

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



O.E.C.D. No.

1021



**Agricultural Tractor
JOHN DEERE 2850 (4WD)**

Manufacturer

John Deere Werke Mannheim
D-6800 Mannheim

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

Duration of Tests: June and July 1986
DLG-Testing-Station for Agricultural Machinery, Max-Eyth-Weg 1,
D-6114 Groß-Umstadt

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

Date of Approval: 1st October 1986

O.E.C.D. No. 1021

In this report all performance characteristics are given corresponding to the International System of Units.

The reference to the former used Technical System of Units is given by the following relations:

Forces	1 daN = 10 N	=	1,02 kp	or 1 kp	=	0,981 daN
Powers	1 kW	=	1,36 PS	or 1 PS	=	0,736 kW
Pressures	1 bar	=	1,02 kp/cm ²	or 1 kp/cm ²	=	0,981 bar
	1000 mbar	=	750,10 mm Hg			

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Printed in the Federal Republic of Germany
October 1986; DLG-No. 218



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*) All stated dimensions refer to tyre sizes 12.4 R 28 at front and 18.4 R 34 at rear, as well as to track widths 1600 mm at front and at rear



Tractor manufacturer: John Deere Werke Mannheim
D-6800 Mannheim

Submitted for test by: Manufacturer

Selected by: Manufacturer with agreement by DLG

Place of running-in: Mannheim and Groß-Umstadt

Duration of running-in: Engine appr. 60 hours,
tractor appr. 20 hours

SPECIFICATION OF TRACTORTractor

Make: JOHN DEERE

Trade and type
denomination: 2850

Type: Wheel tractor, unit construction, 4WD

Serial No.: 600030

Start of series: 600001

Engine

Make: JOHN DEERE

Model: 4239 TL 007

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

Serial-No.: CD 4239 D 694403

Cylinders: 4, vertical in line, bore 106,5 mm,
stroke 110 mm, displacement 3920 cm³;
compression ratio 16,8 : 1;
wet cylinder liners, replaceable

Valves: Overhead

Fuel system: SOFABEX fuel supply pump;
CAV-ROTO DIESEL distributor pump
DPA R 3449 F 050, serial no. 38 480 5 LCF,
with injection timing device;
manufacturer's production setting 62 to 66 mm²
per stroke at rated engine speed and full
load;
injection timing 13+7° before TDC;
STANADYNE multihole injection nozzles 27336,
injection pressure 245+5 bar;
STANADYNE fuel filter with replaceable
two-stage paper element;
fuel tank with 136 l capacity



- Governor:** CAV-ROTO DIESEL centrifugal variable speed governor, governed range of engine speed 800 to 2460 1/min, rated engine speed 2300 1/min
- Supercharger:** GARRET-AIRESEARCH, model TA 3102, exhaust driven turbo supercharger, maximum charge-air pressure 760 mbar
- Air cleaner:** PUROLATOR-MICRONIC, model PM 1605/1, dry paper element filter with precleaner; replaceable main and safety cartridges; maintenance indicator lamp; air intake below bonnet
- Exhaust silencer:** ROTH, model AL 37754, multi-chamber absorption-expansion type, 190 mm dia, 286 mm long, below bonnet; mouth showing upwards, 2960 mm above ground
- Lubrication system:** Forced-feed lubrication with gear pump, PUROLATOR oil filter T 19044 in full flow, replaceable; oil capacity 10 l, specified oil quality MIL-L-2104 C resp. API-CD, specified oil viscosities:
- | | |
|---------|------------|
| winter | SAE 10W/20 |
| summer | SAE 15W/40 |
| tropics | SAE 20W/40 |
- oil and filter change every 200 operating hours; engine oil cooling water heat exchanger between oil filter and filter socket
- Cooling system:** Water cooling with impeller pump, overpressure relief valve set to 0,6 bar, cooling circuit with thermostat and by-pass; EATON-viscous drive fan, model 240, 6 blades, 481 mm dia, fan rotation speed governed by thermostat within cooling air flow behind radiator; water capacity 15 l
- Starting system:** Electrical; BOSCH solenoid pre-engaged-drive starting motor 2,7 kW; BERU heating spiral in intake pipe; range gear shift lever in neutral position as safety device



**Electrical
equipment:**

12 Volt, negative earth,
BOSCH 3-phase alternator K1-14V 85A, 1190 W;
2 lead acid batteries, 55 Ah each at 20 hours
rating

Transmission

Clutch:

LUK
dry single-plate clutch, model 330, for
travel drive only, 328 mm dia, hydraulically
actuated by pedal,
separate fluid tank

Transmission:

JOHN DEERE, model Power Synchron;
synchromesh speed change gear with 4 speeds;
collar shifted range gear with 2 forward
ranges (I and II) and 1 reverse range (R);
power-shifted planetary range gear (L and S),
hydraulically shifted by speed change
gear lever;
totally 16 forward and 8 reverse speeds;
2 shift levers

**Rear axle with
final drives:**

JOHN DEERE
bevel gear, bevel gear differential with
pedal operated lock, self-disengaging;
planetary final drives

**Front axle with
final drives:**

ZF, model APL-735;
driven by universal joint shaft to central
bevel gear drive;
oil-immersed multi-disc clutch, electrically-
hydraulically shiftable by switch;
bevel gear drive;
multi-disc limited-slip differential;
planetary final drives

Lubrication:

Transmission, rear axle, rear final drives
and hydraulic system have oil in common;
transmission with pressure lubrication;
internal-gear pump within gear box, oil
filter; oil radiator in front of water
radiator;
filter change every 500 hours



Transmission oils:

	Oil quality API MIL-L-	Oil viscosity SAE	Oil volume l	Change interval h
Transmission, rear axle, rear final drives	JOHN DEERE specif. J 20 A	75	48	1000
Front axle, front final drives	GL-5 2105 B or 2105 C	90	7	
			1,5 each	

Total ratios and speeds

Range	Gear	Total ratio engine : driving wheel	Nominal travelling speed *) at rated engine speed km/h
I	L	1	360,95
		2	240,63
		3	156,18
		4	108,10
	S	1	283,60
		2	189,07
		3	122,71
		4	84,93
II	L	1	98,83
		2	65,89
		3	42,76
		4	29,60
	S	1	77,65
		2	51,77
		3	33,60
		4	23,26
R	L	1	227,41
		2	151,61
		3	98,40
		4	68,11
	S	1	178,68
		2	119,12
		3	77,31
		4	53,51

*) calculated with the radius index 770 mm



Main p.t.o.

