DLG	**Report on test in accordance with O.E.C.D. STANDARD CODE**	O.E.C.D. No. 584



Agricultural Tractor Unimog U 1000

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.

Performance of tests: October till December 1977

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

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

Date of Approval: 10th April, 1978 O.E.C.D. No. 584

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 N = 0,102 kp	or 1 kp = 9,81 N
Powers	1 kW = 1,36 PS	or 1 PS = 0,736 kW
Pressures	1 bar = 1,02 kp/cm²	or 1 kp/cm² = 0,981 bar
	1000 mbar = 750,1 mm Hg	

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PRÜFUNGS-ABTEILUNG
DB-UNIMOG U 1000

Test No. 77-27

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:	UNIMOG 424, version 424.121 sales denomination U 1000
Type:	All wheel drive tractor, chassis construction, spring suspended front and rear axle
Serial no.:	424 121 10 000 116

Engine

Make:	Own make
Model:	OM 352.XVIII
Type:	4-stroke DIESEL engine, direct injection; water cooled
Serial no.:	353 962 10 458 270
Cylinders:	6 in-line, bore 97 mm; stroke 128 mm; displacement 5675 cm^3; compression ratio 17:1
Valves:	Overhead
Fuel system:	BOSCH fuel-feed pump FP/KE 22 AD 112/2; BOSCH in-line injection pump: PES 6 A 90 D 410 RS 2293 Z; manufacturer's production setting 46 mm^3/stroke at rated engine speed and full load; injection timing 18° before TDC; BOSCH multihole injection nozzles DLLA S 187; injection pressure 200 bar; BOSCH dual fuel filter with replaceable cartridges; capacity of fuel tank 90 l

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Governor:	BOSCH centrifugal variable speed governor: EP/RSV 350-1300 AOB 1101 DL; governed range of engine speed: 700 to 2800 rev/min; rated engine speed 2600 rev/min
Air cleaner:	MANN UND HUMMEL PICON dry paper element filter, model 009 094 8702; service indicator
Exhaust silencer:	MAX ROTH KG multi-chamber muffler 240 x 130 mm oval, 570 mm long; on the left hand side of the chassis; mouth showing rearward at an angle of 45°
Lubrication system:	Forced feed from gear pump; strainer in sump; MANN oil filter in full flow; overpressure relief valve; replaceable cartridge, cartridge change at all oil changes; oil capacity 13 l; oil changing interval 200 hours; recommended oil viscosities specifications: winter HD SAE 10W summer HD SAE 20W/20 or SAE 30 tropics HD SAE 40 all engine oils as per MIL-L-2104 B
Cooling system:	Pressurized water cooling, impeller assisted; by-pass thermostat; overpressure relief valve set to 0,4 bar; fan with 6 blades, 515 mm diameter; water capacity 20 l
Starting system:	Electrical; 12 Volt, optionally 24 Volt; BOSCH screw-push starter motor ID 3 kW; Startpilot PRO-COMBUR; VISO F 27
Electrical equipment:	12 V, negative earth; optionally 24 V; BOSCH three phase alternator: K1 14 V 35 A 20; optionally 28 V; 1 lead acid battery 110 Ah at 20 hours rating optionally 2 batteries 55 Ah

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Transmission

Clutch:	LAMELLEN UND KUPPLUNGSBAU dry dual disc clutch DT 330/310 G; tractor drive disc hydr. operated by pedal; p.t.o. drive disc operation see page 7
Gear box:	Own make; speed change gear with 4 speeds and planetary group for duplication, pneumatically shifted; all speeds synchronized; (optional: additional planetary group gear for field and creep speeds available, at tractor tested fitted with field speeds only) all speeds may be shifted for forward and reverse drive; totally 16 forward and 16 reverse speeds at tractor tested
Rear axle and final drive:	Portal construction; bevel gear with crown wheel and pinion; driven by universal joint shaft in the thrust tube; bevel gear type differential fitted with lock; spur gear final drive
Front axle and final drive:	Like rear axle; pneumatically engageable under load; double joints in the steering knuckles differential locks of front and rear axle pneumatically engageable and disengageable in common under load
Oil capacities:	Speed change gear with field group gear 12,5 l differentials each 2,5 l final drives each 0,25 l
Oil qualities:	Speed change gear and field group gear and main p.t.o.: transmission oil SAE 80 axles: transmission oil SAE 90 all transmission oils as per MIL-L-2105 B
Oil changing interval:	400 hours

Total ratios and speeds s. page 8 and 9

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Power take-off

Main p.t.o.:

Live p.t.o. in the rear of tractor;
either 650 mm above ground, 175 mm to the right hand side of tractor's median plane
or optionally 650 mm above ground, 50 mm right of tractor's median plane
with chassis springs not compressed;

driven through the second disc of the dry dual disc clutch, independent from the tractor drive disc;
pneumatically engaged and disengaged by servo hand valve;

1 3/4 in involute profile, 20 splines;
DIN 9611 Form 3; ASAE S 204.6

The following 3 p.t.o.-shafts are optionally available:

a) 29 x 34,9 x 8,7 mm = 1 3/8 in; 6 splines;
DIN 9611 Form 1; BS 1495; ASAE S 203.7

b) 1 3/8 in involute profile, 21 splines;
DIN 9611 Form 2; ASAE S 204.4

c) 36x44,3x11 mm = 1 3/4 in 6 splines;

2 speeds are preselectable by hand lever:

540 rev/min p.t.o.
602 rev/min at rated engine speed;
standard p.t.o.-speed 540 rev/min at 2334 rev/min engine speed

1000 rev/min p.t.o.
1058 rev/min at rated engine speed;
standard p.t.o.-speed 1000 rev/min at 2456 rev/min engine speed

Direction of rotation clockwise,
viewed from tractor rear

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Total ratios and speeds

Forward speeds

Group	Gear	Total ratio engine : driving wheel	Nominal travelling speed *) at rated engine speed km/h	Nominal travelling speed *) at standard p.t.o. speed 540 rev/min km/h
Speed combinations as tested				
Road group	1	61,42	7,79	7,35
	2	43,95	10,82	10,22
	3	32,21	14,77	13,93
	4	23,63	20,13	19,00
	5	16,86	28,22	26,63
	6	12,14	39,19	36,98
	7	8,95	53,49	50,45
	8	6,53	72,89	68,68
Field group	1	351,40	1,35	1,27
	2	253,03	1,88	1,77
	3	185,41	2,57	2,42
	4	136,05	3,50	3,30
	5	97,05	4,90	4,62
	6	69,89	6,81	6,43
	7	51,21	9,29	8,76
	8	37,58	12,66	11,93
Optional creep speeds, not tested				
Creep group	1	3411,00	0,14	0,13
	2	2455,00	0,19	0,18
	3	1799,00	0,27	0,25
	4	1321,00	0,36	0,34
	5	941,20	0,51	0,48
	6	678,6	0,70	0,66
	7	496,20	0,96	0,91
	8	364,8	1,30	1,23

*) Calculated with the rolling circumference 3050 mm acc. to W.d.K. 182 and the effective number of teeths

