Report on test in accordance
with OECD STANDARD CODE

OECD No. 1162

Agricultural Tractor MERCEDES-BENZ MB-TRAC 900 TURBO (4WD)

Type denomination MB-TRAC 440/2, variant 173

Manufacturer
Daimler-Benz AG
D-7560 Gaggenau

Deutsche Landwirtschafts-Gesellschaft e.V.
Zimmerweg 16 · D-6000 Frankfurt a. M. 1
Telefon: (069) 71 68-0 · Telex: 04 131 85 dlg-d

https://tractormanualz.com/

This is a report on a tractor test in accordance with OECD STANDARD CODE for the Official Testing of Agricultural Tractor Performance (C(87)53(Final), Code I).

It does not contain an evaluation of the tractor on practical work.

Duration of tests: October 1987 till April 1988

DLG-Testing Station for Agricultural Machinery, Max-Eyth-Weg 1,
D-6114 Groß-Umstadt

This report has been approved by the OECD Co-Ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE.

Date of approval: 4th November 1988 OECD No. 1162

This is an OECD-report on a retest of the agricultural tractor MB-TRAC 900 TURBO (see OECD-report no. 967).

Retesting has been necessary as the engine model has been changed.

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 kN	=	1000 N	=	102,00 kp
Powers			1 kW	=	1,36 PS
Pressures	1 MPa	=	10 bar	=	10,20 kp/cm²
	100 kPa	=	1000 mbar	=	750,10 mm Hg

All rights including the right of translation, reprint and photo-mechanical copying — also of excerpts — reserved by the editor.

Printed in the Federal Republic of Germany
December 1988; DLG-No. 236

https://tractormanualz.com/

TABLE OF CONTENTS

		Page
SPECIFICATION OF TRACTOR *)		4 to 17
TEST CONDITIONS		17 to 19
COMPULSORY TESTS		
(1)	Main power take-off performance	20 to 23
(2)	Hydraulic power and lifting force	24 and 25
(3)	Drawbar power	26 and 27
(4)	Turning area and turning circle	28
(5)	Position of centre of gravity	28
(6)	Braking	29
(7)	External noise level	30
APPENDIX		
	Measurement of noise in the protective structure results of OECD-Test No. CSD 0568/9-a(C)	30
OPTIONAL TESTS		
(8)	Engine performance	31 to 34
ADDITIONAL TESTS under the responsibility of the DLG-Testing Station		
(9)	Lifting forces at rear power lift with modified linkage setting	35

*) All stated dimensions refer to tyre size 16.9 R 24 and track width 1608 mm each at front and rear

https://tractormanualz.com/

Tractor manufacturer:	DAIMLER-BENZ AG D-7560 Gaggenau
Location of tractor assembly:	D-7560 Gaggenau
Submitted for test by:	Manufacturer
Selected for test by:	Manufacturer with agreement by DLG
Place of running-in:	Gaggenau and Groß-Umstadt
Duration of running-in:	Engine 70 hours, tractor 50 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	MERCEDES-BENZ
Trade Name:	MB-TRAC 900 TURBO
Type denomination:	MB-TRAC 440/2, variant 173
Type:	Four wheel drive tractor, chassis construction with implement mounting area above rear axle, spring suspended front axle
Serial No.:	WDB 440 173 OW 139 753
1st serial No.:	WDB 440 173 OW 000 001

Engine

Make:	MERCEDES-BENZ
Model:	OM 364 A.II/1
Type:	Watercooled 4-stroke DIESEL-engine, direct injection, supercharged
Serial No.:	364 951-10-023 448
Cylinders:	4, in-line, bore 97,5 mm, stroke 133 mm, displacement 3972 cm³, no separate cylinder liners; compression ratio 16,5±0,5:1
Valves:	Overhead
Fuel system:	BOSCH fuel supply pump, BOSCH 2-stage fuel filter with replaceable filter elements, capacity of fuel tank 120 dm³; BOSCH in-line injection pump EP 3971 PES 4 MW 100/720 RS 1127 with timing device, serial no. 748 985 72 manufacturer's production setting 64±2 mm³/stroke at rated engine speed and full load, injection timing 15°±1° before TDC; BOSCH multihole injection nozzles DLLA 142 S 791, injection pressure 20±0,8 MPa

https://tractormanualz.com/

Governor:	BOSCH, RSV 350-1200 MW 0A 322,RS 3811, centrifugal variable speed governor, governed range of engine speed from 700 to 2600 rev/min, rated engine speed 2400 rev/min
Supercharging:	KKK K24-364, exhaust turbo-supercharger; max. supercharge pressure 81 kPa
Air cleaner:	Main cleaner MANN optional KNECHT, FP 9007; dry paper element filter with safety cartridge, filter elements replaceable, maintenance indicator, cyclone pre-cleaner incorporated; air intake above bonnet
Lubrication system:	Forced feed with gear pump, MANN oil filter in full flow (with by-pass valve), replaceable
Cooling system:	Water cooling with centrifugal pump; V-belt driven fan with 7 blades, 470 mm dia; water capacity 19 dm^3, temperature control by thermostat; close-circuit cooling, overpressure relief valve set to 70 kPa
Starting system:	Electrical, BOSCH solenoid pre-engaged-drive starting motor JF 12V 3 kW; cold starting aid STARTPILOT, safety device: disengaged travel clutch, p.t.o. selection lever in position 0
Electrical system:	12 V, BOSCH 3-phase alternator K1-14 V 23/55 A 770 W; 1 lead acid battery, 120 Ah (optional 165 Ah) at 20 hours rating
Exhaust system:	GILLET, SH 9033 multi-chamber reflexion type silencer, 228x98 mm oval, 425 mm long; on the left of tractor's median plane, below bonnet, mouth 2800 mm above ground showing upwards-forward

https://tractormanualz.com/

Transmission to wheels

Clutch:	LUK, dry dual disc clutch DT 330/310 C; travel clutch hydraulically operated by pedal, disc 330 mm dia; p.t.o. clutch pneumatically operated by control lever, disc 310 mm dia
Gear box:	MERCEDES BENZ, model 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 range H and L, pneumatically shifted when operating clutch, synchronized; total 16 forward and 8 reverse speeds; 2 levers and 1 preselector on speed change lever; optionally available: modified axle-drive ratio and crawler gear
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 lockable, spur gear final drives
Front axle and final drives:	MERCEDES BENZ, portal axle; linked to chassis by coil springs, shock absorbers and Panhard rod; driven by universally-jointed propeller shaft, pneumatically engageable and disengageable under load by rotary knob; bevel gear drive, bevel gear differential with lock, spur gear final drives
Both axles:	Axle drives optionally available with transmission ratios 14,026 or 12,857, tested variant 14,026; differential with dog-clutch locks in front and rear axle in common pneumatically engageable and disengageable under load by rotary knob

