DLG	Report on test in accordance with O.E.C.D. STANDARD CODE	O.E.C.D. No. 558



Agricultural Tractor Gutbrod 2800 D

Agricultural Tractor Bungartz und Peschke T8DK

Manufacturer

Gutbrod-Werke GmbH, D-6601 Saarbrücken-Bübingen

Editor

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

Performance of tests:

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

January till March 1977

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: 16th September 1977 O.E.C.D. No. 558

The tractors GUTBROD 2800 D and BUNGARTZ UND PESCHKE T8DK are manufactured both by GUTBROD-WERKE GMBH. They differ only in the profile of the tyres, in the rest they are identical. The GUTBROD 2800 D tractor has tyres for grassland, the BUNGARTZ UND PESCHKE T8DK tractor has tyres for farmland. Drawbar tests have been carried out with the GUTBROD 2800 D tractor as well as with the BUNGARTZ UND PESCHKE T8DK tractor. All other tests have been carried out with the GUTBROD 2800 D tractor only.

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/cm^2	or 1 kp/cm^2 = 0,981 bar
	1000 mbar = 750,1 mm Hg	

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Tractor manufacturer:	GUTBROD-WERKE GMBH D-6601 Saarbrücken-Bübingen
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Bübingen and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 100 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	GUTBROD-WERKE GMBH
Model:	GUTBROD 2800 D and BUNGARTZ UND PESCHKE T8DK (see note on page 2)
Type:	Wheeled tractor, rear wheel driven, unit construction
Serial No.:	613 125

Engine

Make:	KLÖCKNER-HUMBOLDT-DEUTZ AG
Model:	F2L 912
Type:	4 stroke DIESEL engine, direct injection, air cooled
Serial No:	567 1950
Cylinders:	2 vertical in-line, bore 100 mm, stroke 120 mm; displacement 1884 cm³, compression ratio 17:1, replaceable ribbed cylinder liners
Valves:	Overhead
Fuel system:	PIERBURG fuel feed pump PE 15264; DEUTZ plug in type injection pump; manufacturer's production setting 47 mm³/stroke at rated engine speed; injection timing 32° before TDC; BOSCH multihole injection nozzles DLL A 149 S 394; injection pressure 175 bar; BOSCH fuel filter with replaceable cartridge; capacity of fuel tank 23,5 l

Governor:	KLÖCKNER-HUMBOLDT-DEUTZ AG mechanically acting variable speed governor; governed range of engine speed 700 to 2410 rev/min; rated engine speed 2300 rev/min
Air cleaner:	MANN UND HUMMEL oil bath air cleaner; oil capacity 1,25 l engine oil; replaceable cartridge
Exhaust silencer:	GILLET 1 chamber silencer 160 mm diameter, 220 mm long; on the left hand side of engine; mouth showing rearward under an angle of 45° to the left
Lubrication system:	Pressurized from gear pump; strainer in sump; MANN filter in full flow with by-pass valve; replaceable cartridge; filter cartridge changing period at all oil changes; oil capacity 6 l; oil changing interval 100 to 120 hours; recommended oil: winter below -10°C HD SAE 10W summer from -10°C to 20°C HD SAE 20W/20 tropics above +20°C HD SAE 30
Cooling system:	Ais cooling with axial blower; V-belt driven
Starting system:	Electrical; BOSCH starter motor 1,8 kW
Electrical equipment:	12 Volt; BOSCH alternator 0120 339 504; 1 lead acid battery 90 Ah at 20 hours rating

Transmission

Clutch:	FICHTEL UND SACHS AG single disc type clutch K 200 Z; for travel and p.t.o. drive; pedal operated
Gear box:	HURTH ITALIANA S.p.A. sliding gear speed change gear with 6 forward speeds and 1 reverse speed
Rear axle and final drive:	Bevel gear drive with crown wheel and pinion; bevel gear differential with lock; hand lever operated, self disengaging; spur gear final drives in portals
Lubrication:	Speed change gear 9 l, transmission oil SAE 90 MIL-L-2105 final drives 1,3 l each, transmission oil SAE 90 MIL-L-2105 oil changing interval 360 hours or once a year

Total ratios and speeds

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
1	209,51	1,61	1,35
2	97,77	3,46	2,91
3	68,12	4,96	4,16
4	48,36	6,99	5,86
5	28,59	11,83	9,94
6	17,23	19,63	16,48
reverse	68,12	4,96	4,16

*) Calculated with the rolling radius 390 mm as per manufacturer's specification

Power take-off	Dependent p.t.o. at rear of tractor, in the median plane, 330 mm above ground; 29 x 34,9 x 8,7 mm = 1 3/8 in; 6 splines; DIN 9611 Form 1; BS 1495, ASAE S. 203.7; 644 rev/min at rated engine speed; standard p.t.o. speed 540 rev/min at 1928 rev/min engine speed; p.t.o. speeds may be set by tractormeter; direction of rotation clockwise, vieved from tractor rear
Power lift	Unit construction; open system; BOSCH pump 0510 420 308 with 8 cm^3/rev delivery; driven from the front end of crankshaft; BUCHER control valve LA 06 R3/A-M2 for lifting, sinking and floating position; maximum oil pressure 150 bar; 1 single acting ram with 80 mm diameter, 92 mm stroke; no safety valve in the ram; hydraulic oil tank in the power lift unit with 3,75 l capacity, up to 2 l may be taken off through oil tappings when tractor is travelling or stationary; up to 2 single or double acting additional control valves with oil tappings available; recommended oil: RENOLIN MR 10 or similar oils of other firms; oil changing interval once a year
Implement linkage	Three point linkage category I DIN 9674; lift rods not adjustable, 415 mm long; lifting range above ground: from 31 to 641 mm; mechanically acting lock for transport