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Reverse speeds

Group	Gear	Total ratio engine : driving wheel	Nominal travelling speed *) at rated engine speed km/h	Nominal travelling speed *) at standard p.t.o. speed 540 rev/min km/h
Road group	1	59,13	8,05	7,59
	2	52,58	11,18	10,53
	3	31,20	15,25	14,40
	4	22,89	20,78	19,60
	5	16,33	29,14	27,50
	6	11,76	40,46	38,18
	7	8,62	55,22	52,10
	8	6,32	75,25	71,10
Field group	1	340,38	1,40	1,32
	2	245,10	1,94	1,83
	3	179,59	2,65	2,50
	4	131,79	3,61	3,41
	5	94,01	5,06	4,77
	6	67,69	7,03	6,63
	7	49,60	9,59	9,05
	8	36,40	13,07	12,32
Creep group	1	3305,00	0,14	0,13
	2	2379,00	0,20	0,18
	3	1744,00	0,27	0,25
	4	1280,00	0,37	0,35
	5	912,10	0,52	0,49
	6	656,70	0,73	0,69
	7	461,60	0,99	0,93
	8	353,90	1,35	1,27

Secondary p.t.o.:	In front of tractor; fitted but not tested; 150 mm to the left hand side of tractor's median plane, 910 mm above ground with chassis springs not compressed; drive, profiles, speeds, direction of rotation as for 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:	Own make; hydraulic power lift, disintegrated construction, open system; floating position only; optional: mechanically acting load transfer system SERVOTRAC; WABCO gear type pump IPM 13; delivery nominal 13 cm^3 per revolution; V-belt driven by engine; 2 double acting rams, bore 80 mm, stroke 175 mm, rod 30 mm diameter; WABCO control valve, double acting; maximum pressure 200 bar; pressure accumulator LANGEN acting as shock absorber; maximum accumulator pressure 130 bar hydraulic oil tank with 31 l capacity; 26 l may be taken off through oil tappings; recommended oil: engine oil HD SAE 10W; oil changing intervals 1800 hours

Power lift	(Continuation)
In front:	Own make optional, not fitted on tractor tested; figures acc. to manufacturer's specification; hydraulic power lift, disintegrated construction; connected to the hydraulic circuit of the rear power lift; WABCO control valve, double acting; 1 double acting ram, bore 80 mm, stroke 175 mm, rod 30 mm diameter;
Implement linkage	
In the rear:	Three point linkage, category II , DIN 9674; lift rods adjustable from 462 to 642 mm lifting range above ground with long lift rods from 282 to 945 mm short lift rods from 548 to 1145 mm with chassis springs not compressed; hydraulically acting linkage lock for transport
In front:	Three point implement linkage of own construction; the ram acts over a lift shaft, lift arm and a lift rod not adjustable in length on a lateral stabilized balancer, with clevis as per DIN 9674 category II ; lifting range above ground from 280 to 1070 mm; maximum distance of clevis to front axle centre 1760 mm; hydraulically acting linkage lock for transport
Oil tappings	3 double-acting WABCO supplementary control valves with 2 oil tappings in front and 2 in the rear fitted on tractor tested; up to 4 double acting WABCO-supplementary control valves with 2 oil tappings and 1 pressureless oil return each in front as well as in the rear are available

Holed drawbar

Fitted on clevis of lower links of the 3-point implement linkage in the rear;
length between the ball joints 825 mm;
thickness of the bar 25 mm, alloyed steel;
centre hole and 4 holes on either side;
80 mm distance each;
all holes 33 mm diameter;
height above ground infinitely adjustable by power lift in the range from 352 mm to 1215 mm depending on lift rods length, measured at the surface of the bar, with chassis springs not compressed,
distance of centre hole:
from rear axle centre 1172 mm
from p.t.o.-shaft end 560 mm

(optional: a rigidly mounted holed drawbar is available,
height above ground 490 mm)

Pull attachment

Trailer hitch:

ROCKINGER;
model 279 F;
height above ground 900 mm with chassis springs not compressed,
in tractor's median plane;
hitch bolt diameter 30 mm;
distance from hitch bolt centre to rear axle centre 580 mm;
permissible vertical load 1250 kg
permissible drawing pull 65000 N

Towing hitch:

At front of tractor;
height above ground 830 mm with chassis springs not compressed, 160 mm to the right hand side of tractor's mediar plane

Steering

Own make
ball-nut hydrosteering with own oil circuit;
ZF rotary pump, 12 l/min delivery;
max. pressure 130 bar;
acting on front wheels by a normal steering linkage;
recommended oil: engine oil HD SAE 10W

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Brakes	Air brake assembly in accordance with EEC
Compressed air equipment:	BOSCH optional WABCO air compressor; V-belt driven by engine; 2 compressed air tanks, one with 20 l, one with 9 l capacity on the right hand side of chassis, connected with protective circuit valve; maximum air pressure 8,1 bar; (serving also for the control of group gear, front wheel drive, differential locks and p.t.o. drive)
Parking brake:	Pneumatically acting spring-loaded brake; operated by hand valve; acting by spring force; dry disc type brake; 1 disc with 374 mm diameter on both rear wheels
Service brake:	BOSCH-WABCO-TEVES-FAG dry disc type brake; 1 disc with 374 mm diameter on both front wheels as well as on both rear wheels; pneumatically controlled by pedal; braking force transfer pneumatically-hydraulically
Steering brake:	None
Trailer braking system:	WABCO-BOSCH; single or dual line type; pneumatically controlled; additional air tank with 9,5 l capacity
Safety cab	Own make; OECD tested CS 424a, 25th July, 1974
Auxiliary platform	Behind the cab; inside measurements: 1950 mm long, 1890 mm wide, optional: 1475 mm long, 1890 mm wide; height of boards 450 mm; (optionally available as threeway tipper; hydraulically operated by telescopic ram)

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Wheels

Steering wheels:	In front, same size as driving wheels
Driving wheels:	In front and in the rear; front wheel drive disengageable see page 6; 4 pneumatics 12,5-20 MPT 12 ply DIN 7793/1; diagonal type tyre casing; maximum permissible load per tyre 2000 kg at 3,5 bar inflation pressure and 80 km/h; track width 1660 mm in front and in the rear with 100 mm indentation of wheel centre disc; optional: track width 1810 mm with 25 mm indentation of wheel centre disc; rims 11 x 20
Wheel base:	2650 mm

Weights — Ready for use as tested

		without driver	with driver
Without ballast:	front	2585 kg	2640 kg
	rear	1690 kg	1710 kg
	total	4275 kg	4350 kg
Ballast:	7 front weights	45 kg each	315 kg
	Iron weights on the auxiliary platform		2100 kg
With ballast:	front	3780 kg	3835 kg
	rear	2910 kg	2930 kg
	total	6690 kg	6765 kg

Driver's seat and passenger's seat

Own make;
upholstered seat with back rest;
neither spring suspended nor damped
because the chassis is spring suspended;
mounting steps on both sides 585 mm
above ground with chassis springs not
compressed;
height of seat above cab platform adjustable
from 370 to 430 mm in 4 steps of 15 mm each;
150 mm adjustable forwards and backwards;
adjustabilities are independent

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Number of grease points 15

Dimensions

Total length: 4470 mm without implement linkage
4540 mm with implement linkage

Total width: 2100 mm, (2300 mm at wide track)

Total height: 2550 mm with cab

Ground clearance: 435 mm below differential cases

Lighting equipment: Electrical,
12 Volt, optional 24 Volt
in accordance with German legislation