Number of revolutions of front wheels for one revolution of rear wheels: 1,0000

https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test No. 87-211

Total ratios and speeds

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	200,08	183,41	2,80	3,06
		2	118,57	108,69	4,73	5,16
		3	73,17	67,07	7,67	8,38
		4	44,43	40,72	12,63	13,77
	H	1	156,95	143,87	3,57	3,90
		2	93,01	85,27	6,03	6,58
		3	57,40	52,61	9,77	10,66
		4	35,85	31,84	16,10	17,56
II	L	1	80,53	73,82	6,97	7,60
		2	47,12	43,74	11,75	12,82
		3	29,45	27,00	19,05	20,78
		4	17,88	16,39	31,37	-
	H	1	63,17	57,90	8,88	9,69
		2	37,43	34,31	14,99	16,35
		3	23,10	21,18	24,26	26,49
		4	14,03	12,83	39,99	-
R	L	1	154,35	141,49	3,63	3,96
		2	91,47	83,84	6,13	6,69
		3	56,45	51,57	9,94	10,84
		4	34,27	31,42	16,34	17,88
	H	1	121,07	110,98	4,63	5,05
		2	71,75	65,77	7,82	8,53
		3	44,28	40,59	12,67	13,82
		4	26,88	24,64	20,87	22,76

*) calculated with the radius index 620 mm

1) tested variant with axle transmission ratio 14,028 (40 km/h)

2) optionally available variant with axle transmission 12,857 with locked 4th gear for max. speed 30 km/h

https://tractormanualz.com/

Gear lubrication: Oil-sump lubrication

Power take-off

Main p.t.o.: Independent, driven by second disc of dual clutch;
1 p.t.o. shaft at rear of tractor;
35 mm dia, 8 splines, in conformity with ISO 500/1979 type 1 (standard)
optionally available:
35 mm dia, 21 splines, ISO 500/1979 type 2
45 mm dia, 20 splines, ISO 500/1979 type 3
45 mm dia, 6 splines
height above ground 605 mm
distance from tractor's median plane, to the left 25 mm
distance behind rear wheel centre 420 mm

direction of rotation clockwise (viewed facing tractor's rear)
2 speeds are preselectable by hand lever

p.t.o.	p.t.o. speed rev/min	engine speed rev/min	ratio of rotation speeds (engine speed/p.t.o. speed)	power restriction kW
540	540	2165	4,0093	type 1 33 type 2 50
	599	2400		
1000	1000	2196	2,1962	-
	1093	2400		

Secondary p.t.o.: Front p.t.o., 1 shaft at front of tractor;
drive, available profiles, speeds and sense of rotation as main p.t.o.
height above ground 1110 mm
distance from tractor's median plane, to the left 205 mm
distance to front wheel centre 700 mm

Both p.t.o. shafts may be shifted to simultaneous or separate operation by selection lever

https://tractormanualz.com/

Power lift	MERCEDES-BENZ/BOSCH hydraulic power lift, disintegrated construction
Hydraulic system:	Open centre system, relief valve pressure setting 18+1,0 MPa; ECKERLE internal gear pump IPF-3-13144, directly V-belt driven by engine, delivery 51 l/min at rated engine speed; oil filter in return line; separate oil tank under front end of chassis, 30 dm³ capacity of full circuit
Power lift at rear:	Hydraulic power lift with mechanical control MHR; BOSCH control unit SR60, draft and position control, both infinitely mixable, floating position, lower link sensing, lowering throttle; remote control of power lift at tractor's rear on request (fitted); 2 single acting WEBER cylinders 150 mm stroke and 80 mm dia, no cylinder safety valves; transport lock: lowering throttle, control lever fixable
Power lift at front:	Optional, installed to tested tractor only for power lift measurements and ballasting; connected with double acting additional control valve by hydraulic couplings; 2 double acting WEBER cylinders, 140 mm stroke and 63 mm dia, piston rod 25 mm dia, directly acting on laterally stabilized lower links; transport lock: stop cock in pressure line; no cylinder safety valves
Remote circuit:	3 double acting additional BOSCH control valves SRZ 60, with 3 pairs of tapping points each at front and at rear; 1 additional return line coupling each at front and at rear; up to 15 dm³ oil may be taken off if tractor is working stationary as well as travelling, 20 dm³ if tractor is standing horizontally

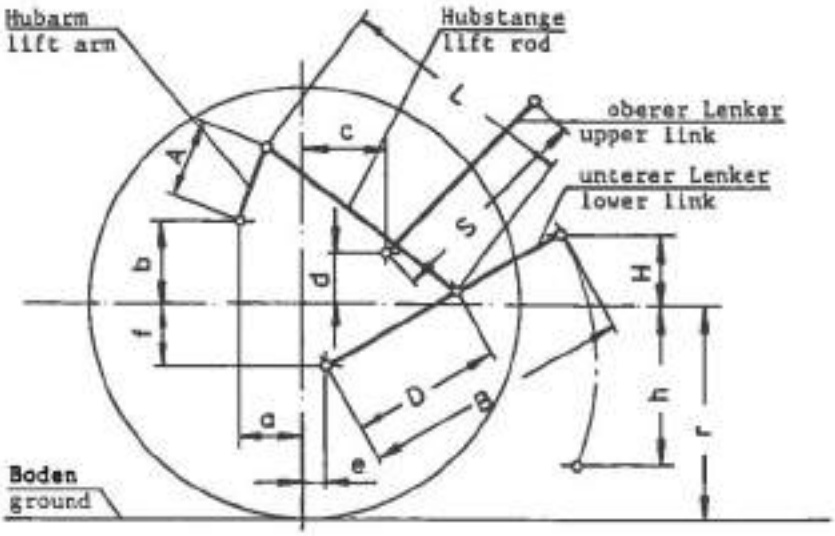
https://tractormanualz.com/

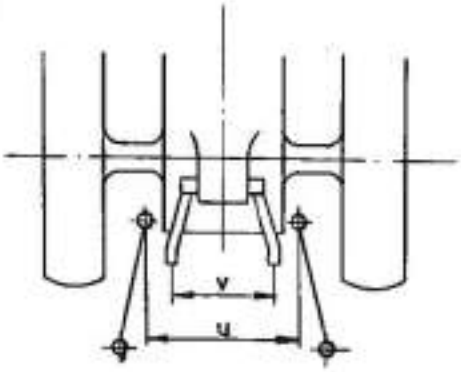
PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test No. 87-211

Implement linkage at rear:

Three-point linkage with WALTERSCHEID quick-couplers;
coupler points category 2 acc. to ISO 730/1-1977 resp. DIN 9674





https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 800

Test No. 87-211

Dimensions of rear linkage geometry when connected to the standard frame (projected lengths in mm, underlined values are valid for power lift measurements p. 25)

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 wheel centre	horizontal	(a)	-208
	vertical	(b)	253
Horizontal distance between the 2 lower link pivot points		(u)	490
Horizontal distance between the 2 lift arm end points		(v)	765
Length of upper link		(S)	645 to 865, 704
Distance of upper link pivot point from rear wheel centre	horizontal	(c)	393
	vertical	(d)	434 and 376
Distance of lower link pivot point from rear wheel centre	horizontal	(e)	208
	vertical	(f)	62
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	609 and 710
Length of lift rods		(L)	455 to 630, 562

Height of lower link hitch points relative to rear wheel centre line (situated 620 mm above ground), these data are valid for unloaded power lift:

