O.E.C.D. No.: 447
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Report on test in accordance with
O.E.C.D. STANDARD CODE for the Official Testing
of Agricultural Tractors



AGRICULTURAL TRACTOR MB trac 65/70

Manufactured by: DAIMLER-BENZ AG
D-7560 Gaggenau

Date of Tests: April till October 1973

DLG-Testing Station for Agricultural Machinery
D-6114 Groß-Umstadt

DEUTSCHE LANDWIRTSCHAFTS-GESELLSCHAFT e.V.
Prüfungsabteilung für Landmaschinen
D-6000 Frankfurt/Main 1, Zimmerweg 16

This bulletin is based on engineering tests in accordance with the O.E.C.D. STANDARD-CODE for the Official Testing of Agricultural Tractors. It does not contain an evaluation of the performance of the tractor on practical work.

This report has been approved by the O.E.C.D. Coordinating Center (C.N.E.E.M.A., France) as being in accordance with the O.E.C.D. STANDARD-CODE.

Date of Approval: 447

Serial No.: 22nd November 1973

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PRÜFUNGS-ABTEILUNG
MB trac 65/70

Test No. 72-111

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PRÜFUNGS-ABTEILUNG
MB trac 65/70 Test No. 72-111

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

SPECIFICATION OF TRACTOR

Tractor

Make:	DAIMLER-BENZ AG
Model:	MB trac 65/70
Type:	Agricultural tractor, chassis construction, four wheel driven, spring suspended front axle
Serial No.:	440 161-10-000 006

Engine

Make:	Own make
Model:	OM 314.VII
Type:	4-stroke Diesel engine with direct injection; water-cooled
Serial No.:	314 956-10-140 865
Cylinders:	4 in line; bore 97 mm; stroke 128 mm; displacement 3782 cm^2; compression ratio 17 : 1;
Valves:	Overhead valves
Fuel system:	BOSCH fuel feed pump: FP/KS 22 AD 6/4; BOSCH in line injection pump: PES 4 A 80 D 410 RS 2094 Z; manufacturer's production setting 50 mm^3/stroke at rated engine speed and full load; injection timing 21° before TDC; BOSCH multihole injection nozzles: DLLA 150 S 187; injection pressure 175 kp/cm^2; BOSCH fuel filter; pre- and main cleaner with replaceable cartridges; capacity of fuel tank appr. 120 l
Governor:	BOSCH centrifugal variable speed governor: EP/RSV 350-1200 A2B 1004 DL; governed range of engine speed: 700 to 2600 rev/min; rated engine speed 2400 rev/min

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Air cleaner:	MANN AND HUMMEL paper element filter with pre cleaner; PICLON 45 114 92314 maintenance indicator
Exhaust silencer:	HEINRICH GILLET KG (optional EBERSPÄCHER); multi-chamber muffler with holed centralpipe; 120/230 mm oval; 445 mm long; 250 mm to the left hand side of tractor's median plane; mouth 2540 mm above ground, showing upward
Lubrication system:	Forced feed from gear type pump; strainer in sump; MANN oil filter in full flow with by-pass valve; replaceable cartridge; oil capacity 8 l; oil changing period 200 hours; recommended oil viscosity: winter SAE 10W summer SAE 30 tropics SAE 40
Cooling system:	Pressurized water cooling, impeller assisted; by-pass thermostat; overpressure relief valve 0,4 kp/cm²; fan with 6 blades, 470 mm diameter; cooling water capacity 15 l
Starting system:	Electrical; BOSCH starter motor ID 12V 4 PS
Electrical equipment:	12 V, negative earth; BOSCH three phase alternator: U 1 14 V 35 A 20 490 W; 1 lead acid battery 110 Ah at 20 hours rating
Compressed air equipment:	Air compressor of own design; directly driven by engine; compressed air tank on the right hand side of chassis; air capacity 20 l; working pressure 7,35 kp/cm²

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Transmission

Clutch:	LAMELLEN UND KUPPLUNGSBAU GMBH or FICHTEL UND SACHS AG dry double disc type clutch; LUK: DT 280/280 G or FUS: DuT 280 S; travelling-part disc pedal operated; p.t.o.-part disc pneumatically operated by a switch on the instrument board
Gear box:	Own make; reduction gear for normal speeds with 4 forward and 3 reverse speeds; fully synchromesh; additional group gear with 3 groups; intermediate group, crawler group and supercrawler group; total 16 forward and 12 reverse speeds; crawler and supercrawler speeds are not usable for drawbar work with high pull
Rear axle and final drive:	Portal axle rigid fitted to tractor chassis; driven by universal joint shaft; crown wheel and pinion; bevel gear type differential with lock fitted; spur gear final drive in the wheels
Front axle and final drive:	Portal axle; coil spring suspended with shock absorber and travers stabilizer; driven by universal joint shaft in the push rod and double joint shafts in the stub axles; under load pneumatically engageable; crown wheel and pinion; bevel gear type differential with lock fitted; spur gear final drive in the wheels differential locks of front and rear axle under load in common pneumatically engageable
Oil capacity:	Gear box 7,0 l differential 2,25 l each final drives 0,3 l each
Oil changing period:	400 hours

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Total ratios and speeds (with tyres 14,5-20 MPT)

Group	Gear No.	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed at rated engine speed *) km/h	m/s
forward speeds				
normal speeds	1	94,844	4,77	1,33
	2	52,392	8,63	2,40
	3	34,684	13,03	3,62
	4	21,063	21,46	5,96
intermediate speeds	1	119,598	3,78	1,05
	2	66,067	6,84	1,90
	3	43,737	10,33	2,88
	4	26,560	17,02	4,73
crawler speeds	1	442,636	1,02	0,28
	2	244,515	1,85	0,51
	3	161,872	2,79	0,78
	4	98,299	4,60	1,28
super crawler speeds	1	4066,619	0,111	0,031
	2	2246,422	0,202	0,056
	3	1487,166	0,304	0,845
	4	903,102	0,501	0,139
reverse speeds				
normal speeds	1	75,876	5,96	1,66
	2	41,910	10,12	2,82
	3	27,746	16,29	4,52
intermediate speeds	1	95,680	4,72	1,31
	2	52,848	8,55	2,38
	3	34,988	12,92	3,59
crawler speeds	1	354,115	1,28	0,36
	2	195,593	2,31	0,64
	3	129,492	3,49	0,97
super crawler speeds	1	3253,351	0,139	0,039
	2	1796,969	0,252	0,070
	3	1189,677	0,380	0,106

*) calculated with standard active tyre radius acc. DIN 7793

Power take-off

Main p.t.o.: Live p.t.o., at rear of tractor;
480 mm above ground;
213 mm on the left hand side of tractor's median plane;
driven through the pneumatically operated disc of the clutch

29 x 34,9 x 8,7 mm = 1 3/8", 6 splines;
(DIN 9611 Form A; BS 1495; ASAE S 203.7);
(optional, not fitted on tractor tested:
1 3/8" involute profile, 21 splines;
ASAE S 204.6 or
36 x 44 x 11 mm = 1 3/4", 6 splines)

2 speeds are selectable:

540 rev/min
584 rev/min at rated engine speed;
standard p.t.o.-speed 540 rev/min at 2220 rev/min engine speed

1000 rev/min
1065 rev/min at rated engine speed;
standard p.t.o.-speed 1000 rev/min at 2254 rev/min engine speed

standard p.t.o.-speeds may be set by aid of tractormeter;
direction of rotation clockwise, viewed from tractor rear

Secondary p.t.o.: (Optional not fitted on tractor tested)
live p.t.o., at front of tractor;
910 mm above ground;
213 mm on the left hand side of tractor's median plane;
drive, dimensions, speeds and direction of rotation as main p.t.o.;