Independent,
driven by oil-immersed multi-plate clutch with
133 mm dia, hydraulically operated with
lever by control valve;

1 p.t.o. shaft at rear of tractor
699 mm above ground, 25 mm to the left
of tractor's median plane, interchangeable
for 540 or 1000 1/min; direction of
rotation clockwise, viewed facing
tractor's rear;

540 1/min p.t.o.: 422 mm behind rear
wheel centre line, 35 mm dia,
6 splines, DIN 9611/ISO 500 type 1

1000 1/min p.t.o.: 412 mm behind rear
wheel centre line, 35 mm dia,
21 splines, DIN 9611/ISO 500 type 2

P.t.o. type	P.t.o. speed 1/min	Engine speed 1/min	Ratio engine : P.t.o.	Power restriction kW
540	540	2071	3,8350	-
	600	2300		
1000	1000	2172	2,1724	-
	1059	2300		

Switchable p.t.o. optionally available

Power lift

JOHN DEERE
hydraulic power lift in unit construction;
draft-and position-control, both steplessly
mixable, floating position;
lowering throttle; lower link sensing

Hydraulic system:

Closed centre system;
F & S, model JOHN DEERE RP 2023 COE 0100,
variable-capacity radial-piston pump,
directly driven by engine, feeds power
lift and steering system, max. delivery
50 l/min at rated engine speed;
the transmission oil pump (see page 6)
offers hydraulic pressure for actuating of
p.t.o. clutch, power-shift, front axle drive
and feeds the radial-piston pump;
JOHN DEERE control valve,
relief valve pressure setting 197 ± 3 bar;
single acting cylinder with 126 mm stroke
and 100 mm bore;
safety valve set to 230 bar



2 single acting WEBER assister rams
with 190 mm stroke and 35 mm bore;
1 double acting JOHN DEERE additional
control valve with 2 couplings at tractor's
rear

Oil capacity
available for
external use:

Up to 8 l when tractor moves, 12 l stationary;
with increased oil volume may be taken off
12 l respectively 16 l

Hydraulic oil:

In common with transmission, see page 7

Implement linkage: See pages 10 and 11

Pull attachments

Trailer hitch:

JOHN DEERE, model AL 18335, non automatical;
hitch point

above ground	865 mm
behind rear wheel centre line	447 mm
behind p.t.o. shaft (1000)	35 mm
hitch hole diameter	33 mm
permissible vertical load	1200 kg

Swinging drawbar:

Shiftable

height above ground	470 mm
pivot point before rear wheel centre line	51 mm

hitch point

behind rear wheel centre line	629, 777 or 818 mm
behind p.t.o. shaft	217, 365 or 406 mm
below p.t.o. shaft	229 mm
swingable to both sides about max.	240 mm
hitch hole diameter	33 mm
permissible vertical load	1000 kg

Holed drawbar:

Short bar, thickness 25 mm, width 80 mm,

length between joint balls 825 mm,

9 holes 33 mm dia with 80 mm distance each,

holes centres behind p.t.o. (1000)

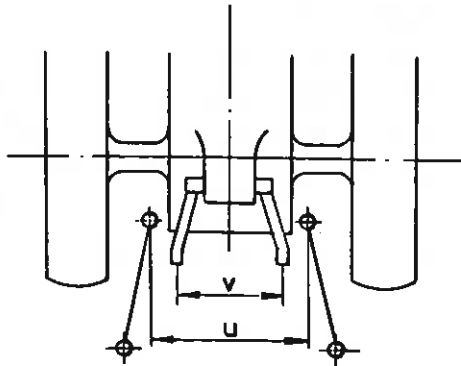
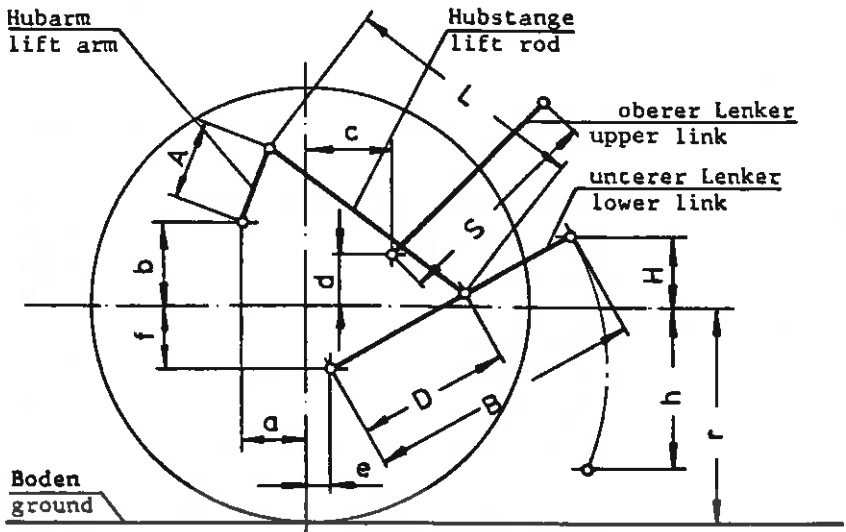
with horizontal lower links	609 mm
height above ground	min. 108 mm
	max. 1001 mm

Towing hitch:

At front, 860 mm above ground



Implement linkage: Three point linkage with
JOHN DEERE/WALTERSCHEID quick
couplers, category 2 acc. to
ISO 730/I, DIN 9674





Dimensions of rear implement linkage (projected lengths in mm, underlined dimensions are valid for power lift measurements p. 27)

Rear tyres	radius index	(r)	770
Front tyres	radius index	(r')	590
Length of lift arms		(A)	254
Length of lower links		(B)	906
Distance of lift arm pivot points from rear wheels' centre line	horiz.	(a)	7
	vertical	(b)	277
Horizontal distance between lower link pivot points		(u)	450
Horizontal distance between lift arm end points		(v)	494
Length of upper link		(S)	641 to 861, <u>697</u>
Distance of upper link pivot point from rear wheels' centre line	horiz.	(c)	328
	vertical	(d)	<u>163</u> , 193
Distance of lower link pivot point from rear wheels' centre line	horiz.	(e)	115
	vertical	(f)	200
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	455
Length of lift rods		(L)	628 to 732, <u>680</u>