Holed bar	Fitted in the clevis of lower links of the 3 point implement linkage; length between the ball joints 685 mm, thickness of the bar 20 mm, width 80 mm; centre hole and 3 holes on either side with 80 mm distance each; all holes 23 mm diameter; height above ground adjustable by power lift in the range from 41 to 651 mm, measured at the surface of the bar; in the highest position mechanically lockable; with lower links in horizontal position distance of centre hole to rear axle centre 720 mm p.t.o. shaft end 615 mm
Trailer hitch	ROCKINGER 364/T3, not automatical; height above ground 550 mm; hitch hole diameter 31 mm; distance of hitch hole centre to rear axle centre 445 mm; permissible vertical load 500 kg
Towing hitch	None
Steering	ZAHNRADFABRIK FRIEDRICHSHAFEN AG; ZF-Gemmersteering; operated by steering wheel, acting on front wheels
Brakes	
Parking brake:	Mechanically acting band brake; acting on 2 brake drums with 195 mm diameter on the differential half shafts; operated by hand lever with ratchet
Service brake:	Mechanically acting Servo shoe type brake; 2 brake drums with 180 mm diameter on the differential half shafts; pedal operated

Brakes (Continuation)

Steering brake:	Operated by 2 particular pedals; independent from service brake pedal; 1 pedal each for left and right on service brake acting

Wheels

Deviations for BUNGARTZ UND PESCHKE T8DK are placed in parentheses

Steered wheels:	At front 2 pneumatics 6,5/80-12 Implement-Golf, 6 ply (4,00-12 AM Front, 4 ply); diagonal type casing; maximum vertical load per tyre 640 kg at 3,5 bar (250 kg at 2,75 bar) inflation pressure and 30 km/h; track width 715 or 909 mm adjustable by turning wheels; rims 5 JA x 12 (3,00D x 12)
Driven wheels:	At rear 2 pneumatics 7,50-18 Implement-Golf, 8 ply (7,50-18 Implement-Agrar, 6 ply); diagonal type casing; maximum vertical load per tyre 1145 kg at 2,75 bar (920 kg at 2,25 bar) inflation pressure and 30 km/h; track width 696 or 944 mm, adjustable by turning wheels; rims 5,50F x 18
Wheel base:	1490 mm

Seat

GRAMMER
DS 44 L;
upholstered seat with back rest;
adjustable spring with shock absorber;
height of seat above ground 900 mm;
105 mm steples adjustable fore and aft;
not adjustable in the height

Overturning protection frame: Own make
not OECD tested

Weights: Ready for use as tested, with overturning protection frame

		Without driver		With driver	
		2800D	T8DK	2800D	T8DK
Without ballast:	front	445 kg	445 kg	460 kg	460 kg
	rear	685 kg	685 kg	750 kg	750 kg
	total	1130 kg	1130 kg	1210 kg	1210 kg
front ballast:	2800D	water in the tyres			20 kg
	T8DK	not provided			
rear ballast:	1 weight per wheel 30 kg each				60 kg
	water in the tyres				60 kg
With ballast:	front	465 kg	445 kg	480 kg	460 kg
	rear	805 kg	805 kg	870 kg	870 kg
	total	1270 kg	1250 kg	1350 kg	1330 kg

Dimensions

Total length:	2515 mm	with 3-point linkage
Total width:	900 mm	at smallest track width
	1150 mm	at largest track width
Total height:	1980 mm	to top of frame
	1225 mm	to top of steering wheel
Ground clearance:	280 mm	below front axle

Number of grease points 20

PRÜFUNGS-ABTEILUNG
GUTBROD 2800 D

Test No. 76-82

Lighting equipment Electrical
12 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	140 x 125	900	380
Rear lights	80 ø	890	130
Reflectors	80 ø	730	150

*) at smallest track width

PRÜFUNGS-ABTEILUNG
GUTBROD 2800 D

Test No. 76-82

FUELS AND LUBRICANTS USED IN TESTS

Fuel:	ARAL DIESEL fuel DIN 51601	
	specific gravity at 15°C	
	at engine tests	0,828 kg/l
	at p.t.o. tests	0,828 kg/l
	at drawbar tests	
	tyres with grassland profile	0,828 kg/l
	tyres with farmland profile	0,832 kg/l
Engine oil:	ARAL HD SAE 20W/20	
Transmission oil:	SHELL SAE 90	
Hydraulic oil:	RENOLIN MR 10 (109 cSt at 20°C)	