	Dimensions mm	Height above ground of centre mm	Distance from outside edge of tractor to centre mm
Head lights	290 x 160 (oval)	855	320
Side lights	not necessary	-	-
Rear lights	280 x 100	1165	410
Reflectors	80 Ø	675	285

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Permissible total weights and axle loads

for all available wheel equipment

Tyres	Permissible axle load kg	Permissible total weight kg
9,00 - 20 14 PR	4000	
9,00 R 20 14 PR	**4000**	
10,5 - 20 MPT 10 PR	3630	
10,5 - 20 MPT 12 PR	3930	
10,5 - 20 MPT 14 PR	4000	
12,5 - 20 MPT 10 PR	3700	6800
12,5 - 20 MPT 12 PR	4000	
12,5 R 20 MPT 12 PR	4000	
14,5 - 20 MPT 10 PR	4000	
14,5 R 20 MPT 10 PR	3960	
14,5 R 20 MPT 14 PR	4000	

FUELS AND LUBRICANTS USED IN TESTS

Fuel	ARAL-DIESEL-fuel (DIN 51601) specific gravity at 15°C during engine tests 0,826 kg/l during p.t.o. tests 0,826 kg/l during drawbar tests 0,824 kg /l
Engine oil:	TEXACO HD 30
Transmission oil:	Speed change gear, group gear, differentials and final drives TEXACO transmission oil SAE 80 p.t.o. drive ARAL engine oil HD 20W/20
Power lift and hydraulic steering:	TEXACO engine oil HD 10

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COMPULSORY TESTS

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

Date of tests: 21th October 1977
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
At 2-hour test						
64.0	2600	1058	21.48	17.74	277	2.98
At standard p.t.o. speed (1000 rev/min)						
63.4	2456	1000	20.43	16.88	266	3.10
At the speed recommended for drawbar work						
64.0	2600	1058	21.48	17.74	277	2.98
Part loads						
(i) 85% of the torque at maximum power at 2-hour test						
55.1	2635	1073	19.17	15.85	287	2.88
(ii) unloaded						
-	2729	1111	7.52	6.21	-	-
(iii) 50% of the load defined in (i)						
28.1	2687	1094	12.94	10.69	380	2.17
(iv) maximum power						
64.0	2600	1058	21.48	17.74	277	2.98
(v) 25% of the load defined in (i)						
14.2	2716	1106	10.23	8.45	595	1.39
(vi) 75% of the load defined in (i)						
41.8	2661	1083	15.93	13.16	315	2.62

No load maximum engine speed: 2729 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 235 Nm
Maximum equivalent crankshaft torque: 282 Nm at 1799 rev/min of the engine

Mean atmospheric conditions:	temperature	20 °C
	pressure	1002 mbar
	relative humidity	70 %
Maximum temperatures:	coolant	85 °C
	engine oil	94 °C
	fuel	20 °C
	engine air intake	24 °C

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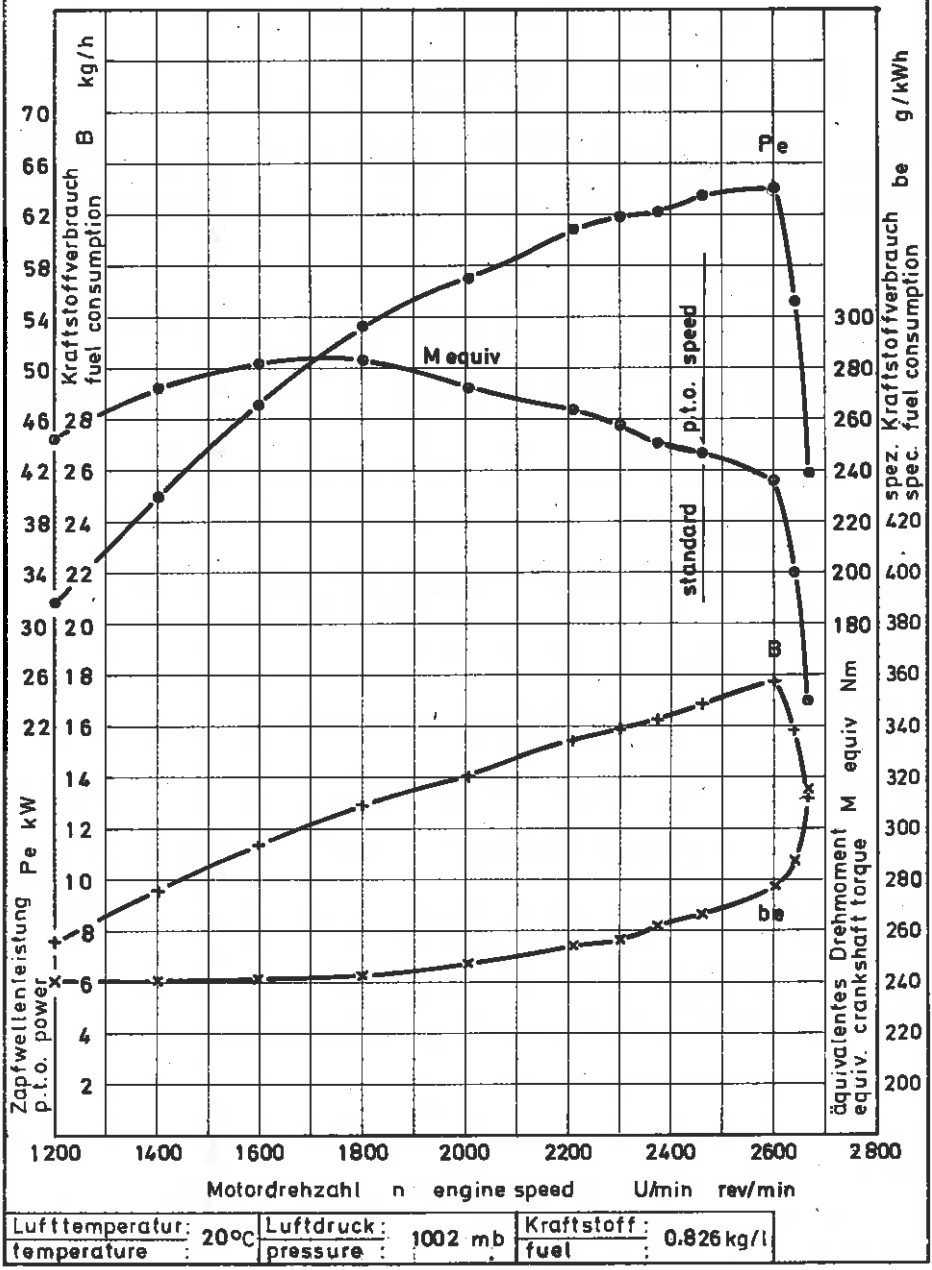
UNIMOG 1000