Height of lower link hitch points relative to rear wheels' centre line (situated 770 mm above ground), these data are valid for unloaded power lift:

Length of lift rods	(L)	<u>680</u>	628	732
Linkage distance of lift rods	(D)	455		
Lowest position	(h)	570	435	662
Highest position	(H)	100	231	36
Transport position	(H')	100	231	36

Type of transport lock: Lowering throttle and latching of control valve lever



Steering

JOHN DEERE and DANFOSS
model OSPC 125,
hydrostatic, connected by sequence valve
and pressure-reducing valve to the
hydraulic system of the tractor;
max. pressure 150 bar;
oil filter in return line,
filter change every 1000 hours;
1 integrated ZP cylinder (symmetrical design)
with 212 mm stroke, 60 mm bore and
32 mm piston rod diameter, directly acting
on steering levers;
steering column adjustable in length
and inclination

Brakes

- Service brake:** JOHN DEERE
pedal operated muscle power brake with
hydraulic transmission, using oil from
gear box, acting on rear wheels;
oil-immersed disc brake with 1 ring-piston
on each differential half shaft, self
readjusting, disc diameter 304 mm
- Parking brake:** Mechanical wet V-band brake,
acting on rear wheels,
drum diameter 238 mm, width 20 mm,
within gear box,
operated by lever with ratchet
- Steering brake:** Divided pedal of service brake, for normal
use locked together
- Trailer brake:** Optionally available:
compressed-air brake or
hydraulic brake system



Wheels

Steered wheels: At front, 2 radial-ply tyres 12.4 R 28
6 ply,
KLEBER SUPER TRACSOL;
max. permissible load per tyre 1275 kg
at 1,7 bar inflation pressure and 30 km/h;
track width 1600 mm,
adjustable from 1500 to 2100 mm in steps of
100 mm each,
adjustable gauge bowl wheels,
rims W10x28

Driving wheels: At front and at rear,
2 radial-ply tyres at rear 18.4 R 34 8 ply,
CONTINENTAL CONTRACT AC 51;
max. permissible load per tyre 2565 kg
at 1,4 bar inflation pressure and 30 km/h;
track width 1600 mm,
adjustable from 1600 to 2000 mm in steps of
100 mm each;
adjustable gauge bowl wheels,
rims W15Lx34

Wheel base: 2287 mm

Cab

JOHN DEERE
SG2 (ALY 45851) with integrated safety
frame RG2;
OECD-tested, approval-no. CSD 01021/1,
antivibration mounted by 4 silent blocks on
tractor;
1 door at front left side and 3 steps;
steps 530, 710 and 960 mm, driver's
platform 1035 mm above ground;
opened door lockable, side and rear
windows and roof hatch tiltable;
combined heating-ventilation system with
3-stage blower and cooling water heat
exchanger incorporated in roof;
air intake at both sides of the roof;
2 air filters;
8 air outlet jets in the cab roof;
tinted glass;
optionally available: hot water platform
heating,
air conditioner



Noise reduction materials:

floor	molded, napped rubber mat	40 mm
seat support, mudguards and rear wall	foam with vinyl coating	25 mm
instruments and steering support		
- outside	foam with vinyl coating	6 mm
- inside	foam with lead-vinyl intermediate layer	30 mm
bulk head		
- engine side	foam (polyether) with rubber coating, molded	25 mm
control box, right hand, inside		
- mudguard	foam	25 mm
- bottom	rubber, molded	3 mm
uprights	foam with vinyl coating	19 mm
roof, front part	foam on cardboard with perforated vinyl coating	25 mm
roof hatch	foam with vinyl coating	50 mm
all other parts of the roof	foam with perforated vinyl coating on self-supporting web plate of plastics	15 mm

Seat

GRAMMER, model DS 85H/90 A;
upholstered seat with adjustable back rest
and arm rests, adjustable spring suspension,
hydraulic shock absorber;
height of unloaded seat above platform
adjustable in 2 steps from 510 to 570 mm;
longitudinal adjustment range 150 mm



Number of grease points 24

Overall dimensions

Total length: 3980 mm without ballast
4250 mm with ballast

Total width: 2055 mm with and without ballast

Total height: 2700 mm to cab roof
2960 mm to mouth of exhaust silencer

Ground clearance: 405 mm below stabilizers of lower links

Lighting equipment Electrical, 12 Volt, as per German legislation

	Dimensions mm	Height above ground of centre mm	Distance from outside edge of tractor to centre mm
Head lights	130 Ø	1160	755
Side lights	70 x 20	1600	175
Rear lights	60 x 30	1555	225
Reflectors			
1st pair	145 x 35	1505	225
2nd pair	75 Ø	675	565

Running-time meter

Electronic, counts real operating hours if engine is running



Permissible combinations
of tyres

Tyre size	
at front	at rear
11.2 - 24	13.6 - 36
	16.9 - 30
11.2 - 28	13.6 - 38
	14.9 - 38
	16.9 - 34
	18.4 - 34
12.4 - 24	18.4 - 30
12.4 - 28	14.9 - 38
	18.4 - 34
13.6 - 24	13.6 - 38
	15.5 - 38
	16.9 - 34
	18.4 - 34
	23.1 - 26

TEST CONDITIONS

Track setting 1600 mm at front
 1600 mm at rear

<u>Weights</u>		Without driver	With driver
Without ballast:	front	1545 kg	1550 kg
	rear	2475 kg	2555 kg
	total	4020 kg	4105 kg
Front ballast:	12 weights, total		600 kg
	water in the tyres		250 kg
Rear ballast:	6 weights per wheel, total		330 kg
	water in the tyres		715 kg
With ballast:	front	2495 kg	2500 kg
	rear	3420 kg	3500 kg
	total	5915 kg	6000 kg
Technically permissible axle loads:	at front		2500 kg
	at rear		4500 kg
Technically permissible total weight:			6000 kg



Fuels and lubricants used in tests

Fuel: ARAL Diesel-fuel DIN 51601
density at 15°C
at engine tests 0,840 kg/l
at p.t.o. tests 0,842 kg/l
at drawbar tests 0,840 kg/l

