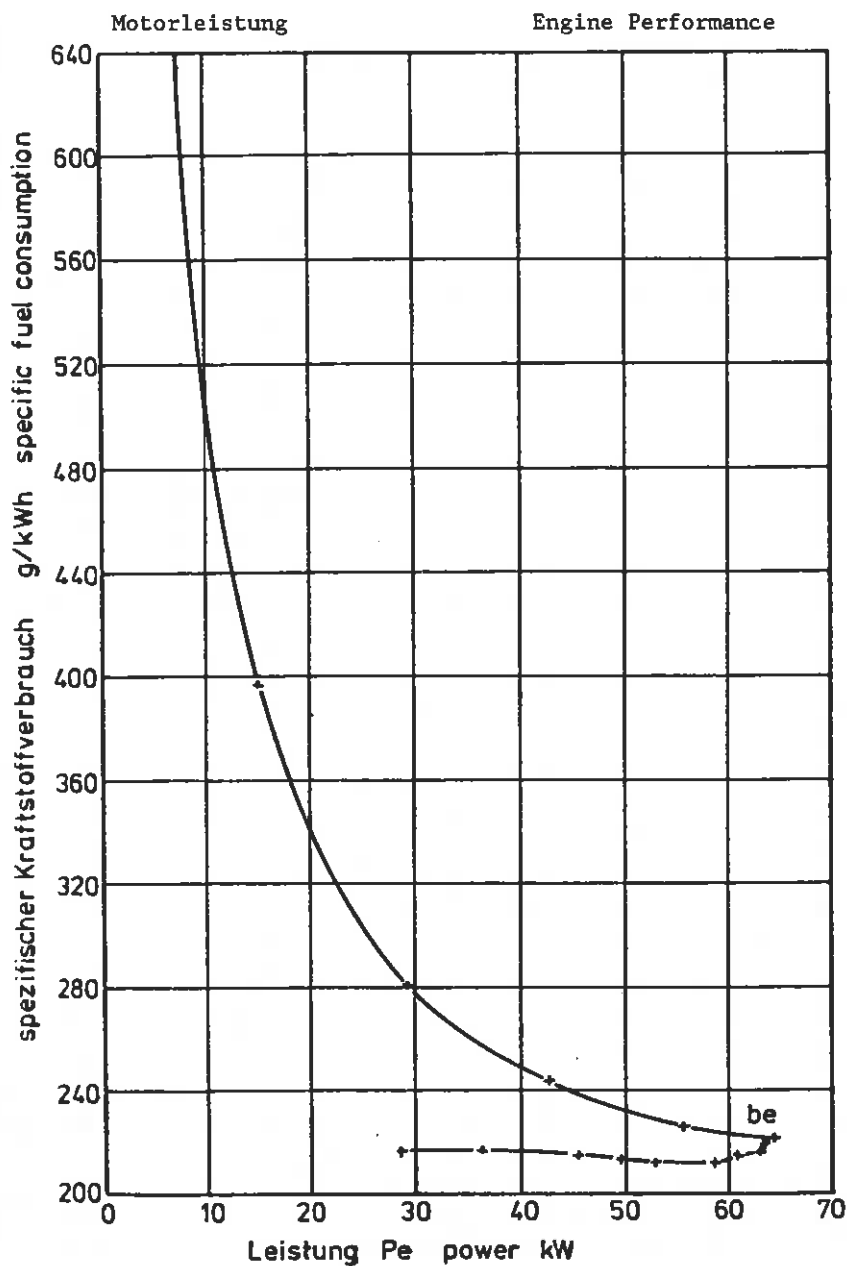
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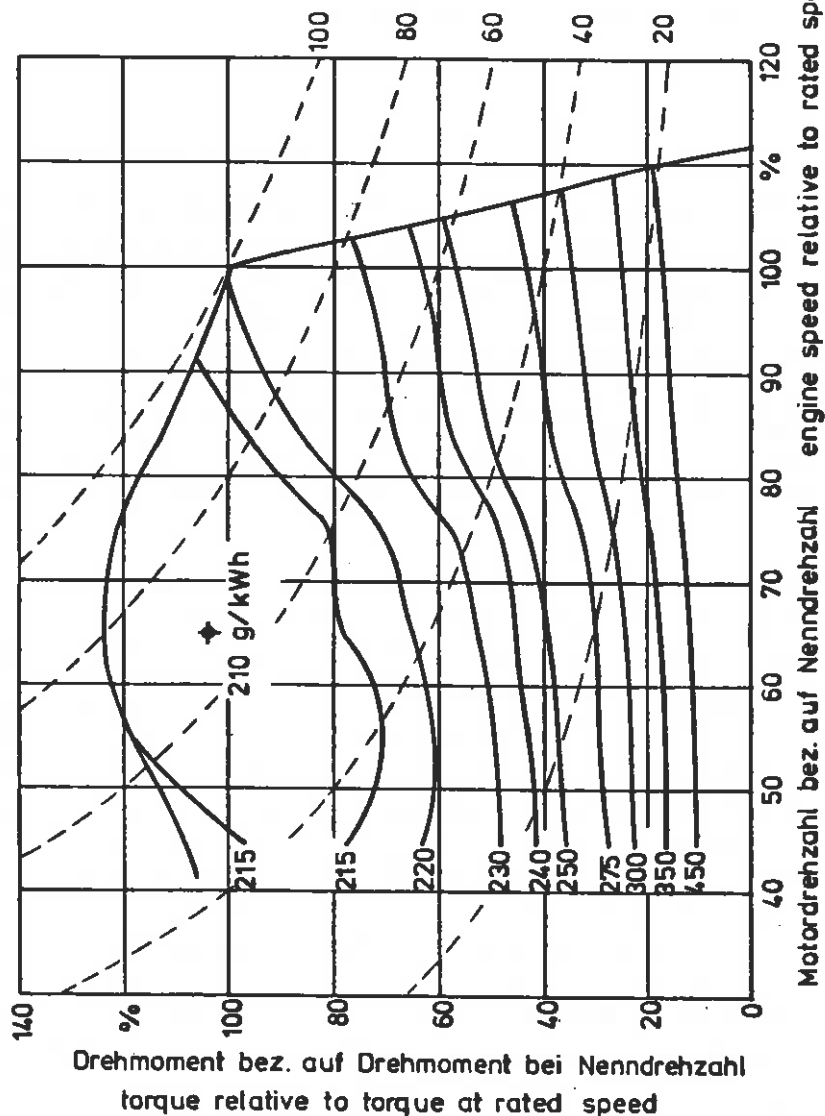
Test No. 85-91