Zapfwellenleistung

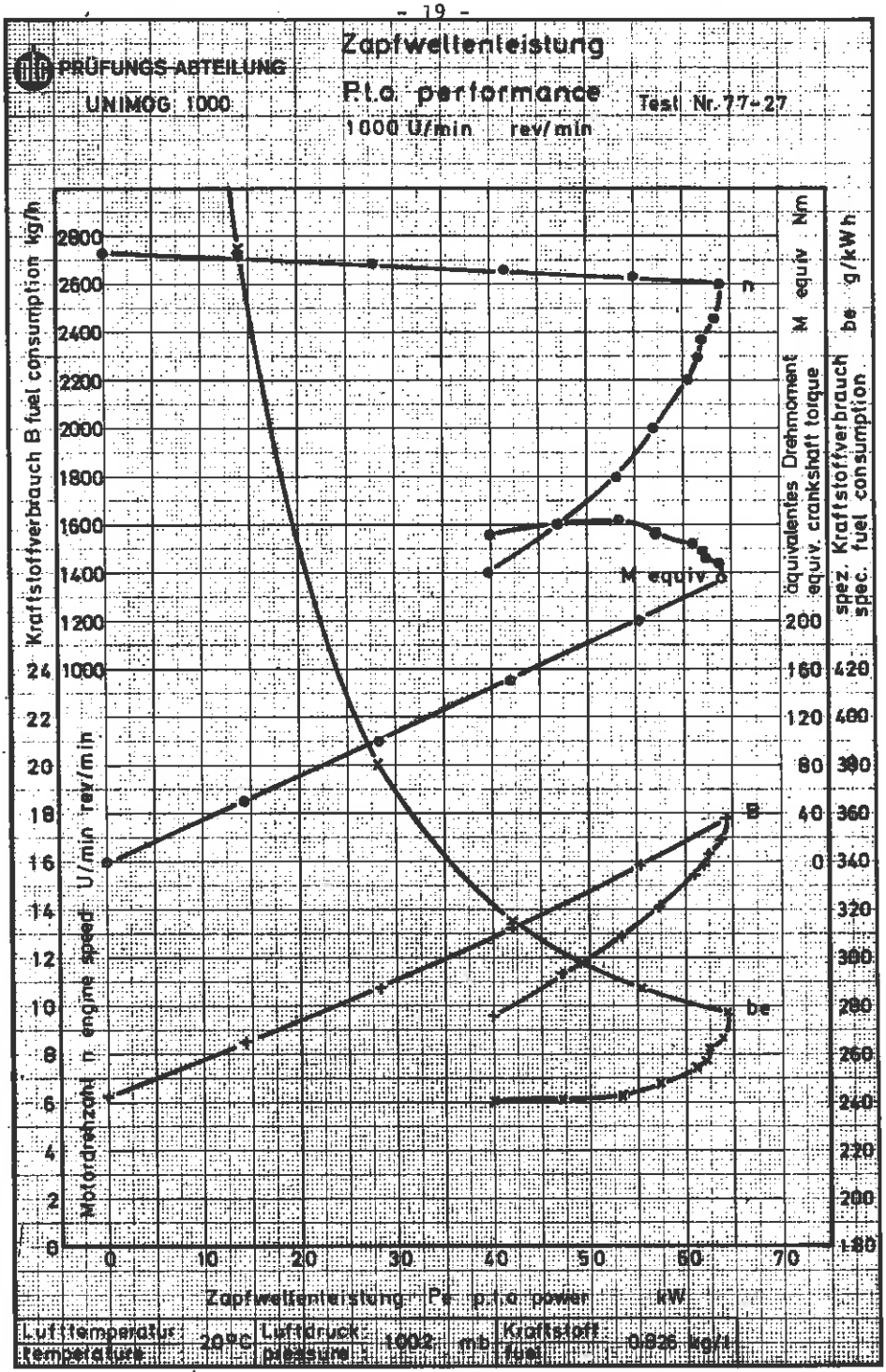
P.t.o. performance

1000 U/min rev/min

Test Nr. 77-27



Lufttemperatur: temperature	20°C	Luftdruck: pressure	1002 mb	Kraftstoff: fuel	0.826 kg/l


Zapfwellenleistung
P.t.o. performance
Test Nr. 77-27
PRÜFUNGS-ABTEILUNG
UNIMOG 1000
1000 U/min rev/min
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehzahl n engine speed U/min rev/min
äquivalentes Drehmoment M equiv Nm
equiv. crankshaft torque
spez. Kraftstoffverbrauch be g/kWh
spec. fuel consumption
M equiv
B
be
Zapfwellenleistung Pe p.t.o. power kW
Lufttemperatur 20°C Luftdruck 1002 mb Kraftstoff 0,836 kg/l
Temperature Pressure Fuel

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(2) DRAWBAR PERFORMANCE

Date of tests: 8th till 30th November 1977
Type of track: Concrete

Gear No. and Group	Speed km/h	Power kW	Drawbar pull N	Engine speed rev/min	Slip of wheels %	Specific energy kWh/l
(i) MAXIMUM POWER with ballast height of drawbar above ground 520 mm						
1 field	1,21	22,4	66700	2683	15,0	1,77
2 field	1,64	30,4	66700	2665	15,0	2,04
3 field	2,24	41,5	66700	2647	15,0	2,31
4 field	3,12	54,8	63250	2600	11,3	2,55
5 field	4,68	59,0	45390	2600	5,3	2,75
6 field	6,57	60,0	32920	2600	3,7	2,76
1 road	7,59	59,4	28180	2600	3,1	2,74
7 field	9,10	60,2	23830	2600	2,6	2,80
2 road	10,58	59,7	20300	2600	2,2	2,77
8 field	12,44	58,9	17050	2600	1,7	2,74
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 6th gear of field group						
6 field	6,80	46,7	24700	2654	2,4	2,58
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)						
3 field	-	-	66700	-	-	-
(v) MAXIMUM POWER without ballast height of drawbar above ground 520 mm						
3 field	2,27	29,8	47300	2671	15,0	1,99
4 field	3,07	40,2	47110	2660	15,0	2,20
5 field	4,47	54,9	44180	2600	9,6	2,56
6 field	6,46	57,5	32040	2600	5,7	2,68
1 road	7,47	57,5	27700	2600	4,7	2,68
7 field	9,00	57,8	23110	2600	3,7	2,69
2 road	10,55	58,5	19960	2600	3,0	2,73
8 field	12,39	58,0	16850	2600	2,5	2,70

Total oil consumption during ten hours duration of tests (ii) and (iii): 85 g/h

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Tyres make and size front: CONTINENTAL 12,5-20 MPT 12 ply
rear: CONTINENTAL 12,5-20 MPT 12 ply

Tread bar height at the beginning of drawbar tests 100% of the value when new

Specific fuel consumpt. g/kWh	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Tempe rature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 3,5 bar rolling radius of tyres under static load 487 mm						
467	18	85	85	4	80	1002
404	18	85	85	4	82	1002
357	18	85	85	4	82	1002
324	18	85	80	4	82	1005
300	19	85	80	4	88	1005
299	18	85	86	4	90	1005
300	20	85	80	4	73	1005
295	16	85	80	4	85	1005
297	18	85	80	4	82	1005
300	18	85	80	4	82	1005
319	18	85	82	5	87	1005
-	18	85	85	6	82	1005
tyre inflation pressure 3,0 bar rolling radius of tyres under static load 487 mm						
411	30	85	90	17	86	1010
371	30	85	90	16	90	1008
320	30	85	90	17	85	1006
305	30	85	85	17	88	1006
305	30	85	85	17	86	1006
304	30	85	85	17	86	1006
300	30	85	82	19	82	1004
303	30	85	80	18	83	1004