Main p.t.o. and secondary p.t.o. may be driven in common or each one for itself

Power lift

in the rear: Hydraulic power lift, disintegrated construction;
floating position;
(optional, electronical control system BOSCH;
not fitted on tractor tested;
power and position control, mixing control and
floating position).
WESTINGHOUSE gear type pump 6 P 41;
delivery nominal 40 l/min;
V-belt driven by engine;
2 double acting rams, bore 80 mm diameter,
rod 30 mm diameter, stroke 150 mm;
BOSCH control valve, double acting with automatic
hydr. release and lock for not intended operation;
maximum oil pressure 180 kp/cm²;
pressure accumulator make LANGEN und CO.;
maximum acculumator pressure 210 kp/cm²;
hydraulic oil tank with 30 l capacity;
18 l may be taken off through oil tappings;
oil changing period 1800 hours

Three point linkage DIN 9674 category II;
(optional with Servotrac-device);
lifting rods length variable from 440 to 615 mm;
lifting range above ground from 50 to 880 mm
depending on lifting rods length;
hydraulical linkage lock for transport

at front: (Optional only fitted on tractor tested for
power lift tests);
hydraulic power lift, disintegrated construction;
oil supply from the front oil tappings;
1 double acting ram; bore 80 mm diameter
rod 30 mm diameter, stroke 150 mm;
BOSCH control valve double acting with automatic
hydr. release and lock for not intended operation;

Three-point implement quick acting hitch system
of own construction;
the ram acts directly on a lateral stabilized
linkage system with clevis acc. to DIN 9674
category II;
lifting range above ground from 200 to 960 mm;
distance of clevis to front axle centre 1700 mm
with linkage system in horizontal position;
hydraulical linkage lock for transport

Oil tappings

1 double acting BOSCH control valve with 2 oil tappings in front as well as in the rear fitted on tractor tested;
up to 3 double acting BOSCH control valves with automatic hydr. release and lock for not intended operation are optional available with up to 4 oil tappings in front of tractor as well as in the rear;
1 pressureless oil return in front as well as in the rear is available;
1 front end loader oil connection is fitted

Holed drawbar

Fitted on clevis of lower links of the implement linkage in the rear;
length between the ball joints 830 mm;
thickness of drawbar 25 mm, alloyed steel;
centre hole and 4 holes on either side;
80 mm distance each;
all holes 33 mm diameter;
height above ground adjustable by power lift from 62 to 892 mm according to lifting rods length, measured on the surface of drawbar;
in standard height 450 mm above ground hydraulically lockable;
with lower links in horizontal position
distance of centre hole:
from rear axle cantre 1110 mm
from p.t.o.-shaft end 730 mm

Pull attachment

Trailer hitch:

ROCKINGER
271 U 140;
height above ground 660 mm;
distance of hitch hole to rear axle centre 450 mm;
permissible supporting force 1500 kp

Towing hitch:

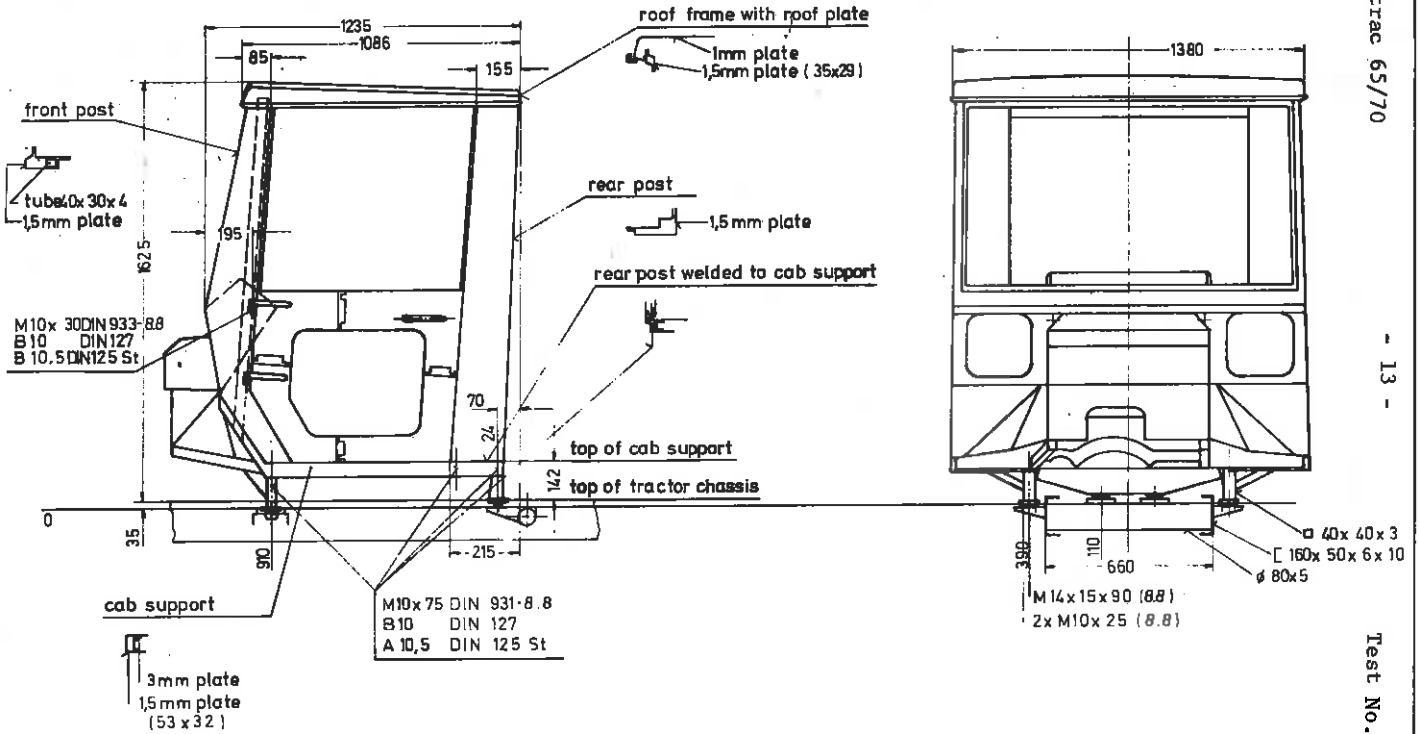
At front of tractor;
height above ground 710 mm

Steering	ZAHNRADFABRIK FRIEDRICHSHAFEN AG; hydrostatic steering; hand pump and control valve; model 32, type 84; unit construction, steering wheel operated; ZF-EATON high pressure pump; delivery 40 l/min at 130 kp/cm² V-belt driven by engine; 2 double acting rams; bore 40 mm diameter, stroke 250 mm; propped to the push rod; acting on the steering levers; oil supply from the hydraulic oil tank of the power lift; hydraulic oil tank with partition for appr. 5 l steering supply
Brakes	
Parking brake:	Mechanically acting as internal shoe type brake; acting on brake drums in the rear wheels; brake drums 390 mm diameter, 70 mm width; operated by hand lever with ratchet
Foot brake:	Hydraulically acting as Simplex internal shoe type brake on brake drums in all wheels; one cycle type; brake drums 390 mm diameter, 70 mm width; pedal operated
Trailerbraking system:	WESTINGHOUSE brake valve; hydraulically operated by pedal; acting as one cycle type
Wheels	
Steering wheels:	In front
Driving wheels:	In front and in the rear; front wheel drive disengegeable see page 6; 4 pneumatics 14,5-20 MTP 10 ply DIN 7793; maximum permissible load on one tyre 2400 kp at 2,5 kp/cm² inflation pressure and 30/h; track width 1616 in front and in the rear; rims 11 x 20 in front and in the rear
Wheel base:	2430 mm