Length of lift rods	(L)	562	455		630	
Linkage distance of lift rod	(D)	609	609	710	609	710
Lowest position	(h)	420	225	100	542	430
Highest position	(H)	245	382	412	125	180
Transport position	(H')	245	382	412	125	180

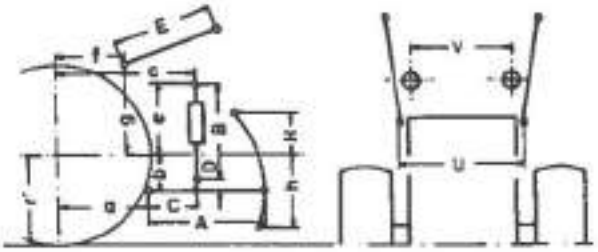
https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test NO. 87-211

Implement linkage at front: Three-point linkage, coupler points category 2 acc. to ISO 730/I-1977 resp. DIN 9674

Dimensions of front linkage geometry (projected lengths in mm, underlined values are valid for power lift measurements p. 24)



Rear and front tyres	radius index	(r)	620
Length of lower links		(A)	880
Length of cylinders		(B)	370 to 500
Distance of lower link pivot point to fixing point of cylinder		(C)	215
Distance of cylinder's fixing point to lower link		(D)	95
Length of upper link		(E)	645 to 865, 722

Distance of front wheel centre to:		horizontal		vertical
pivot point of lower link	(a)	710	(b)	25
pivot point of cylinders	(c)	910	(e)	480
pivot point of upper link	(f)	925	(g)	420

Horizontal distance between the 2 lower link pivot points	(u)	790
Horizontal distance between the 2 cylinder pivot points	(v)	770

Height of lower link hitch points relative to front wheel centre line (situated 620 mm above ground), these data are valid for unloaded power lift)

lowest position	(h)	170
highest position	(H)	377
transport position	(H')	377

https://tractormanualz.com/

Pull attachment

Swinging drawbar:	Optional, not fitted on tractor tested; in accordance with manufacturer:
	hitch point
	above ground 423 mm
	behind rear wheel centre 787 mm
	distance to p.t.o. shaft end
	vertical 182 mm
	horizontal 367 mm
	lateral adjustment
	to both sides 110 mm
	pivot point behind rear wheel centre 57 mm
	diameter of drawbar pin hole 31 mm
	maximum vertical permissible load
	not specified
Trailer hitch:	ROCKINGER, model 248 B type B (optional, fitted on tested tractor), remote control, automatical, height adjustable;
	hitch point
	above ground 795, 853, 911 or 969 mm
	behind rear wheel centre 552 mm
	distance to p.t.o. shaft end
	vertical 190, 248, 306 or 364 mm
	horizontal 132 mm
	diameter of hitch pin 30 mm
	maximum vertical permissible load 1500 kg
	optionally available
	ROCKINGER 279 B, automatical or
	ROCKINGER 278 B, non-automatical (standard)
	or
	ROCKINGER 248 BA, automatical, without remote control
Holed drawbar:	Short bar, length between joint balls 830 mm
	number of holes 9
	distance between holes 80 mm
	hole diameter 33 mm
	thickness/width of the drawbar 25/80 mm
	height above ground (determined without load) minimum 78 mm
	maximum 1032 mm
	horizontal distance to p.t.o. shaft end (with horizontal lower links) 675 mm
Towing hitch:	At front of tractor, height above ground 855 mm

https://tractormanualz.com/

Steering	ZF, hydrostatic, model SERVOSTAT 8494; ZF-vane pump, delivery 19 l/min, V-belt driven by engine, separate oil circuit with 3,2 dm³ capacity, replaceable filter 2 double acting WEBER differential rams, 240 mm stroke, 55 mm dia, piston rod 20 mm dia, directly operating on steering levers, working pressure 10 MPa
Brakes	
Service brake:	MERCEDES-BENZ; pedal operated, single circuit, power assisted brake (assisted by compressed air), hydraulic transmission; dual circuit brake optional; per wheel 1 brake disc each with 421 mm dia, at front 2 brake calipers each, at rear 1 brake caliper each
Trailer brake:	Optional, fitted on tested tractor; combined single/dual line type, compressed air controlled; MERCEDES-BENZ single-cylinder air compressor, directly driven by engine (standard), 2 air reservoirs with 26 dm³ and 9,5 dm³ volume, working pressure 810+20 kPa; for certain countries hydraulic brake, oil pressure supplied by hydraulic system
Parking brake:	Spring-loaded brake, pneumatically operated by hand valve, acting on rear brake discs of service brake
Steering brake:	None
Wheels	
Steering wheels:	At front, 2 pneumatics
Driving wheels:	At front and at rear
Wheelbase:	2400 mm
Track width adjustment:	None, track width at front and at rear 1608 mm (not adjustable) adjustable-gauge bowl wheels for track widths from 1496 to 1800 mm optional

https://tractormanualz.com/

Rims: At front and at rear W13x24

Available tyres:

Tyres sizes at front	and	at rear
14.5-24 MPT 16 ply *)		445/70R24 151 E
16/70-24 MPT 14 ply		500/60-26.5 12 ply 14 ply
14.9-24 8 ply *)		12.4-28 8 ply *)
14.9R24 126 A8		12.4R28 121 A8
17.5LR24 145 A8		13.6-28 8 ply *)
19.5LR24 149 A8		13.6R28 123 A8
14.9/80-24	10 ply 12 ply	9.5-32 10 ply *)
16.9-24	8 ply 12 ply *)	

*) as radial ply tyres available, too

Protective structure

MERCEDES-BENZ, model 441.82;
safety cab, OECD-tested
approval-no. CSD 0568/9-a(C)

welded steel sheet structure, antivibration mounted by 3 silent blocks on chassis, tiltable to the rear;

1 door and 2 (optional 3) steps on each side, roof hatch;
steps 600 and 950 mm, driver's platform 1270 mm above ground;
roof hatch tiltable, rear window divided, both parts shiftable, drop windows in the doors, optional tiltable rear window and windscreen;
combined heating/ventilation system with 2 step-blower and cooling water heat exchanger incorporated below instrument panel, air intake in front of windscreen, paper element filter above engine bonnet;
on request (fitted on tested tractor): Additional ventilation system with 3-step-blower, incorporated in roof, 6 outlet jets above windscreen;
air intake by 1 paper element filter each on the left and right side along the roof;
on request available: Air conditioner (incorporated in roof)

https://tractormanualz.com/

noise reduction materials:

floor inside	laminated floor mat (plastic foil, rubber, foam and film foil)	18,5 mm
bottom side	PVC-damping material (density 9,8 kg/dm³)	4,0 mm
doors, rear wall and side walls	foil coated cardboard	2,5 mm
roof front part	adhesive damping foil	3,5 mm
other part and roof hatch	foam on cardboard with fabric coating (density 30 kg/m³)	30,0 mm
bulk head side facing to engine	PVC-damping material (density 9,8 kg/dm³)	4,0 mm
instrument panel	synthetics PPO (NORYL)	

Driver's seat

ISRINGHAUSEN, model ISRI 6500/516 (on request, fitted on tested tractor), upholstered seat with back rest and arm rests, pneumatic suspension with hydraulic shock absorber, additional horizontal suspension, lockable; automatically acting weight adjustment; range of adjustment:
longitudinal 180 mm
vertical front and rear end in 6 steps each from 424 to 489 mm
standard type: ISRI 6000/516 with mechanical suspension;