PRÜFUNGS-ABTEILUNG

GUTBROD 2800 D

Test No. 76-82

COMPULSORY TESTS

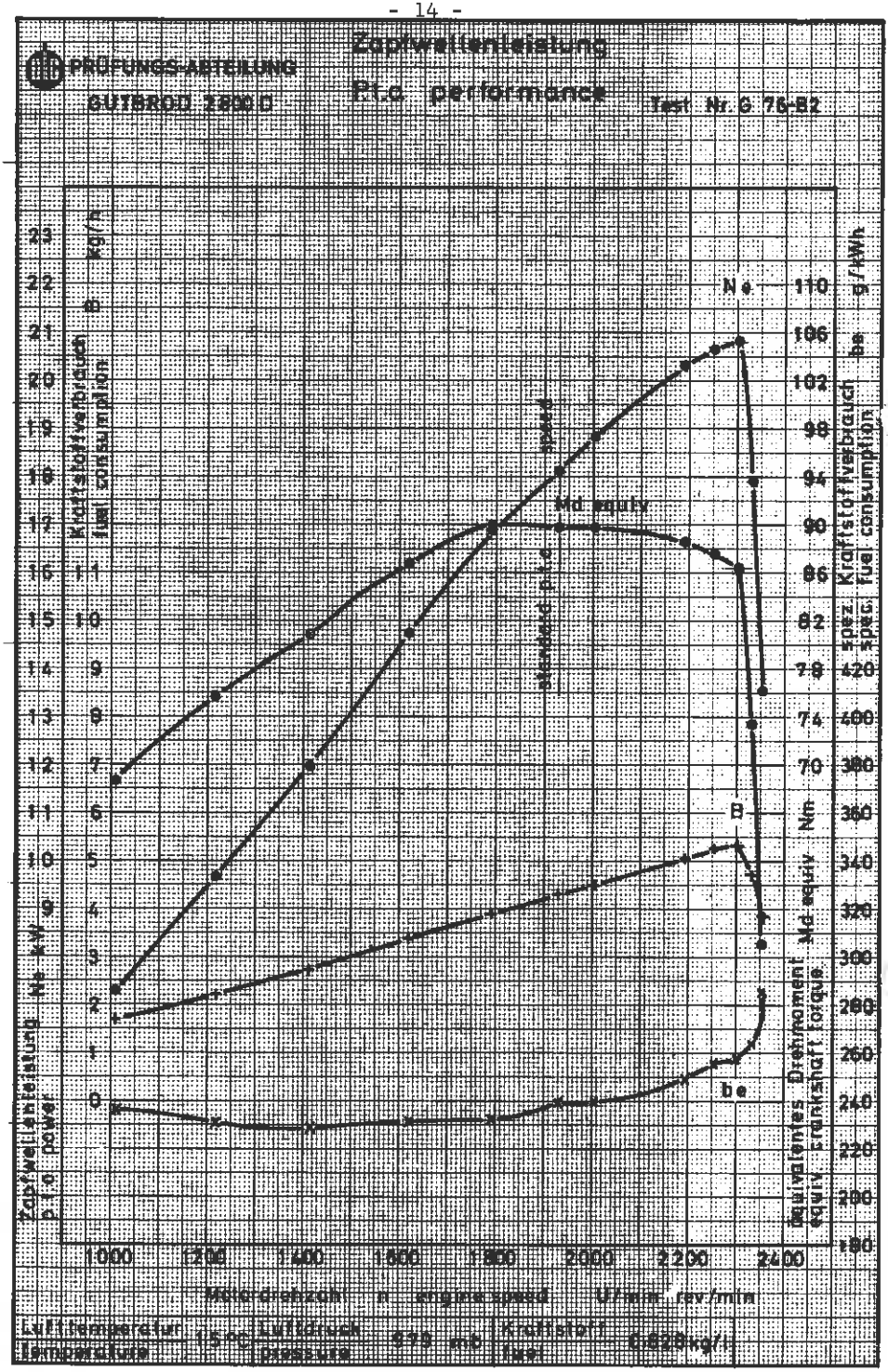
(1) MAIN POWER TAKE-OFF PERFORMANCE

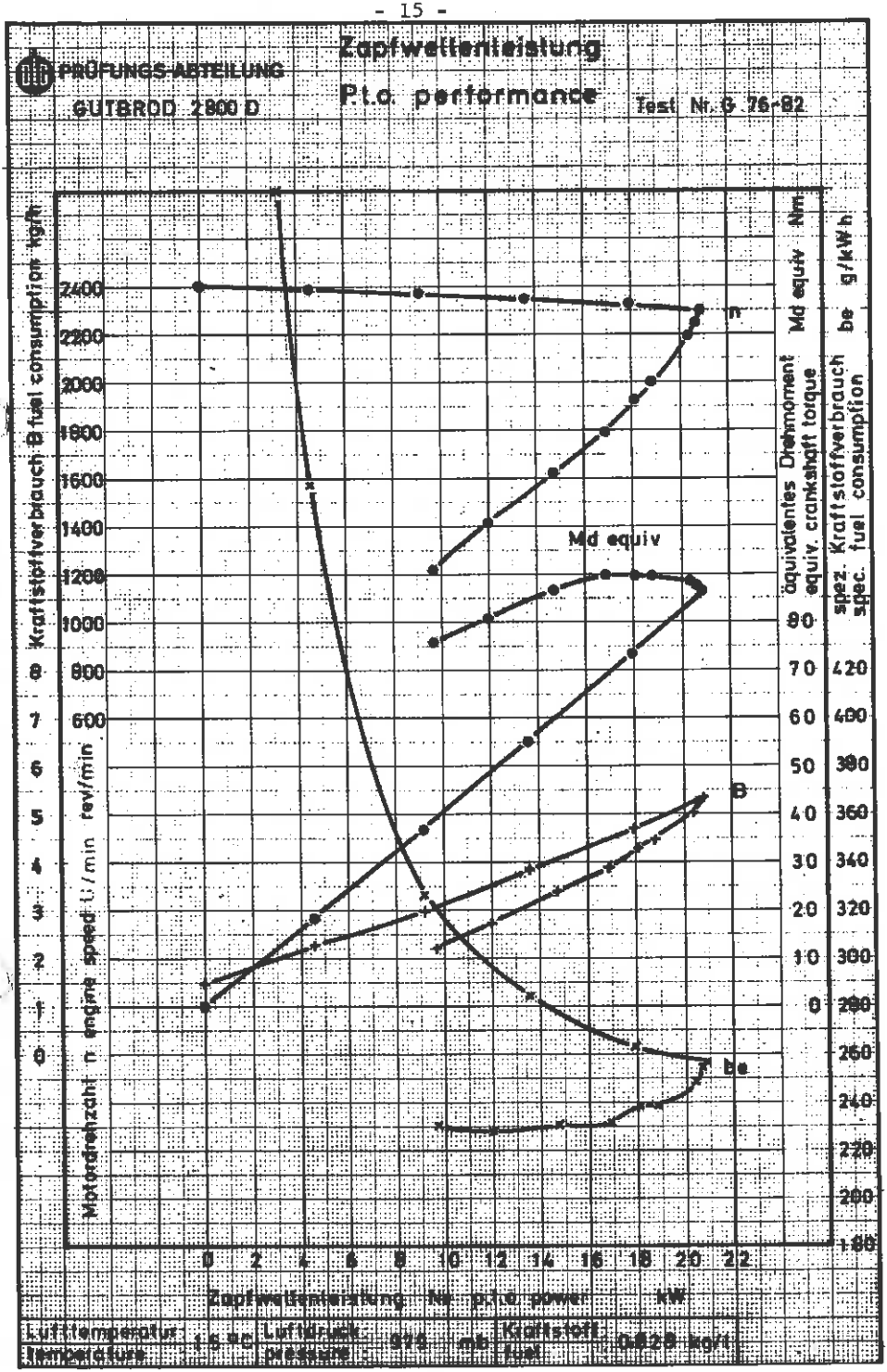
Date of tests: 11th January 1977
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