Motorleistung in % der Leistung bei Nenndrehzahl
engine power in % of power at rated engine speed



ADDITIONAL TESTS(10) REAR POWER LIFT with modified linkage geometry *)

Date of tests: 22nd May 1985

	Height of lower hitch points above ground in down pos. mm	Ver- tical move- ment 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	520	473	3620	164	-	-
On the frame	520	508	2780	164	4740	6,5

Temperature of hydraulic fluid at start of test 65°C

Lifting heights relative to horizontal lower links

mm	-48	-38	0	+100	+200	+300	+400	+435	+460
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Lifting forces at hitch points

daN		3620	3620	3670	3740	3820	3780	3720	
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Lifting forces at test frame

daN	3460		3450	3390	3320	3200	2990		2780
-----	------	--	------	------	------	------	------	--	------

- *) Length of lift rods (L) 455 mm
Lift rod's linkage point (D) 701 mm
Distance of upper link
pivot point above rear axle (d) 431 mm
Length of upper link (S) 698 mm

See pages - 10 - and - 11 -


(11) FRONT POWER LIFT

Date of tests: 22nd May 1985

Linkage dimensions: see page - 12 -

	Height of lower hitch points above ground in down pos. mm	Ver- tical move- ment mm	Max. force exerted through full range daN	Corresp. pressure of hydraul. fluid bar	Moment about front axle daNm	Max. tilt angle of mast over range of lift degrees
At hitch points	479	523	2150	164	-	-
On the frame	479	523	1710	164	3690	4

Temperature of hydraulic fluid at start of test 65 °C

Lifting heights relative to horizontal lower links

mm	-168	-153	-100	0	+100	+200	+300	+370	+385
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Lifting forces at hitch points

daN		2150	2170	2200	2170	2200	2170	2150	
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Lifting forces at test frame

daN	2210		2130	2060	2010	1950	1840		1710
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**(12) NOISE AT THE DRIVER'S EAR**