Cab

Own make (see drawing on page 13);
all steel construction consisting of molded pieces welded and bolted together;
antivibration suspended on the chassis with 4 SILENT-BLOCKS;
entry by doors on the right and left hand side;
doors may be removed;
2 mounting steps on either side;
460 and 780 mm above ground;
windscreen and windows of SEKURIT safety glass;
(optional compound glass);
the forehalf of the doorwindows may be opened and locked;
no interior paddings;
inside of the roof covered with anti-noise compound;
opening in the back face 1180 to 930 mm;
may serve as escape hatch;
closed by PVC-curtain with 2 slide fasteners;
this may be opened and rolled up from the inside;
hot air heating and blower ventilation;
windscreen defroster jet;
SWF-windscreen wiper;
2 rear-view mirrors

Height of roof members above the loaded tractor seat 1055 mm;
height of roof members above the tractor footplate 1455 mm;
interior width of the cab 950 mm above the loaded tractor seat 1260 mm;
interior width of the cab at the level of the centre of the steering wheel 1290 mm;
distance from the centre of the steering wheel to the right hand side of the cab 590 mm;
distance from the centre of the steering wheel to the left hand side of the cab 750 mm;
minimum distance from the steering wheel to the side of the cab 375 mm;
width of the doorway at the top 770 mm
in the middle 760 mm
at the bottom 565 mm;
height of doorways above mounting steps 1765 and 2070 mm


1235
1086
85
155
roof frame with roof plate
1mm plate
1,5mm plate (35x29)
front post
tube40x 30x 4
1,5mm plate
rear post
1,5mm plate
195
625
rear post welded to cab support
M10x 30DIN 933-8.8
B 10 DIN127
B 10.5DIN125 St
70
24
top of cab support
142
top of tractor chassis
0
35
90
215
cab support
M10x 75 DIN 931-8.8
B10 DIN 127
A 10,5 DIN 125 St
3mm plate
1,5mm plate
(53 x 32)
1380
390
110
660
□ 40x 40x 3
[160x 50x 6x 10
ø 80x5
M14x15x90 (8.8)
2x M10x 25 (8.8)

Cab (Continuation)	No special features to prevent continued rolling; no features which might cause injury when overturning; Approved as a safety cab under the O.E.C.D.-serial number CS 253 on 26th March 1973
Seat	ISRINGHAUSEN upholstered seat with backrest; adjustable spring and shock absorber; parallelogram - guidance; height above the cab platform appr. 450 mm; inclination of back rest variable by 20°; 120 mm displaceable to and fro; 90 mm at the right hand side of tractor's median plane
Passenger's seat	At the left hand side of driver's seat; upholstered with back rest; turn up seat; not spring suspended, damped or otherwise adjustable
Auxiliary platform	Behind the cab; between the rear mudguards; length 1000 mm, width 970 mm
Number of grease points	22

Overall dimensions

Total length:	5210 mm with implement linkage in front and in the rear; 4486 mm with implement linkage only in the rear
Total width:	2000 mm at smallest track width 1540 mm; 2095 mm at largest track width 1790 mm
Total height:	2550 mm to the top of the roof
Maximum ground clearence:	395 mm in the median plane of tractor

Weights — Ready for use as tested, see pages 24 and 25

		without driver	with driver
Without ballast:	front	1850 kp	1882 kp
	rear	1250 kp	1293 kp
	total	3100 kp	3175 kp
Front ballast:	1 frame		44 kp
	4 front weights on the frame 45 kp each		180 kp
Rear ballast:	on the auxiliary platform		1116 kp
With ballast:	front	2154 kp	2192 kp
	rear	2286 kp	2323 kp
	total	4440 kp	4515 kp

Permissible total weights, axle loads and track widths for all available wheel equipments

Tyres	Pressure kp/cm²	Permissible total weight kp	Permissible front axle load kp	Permissible rear axle load kp	track widths mm
9,5 - 32 6 PR 9,5 R 32 6 PR	2,1	4560	2280	2280	1540 1790*
11,2 - 28 8 PR 11,2 R 28 8 PR	2,4	5580	2790	2790	1540 1790*
12,4 - 28 8 PR 12,4 R 28 8 PR	2,3	6000	3230	3230	1540 1790*
14,9 - 24 8 PR 14,9 R 24 8 PR	1,8	6000	3750	3750	1600 1730*
14,9/80-24 10 PR	2,1	6000	3750	3750	1600 1730*
14,5-20 MPT 10 PR 14,5-20 MPT 12 PR 14,5R20 MPT 14 PR	1,75	6000	3750	3750	1616

*) by turning wheels

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Lighting equipment: Electrical;
12 Volt;
acc. to German governmental regulations

	Dimensions of area mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Head lights	130 Ø	1150	755
Side lights	90 x 50	1360	70
Rear lights	160 x 75	1150	250
Reflectors	75 Ø	825	250

FUELS AND LUBRICANTS USED IN TESTS

Fuel: ARAL-Diesel fuel (DIN 51601)
specific gravity at 15°C
during laboratory tests 0,830 kg/l
during drawbar tests 0,831 kg/l

Engine oil: ARAL HD 30

Transmission oil: SAE 80

Hydraulic oil: ARAL HD 30 (engine oil)

In addition to the test with the tyres 14,5-20 MPT 10 ply the MB trac 65/70 has been fitted out with tyres 12,4 R 28 AS 8 ply and ballasted to the total weight of 6000 kp. The drawbar tests then have been repeated.

SPECIFICATION OF TRACTOR

with tyres 12,4 R 28 AS 8 ply

Heights above ground

Exhaust silencer:	2630 mm
Main p.t.o.:	570 mm
Secondary p.t.o.:	1000 mm
Lifting range with	
front power lift:	from 290 to 1050 mm
rear power lift:	from 50 to 970 mm
Holed drawbar:	from 62 to 982 mm
Trailer hitch:	750 mm
Towing hitch:	800 mm
Cab	
mounting steps:	550 and 870 mm
Total height:	2640 mm to top of cab
Maximum ground clearence:	485 mm in median plane of tractor
Head lights:	1240 mm
Side lights:	1450 mm
Rear lights:	1240 mm
Reflectors:	915 mm

Wheels

Steering wheels:	In front
Driving wheels:	In front and in the rear; front wheel drive engageable and disengageable; 4 pneumatics 12,4 R 28 AS 8 ply DIN 7807; maximum permissible load on each tyre 1615 kp at 2,3 kp/cm² inflation pressure; track width 1540 and 1790 mm in front as well as in the rear, adjustable by turning wheels rims W 10 x 28 in front and in the rear
Wheel base:	2430 mm

Weights

Ready for use as tested, see pages 26 and 27

		without driver	with driver
Without ballast:	front	1845 kp	1887 kp
	rear	1255 kp	1288 kp
	total	3100 kp	3175 kp
Front ballast:	1 frame		44 kp
	4 front weights on the frame 45 kp each		180 kp
	front power lift		98 kp
	10 front weights on the power-lift, 45 kp each		450 kp
Rear ballast:	On the auxiliary platform		1600 kp
	Water in the tyres		450 kp
With ballast:	front	3192 kp	3230 kp
	rear	2731 kp	2767 kp
	total	5923 kp	5997 kp

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Total ratios and speeds (with tyres 12,4R28 AS)

Group	Gear No.	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed at rated engine speed *) km/h	m/s
forward speeds				
normal speeds	1	94,844	5,64	1,57
	2	52,392	10,22	2,84
	3	34,684	15,44	4,28
	4	21,063	25,42	7,06
intermediate speeds	1	119,598	4,48	1,24
	2	66,067	8,10	2,25
	3	43,737	12,24	3,40
	4	26,560	20,16	5,60
crawler speeds	1	442,636	1,21	0,31
	2	244,515	2,19	0,61
	3	161,872	3,31	0,92
	4	98,299	5,45	1,51
super crawler speeds	1	4066,619	0,132	0,037
	2	2246,422	0,238	0,066
	3	1487,166	0,360	0,100
	4	903,102	0,593	0,165
reverse speeds				
normal speeds	1	75,876	7,06	1,96
	2	41,910	12,77	3,55
	3	27,746	19,29	5,36
intermediate speeds	1	95,680	5,60	1,56
	2	52,848	10,13	2,81
	3	34,988	15,30	3,69
crawler speeds	1	354,115	1,51	0,42
	2	195,593	2,74	0,76
	3	129,492	4,13	1,15
super crawler speeds	1	3253,351	0,165	0,046
	2	1796,969	0,298	0,083
	3	1189,677	0,450	0,125