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

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(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 12,5-20 MPT Front 12 ply
rear: 12,5-20 MPT 12 ply

Track of wheels front: 1660 mm
rear: 1660 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	6,62	6,46	6,63	6,46
Radius of turning circle	5,97	5,83	5,98	5,83

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	945 mm
Distance forward from rear axle centre	1640 mm
Distance right from tractor's median plane	35 mm

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(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 29th Nov. and 1st Dec. 1977
Type of track: Concrete
Type of decelerometer: MOTO METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor: 6765 kg with driver

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s^2	6,9	8,4
Stopping distance	m	5,4	4,0
Force on pedal	N	245	206
Force on pedal to achieve a deceleration of 2,5 m/s^2	N	80	20

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	94	93
Stopping distance	cold/hot	%	100	87
Force on pedal	cold/hot	%	83	100

B) PARKING BRAKE (at 16% slope)

Pneumatically acting spring loaded brake operated by hand valve

Tractor facing up slope: tractor does not roll
Tractor facing down slope: tractor does not roll

PRÜFUNGS-ABTEILUNG
DB-UNIMOG U 1000

Test No. 77-27

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 11th November 1977
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2203

Results of test

Gear: 5th road gear
Travelling speed before acceleration: 22,5 km/h
Sound level: 88 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 10th November 1977
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2607
Type of frequency analyzer: BRÜEL AND KJAER model 1614
(fitted with octave filter)

A safety cab was fitted on tractor
O.E.C.D. tested, approval no. CS 424a

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level N	Travelling speed nominal km/h	Travelling speed effective km/h	Sound level dB(A)
1 field	47170	1,35	1,20	83,5
2 field	46880	1,88	1,53	83
3 field	47120	2,57	2,24	83
4 field	47070	3,50	2,78	84
5 field	42320	4,90	4,44	84
6 field	30060	6,81	6,50	84
1 road *)	27110	7,79	7,48	84
7 field	21880	9,29	9,01	83,5
2 road	19920	10,82	10,59	83
8 field	15610	12,66	12,42	83,5
3 road	13950	14,77	14,48	82
4 road	3430	20,13	20,72	85
5 road	light load	30,00	28,22	84

*) the 1st road gear corresponds to the travelling speed nearest to 7,5 km/h

PRÜFUNGS-ABTEILUNG
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Test No. 77-27

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

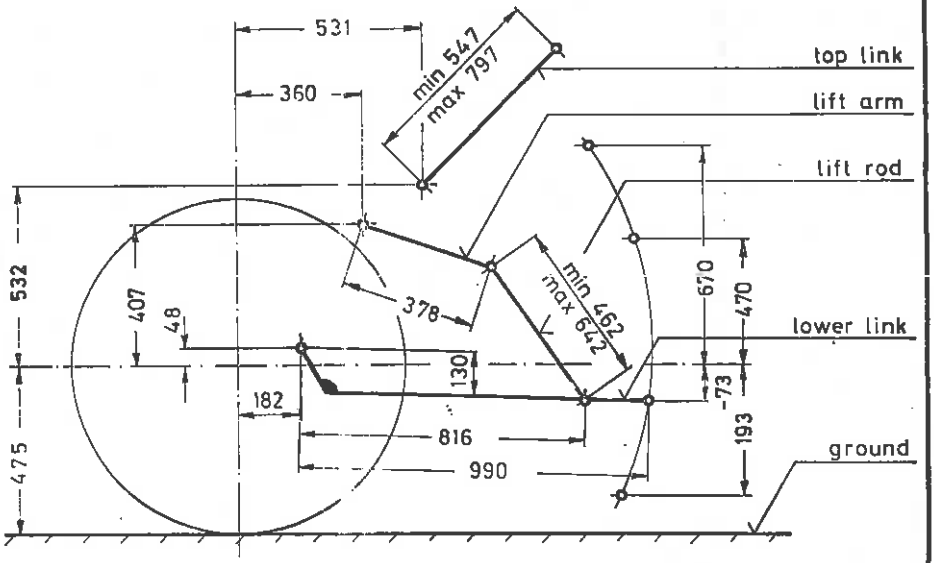
Date of tests: 8th till 13th December 1977

HYDRAULIC PUMP

(1) Opening pressure of relief valve in remote circuit	165 bar
Sustained pressure by open relief valve	202 bar
(2) Pump delivery rate at minimum pressure and maximum engine speed	48,3 l/min
(3) Pump delivery rate	40,4 l/min
Delivery pressure	165 bar
Hydraulic power	11,1 kW

POWER LIFT

Dimensions of linkage geometry for the table on page 28



all dimensions in mm

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LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-241	-200	-100	0	+18	+25	+100	+200
at hitch points maximum mechanical advantage								
N						33130	35140	37540
minimum mechanical advantage								
N	29770	30570	32970	35540			37540	38980

Max. force exerted throughout the whole range 33130 N

Front of tractor does not lift

at test frame maximum mechanical advantage								
N		37940	38260	38260			37060	35060
minimum mechanical advantage								
N					35140		35300	35300

Max. force exerted throughout the whole range 26880 N

Front of tractor does not lift with maximum allowable front ballast

PRÜFUNGS-ABTEILUNG

Test No. 77-27

+300	+400	+422	+450	+500	+600	+622	+700	+770

lift rods 462 mm long

40350	41550			40750	35380	33530		

lift rods 642 mm long

38180	33940	33050						

lift rods 642 mm long

31050	28090		26640					

lift rods 462 mm long

34505	32300			31290	26880		9010	0

All values of forces for pressure at max. hydraulic power 165 bar, see page 25; calculated from measurements at max. oil pressure 202 bar

LINKAGE GEOMETRY when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	990 mm	990 mm
Lift arms	378 mm	378 mm
Lift rods	642 mm	462 mm
Top link	655 mm	648 mm
Distance of lift rod connection point from pivot point of lower link	816 mm	816 mm
The following dimensions are given relative to rear axle center line 475 mm above ground		
Lower link pivot point	182 mm behind, 48 mm above	182 mm behind, 48 mm above
Top link pivot point	531 mm behind, 532 mm above	531 mm behind, 532 mm above
Lift arm pivot point	360 mm behind, 407 mm above	360 mm behind, 407 mm above
Maximum and minimum height of lower link hitch points	470 mm above, 193 mm below	670 mm above, 73 mm above
Height of lower link hitch points above ground when locked in highest transport position	945 mm	1145 mm