Passenger's seat

On the left of driver's seat; upholstered with back rest, folding seat, not suspended, not adjustable

Implement mounting area

Behind cab, above rear axle;
width between mudguards 900 mm
length of bottom plate 875 mm

https://tractormanualz.com/

Lighting

Electrical, 12 Volt, as per German legislation

	Height above ground of centre mm	Size mm	Distance from outside edge to median plane of tractor mm
Headlights	940	135x120	588
Auxiliary lights	2710	135x120	590
Side lights	1520	58x30	930
Rear lights	1325	60x85	795
Reflectors 1st pair 2nd pair	 920 675	 75 dia 75 dia	 795 568

Speed-hour meter

Digital travelling speed and distance display, analog engine and p.t.o. speed display;
electronic running-time meter, reference engine speed for 1 really counted hour 1600 rev/min

TEST CONDITIONS

Overall dimensions

Length:	4550 mm without ballast	5290 mm with ballast
Width:	2100 mm	2100 mm
Height:	2855 mm to top of cab roof,	2800 mm to upper edge of exhaust pipe mouth
Ground clearance:	500 mm below lower link pivot points	

Tyres and track widths specifications

Tyres:	Front and rear wheels
dimensions	16.9 R 24
type	MICHELIN BIB'X radial ply tyres
load index	134
speed index	A 8
maximum load	21,2 kN
inflation pressure	160 kPa
radius index	620 mm

Chosen track width: 1608 mm, not adjustable

https://tractormanualz.com/

Tractor mass

		without driver kg	with driver kg
Without ballast: Mass	front	2465	2500
	rear	1785	1825
	total	4250	4325

Front ballast:
1 weight 500 kg
1 front power lift 80 kg
water in front tyres 255 kg

Rear ballast:
weights on implement mounting area 1560 kg
water in rear tyres 280 kg

With ballast: Mass	front	3715	3750
	rear	3210	3250
	total	6925	7000

Technically permissible axle loads: at front 3750 kg
at rear 4000 kg

Technically permissible total weight: 7000 kg

Oils and lubrication

Capacity and change interval:

	Capacity dm³	Oil change h *)	Filter change h *)
Engine	11,0	300	300
Gear box	11,0	1200	-
Front axle	2,0	1200	-
Rear axle	2,0	1200	-
Final drives front	0,6 +)	1200	-
Final drives rear	0,6 +)	1200	-
Hydraulic system	33	1800	1800
Steering	3,2	2400	2400

*) operating hours

+) on the left and right each

https://tractormanualz.com/

Specifications:

	Recommended	Used during test
Engine oil:		ARAL
Type	engine oil	MULTITURBORAL
viscosity	SAE	
winter	10W, 20W/20, 20W/30 or 15W/40	SAE 15W/40
summer	30 or 15W/40	
tropics	40	
classification	API-CC or MIL-L-46152	API-CC
Transmission oils:		
Gear box and group gears		
type	gear oil	ESSO GP-080
viscosity	SAE 80 or 80W/85	SAE 80
classification	API-GL-4 or MIL-L-2105	API-GL-4
Front axle and rear axle		
type	gear oil	ESSO HYPOID GX-080
viscosity	SAE 90 or 85W/90	SAE 90
classification	API-GL-5 MIL-L-2105 B	API-GL-5
Final drives at front and final drives at rear		
type	gear oil	ESSO HYPOID GX-090
viscosity	SAE 90 or 85W/90	SAE 90
classification	API-GL-5 or MIL-L-2105 B	API-GL-5
Power lift and steering		SCHLEIFENBAUM
type	engine oil	PENAXOLINE OBU
viscosity	SAE 10W	SAE 10W
classification	API-CC	API-CC

Grease: multi purpose grease
number of lubrication points: 22

Fuel

type: ARAL Diesel-fuel in conformity with DIN 51601
density: At 15°C at engine performance test 0,834 g/cm³
at p.t.o. performance test 0,834 g/cm³
at drawbar power test 0,831 g/cm³

REPAIRS None

REMARKS None

https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test No.87-211

COMPULSORY TESTS

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

Date of tests: 19th November 1987
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						
1.1 At 2-hour test						
61,8	2400	1093	18,11	15,10	244	3,41
1.2 At rated speed						
61,8	2400	1093	18,11	15,10	244	3,41
1.3 At standard p.t.o. speed						
60,1	2196	1000	16,73	13,95	232	3,59
1.4 Part loads, the governor hand lever in the position corresponding to maximum power at full load (curve a)						
1.4.1 the torque corresponding to maximum power at rated speed						
61,8	2400	1093	18,11	15,10	244	3,41
1.4.2 85% of the torque obtained in 1.4.1						
53,6	2449	1115	16,35	13,64	254	3,28
1.4.3 75% of the torque defined in 1.4.2						
40,8	2487	1132	13,66	11,38	278	2,99
1.4.4 50% of the torque defined in 1.4.2						
27,5	2512	1144	10,77	8,98	327	2,55
1.4.5 25% of the torque defined in 1.4.2						
13,9	2534	1154	7,65	6,55	472	1,77
1.4.6 unloaded						
-	2574	1172	5,76	4,80	-	-

https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test No. 87-211

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
1.5 Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
1.5.1 the torque corresponding to maximum power						
60,1	2196	1000	16,73	13,95	232	3,59
1.5.2 85% of the torque obtained in 1.5.1						
52,4	2252	1025	15,22	12,69	242	3,44
1.5.3 75% of the torque defined in 1.5.2						
39,8	2282	1039	12,36	10,31	259	3,22
1.5.4 50% of the torque defined in 1.5.2						
26,8	2308	1051	9,86	8,22	306	2,72
1.5.5 25% of the torque defined in 1.5.2						
13,6	2333	1062	6,99	5,83	430	1,94
1.5.6 unloaded						
-	2376	1083	5,02	4,19	-	-

No load maximum engine speed: 2574 rev/m
Equivalent flywheel torque at rated engine speed: 246 Nm
Maximum equivalent flywheel torque: 299 Nm at 1600 rev/min of the engine