*) calculated with standard active tyre radius acc. DIN 7807

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COMPULSORY TESTS

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

Date of tests: 13th April 1973
Type of dynamometer: Schenck hydraulic dynamometer U1-40

Maximum power

Power PS	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/PSh	Specific energy PSh/l
At maximum power 2-hour test						
62,1	2400	584	14,28	11,85	191	4,35
At standard p.t.o. speed (540 rev/min)						
61,3	2220	540	13,76	11,42	186	4,45
At the speed recommended for drawbar work						
62,1	2400	584	14,28	11,85	191	4,35

Part loads

(i) 85% of the torque at maximum power						
54,9	2496	607	12,82	10,64	194	4,28
(ii) unloaded						
-	2696	656	4,84	4,02	-	-
(iii) 50% of the load defined in (i)						
27,8	2533	616	8,29	6,88	247	3,53
(iv) maximum power						
62,1	2400	584	14,28	11,85	191	4,35
(v) 25% of the load defined in (i)						
14,3	2607	634	6,52	5,41	377	2,19
(vi) 75% of the load defined in (i)						
41,7	2526	614	10,60	8,80	211	3,93

No load maximum engine speed: 2696 rev/min
Equivalent crankshaft torque at maximum power: 18,55 kpm
Maximum equivalent crankshaft torque: 20,65 kpm at 1570 rev/min of the engine

Mean atmospheric conditions:	temperature	16°C
	pressure	749 mm Hg
	relative humidity	55%
Maximum temperatures:	coolant	85°C
	engine oil	105°C
	fuel	20°C

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

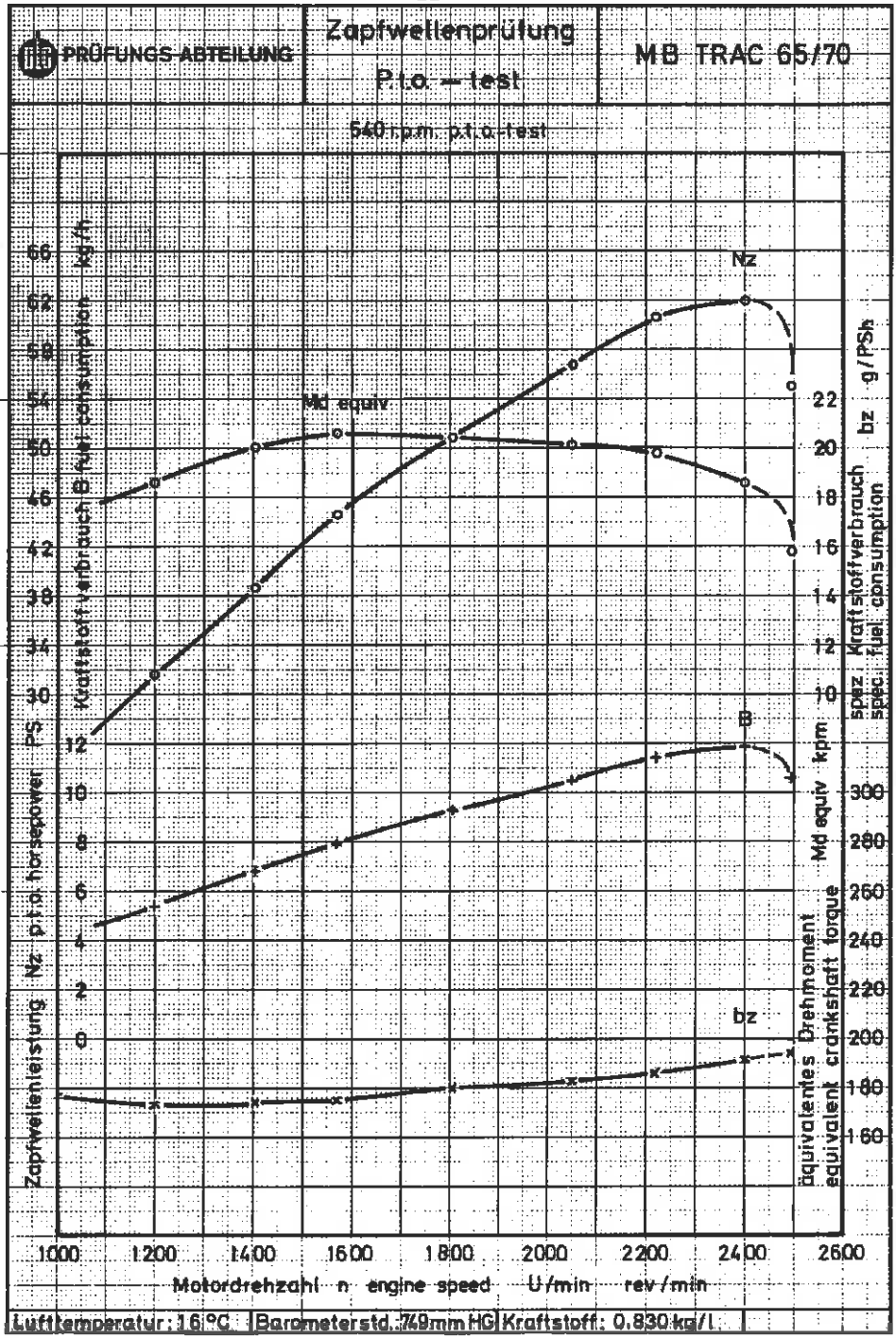
Date of tests: 16th April 1973
Type of dynamometer: Schenck hydraulic dynamometer U1-40