PRÜFUNGS-ABTEILUNG
DB UNIMOG 1000

Test No. 77-27

OPTIONAL TESTS

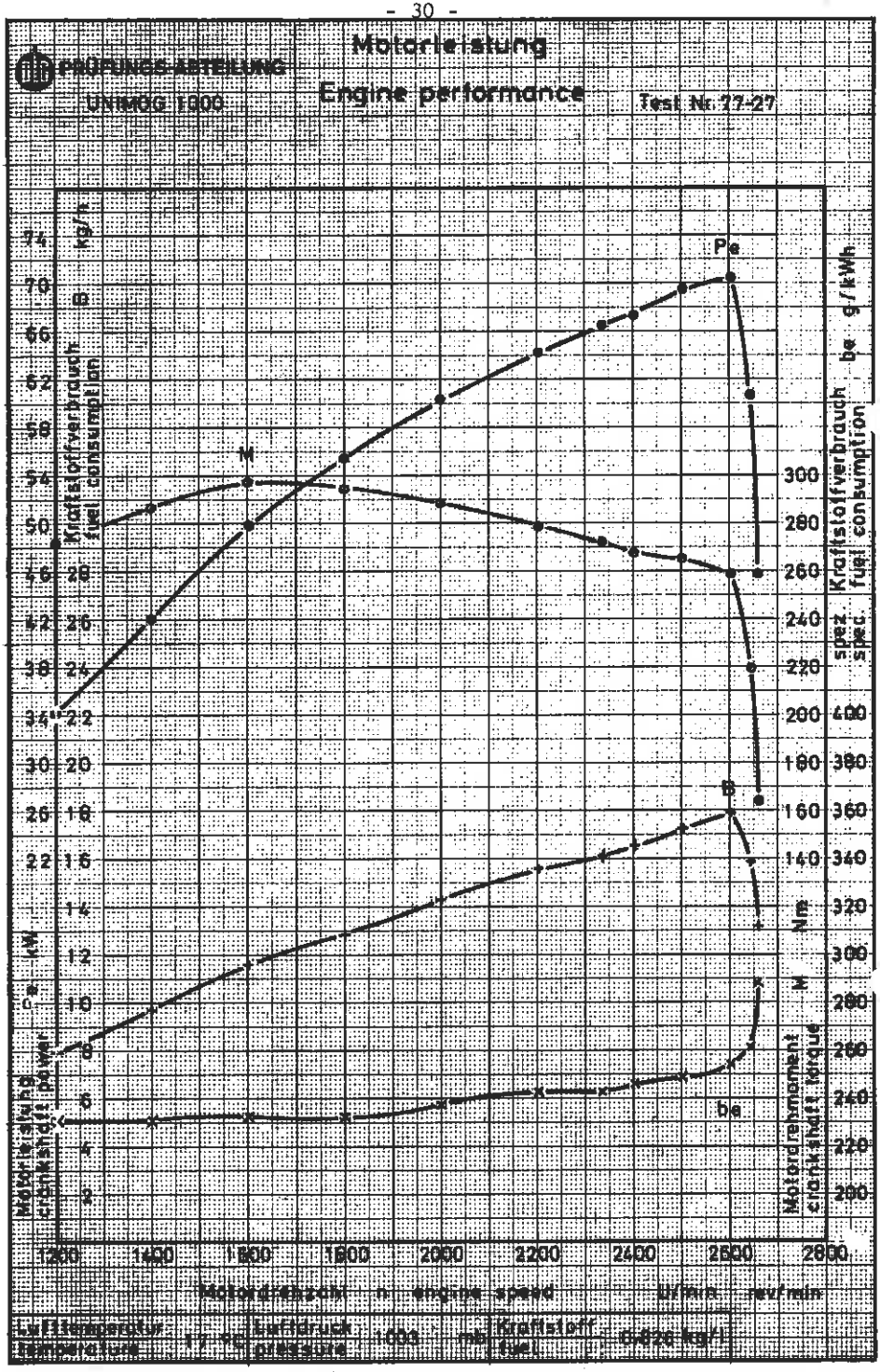
(1) ENGINE PERFORMANCE

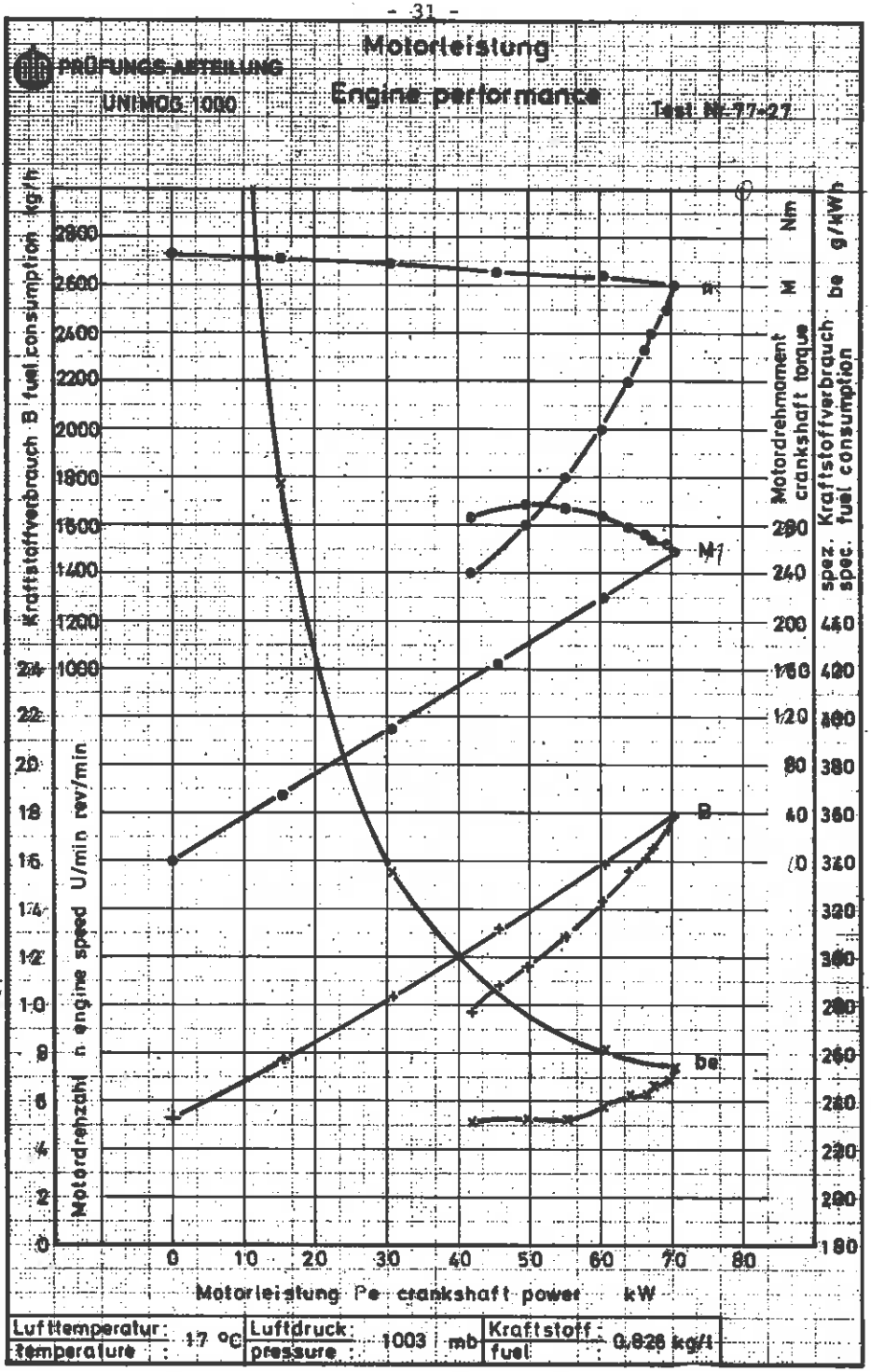
Date of tests: 17th and 18th October 1977
Type of dynamometer: SCHENCK eddy-current dynamometer W 400