Mean atmospheric conditions

temperature	19 °C
pressure	100 kPa
rel. humidity	45 %

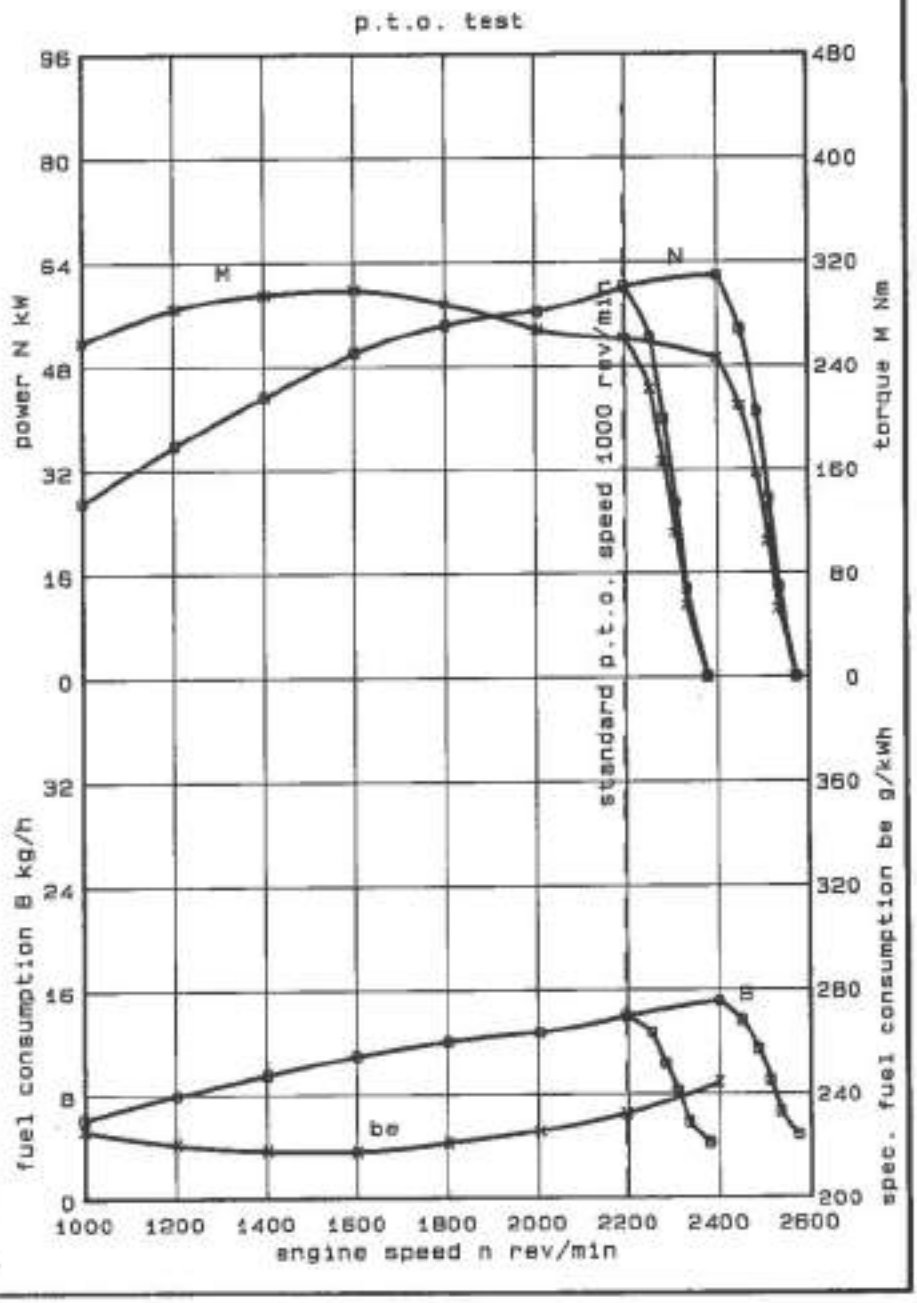
Maximum temperatures

coolant	81 °C
oil	116 °C
fuel	20 °C
air intake	20 °C

https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

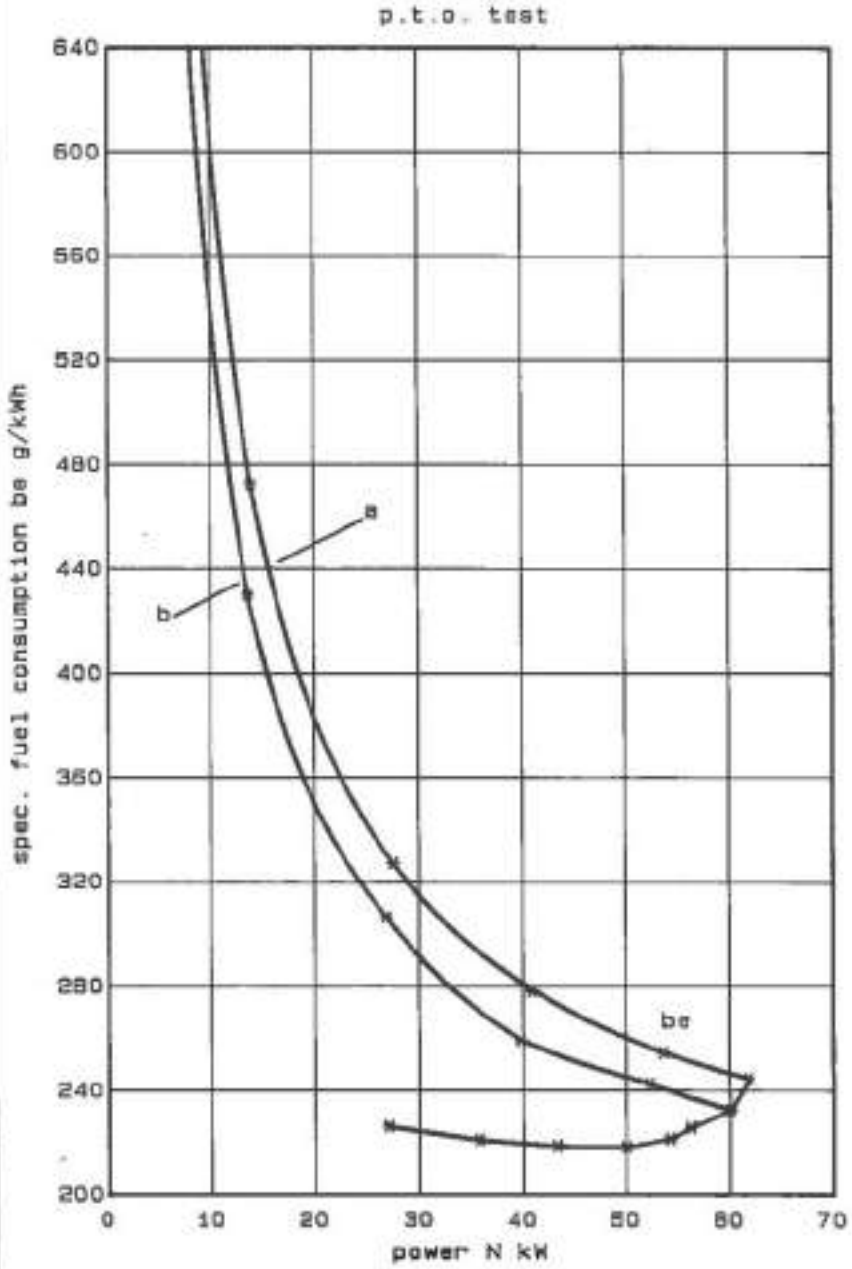
Test-No.87-211



https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test-No.87-211



https://tractormanualz.com/

(2) HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 25th till 27th January 1988

(2.1) Hydraulic power test

Sustained pressure with relief valve open 18,7 MPa
Pump delivery rate at minimum pressure 53,6 l/min

	Hydraulic power kW	Flow rate l/min	Pressure MPa	Oil temperature °C
at 90% of the actual relief valve setting	12,1	43,2	16,8	65
maximum	12,5	47,2	15,9	65