Engine: FUCHS TITAN-UNIVERSAL SAE 15W/40

Transmission, rear
axle and hydraulic
system: RENOGEAR HYDRO J 20 A

Front axle: FUCHS RENOGEAR HYPOID SAE 90

Grease: Multi-purpose grease

Operation of
drive-clutch: Brake-fluid DOT 4

Repairs None

Remarks
The tractor engine is fitted with a viscous-drive fan. The fan speed is depending on the ambient air temperature.
As the engine power is influenced by the fan speed, all power tests had been made at fairly exact the same ambient air temperatures



COMPULSORY TESTS

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

Date of tests: 20th June 1986
 Location of tests: DLG-Testing-Station Groß-Umstadt
 Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

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

MAXIMUM POWER

At 2-hour test

61.5	2200	1013	17.48	14.83	241	3.52
------	------	------	-------	-------	-----	------

At rated engine speed

58.2	2300	1059	17.01	14.42	247	3.42
------	------	------	-------	-------	-----	------

At standard p.t.o. speed

61.3	2172	1000	17.46	14.80	242	3.51
------	------	------	-------	-------	-----	------

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

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

58.2	2300	1059	17.01	14.42	247	3.42
------	------	------	-------	-------	-----	------

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

50.5	2343	1079	15.16	12.86	255	3.33
------	------	------	-------	-------	-----	------

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

38.5	2386	1098	12.56	10.65	276	3.07
------	------	------	-------	-------	-----	------

(iv) 50% of the torque defined in (ii)

25.9	2410	1109	10.18	8.63	333	2.55
------	------	------	-------	------	-----	------

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

13.1	2433	1120	7.58	6.42	491	1.73
------	------	------	------	------	-----	------

(vi) unloaded

-	2446	1126	5.08	4.31	-	-
---	------	------	------	------	---	---



Power kW	Speed		Fuel consumption			Specific energy kWh/l
	engine 1/min	p.t.o. 1/min	hourly l/h	kg/h	specific g/kWh	
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
(i) the torque corresponding to maximum power						
61.3	2172	1000	17.46	14.80	242	3.51
(ii) 85% of the torque obtained in (i)						
53.8	2246	1034	15.70	13.31	247	3.43
(iii) 75% of the torque defined in (ii)						
41.1	2285	1052	12.79	10.84	264	3.21
(iv) 50% of the torque defined in (ii)						
27.7	2312	1064	10.12	8.58	310	2.74
(v) 25% of the torque defined in (ii)						
14.0	2341	1077	7.40	6.28	447	1.90
(vi) unloaded						
-	2360	1086	4.68	3.97	-	-

Standard specific fuel consumption (g/kWh): 255/333/247/310

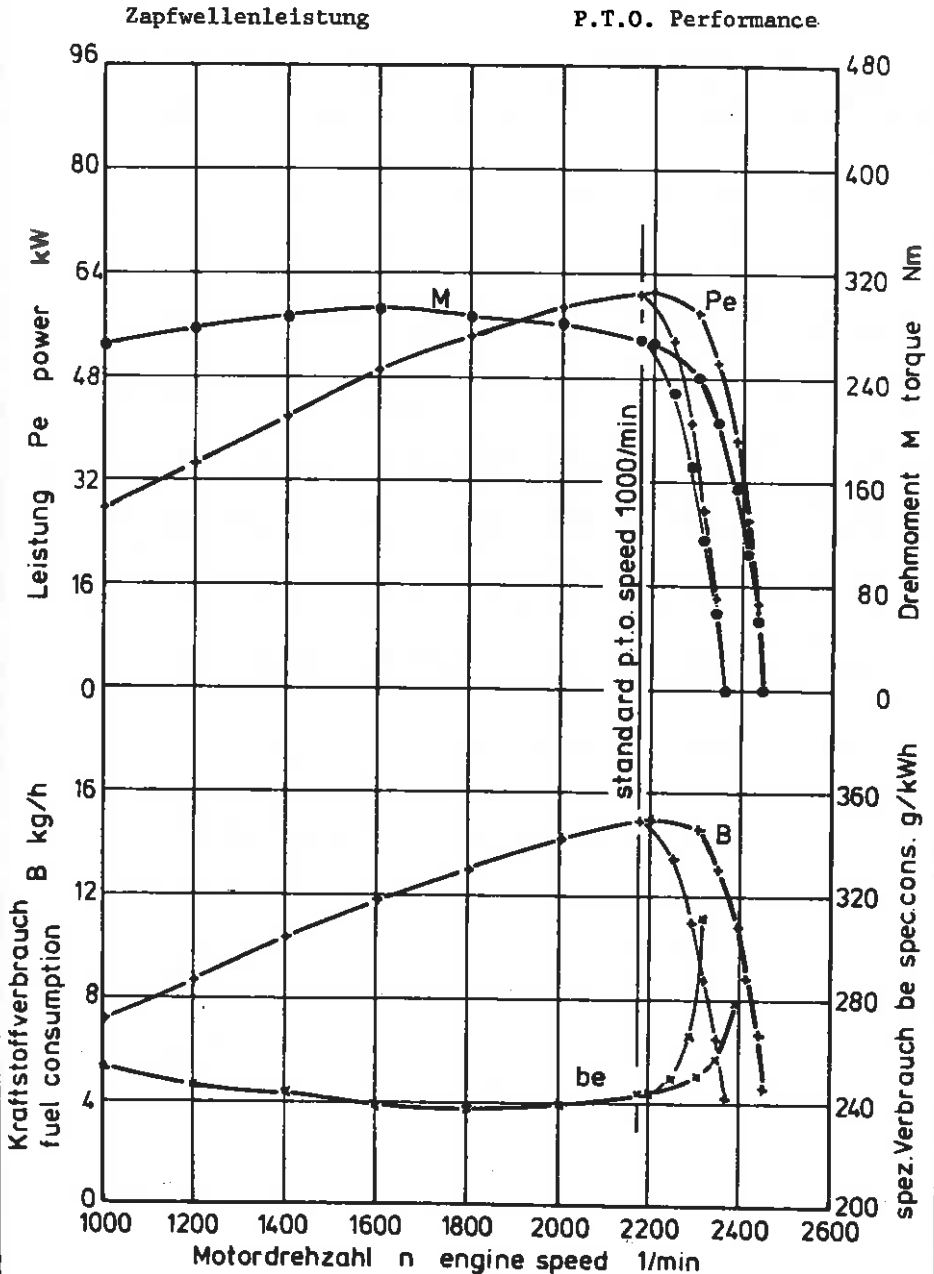
No load maximum engine speed: 2446 1/min