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						
20.8	2300	644	6.45	5.34	257	3.23
At standard p.t.o. speed (540 rev/min)						
18.1	1928	540	5.21	4.32	239	3.47
At the speed recommended for drawbar work						
20.8	2300	644	6.45	5.34	257	3.23
Part loads						
(i) 85% of the torque at maximum power at 2-hour test						
17.9	2329	652	5.69	4.71	263	3.15
(ii) unloaded						
-	2407	674	1.78	1.47	-	-
(iii) 50% of the load defined in (i)						
9.1	2373	665	3.61	2.99	327	2.54
(iv) maximum power						
20.8	2300	644	6.45	5.34	257	3.23
(v) 25% of the load defined in (i)						
4.6	2389	669	2.75	2.28	497	1.67
(vi) 75% of the load defined in (i)						
13.6	2349	658	4.66	3.86	285	2.91

No load maximum engine speed: 2407 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 86 Nm
Maximum equivalent crankshaft torque: 90 Nm at 1792 rev/min of the engine

Mean atmospheric conditions:	temperature	15 °C
	pressure	979 mbar
	relative humidity	63 %
Maximum temperatures:	coolant	-
	engine oil	85 °C
	fuel	16 °C
	engine air intake	16 °C


PRÜFUNGS-ABTEILUNG
GUTBROD 2800 D
Zapfwellenleistung
P.t.o. performance
Test Nr. G 76-82
Kraftstoffverbrauch
fuel consumption
kg/h
g/kWh
Ne
Md equiv
standard p.t.o. speed
Zapfwellenleistung
p.t.o. power
Ne kW
Drehmoment
equiv. crankshaft torque
Md equiv Nm
B
be
Motordrehzahl n engine speed U/min rev/min
Lufttemperatur 15 °C Luftdruck 999 mb Kraftstoff 0,829 kg/l
temperature pressure fuel


PRÜFUNGS-ABTEILUNG
GUTBROD 2800 D
Zapfwellenleistung
P.t.o. performance
Test Nr. G 76-82
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehzahl n engine speed U/min rev/min
äquivalentes Drehmoment Md equiv Nm
equiv. crankshaft torque
spez. Kraftstoffverbrauch be g/kWh
spec. fuel consumption
n
Md equiv
B
be
Zapfwellenleistung Nt p.t.o. power kW
Lufttemperatur temperature
Luftdruck pressure
Kraftstoff fuel

PRÜFUNGS-ABTEILUNG
GUTBROD 2800 D

(2) DRAWBAR PERFORMANCE (Tyres with grassland profile)

Date of tests: 24th January till 6th April 1977
Type of track: Concrete

Gear	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 370 mm						
1	1,48	5,8	14180	2382	15,0	1,76
2	3,01	11,9	14200	2344	15,0	2,43
3	4,24	16,6	14120	2308	15,1	2,68
4	6,36	18,2	10300	2300	8,9	2,85
5	11,13	18,7	6060	2300	5,2	2,87
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 4th gear						
4	6,63	14,2	7720	2332	6,4	2,72
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)						
3	-	-	14200	-	-	-
(iv) MAXIMUM POWER without ballast height of drawbar above ground 420 mm						
2	3,00	10,3	12410	2344	15,1	2,38
3	4,28	14,7	12360	2324	15,0	2,63
4	6,21	18,1	10500	2300	11,0	2,82
5	11,07	18,8	6110	2300	6,3	2,92

Total oil consumption during ten hours duration of tests (ii) and (iii): 25 g/h

Test No. 76-82

Tyres make and size: front: VEITH 6,5/80-12 GOLF 6 PR
rear: VEITH 7,50-18 GOLF 8 PR