Tapping point used for test: At rear of tractor

(2.2) Lifting force at front power lift
(spring suspension at front axle locked)
linkage dimensions see page 12

	Height of lower hitch points above ground in down position mm	Vertical movement mm	Max.force exerted through full range kN	Corresp. pressure of hydraul. fluid MPa	Moment about front axle kNm	Max.tilt angle of mast from vertical degrees
At hitch points	450	515	19,7	15,9	-	-
On the frame	450	540	15,7	15,9	34,5	5

Temperature of hydraulic fluid at start of test 65°C
Lifting heights relative to horizontal lower links

mm	-155	-145	-100	0	+100	+200	+300	+370	+385
Lifting forces at hitch points									
kN		20,5	20,5	20,7	20,7	20,5	20,3	19,7	
Lifting forces at test frame									
kN	20,3		18,9	19,3	18,6	17,7	16,7		15,7

https://tractormanualz.com/

(2.3) Lifting force at rear power lift
linkage dimensions see pages 10 and 11

	Height of lower hitch points above ground in down position mm	Vertical movement mm	Max.force exerted through full range kN	Corresp. pressure of hydraul. fluid MPa	Moment about rear axle kNm	Max.tilt angle off-rest from vertical degrees
At hitch points	200	635	25,3	15,9	-	-
On the frame	200	668	22,6	15,9	38,6	6

Temperature of hydraulic fluid at start of test 65°C

Lifting heights relative to horizontal lower links

mm	-388	-358	-300	-200	-100	0	+100	+200	+277	+300
Lifting forces at hitch points										
kN		25,3	25,7	26,8	27,8	28,9	29,7	29,7	29,1	
Lifting forces at test frame										
kN	24,4		24,2	24,9	25,1	25,1	24,6	24,0		22,6

https://tractormanualz.com/

(3) DRAWBAR PERFORMANCE

Date of tests: 16th March till 12th April 1988
Type of track: Concrete

Gear	Driving speed km/h	Power kW	Drawbar pull kN	Engine speed rev/min	Slip of wheels %
(3.1) Maximum power in tested gears (unballasted tractor) height of drawbar above ground 530 mm					
1 I L	2,42	30,1	44,84	2473	15,1
1 I H	3,08	39,2	44,61	2460	15,0
2 I L	4,17	48,6	41,96	2400	10,8
2 I H	5,57	51,1	33,02	2403	6,3
1 II L	6,54	51,4	28,27	2400	4,7
3 I L	7,27	50,9	25,21	2400	3,9
1 II H	8,46	51,5	21,91	2400	3,3
3 I H	9,35	51,3	19,75	2400	2,8
2 II L	11,30	50,9	16,21	2400	2,3
4 I L	12,19	50,5	14,90	2403	2,0
(3.2) Maximum power in tested gears (ballasted tractor) Height of drawbar above ground 520 mm					
1 I L	2,38	44,1	66,66	2416	15,0
1 I H	3,26	50,2	55,49	2400	7,9
2 I L	4,46	49,6	40,00	2398	4,5
2 I H	5,75	50,7	31,76	2398	3,8
1 II L	6,67	50,2	27,00	2398	2,8
3 I L	7,35	49,7	24,34	2396	2,4
1 II H	8,56	50,7	21,31	2400	2,2
3 I H	9,45	49,7	18,95	2398	1,8
(3.3.1) Five-hour-test at 75% of pull at maximum power in 3 I L gear					
3 I L	7,57	38,4	18,28	2453	1,8
(3.3.2) Five-hour-test at pull corresponding to 15% wheel slip in test (3.2)					
1 I L	2,37	43,9	66,66	-	-

Total oil consumption during ten hours duration of tests (3.3.1) and (3.3.2): 50 g/h

https://tractormanualz.com/

Test No. 87-211

Tyre size front and rear: 16.9 R 24 134 A8

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: 80 kPa at front, 80 kPa at rear							
367	2,26	23	78	99	9	88	972
343	2,42	24	79	100	8	83	972
308	2,69	24	79	100	8	86	972
293	2,84	23	78	98	9	91	972
292	2,94	23	79	96	9	92	972
295	2,92	23	78	94	9	89	972
291	2,96	23	78	94	9	89	972
292	2,85	24	79	95	9	91	972
294	2,83	23	79	94	9	89	972
296	2,80	22	79	94	9	89	972
tyre inflation pressure: 140 kPa at front and 110 kPa at rear							
323	2,57	24	79	89	9	77	998
298	2,78	24	79	89	9	77	998
301	2,76	24	79	94	9	76	998
298	2,81	24	79	94	9	78	998
298	2,79	25	79	93	10	79	988
302	2,76	24	80	94	10	80	997
295	2,92	24	79	95	10	78	997
301	2,76	24	79	93	10	77	997
330	2,52	33	80	109	17	67	991
-	-	30	81	108	15	71	994

Test (3.3.2) was carried out with additional ballast, the figures not quoted are therefore irrelevant

https://tractormanualz.com/

(4) TURNING AREA AND TURNING CIRCLE

Wheel equipment front and rear: 16.9 R 24

Track of wheels front and rear: 1608 mm

Front wheel drive disengaged

	left hand m	right hand m
Radius of turning area	6,19	6,11
Radius of turning circle	5,93	5,85

(5) POSITION OF CENTRE OF GRAVITY

Height above ground	1020 mm
Distance forward from rear axle centre	1387 mm
Distance from tractor's median plane, to the right	8 mm

https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test No. 87-211

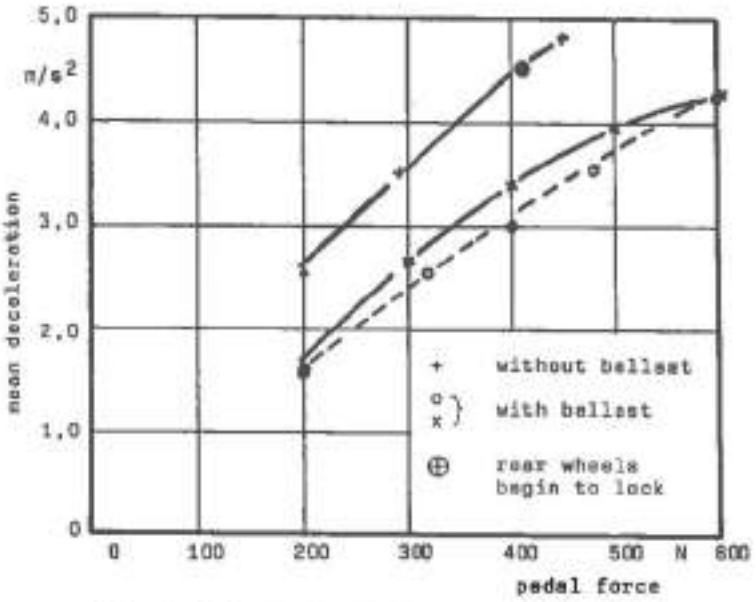
(6) BRAKING (Front wheel drive disengaged)

Date of test: 22nd March 1988

	Tractor mass (with driver) front kg	rear kg	total kg	Speed before application of brakes km/h
Without ballast	2500	1825	4325	40,7
With ballast	3750	3250	7000	39,3

(6.1) Cold service braking device test ———

(6.2) Fade test ----------



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

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

(6.3) Parking braking device test

	Ballasted tractor on 18% - slope
Braking device control force kN	Parking brake pneumatically controlled by hand valve, tractor doesn't roll

https://tractormanualz.com/

(7) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 18th March 1988
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2209

Results of test

Gear: 4 II H +)
Travelling speed before acceleration: 30,3 km/h
Sound level: 83,5 dB(A)

APPENDIX

MEASUREMENTS OF NOISE IN THE PROTECTIVE STRUCTURE

Results of OECD-Test No. CSD 0568/9-e(C)

Date of tests: 11th February 1987
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2209

Gear	Drawbar pull kN	Travelling speed km/h	Sound level dB(A)	Noise rating N
3 I L *)	2754	7,19	81,5	79
3 I L *)	light load	8,32	80,0	
4 II H +)	light load	42,19	81,0	

*) The 3 I L gear corresponds to the nominal travelling speed nearest to 7,5 km/H.