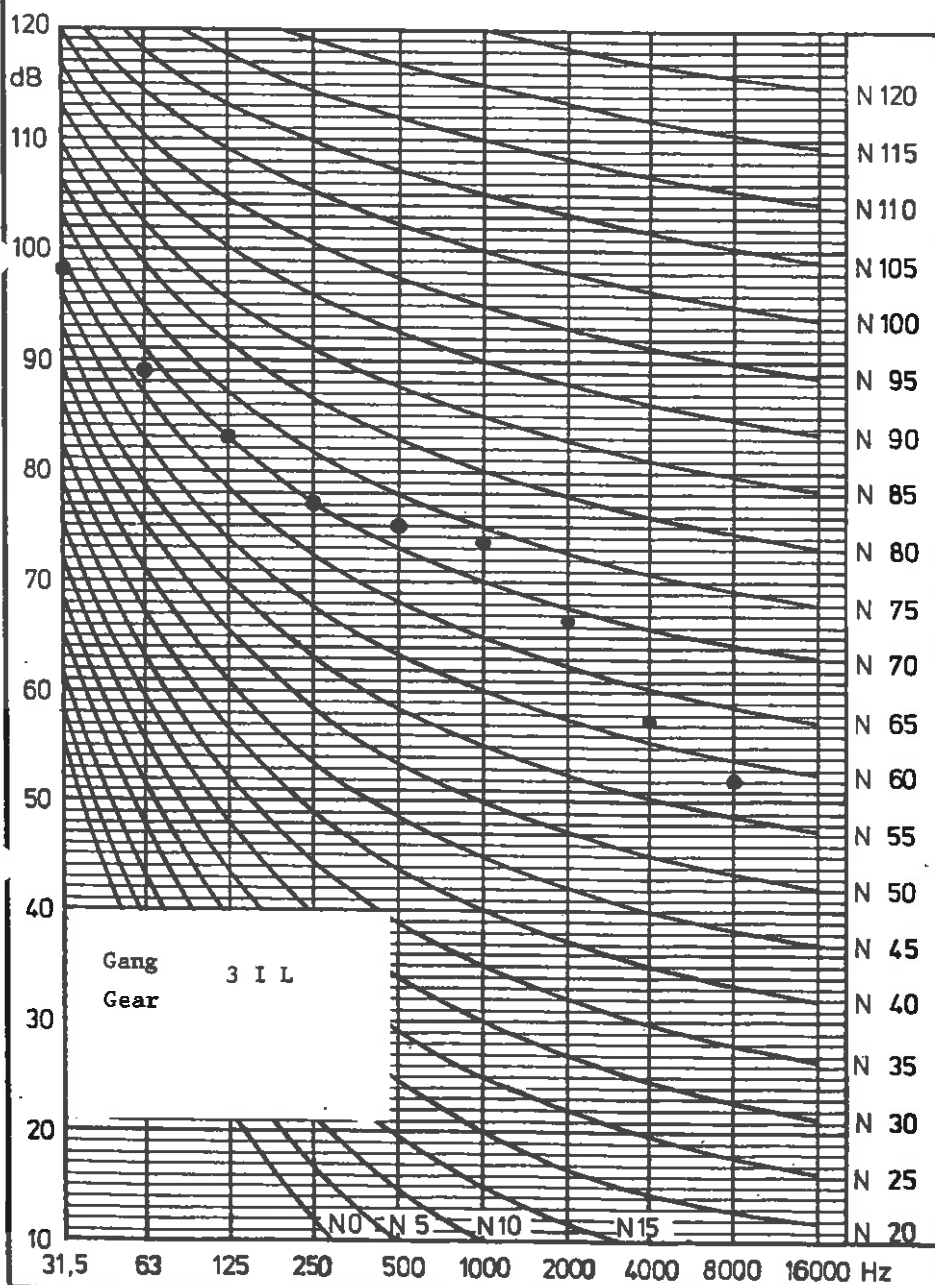
Date of test: 18th June 1985
Test track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2209
Type of frequency analyser: BRÜEL & KJAER model 1613
(fitted with octave filter)

with MERCEDES-BENZ safety cab 441.82

Results of test

Gear	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed		Sound level	
		nominal km/h	effectiv km/h	dB(A)	noise rating
3 I L	1831	7,67	7,56	82,0	73,5

There is no gear combination in which the NOISE RATING number is higher than 73,5



THE HISTORY OF THE UNITED STATES

1776

1789

1800

1820

1850

1877

1898

1918

1929

1945

1954

1968

1980

1991

1994

1997

1999

2001

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)
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