Tread bar height at the beginning of drawbar tests:
95% of the value when new

Specific fuel consumpt. g/kWh	Temperatures: Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions: Temperature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 1,8 bar rolling radius of tyres under static load 390 mm						
474	15	-	67	8	94	994
342	15	-	68	8	92	994
311	15	-	60	7	90	994
291	18	-	68	8	52	1000
289	18	-	72	8	60	1000
303	16	-	75	8	95	996
-	16	-	75	8	95	996
tyre inflation pressure 1,5 bar rolling radius of tyres under static load 392 mm						
348	15	-	69	10	96	994
315	16	-	68	11	90	994
294	16	-	72	11	90	994
283	16	-	72	8	96	994

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

(2) DRAWBAR PERFORMANCE (Tyres with farmland profile)

Date of tests: 14th February till 7th March 1977
Type of track: Concrete

Gear	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 470 mm						
1	1,40	4,0	10220	2397	15,0	1,33
2	2,97	8,4	10200	2376	14,9	2,08
3	4,24	11,9	10130	2354	15,0	2,35
4	5,78	16,4	10200	2299	15,0	2,54
5	10,56	17,3	5890	2297	7,5	2,67
(ii) MAXIMUM POWER without ballast height of drawbar above ground 580 mm						
3	4,33	9,8	8120	2365	15,0	2,24
4	5,99	13,7	8240	2340	15,0	2,46
5	10,35	17,7	6150	2300	10,8	2,72

Test No. 76-82

Tyres make and size: front: VEITH 4,00-12 AM Front 4 PR; rear: VEITH 7,50-18 AGRAR 6 PR

Tread bar height at the beginning of drawbar tests: 80% 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 1,8 bar rolling radius of tyres under static load 382 mm						
621	16	-	68	10	94	991
398	16	-	72	10	85	991
353	11	-	70	7	95	993
327	12	-	74	10	89	993
309	17	-	72	15	75	1007
tyre inflation pressure 1,5 bar rolling radius of tyres under static load 388 mm						
371	14	-	69	12	83	989
338	14	-	69	10	90	989
305	13	-	72	10	90	989

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GUTBROD 2800 D

Test No. 76-82

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 6,5/80-12 6 ply
rear: 7,50-18 8 ply

Track of wheels front: 715 mm
rear: 696 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	2,46	2,58	2,64	2,79
Radius of turning circle	2,36	2,44	2,54	2,65

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	589 mm
Distance forward from rear axle centre	557 mm
Distance right from tractor's median plane	6 mm

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GUTBROD 2800 D

Test No. 76-82

(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 8th and 11th March 1977
Type of track: Concrete
Type of decelerometer: MOTO METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor: 1350 kg with driver

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	20,4	20,4
Deceleration	m/s^2	4,5	5,0
Stopping distance	m	4,2	4,2
Force on pedal	N	250	250
Force on pedal to achieve a deceleration of 2,5 m/s^2	N	60	40

Brake fade characteristics (hot tests)

Decelaration	hot/cold	%	91	88
Stopping distance	cold/hot	%	95	91
Force on pedal	cold/hot	%	69	100

B) PARKING BRAKE

Tractor facing up 16%-slope:
Pull on hand brake 200 N, tractor does not roll

Tractor facing down 16%-slope:
Pull on hand brake 190 N, tractor does not roll

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test:	2nd February 1977
Type of track:	Concrete
Type of sound level meter:	BRÜEL AND KJAER model 2203

Results of test

Gear:	6th gear
Travelling speed before acceleration:	15 km/h
Sound level:	87 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests:	2nd February 1977
Type of track:	Concrete
Type of sound level meter:	BRÜEL AND KJAER model 2607
Type of frequency analyzer: (fitted with octave filter)	BRÜEL AND KJAER model 1613

An overturning protection frame was fitted on tractor

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	12300	1,61	1,44	95
2	12250	3,46	3,14	95
3	12150	4,96	4,41	96
4 *)	10400	6,99	6,22	96,5
5	6080	11,83	11,03	96,5
6	light load	19,63	20,38	96

*) The 4th gear corresponds to the travelling speed nearest to 7,25 km/h

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GUTBROD 2800 D

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(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

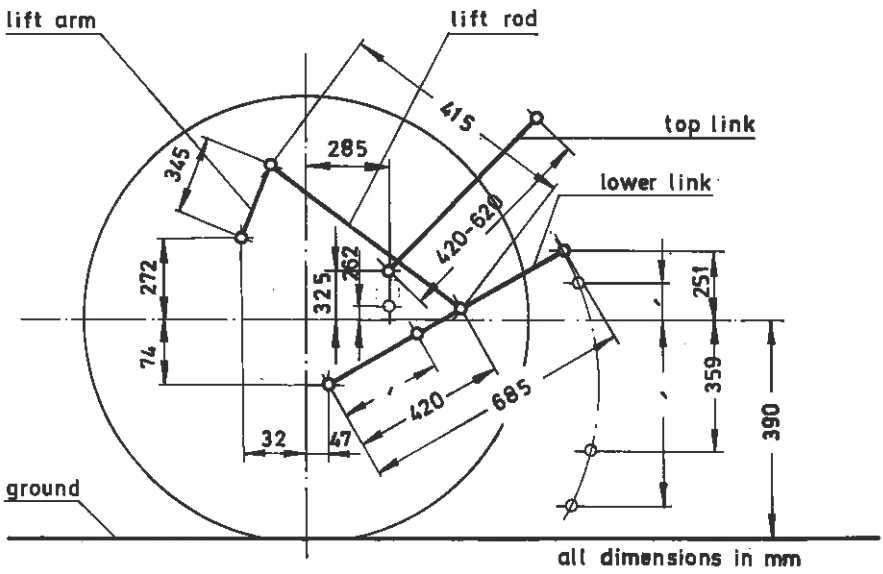
Date of tests: 28th March 1977

HYDRAULIC PUMP

(1) Opening pressure of relief valve in remote circuit	152 bar
Sustained pressure by open relief valve	149 bar
(2) Pump delivery rate at minimum pressure and maximum engine speed	19,2 l/min
(3) Pump delivery rate	17,2 l/min
Delivery pressure	143 bar
Hydraulic Power	4,1 kW