+) Front wheel drive disengaged

https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test No. 87-211

OPTIONAL TEST

8. ENGINE PERFORMANCE

Date of tests: 3rd November 1987
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current-dynamometer W 150

	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						
8.1 At 2-hour test	68,1	2400	18,12	15,12	222	3,76
8.2 At rated engine speed	68,1	2400	18,12	15,12	222	3,76
8.3 At standard p.t.o. speed (1000 rev/min)	64,3	2197	16,61	13,86	215	3,87
8.4 Part loads						
8.4.1 the torque corresponding to maximum power at rated speed	68,1	2400	18,12	15,12	222	3,76
8.4.2 85% of the torque obtained in 8.4.1	59,1	2452	16,35	13,64	231	3,61
8.4.3 75% of the torque obtained in 8.4.2	45,0	2486	13,29	11,08	247	3,38
8.4.4 50% of the torque obtained in 8.4.2	30,3	2510	10,19	8,50	281	2,97
8.4.5 25% of the torque obtained in 8.4.2	15,3	2543	7,11	5,93	387	2,16
8.4.6 unloaded	-	2605	4,25	3,55	-	-

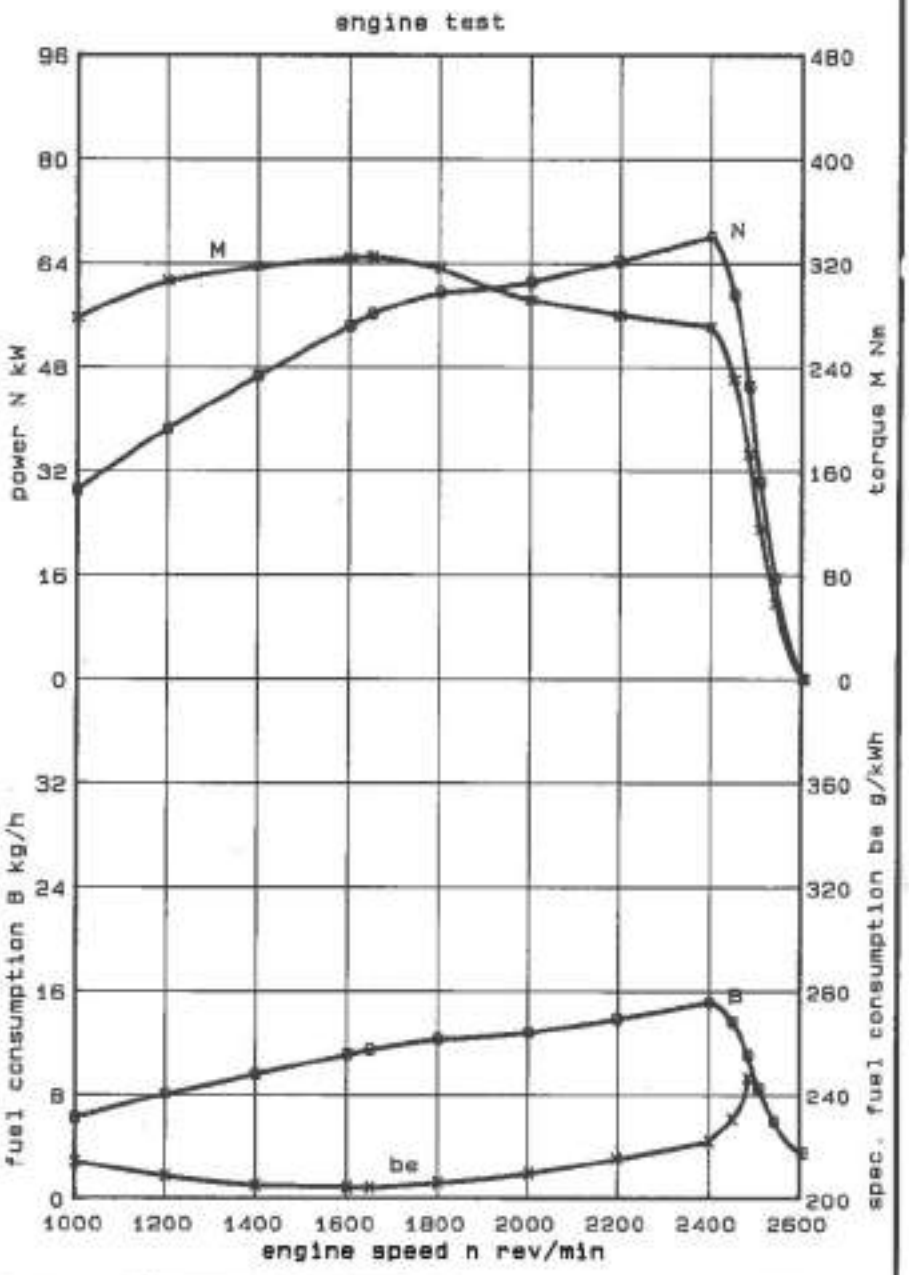
Optimum fuel consumption: 204 g/kWh at 54.3 kW and 1600 rev/min
No load maximum engine speed: 2605 rev/min
Torque at rated engine speed: 270 Nm
Maximum torque: 324 Nm at 1649 rev/min of the engine