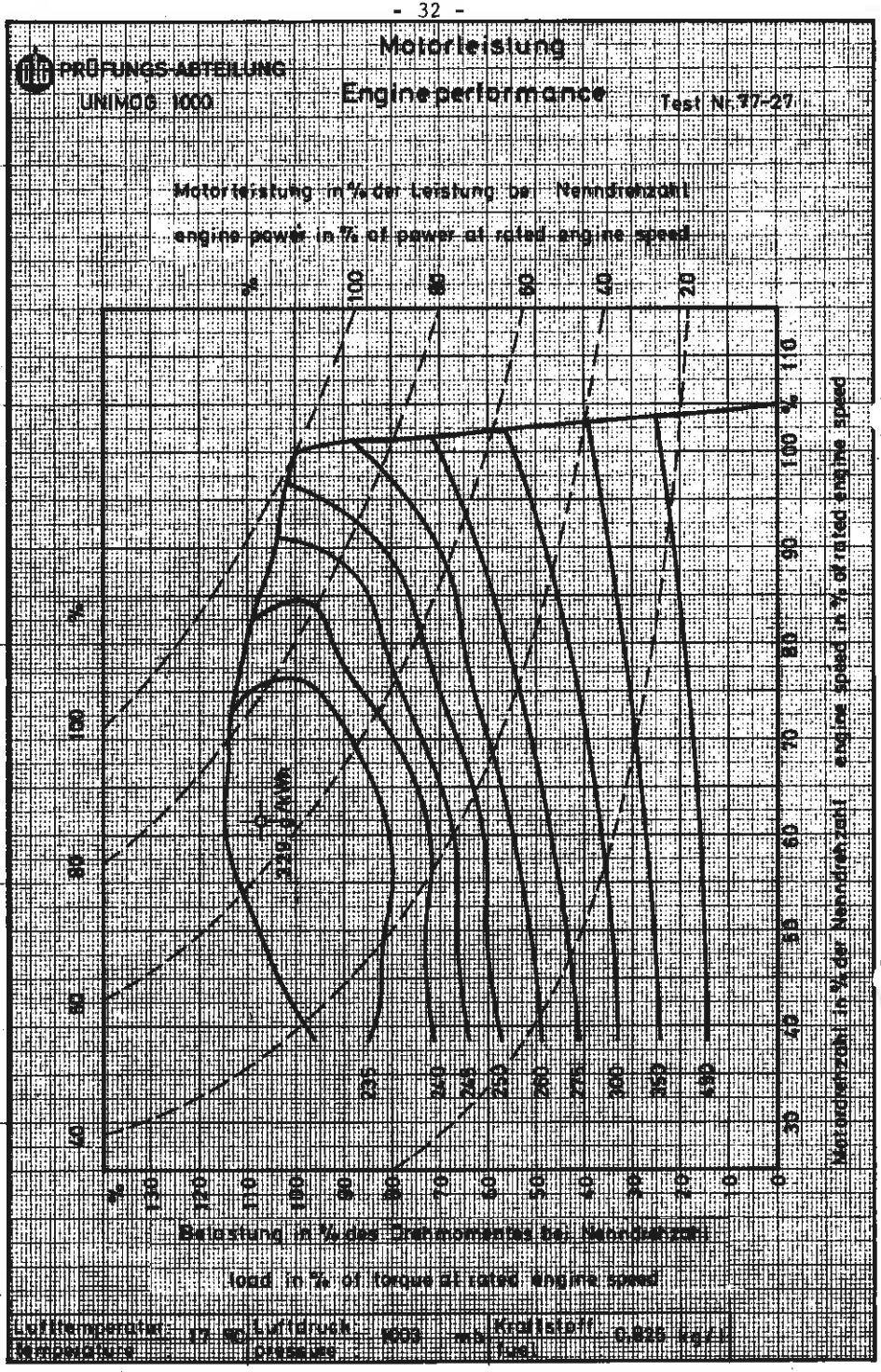
Power kW	Engine speed rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
70.5	2600	21.68	17.91	254	3.25
At standard p.t.o. speed (540 rev/min)					
66.5	2334	19.58	16.17	243	3.40
At the speed recommended for drawbar work					
70.5	2600	21.68	17.91	254	3.25
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
60.7	2640	19.24	15.89	262	3.16
(ii) unloaded					
-	2733	6.42	5.30	-	-
(iii) 50% of the load defined in (i)					
30.9	2687	12.55	10.37	336	2.46
(iv) maximum power					
70.5	2600	21.68	17.91	254	3.25
(v) 25% of the load defined in (i)					
15.6	2707	9.37	7.74	497	1.66
(vi) 75% of the load defined in (i)					
45.8	2655	16.00	13.22	289	2.86

Optimum fuel consumption: 229 g/kWh at 46,4 kW and 1600 rev/min
No load maximum engine speed: 2733 rev/min
Torque at maximum power (2 hours): 259 Nm
Maximum torque: 297 Nm at 1603 rev/min of the engine

Mean atmospheric conditions:	temperature	17 °C
	pressure	1003 mbar
	relative humidity	63 %
Maximum temperatures:	coolant	83 °C
	engine oil	81 °C
	fuel	29 °C
	engine air intake	17 °C


PRÜFUNGS-ABTEILUNG
UNIMOG 1300
Motorleistung
Engine performance
Test Nr. 27-27
Pe
M
B
be
Motorleistung Pe kW
Motorleistung Pe PS
Kraftstoffverbrauch fuel consumption kg/h
Kraftstoffverbrauch spez. be g/kWh
Kraftstoffverbrauch spez. fuel consumption
Motordrehmoment M Nm
Motordrehmoment M crankshaft torque
1200 1400 1600 1800 2000 2200 2400 2600 2800
Motordrehzahl n engine speed U/min rev/min
Lufttemperatur 17 °C Luftdruck 1003 mb Kraftstoff 0,826 kg/l
temperature pressure fuel


PRÜFUNGSABTEILUNG
UNIMOG 1000
Motorleistung
Engine performance
Test: W-77-27
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehzahl n engine speed U/min rev/min
Motordrehmoment crankshaft torque M Nm
spez. Kraftstoffverbrauch spec. fuel consumption be g/kWh
Motorleistung Pe crankshaft power kW
M
M1
B
be
Luftdruck: pressure: 1003 mb
Kraftstoff: fuel: 0,826 kg/l


Motorleistung
Engine performance
PRÜFUNGS-ABTEILUNG
UNIMOG 1000
Test Nr. 77-27
Motorleistung in % der Leistung bei Nenndrehzahl
engine power in % of power at rated engine speed
Belastung in % des Drehmomentes bei Höchstdrehzahl
load in % of torque at rated engine speed
Nenndrehzahl in % der Nenndrehzahl
engine speed in % of rated engine speed
Lufttemperatur
Air temperature
Luftdruck
Pressure
Kraftstoff
fuel

PRÜFUNGS-ABTEILUNG
DB UNIMOG 1000

Test No. 77-27

OPTIONAL TESTS

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

Date of tests: 20th October 1977
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
At 2-hour test						
64.0	2600	602	21.58	17.83	278	2.97
At standard p.t.o. speed (540 rev/min)						
61.8	2334	540	19.42	16.04	260	3.18
At the speed recommended for drawbar work						
64.0	2600	602	21.58	17.83	278	2.97
Part loads						
(i) 85% of the torque at maximum power at 2-hour test						
55.4	2645	612	19.37	16.00	289	2.86
(ii) unloaded						
-	2725	630	7.52	6.21	-	-
(iii) 50% of the load defined in (i)						
28.0	2677	620	12.96	10.70	382	2.16
(iv) maximum power						
64.0	2600	602	21.58	17.83	278	2.97
(v) 25% of the load defined in (i)						
14.1	2696	624	10.15	8.38	593	1.39
(vi) 75% of the load defined in (i)						
41.7	2652	614	15.86	13.10	315	2.63