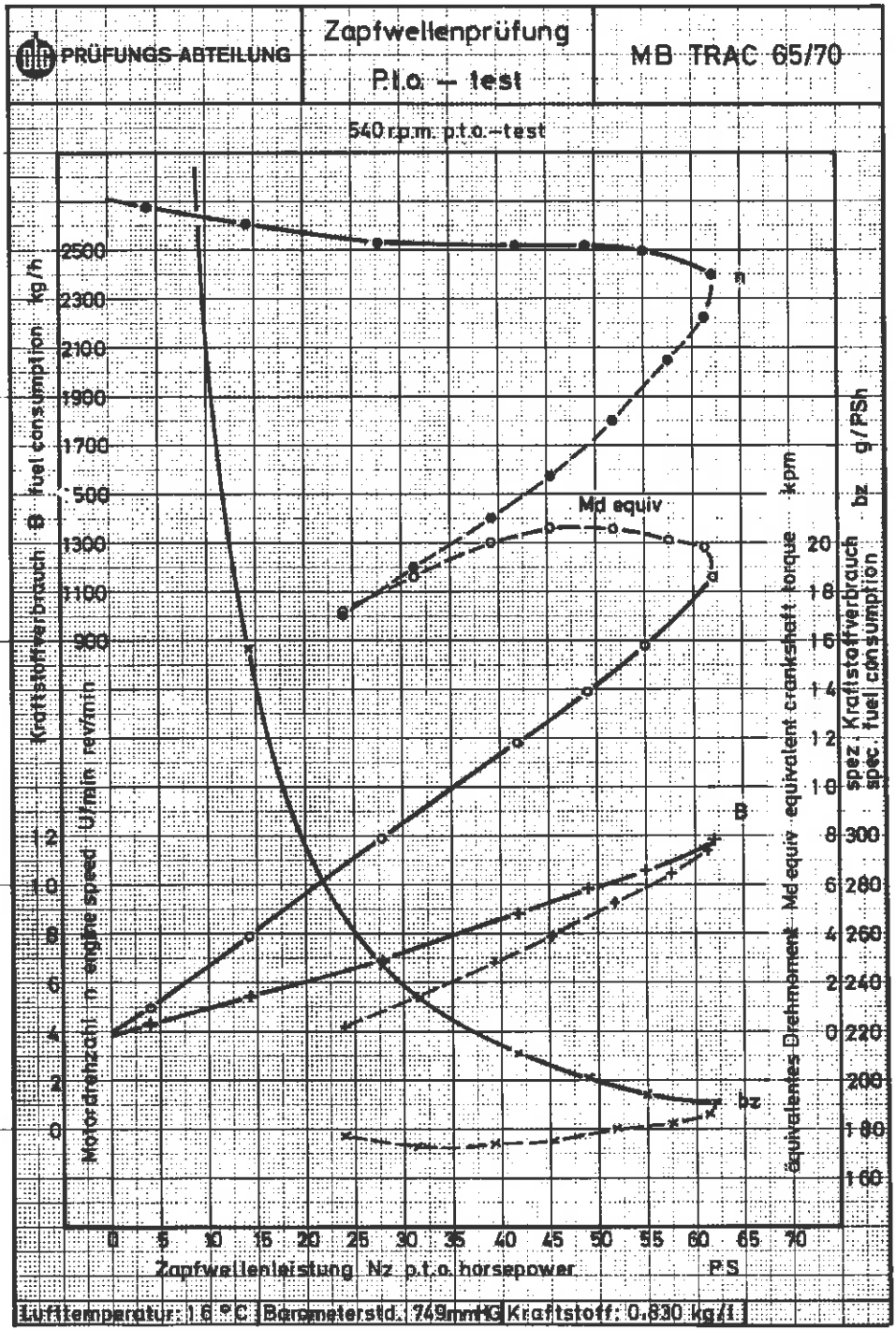
Maximum power

Power PS	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/PSh	Specific energy PSh/l
At maximum power 2-hour test						
62,5	2400	1065	14,20	11,79	189	4,40
At standard p.t.o. speed (1000 rev/min)						
61,9	2254	1000	13,91	11,54	186	4,45
At the speed recommended for drawbar work						
62,5	2400	1065	14,20	11,79	189	4,40
Part loads						
(i) 85% of the torque at maximum power						
55,6	2517	1117	12,98	10,77	194	4,29
(ii) unloaded						
-	2698	1197	4,81	3,99	-	-
(iii) 50% of the load defined in (i)						
28,3	2567	1138	8,48	7,04	249	3,34
(iv) maximum power						
62,5	2400	1065	14,20	11,79	189	4,40
(v) 25% of the load defined in (i)						
14,5	2631	1167	6,65	5,52	381	2,63
(vi) 75% of the load defined in (i)						
42,2	2546	1130	10,80	8,95	212	3,91

No load maximum engine speed: 2698 rev/min
Equivalent crankshaft torque at maximum power: 18,66 kpm
Maximum equivalent crankshaft torque: 21,0 kpm at 1578 rev/min of the engine

Mean atmospheric conditions:	temperature	20°C
	pressure	756 mm Hg
	relative humidity	60%
Maximum temperatures:	coolant	85°C
	engine oil	105°C
	fuel	20°C


PRÜFUNGS ABTEILUNG
Zapfwellenprüfung
P.t.o. – test
MB TRAC 65/70
540 r.p.m. p.t.o.-test
Nz
Md equiv
B
bz
Zapfwellenleistung Nz p.t.o. horsepower PS
Kraftstoffverbrauch B fuel consumption kg/h
äquivalentes Drehmoment equivalent crankshaft torque Md equiv kpm
spez. Kraftstoffverbrauch bz spec. fuel consumption g/PSh
Motordrehzahl n engine speed U/min rev/min
1000 1200 1400 1600 1800 2000 2200 2400 2600
Lufttemperatur: 16 °C
Barometerstd. 749 mm HG
Kraftstoff: 0,830 kg/l


PRÜFUNGS-ABTEILUNG
Zapfwellenprüfung
P.t.o. – test
MB TRAC 65/70
540 r.p.m. p.t.o.-test
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehzahl n engine speed U/min rev/min
Md equiv
Äquivalentes Drehmoment Md equiv equivalent crankshaft torque kpm
spez. Kraftstoffverbrauch be spec. fuel consumption g/PSh
n
B
be
Zapfwellenleistung Nz p.t.o. horsepower PS
Lufttemperatur: 16 °C Barometerstd. 749 mmHG Kraftstoff: 0.830 kg/l

PRÜFUNGS-ABTEILUNG
MB trac 65/70

(2) DRAWBAR PERFORMANCE

Date of test: 14th, 15th and 23rd August 1973
Type of track: concrete

Gear No. and Group	Speed km/h	Horse-power PS	Drawbar pull kp	Engine speed rev/min	Slip of wheels %	Specific energy PSh/l
(i) MAXIMUM POWER with ballast height of drawbar above ground 680 mm						
1 inter	3,55	49,8	3780	2400	10,0	3,42
1 normal	4,67	52,3	3020	2400	6,4	3,59
2 inter	6,89	52,6	2060	2397	3,4	3,64
2 normal	8,75	53,7	1660	2400	2,7	3,68
3 inter	10,57	52,4	1340	2400	2,0	3,60
3 normal	13,39	52,4	1060	2400	1,2	3,62
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 1st gear of normal group						
1 normal	5,03	42,3	2270	2524	4,2	3,40
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)						
1 inter	2,27	35,9	4270	1624	15,0	3,50
(v) MAXIMUM POWER without ballast height of drawbar above ground 420 mm						
1 inter	3,43	46,0	3620	2439	15,0	3,18
1 normal	4,58	51,2	3020	2399	7,9	3,54
2 inter	6,83	52,1	2060	2402	4,1	3,60
2 normal	8,71	53,6	1660	2400	3,2	3,72
3 inter	10,52	53,4	1370	2398	2,3	3,70
3 normal	13,34	53,4	1080	2400	1,6	3,69
4 inter	17,53	51,5	790	2400	1,3	3,56

Total oil consumption during ten hours duration of tests (ii) and (iii): 77 g/h

PRÜFUNGS-ABTEILUNG

Test No. 72-111

Tyres make and size front: Metzeler 14,5-20 MPT 10 ply
rear: Metzeler 14,5-20 MPT 10 ply

Specific fuel consumpt. g/PSh	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure mm Hg
tyre inflation pressure 2,0 kp/cm² active tyre radius under static load 517 mm						
237	36	85	95	29	57	758
225	36	85	95	29	58	758
225	35	85	98	26	65	758
222	32	85	98	24	70	758
228	35	85	94	24	65	758
226	33	85	95	24	68	758
237	36	85	92	27	58	759
231	36	85	98	25	65	759
tyre inflation pressure 2,0 kp/cm² active tyre radius under static load 517 mm						
257	38	85	97	30	60	758
232	37	85	98	29	62	758
228	34	85	92	26	67	759
220	34	85	98	25	69	759
221	33	85	95	24	72	759
222	32	85	101	24	72	759
230	38	85	100	30	60	758

Test (iii) was carried out without additional ballast

PRÜFUNGS-ABTEILUNG
MB trac 65/70

(2) DRAWBAR PERFORMANCE

Date of test: 8th May and 12th June 1973
Type of track: concrete

Gear No. and Group	Speed km/h	Horse-power PS	Drawbar pull kp	Engine speed rev/min	Slip of wheels %	Specific energy PSh/l
(i) MAXIMUM POWER with ballast height of drawbar above ground 740 mm						
1 inter	4,25	51,0	3240	2399	4,9	3,51
1 normal	5,41	52,0	2600	2399	4,0	3,57
2 inter	7,87	51,5	1770	2398	2,1	3,59
2 normal	9,96	51,9	1410	2400	2,0	3,60
3 inter	12,02	50,5	1140	2400	1,2	3,50
3 normal	15,16	49,4	880	2402	1,0	3,41
(v) MAXIMUM POWER without ballast height of drawbar above ground 740 mm						
1 inter	4,03	49,7	3330	2400	9,1	3,41
1 normal	5,24	52,1	2690	2399	6,2	3,57
2 inter	7,71	52,7	1850	2399	3,7	3,60
2 normal	9,86	53,1	1460	2400	2,9	3,63
3 inter	11,80	51,8	1190	2400	2,4	3,55
3 normal	14,96	52,2	940	2400	1,6	3,56