Mean atmospheric conditions	temperature	20 °C
	pressure	101 kPa
	relative humidity	42 %
Maximum temperatures	coolant	81 °C
	oil	109 °C
	fuel	21 °C
	engine air intake	20 °C

https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

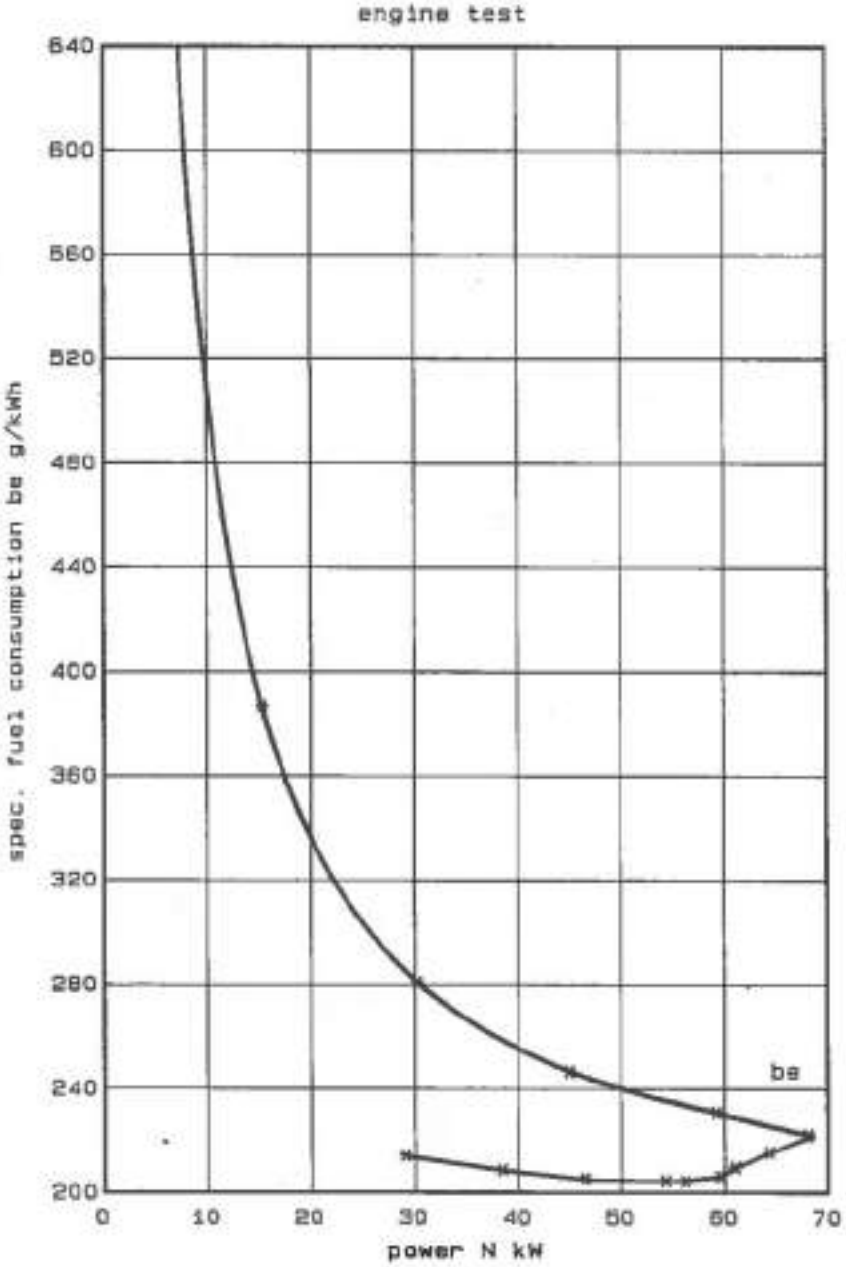
Test-No. 87-211



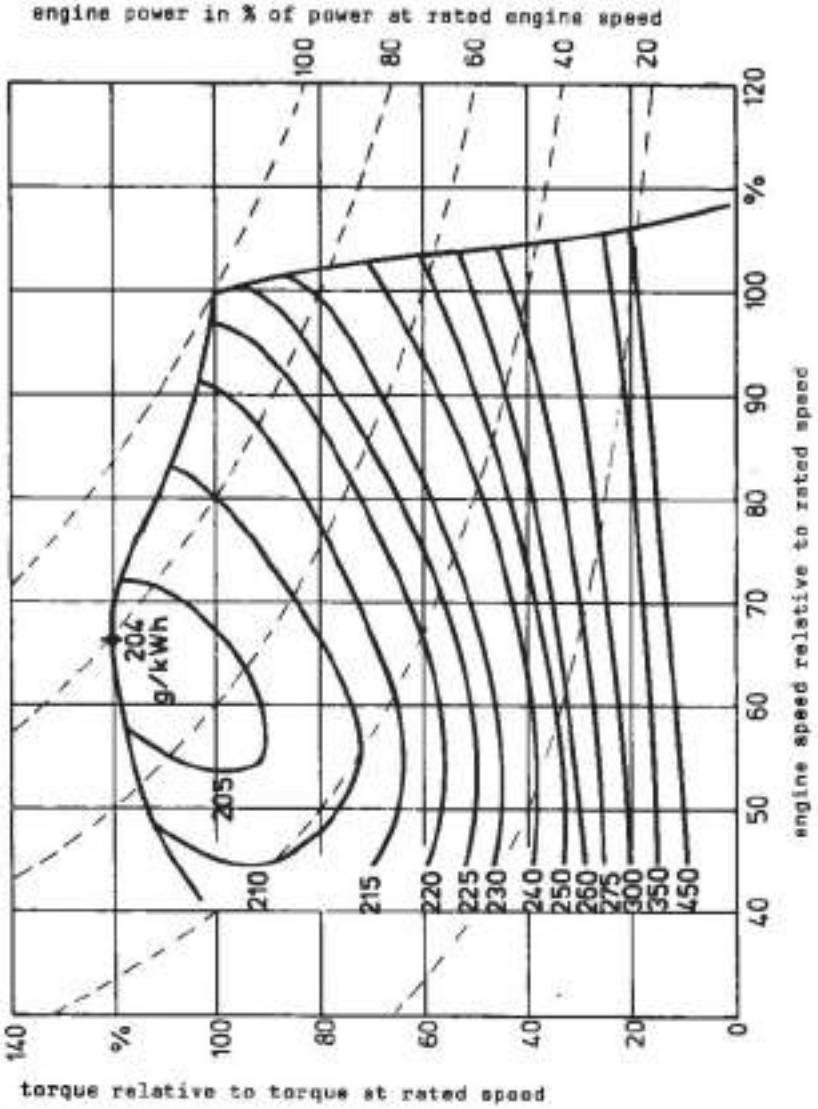
https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test-No.87-211



https://tractormanualz.com/



https://tractormanualz.com/

PRÜFUNGS-ABTEILUNG
MB-TRAC 900

Test No. 87-211

ADDITIONAL TESTS

under the responsibility of the DLG-Testing Station

(9) LIFTING FORCES at rear power lift with modified linkage setting

Date of tests: 25th January 1988

Length of lift rods (L) 455 mm

Distance of lower link pivot points to lift rod pivot points on lower links (D) 710 mm

Distance of upper link pivot point from rear wheel centre, vertical (d) 434 mm

Length of upper link (S) 698 mm

see pages 10 and 11

	Height of lower hitch points above ground in down position mm	Vertical movement mm	Max.force exerted through full range kN	Corresp. pressure of hydraul. fluid MPa	Moment about rear axle kNm	Max.tilt angle of mast from vertical degrees
At hitch points	520	488	34,5	15,9	-	-
On the frame	520	535	25,5	15,8	43,6	6

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	+450	+487
Lifting forces at hitch points									
kN		34,5	34,9	35,3	36,2	36,6	35,7	34,5	
Lifting forces at test frame									
kN	33,2		32,8	32,4	31,7	30,3	28,2		25,5

https://tractormanualz.com/

https://tractormanualz.com/

https://tractormanualz.com/

https://tractormanualz.com/

https://tractormanualz.com/

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

https://tractormanualz.com/