No load maximum engine speed: 2725 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 235 Nm
Maximum equivalent crankshaft torque: 280 Nm at 1701 rev/min of the engine

Mean atmospheric conditions:	temperature	20 °C
	pressure	1005 mbar
	relative humidity	60 %
Maximum temperatures:	coolant	85 °C
	engine oil	95 °C
	fuel	18 °C
	engine air intake	26 °C

PRÜFUNGS-ABTEILUNG
DB UNIMOG 1000

Test No. 77-27

ADDITIONAL TEST

out of the O.E.C.D. CODE under the responsibility of the DLG Testing Station

(1) MAIN POWER TAKE-OFF PERFORMANCE

at engine speed corresponding to standard p.t.o. speed (540 rev/min)

Date of tests: 20th October 1977
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power at standard p.t.o. speed						
61.5	2332	540	19.22	15.87	258	3.20
Part loads at standard p.t.o. speed						
(i) 85% of the torque at maximum power						
52.8	2354	545	17.05	14.08	267	3.10
(ii) unloaded						
-	2444	566	5.96	4.92	-	-
(iii) 50% of the load defined in (i)						
26.7	2386	552	11.12	9.18	344	2.40
(iv) maximum power						
61.5	2332	540	19.22	15.87	258	3.20
(v) 25% of the load defined in (i)						
13.6	2414	559	8.51	7.03	519	1.59
(vi) 75% of the load defined in (i)						
39.7	2360	546	13.97	11.54	290	2.84

Equivalent crankshaft torque at standard p.t.o. speed 252 Nm

Mean atmospheric conditions:	temperature	20 °C
	pressure	1005 mbar
	relative humidity	60 %
Maximum temperatures:	coolant	85 °C
	engine oil	95 °C
	fuel	18 °C
	engine air intake	26 °C

PRÜFUNGS-ABTEILUNG
DB-UNIMOG U 1000

Test No. 77-27

ADDITIONAL TEST

out of the O.E.C.D. CODE under the responsibility of the DLG-TESTING Station

(1) NOISE AT THE DRIVER'S EAR LEVEL

Octave analysis in the 1st road gear of which the nominal travelling speed is nearest to 7,5 km/h and in the 4th road gear reported in the NOISE RATING diagram

Date of test: 10th November 1977
Test track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2607
Type of frequency analyser: BRÜEL AND KJAER model 1614
(fitted with octave filter)

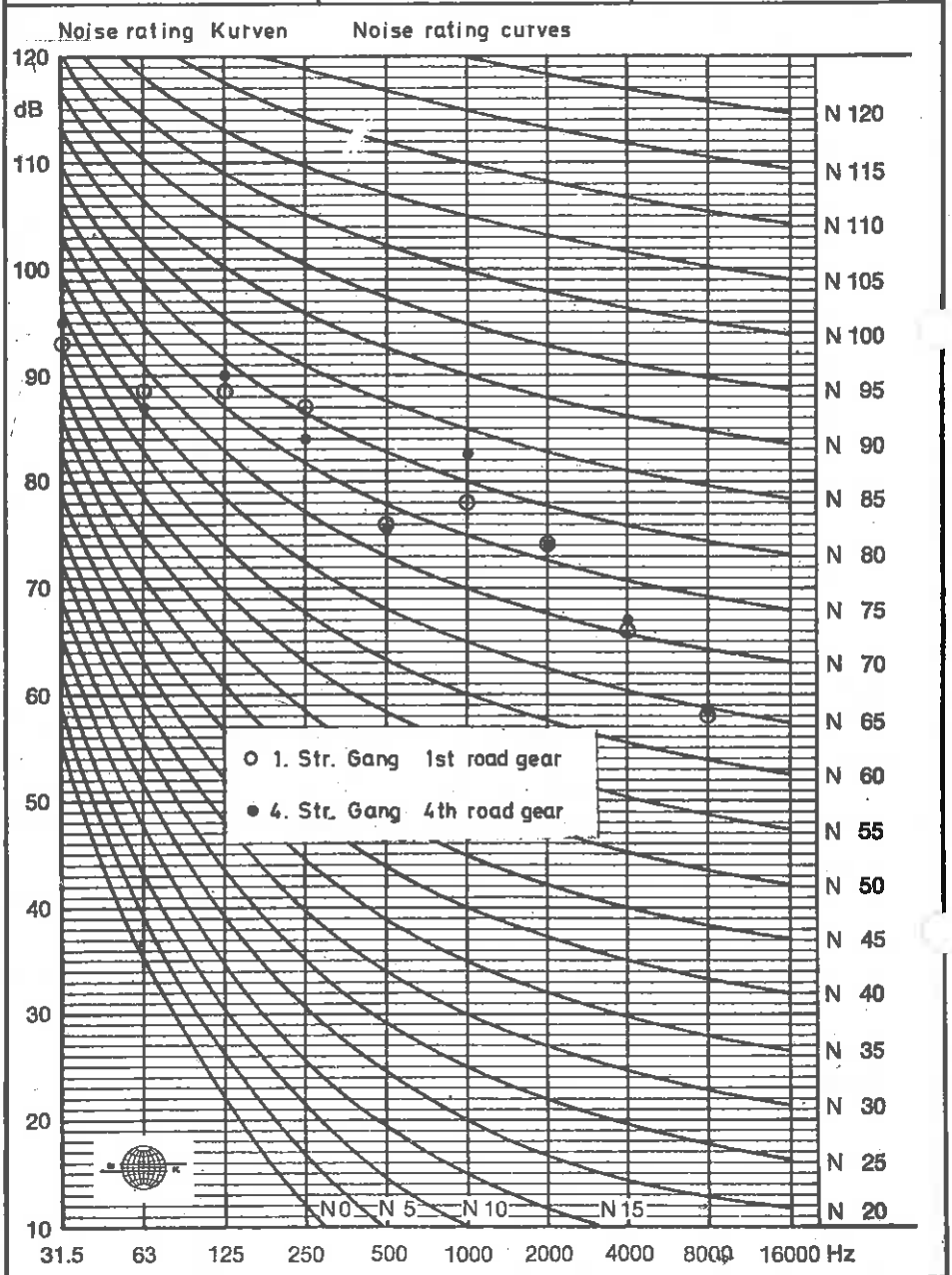
The tractor was fitted with a safety cab
O.E.C.D. tested, approval no. CS 424a

Results of test

Gear	Drawbar pull at which the tractor develops the maximum sound level N	Travelling speed effective km/h	Sound level dB(A)	Sound level noise rating
1 road	27110	7,48	84	80,5
4 road	3430	20,72	85	82,5

There is no gear combination with a NOISE RATING number higher than 85

PRÜFUNGS-ABTEILUNG	Schleppergeräusch am Ohr des Fahrers Noise at the driver's ear level	UNIMOG U 1000



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