PRÜFUNGS-ABTEILUNG

Test No. 72-111

Tyres make and size
front: Pirelli Cinturato 12,4 R 28 AS 8 ply
rear: Pirelli Cinturato 12,4 R 28 AS 8 ply

Specific fuel consumpt. g/PSh	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure mm HG
tyre inflation pressure 2,3 kp/cm² active tyre radius under static load 590 mm						
232	35	84	96	27	81	751
227	37	85	98	26	64	753
227	33	85	98	25	68	755
225	36	82	98	25	66	755
232	33	80	94	26	65	755
238	32	80	90	26	67	755
tyre inflation pressure 1,1 kp/cm² active tyre radius under static load 594 mm						
239	35	85	98	24	74	752
229	24	84	95	16	78	752
227	24	85	95	16	78	752
226	17	85	105	13	85	752
231	24	85	105	15	80	753
228	32	82	93	23	80	753

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 14,5-20 MPT 10 ply
rear: 14,5-20 MPT 10 ply

Track width front: 1540 mm
rear: 1540 mm

	With all-wheel drive		With rear-wheel drive	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	5,62	5,62	5,39	5,32
Radius of turning circle	5,37	5,37	5,14	5,12

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	887 mm
Distance forward from the vertical plane containing the axis of the rear wheels	1427 mm
Distance of the median plane of the tractor	0 mm

PRÜFUNGS-ABTEILUNG
MB trac 65/70

Test No. 72-111

(5) BRAKING PERFORMANCE

A) FOOT BRAKE

Date of tests: 22nd August 1973
Type of track: concrete
Type of decelerometer: MOTO METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 4515 kp

Cold brakes

		with ballast	without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s^2	7,6	8,6
Stopping distance	m	4,0	3,8
Force on pedal	kp	80	58
Force on pedal to achieve a deceleration of 2,5 m/s^2	kp	32	32

Brake fade characteristics (hot tests)

Deceleration hot/cold	%	99	98
Stopping distance cold/hot	%	99	100
Force on pedal cold/hot	%	100	84

B) PARKING BRAKE

Trator facing up slope:
Pull on hand brake 20 kp, tractor does not roll

Tractor facing down slope:
Pull on hand brake 21 kp, tractor does not roll

PRÜFUNGS-ABTEILUNG
MB trac 65/70

Test No. 72-111

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 29th August 1973
Type of track: concrete
Type of sound level meter: Brüel und Kjaer type 2203

Results of test

Gear: 4th normal
Travelling speed before acceleration: 15,8 km/h
Sound level: 89 dBA

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 24th and 27th August 1973
Type of track: concrete
Type of sound level meter: Brüel und Kjaer type 2607
Type of frequency analyser: Brüel und Kjaer type 1614
(fitted with octave filter)

The tractor was fitted out with a cab

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level kp	Travelling speed nominal km/h	Travelling speed effective km/h	Sound level dBA	Sone
With all-wheel drive; cab closed					
1 inter	3275	3,78	3,53	92	
1 normal	2968	4,77	4,59	92	
2 inter *	2055	6,84	6,83	92	78
2 normal	1692	8,63	8,68	91	
3 inter	1345	10,33	10,55	92	
3 normal	1099	13,03	13,24	91	
4 inter	792	17,02	17,01	91	
4 normal	light load	21,46	24,83	89	

*) the 2nd intermediate gear corresponds to the travelling speed nearest to 7,25 km/h

PRÜFUNGS-ABTEILUNG
MB trac 65/70

Test No. 72-111

(7) NOISE AT THE DRIVER'S EAR LEVEL (continuation)

Gear	Drawbar pull at which the tractor develops the maximum sound level kp	Travelling speed nominal km/h	Travelling speed effective km/h	Sound level dBA	Sone
With all-wheel drive; back face of cab opened, doors removed					
1 inter	3077	3,78	3,41	92	
1 normal	3078	4,77	4,47	92	
2 inter *	1995	6,84	7,01	92	89
2 normal	1646	8,63	8,80	92	
3 inter	1319	10,33	10,70	92	
3 normal	1075	13,03	13,44	91	
4 inter	708	17,02	18,20	92	
4 normal	light load	21,46	24,83	90	
With rear-wheel drive; cab closed					
1 inter	1608	3,78	3,81	91	
1 normal	1647	4,77	4,72	92	
2 inter *	1572	6,84	6,83	92	77
2 normal	1635	8,63	8,37	92	
3 inter	1365	10,33	10,05	94	78
3 normal	1090	13,03	12,92	91	
4 inter	784	17,02	17,13	92	
4 normal	light load	21,46	24,83	89	
With rear-wheel drive; back face of cab opened, doors removed					
1 inter	1412	3,78	3,92	90	
1 normal	1550	4,77	4,80	90	
2 inter *	1554	6,84	6,84	92	66
2 normal	1454	8,63	8,70	92	
3 inter	1363	10,33	10,10	92	
3 normal	1093	13,03	12,92	91	
4 inter	802	17,02	17,28	92	
4 normal	light load	21,46	24,83	89	

*) the 2nd intermediate gear corresponds to the travelling speed nearest to 7,25 km/h

PRÜFUNGS-ABTEILUNG
MB trac 65/70

Test No. 72-111

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of tests: 21st September and 8th October 1973

Height above ground in down position: hitch points mm	Height above ground in down position: test frame mm	Vertical movement mm	Maximum force excerted throughout the full lift range kp	Oil pressure kp/cm²	Lifting force when front of tractor lifts kp
A) POWER LIFT AT REAR OF TRACTOR					
Linkage giving maximum mechanical advantage					
At hitch points of the lower links					
240	-	640	2810	180	4120
At the frame					
50	90	650	2875	180	2560
Linkage giving minimum mechanical advantage					
At hitch points of the lower links					
50	-	675	2750	180	4120
At the frame					
240	237	678	2675	180	2560
B) POWER LIFT AT FRONT OF TRACTOR					
At hitch points of the linkage system					
200	-	760	885	180	1850
At the frame					
200	175	895	825	180	1360

C) HYDRAULIC PUMP

(1) Opening pressure of relief valve in remote circuit: 190 kp/cm²
Sustained pressure by open relief valve: 180 kp/cm²

(2) Pump delivery rate at minimum pressure and rated engine speed: 45,6 l/min

(3) Pump delivery rate: 38,7 l/min
Delivery pressure: 168 kp/cm²
Hydraulic power: 14,5 PS