Equivalent flywheel torque at rated engine speed: 242 Nm

Maximum equivalent flywheel torque: 294 Nm at 1602 1/min
of the engine

Mean atmospheric conditions: temperature 25 °C
pressure 1000 mbar
relative humidity 60 %

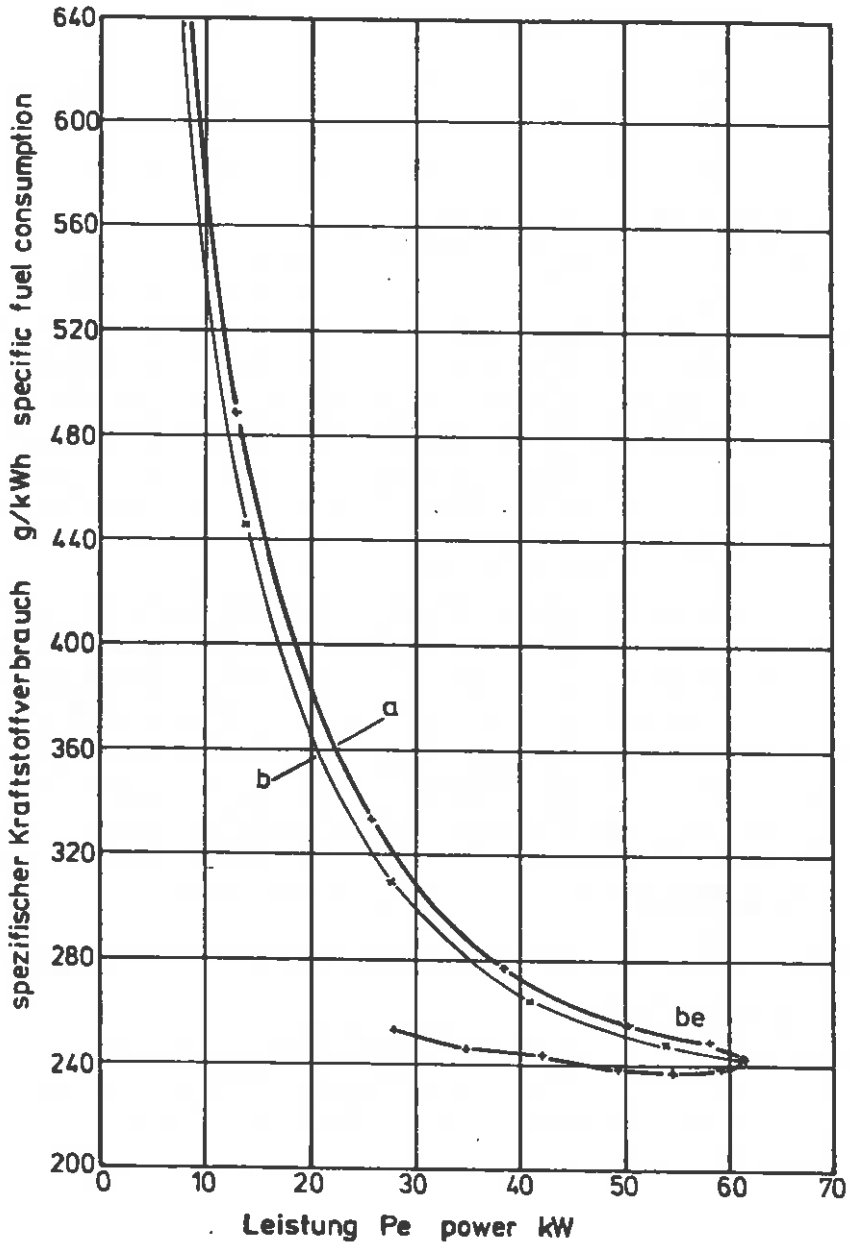
Maximum temperatures: coolant 86 °C
engine oil 110 °C
fuel 28 °C
engine air intake 27 °C





Zapfwellenleistung

P.T.O. Performance



**PRÜFUNGS-ABTEILUNG**

JOHN DEERE 2850

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(2) DRAWBAR PERFORMANCE

Date of tests: 25th June till 2nd July 1986

Type of track: Concrete

Gear	Driving speed km/h	Power kW	Drawbar pull daN	Engine speed 1/min	Slip of wheels %
(i) <u>MAXIMUM POWER</u> (unballasted) height of drawbar above ground 475 mm					
2 I S	3,14	36,7	4207	2348	15,1
3 I L	3,75	44,0	4226	2309	15,0
3 I S	4,70	50,1	3837	2197	11,7
4 I L	5,50	51,3	3361	2196	9,1
1 II L	6,08	51,7	3061	2202	8,0
4 I S	7,17	52,0	2609	2200	6,6
1 II S	7,92	52,3	2377	2202	5,9
2 II L	9,43	51,7	1973	2200	4,8
2 II S	12,17	51,3	1517	2203	3,7
(ii) <u>MAXIMUM POWER</u> (ballasted) height of drawbar above ground 455 mm					
1 I L	1,67	27,1	5869	2381	15,1
1 I S	2,11	34,2	5853	2359	15,0
2 I L	2,45	39,9	5860	2335	14,9
2 I S	2,96	48,0	5833	2201	14,6
3 I L	3,80	49,9	4731	2201	9,6
3 I S	4,97	51,4	3724	2200	6,9
4 I L	5,71	51,2	3228	2198	5,6
1 II L	6,27	51,6	2961	2198	5,1
4 I S	7,39	50,7	2470	2203	4,1
1 II S	8,09	50,7	2258	2198	3,7
(iii) <u>FIVE-HOUR-TEST</u> at 75% of pull at maximum power in 1 II S gear					
1 II S	8,67	40,8	1694	2331	2,7
(iv) <u>FIVE-HOUR-TEST</u> at pull corresponding to 15% wheel slip in test (ii)					
2 I L	2,42	39,5	5869	2324	-