POWER LIFT

Dimensions of linkage geometry for the table on page 26



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GUTBROD 2800 D

LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-345	-300	-295	-285	-200	-100	0
at hitch points							
N				8400	7650	7150	6850

Max. force exerted throughout the whole range 6050 N

Front of tractor does not lift

at test frame
maximum mechanical advantage

N			8400		7450	6700	6100

minimum mechanical advantage

N	6600	6350			5850	5450	5000

Max. force exerted throughout the whole range 3200 N

Force at which front of tractor lifts with maximum allowable front ballast 5474 N

Test No. 76-82

+100	+200	+300	+325	+400	+475	+500	+555

lift rods 415 mm long

6600	6300	6100	6050				

lift rods 415 mm long, high top link pivot point

5350	4800	4150		3500	3200		

lift rods 415 mm long, low top link pivot point

4500	4050	3650		3200		2800	2750

All values of forces for pressure at max. hydraulic power 143 bar, see page 23; calculated from measurements at max. oil pressure 149 bar

LINKAGE GEOMETRY when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	685 mm	685 mm
Lift arms	345 mm	345 mm
Lift rods	415 mm	415 mm
Top link	435 mm	448 mm
Distance of lift rod connection point from pivot point of lower link	420 mm	420 mm
The following dimensions are given relative to rear axle centre line 390 mm above ground		
Lower link pivot point	47 mm behind, 74 mm below	47 mm behind, 74 mm below
Top link pivot point	285 mm behind, 325 mm above	285 mm behind, 262 mm above
Lift arm pivot point	32 mm forward, 272 mm above	32 mm forward, 272 mm above
Maximum and minimum height of lower link hitch points	251 mm above, 359 mm below	251 mm above, 359 mm below
Height of lower link hitch points above ground when locked in highest transport position	641 mm	641 mm