PRÜFUNGS-ABTEILUNG
MB trac 65/70

Test No. 72-111

OPTIONAL TESTS

(9) ENGINE PERFORMANCE

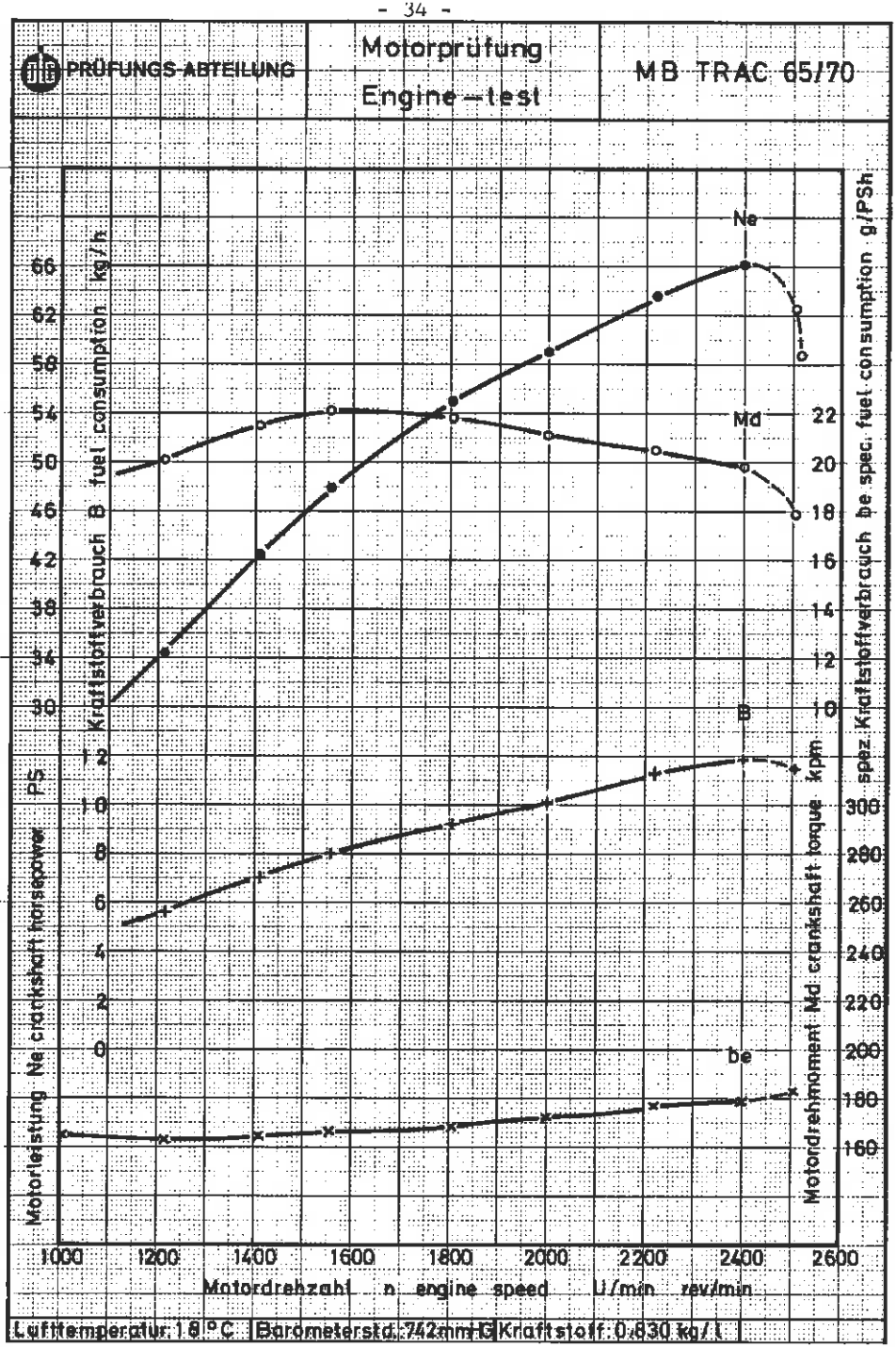
Date of tests: 9th April 1973
Type of dynamometer: Schenck hydraulic dynamometer U1-30