Total oil consumption during ten hours duration of tests
(iii) and (iv) 10 g/h



Tyre size front: 12.4 R 28 6 ply
 rear: 18.4 R 34 8 ply

Tread bar height at the beginning of drawbar tests:
 92% at front, 93% at rear of the value when new

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

tyre inflation pressure 1,0 bar at rear; 0,8 bar at front

333	2,52	30	81	100	19	83	1006
318	2,64	30	80	100	19	84	1006
297	2,83	31	81	103	19	85	1006
289	2,91	30	82	100	19	86	1006
289	2,90	29	83	100	19	86	1006
288	2,92	31	83	104	20	84	1006
284	2,96	31	82	102	20	82	1006
287	2,93	30	82	103	21	89	1006
290	2,89	30	81	102	21	86	1006

tyre inflation pressure 1,0 bar at rear; 1,7 bar at front

371	2,26	31	80	101	22	68	1002
344	2,44	30	81	102	22	68	1002
328	2,56	26	82	102	21	69	1002
309	2,72	33	82	104	23	68	1002
297	2,83	32	81	103	23	67	1002
288	2,91	30	82	102	23	65	1002
289	2,91	33	83	104	24	65	1002
287	2,92	31	84	103	25	64	1002
292	2,87	33	83	102	25	63	1002
290	2,90	31	82	103	25	59	1002

313	2,69	44	83	106	31	46	1006
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-	-	39	82	106	26	55	1006
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Test (iv) was carried out with additional ballast, the figures not quoted are therefore irrelevant



(3) TURNING SPACE AND TURNING CIRCLE (Front wheel drive disengaged)

Wheel equipment front: 12.4 R 28 6 ply
rear: 18.4 R 34 8 ply

Track of wheels front: 1600 mm
rear: 1600 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	4,29	4,44	4,98	5,07
Radius of turning circle	3,85	3,92	4,54	4,55

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	962 mm
Distance forward from rear axle centre	863 mm
Distance from tractor's median plane, to the right	1 mm



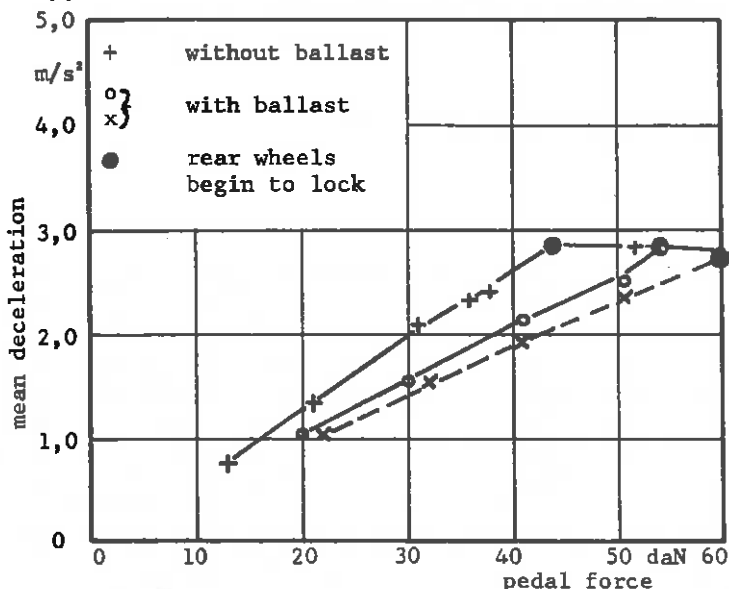
(5) **BRAKING** (Front wheel drive disengaged)

Date of tests: 26th and 27th June 1986

	Tractor mass (with driver)			Speed before application of brakes km/h
	front kg	rear kg	total kg	
Without ballast	1550	2555	4105	30,0
With ballast	2500	3500	6000	29,7

A) Service brake

Type-0-test (cold brakes) ———, Type-I-(fade) test - - - -



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

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

B) Parking brake

	Ballasted tractor on 18%-slope		Unballasted tractor on 12%-slope with trailer of 3000 kg	
	up	down	up	down
Braking device control force daN	26	19	23	17



(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 25th June 1986
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2209

Results of test

Gear: 4 II S +)
Travelling speed before acceleration: 22,3 km/h
Sound level: 85,5 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 25th June 1986
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2209

Tractor fitted with JOHN DEERE safety cab SG2

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed		Sound level dB(A)
		nominal km/h	effective km/h	
1 I L	3809	1,85	1,70	78,5
1 I S	3850	2,35	2,13	78,5
2 I L	3905	2,77	2,48	79,0
2 I S	3889	3,53	3,11	79,5
3 I L	3875	4,27	3,74	79,5
3 I S	3369	5,44	5,05	79,5
4 I L	2970	6,18	5,83	79,0
1 II L	2675	6,76	6,45	78,5
4 I S *)	2286	7,86	7,57	79,0
4 I S *)	light load	7,86	8,48	77,5
1 II S	2098	8,60	8,32	78,5
2 II L	1751	10,13	9,92	78,5
2 II S	1311	12,90	12,77	78,0
3 II L	1055	15,61	15,56	79,5
4 II S +)	light load	28,71	29,73	78,5

+) Front wheel drive disengaged

*) The 4 I S gear corresponds to the nominal speed nearest to 7,5 km/h

**PRÜFUNGS-ABTEILUNG**

JOHN DEERE 2850

- 27 -

Test No. 86-146

(8) LIFTING FORCES AND HYDRAULIC POWER

Date of tests: 3rd till 5th June 1986

Lifting Forces (Linkage dimensions: see page 10 and 11)

	Height of lower hitch points above ground in down pos. mm	Ver-tical move-ment mm	Max. force exerted through full range daN	Corresp. pressure of hydraul. fluid bar	Moment about rear axle daNm	Max. tilt angle of mast over range of lift degrees
At hitch points	200	630	2890	170	-	-
On the frame	200	755	2540	170	4143	13

Temperature of hydraulic fluid at start of test 65 °C

Lifting heights relative to horizontal lower links

mm	-430	-400	-370	-300	-200	-100	0	+100	+200	+260	+300	+325
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Lifting forces at hitch points

daN			2890	3030	3230	3360	3480	3550	3580	3570		
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Lifting forces at test frame

daN	2560	2590		2730	2800	2830	2810	2780	2680		2590	2540
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Hydraulic Power