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GUTBROD 2800 D

Test No. 76-82

OPTIONAL TESTS

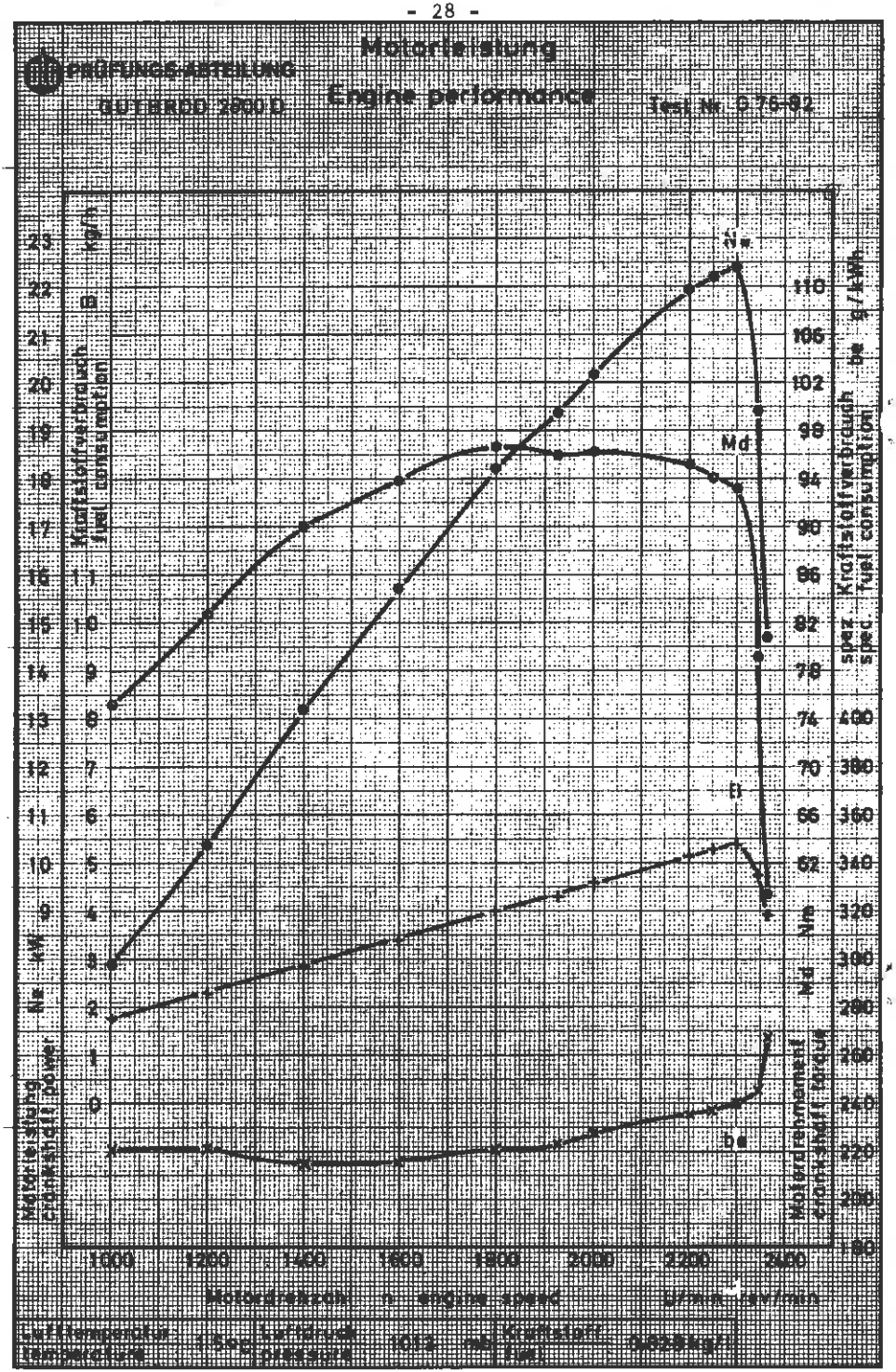
(1) ENGINE PERFORMANCE

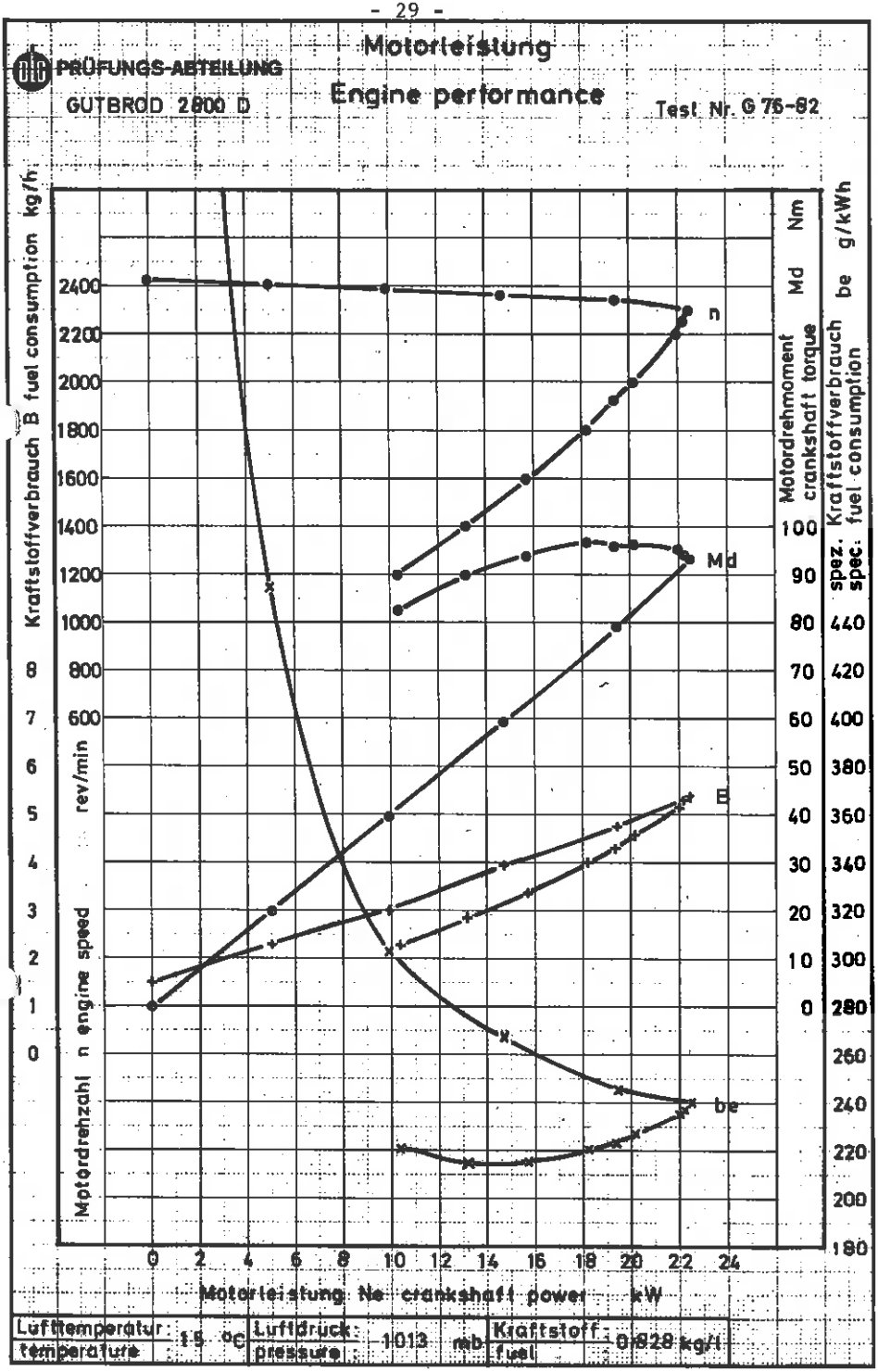
Date of tests: 5th January 1977
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