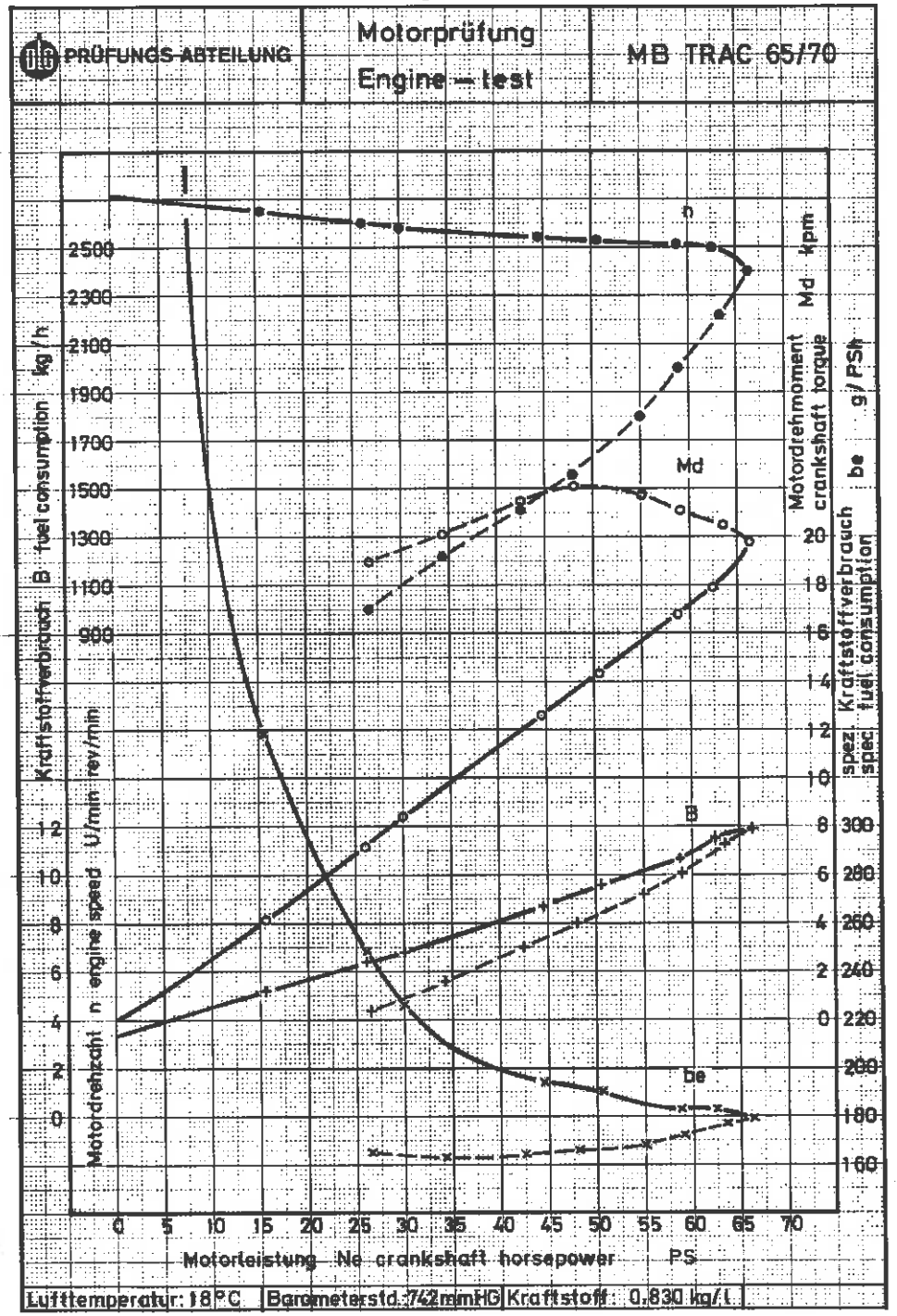
Maximum power

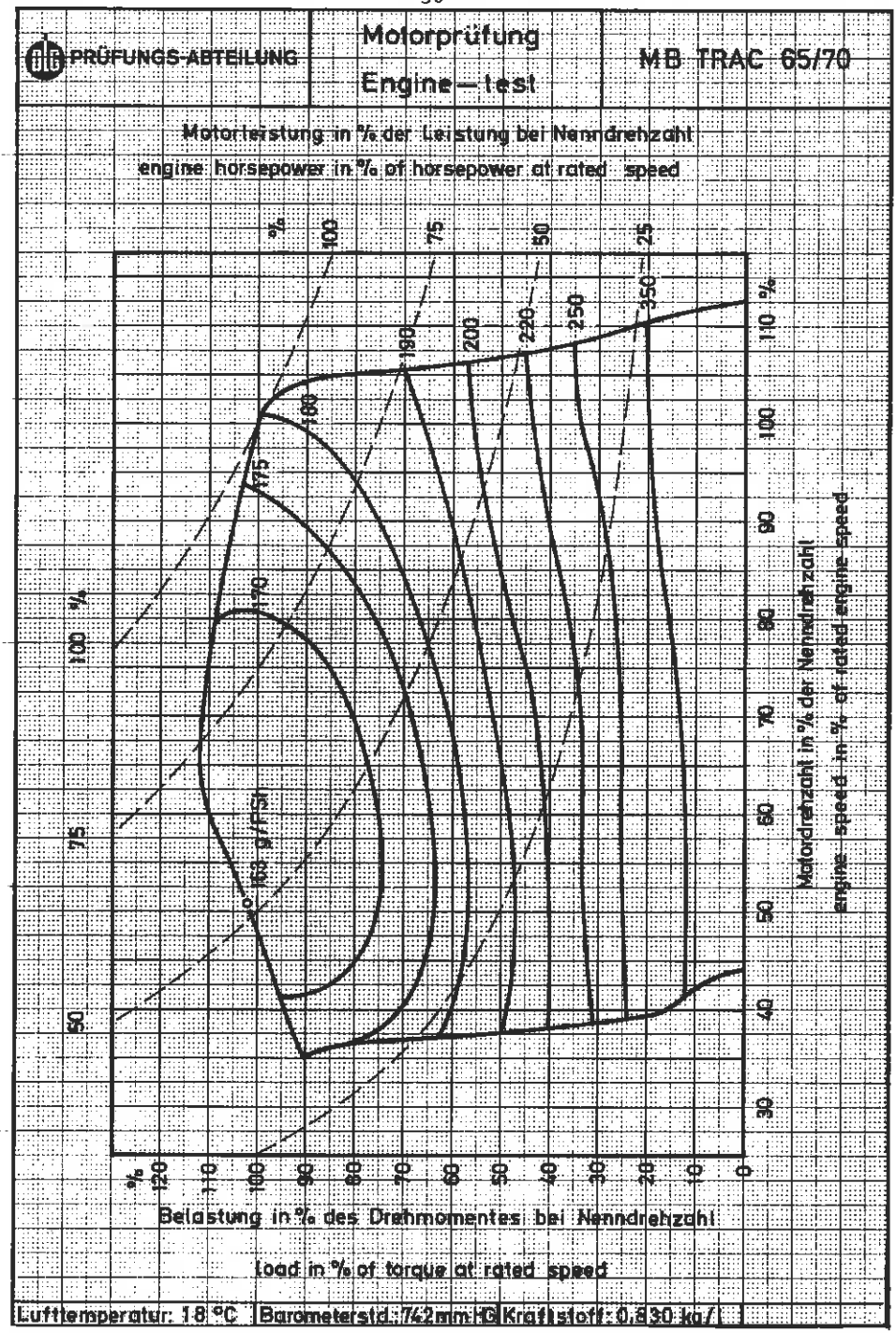
Power PS	Engine speed rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/PSh	Specific energy PSh/l
At maximum power 2-hour test					
66,2	2400	14,29	11,86	179	4,63
At standard p.t.o. speed (540 rev/min)					
63,5	2220	13,59	11,28	177	4,67
At the speed recommended for drawbar work					
66,2	2400	14,29	11,86	179	4,63
Fuel consumption at part loads					
(i) 85% of torque at maximum power					
58,8	2513	12,93	10,73	183	4,55
(ii) unloaded					
-	2694	4,80	3,98	-	-
(iii) 50% of the load defined in (i)					
30,1	2576	8,22	6,82	226	3,66
(iv) maximum power					
66,2	2400	14,29	11,86	179	4,63
(v) 25% of the load defined in (i)					
15,4	2651	6,28	5,21	338	2,45
(vi) 75% of the load defined in (i)					
44,6	2540	10,42	8,65	194	4,28

Optimum fuel consumption: 163 g/PSh at 34,1 PS and 1225 rev/min
Standard fuel consumption 1/2 (DIN 9606): 5,94/11,91 l/h
No load maximum engine speed: 2694 rev/min
Torque at maximum power: 19,75 kpm
Maximum torque: 22,15 kpm at 1555 rev/min of the engine

Mean atmospheric conditions:	temperature	18°C
	pressure	742 mm Hg
	relative humidity	50%
Maximum temperatures:	coolant	86°C
	engine oil	102°C
	fuel	20°C


PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine – test
MB TRAC 65/70
Ne
Md
B
be
Motorleistung Ne crankshaft horsepower PS
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehmoment Md crankshaft torque kpm
spez. Kraftstoffverbrauch be spec. fuel consumption g/PSh
Motordrehzahl n engine speed U/min rev/min
1000 1200 1400 1600 1800 2000 2200 2400 2600
Lufttemperatur 18 °C
Barometerstd. 742 mm HG
Kraftstoff 0,830 kg/l


PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine — test
MB TRAC 65/70
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehzahl n engine speed U/min rev/min
Motordrehmoment Md crankshaft torque kpm
spez. Kraftstoffverbrauch be spec. fuel consumption g/PSh
Md
B
be
Motorleistung Ne crankshaft horsepower PS
Lufttemperatur: 18 °C
Barometerstd. 742 mmHG
Kraftstoff: 0,830 kg/l


PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine – test
MB TRAC 65/70
Motorleistung in % der Leistung bei Nenndrehzahl
engine horsepower in % of horsepower at rated speed
%
103
75
50
25
160
200
220
250
350
180
175
170
163 g/PSh
Motordrehzahl in % der Nenndrehzahl
engine speed in % of rated engine speed
110 %
100
90
80
70
60
50
40
30
100 %
75
50
%
120
110
100
90
80
70
60
50
40
30
20
10
0
Belastung in % des Drehmomentes bei Nenndrehzahl
load in % of torque at rated speed
Lufttemperatur: 18 °C
Barometerstd.: 742mm HG
Kraftstoff: 0,830 kg/

PRÜFUNGS-ABTEILUNG
MB trac 65/7o

Test No. 72-111

(11) PERFORMANCE IN A HOT ATMOSPHERE

Date of tests: 6th September 1973

Limiting temperatures specified by the manufacturer:

Coolant: 1o8 °C
Engine oil: 13o °C

Special equipment fitted: None

Fuel: ARAL-Diesel fuel (DIN 516o1)
specific gravity at 15 °C o,8 kg/l

Engine oil: ARAL KOWAL HD 3o

Transmission oil: SAE 8o

Result of test

* Ambient temper. °C	P.t.o. power PS	P.t.o. speed rev/min	Coolant temper. °C	Engine oil temper. °C	Fuel temper. °C	Pressure mm QS
48	56,1	584	1o8	12o	49	75o

* at the air cleaner and cooling system inlets.

PRÜFUNGS-ABTEILUNG
MB trac 65/70

Test No. 72-111

(13) SAFETY CAB

Date of tests: 21th September 1972

The side blow was struck from right hand side

Impact and crushing tests:

1. The requirements for these tests concerning freedom from fractures or cracks, maximum instantaneous deflection and entry of members into the "zone of clearence" were satisfactorily fulfilled. therefore the cab is sufficiently strong to be classed as a safety cab.

2. Final assessment

   Deflection of original positions of part struck:

Side sideways	25 mm
Top downwards	5 mm

   On final inspection no part of the cab could be observed tending to trap the driver's leg or any part of his body

Noise in the cab

These tests were carried out during the performance tests; results see on pages 30 and 31

The cab was approved as to be a safety cab under the O.E.C.D. serial no. CS 253 on the 26th March 1973