Max. pressure with pump stalled

198 bar

Pump delivery rate at minimum pressure

50,5 l/min

	Hydraulic power kW	Flow rate l/min	Pressure bar	Oil temperature °C
at 90% of the actual relief valve setting	10,2	34,3	178	65
maximum	12,9	45,5	170	65

Tapping point used for test: at rear of tractor



OPTIONAL TESTS

(9) ENGINE PERFORMANCE

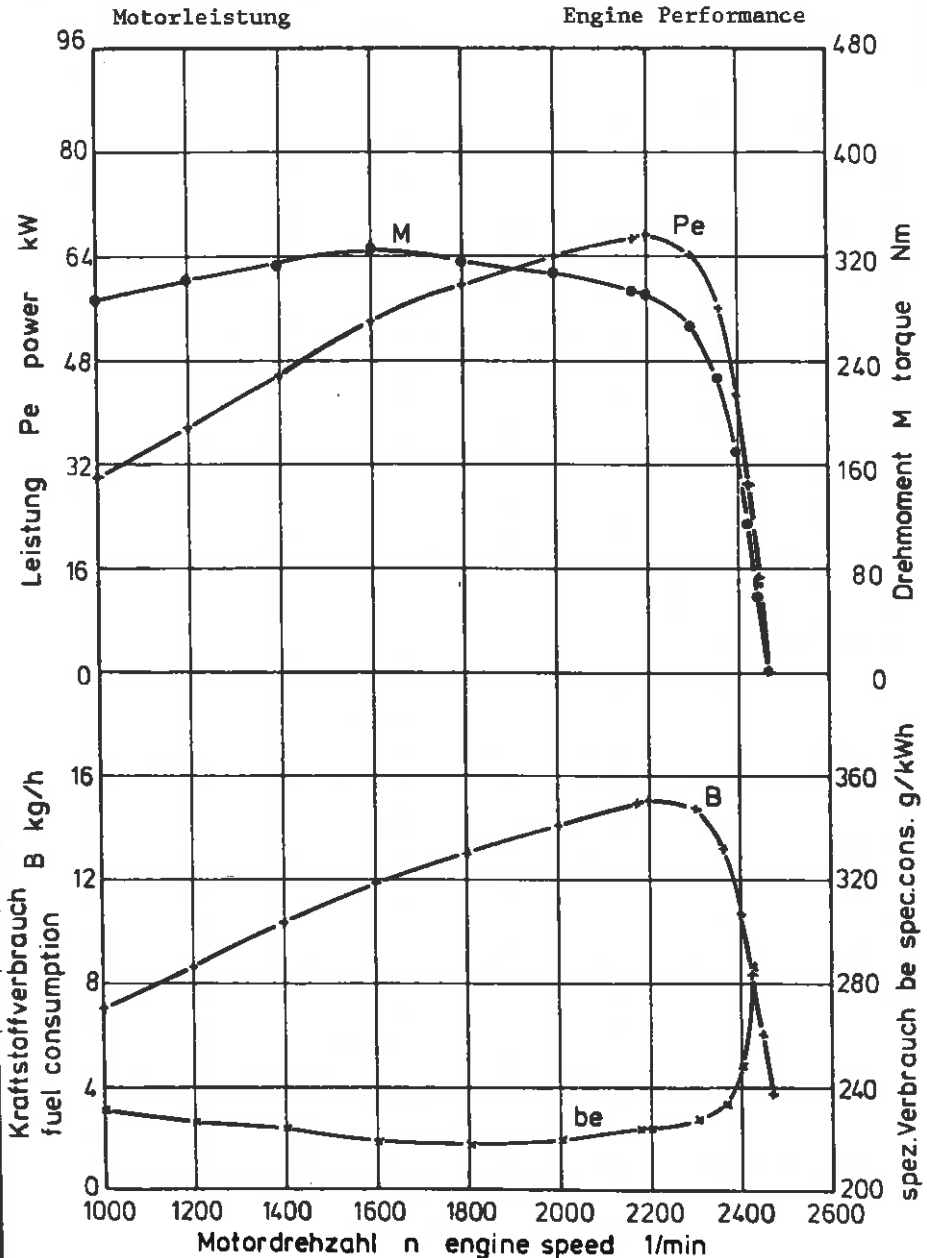
Date of tests: 11th June 1986
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