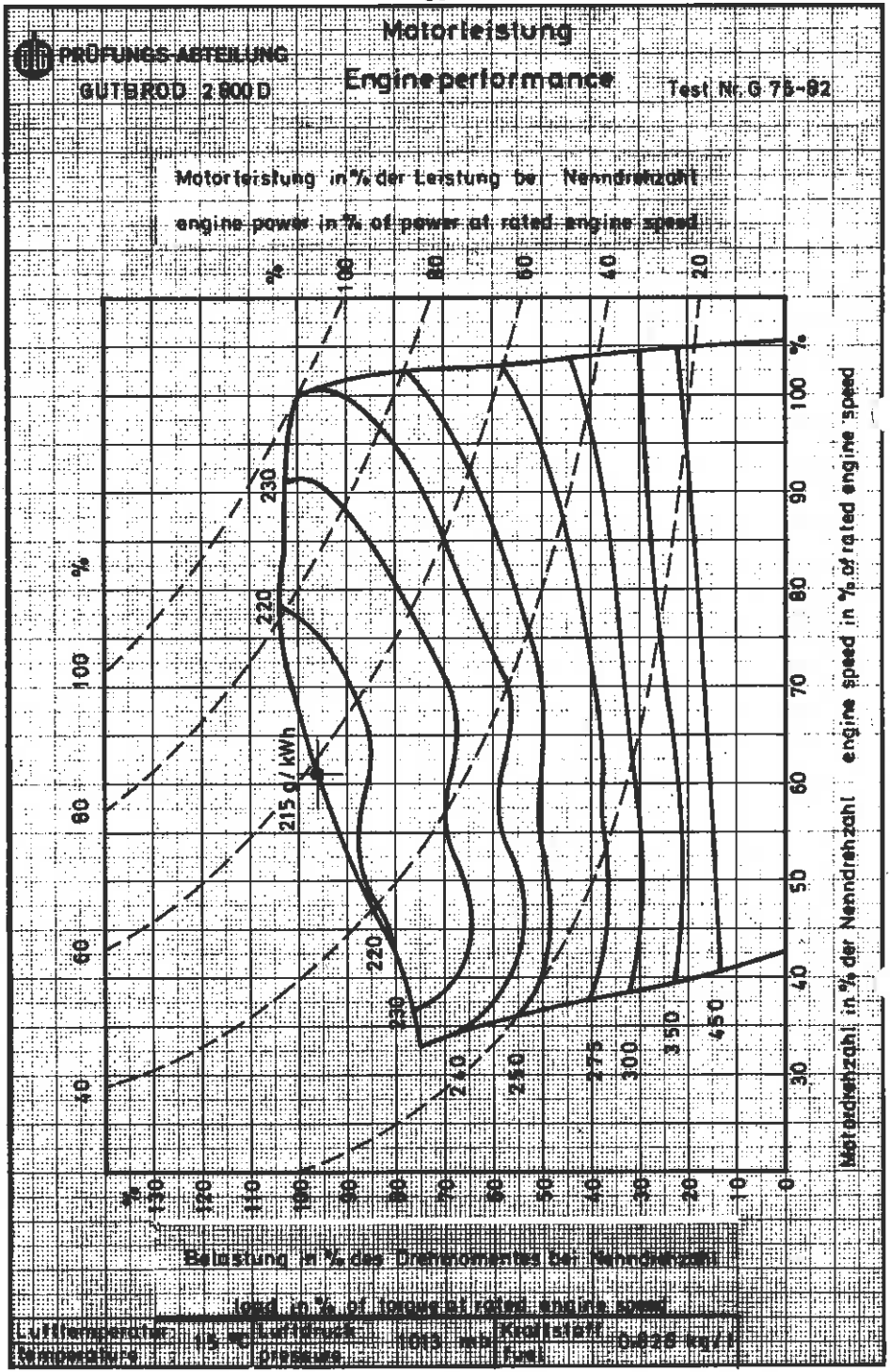
Power kW	Engine speed rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
22.4	2300	6.48	5.37	239	3.46
At standard p.t.o. speed (540 rev/min)					
19.4	1928	5.21	4.31	223	3.72
At the speed recommended for drawbar work					
22.4	2300	6.48	5.37	239	3.46
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
19.4	2343	5.75	4.76	245	3.38
(ii) unloaded					
-	2423	1.80	1.49	-	-
(iii) 50% of the load defined in (i)					
9.9	2389	3.62	2.99	303	2.74
(iv) maximum power					
22.4	2300	6.48	5.37	239	3.46
(v) 25% of the load defined in (i)					
5.0	2408	2.74	2.27	454	1.82
(vi) 75% of the load defined in (i)					
14.7	2363	4.74	3.92	267	3.10

Optimum fuel consumption: 215 g/kWh at 13.2 kW and 1400 rev/min
No load maximum engine speed: 2423 rev/min
Torque at maximum power (2 hours): 93 Nm
Maximum torque: 97 Nm at 1800 rev/min of the engine

Mean atmospheric conditions:	temperature	15 °C
	pressure	1013 mbar
	relative humidity	55 %
Maximum temperatures:	coolant	-
	engine oil	76 °C
	fuel	16 °C
	engine air intake	16 °C


Motorleistung
PRÜFUNGS-ABTEILUNG
OUTBOARD 2800 D
Engine performance
Test No. 0 76-82
Nm
Md
Ne
be
Motordrehzahl
engine speed
Lufttemperatur
Luftdruck
Kraftstoff


PRÜFUNGS-ABTEILUNG
GUTBROD 2800 D
Motorleistung
Engine performance
Test Nr. G 75-82
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehzahl n engine speed rev/min
Motordrehmoment Md crankshaft torque Nm
spez. Kraftstoffverbrauch be spec. fuel consumption g/kWh
n
Md
B
be
Motorleistung Ne crankshaft power kW
Lufttemperatur temperature 15 °C
Luftdruck pressure 1013 mb
Kraftstoff fuel 0,828 kg/l


Motorleistung
PRÜFUNGS-ABTEILUNG
GUTBROD 2800 D
Engine performance
Test Nr. G 75-82
Motorleistung in % der Leistung bei Nenndrehzahl
engine powe in % of power at rated engine speed
215 g/kWh
Motordrehzahl in % der Nenndrehzahl engine speed in % of rated engine speed
Belastung in % des Drehmomentes bei Nenndrehzahl
load in % of torque at rated engine speed
Lufttemperatur
Luftdruck
Kraftstoff