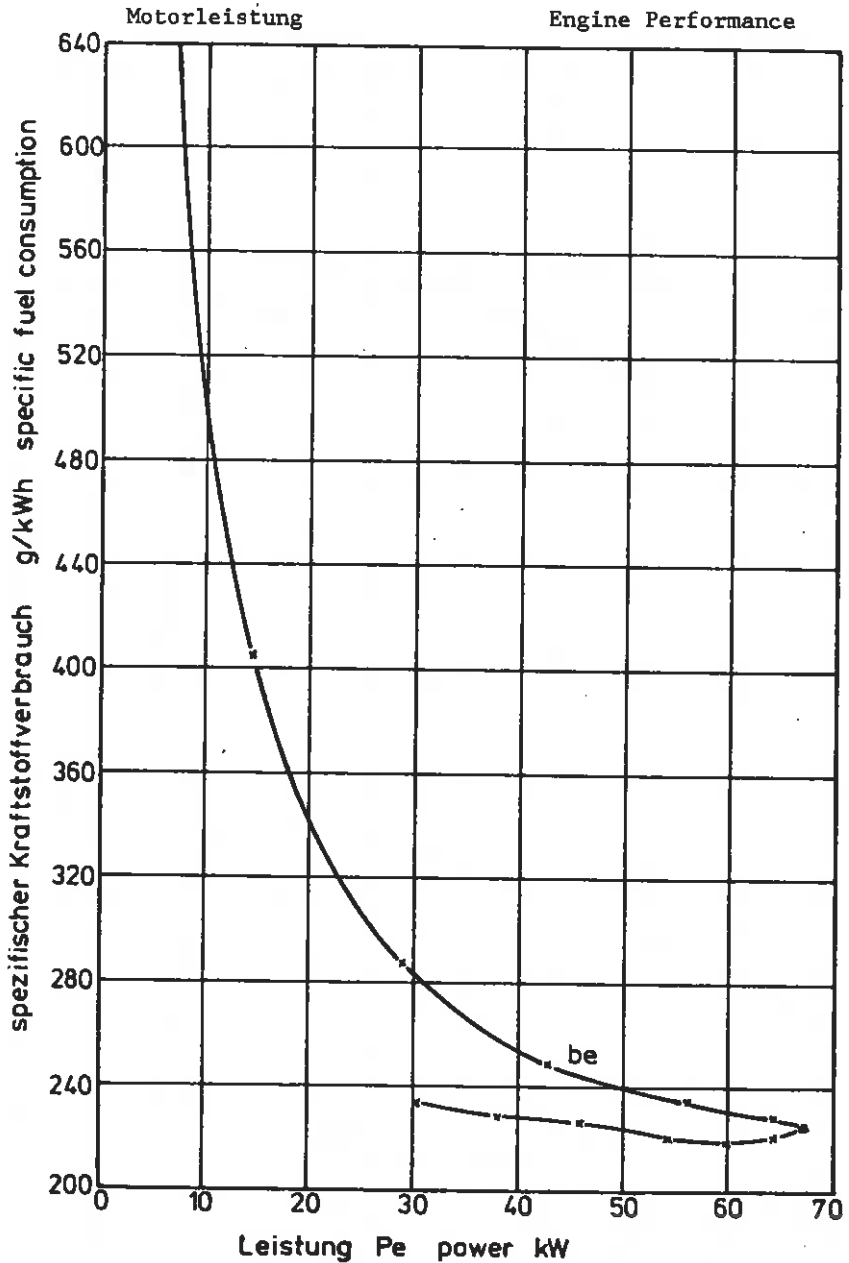
Power kW	Engine speed 1/min	Fuel consumption		Specific energy kWh/l	
		hourly 1/h	kg/h		
<u>Maximum power</u>					
At 2-hour test					
67.3	2200	17.83	14.98	223	3.77
At rated engine speed					
64.4	2300	17.39	14.61	226	3.70
At standard p.t.o. speed (1000 1/min)					
67.1	2172	17.74	14.90	222	3.78
<u>Part loads</u>					
(i) the torque corresponding to maximum power at rated speed					
64.4	2300	17.39	14.61	226	3.70
(ii) 85% of the torque obtained in (i)					
56.2	2361	15.55	13.06	232	3.62
(iii) 75% of the torque defined in (ii)					
42.8	2399	12.56	10.55	246	3.41
(iv) 50% of the torque defined in (ii)					
28.9	2425	9.80	8.23	285	2.95
(v) 25% of the torque defined in (ii)					
14.6	2446	7.01	5.89	405	2.08
(vi) unloaded					
-	2467	4.26	3.58	-	-

Optimum fuel consumption: 214 g/kWh at 45.1 kW and 1610 1/min
No load maximum engine speed: 2467 1/min
Torque at rated engine speed: 268 Nm
Maximum torque: 324 Nm at 1600 1/min of the engine

Mean atmospheric conditions: temperature 25 °C
pressure 1000 mbar
relative humidity 60 %

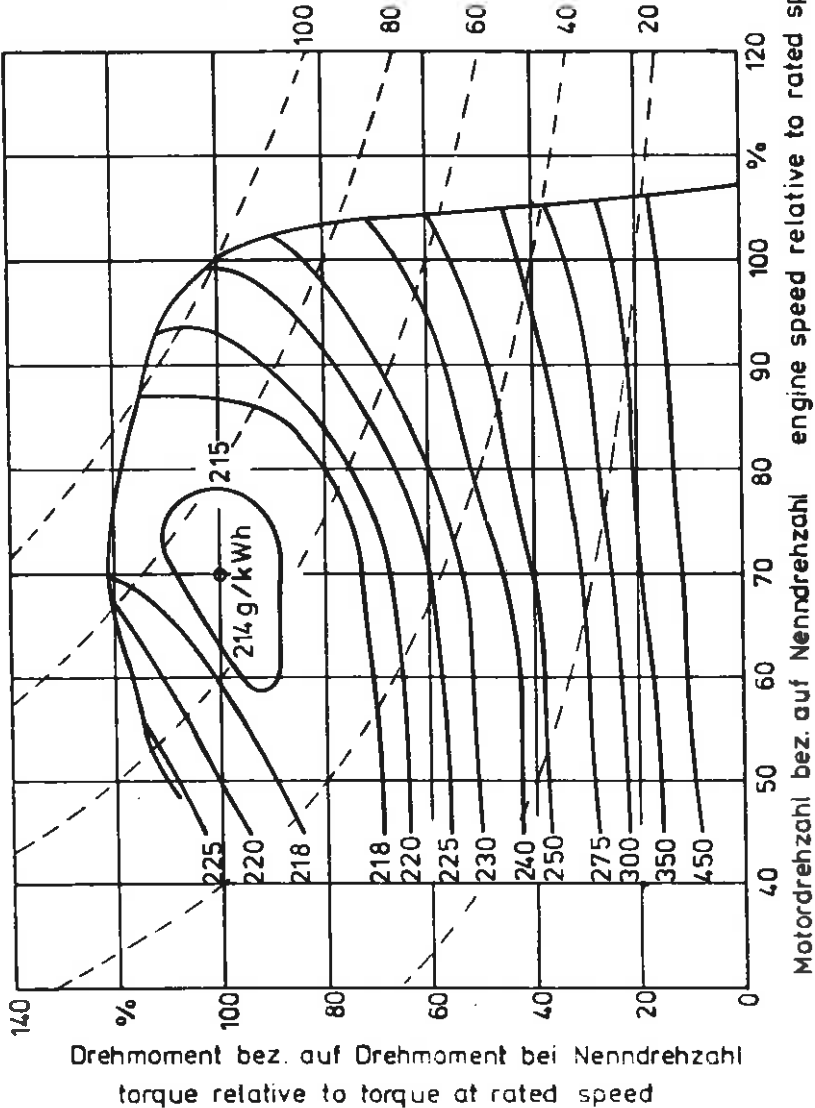
Maximum temperatures: coolant 83 °C
engine oil 109 °C
fuel 27 °C
engine air intake 27 °C







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



Published
with the support of the Federal Minister for Food, Agriculture and Forestry

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