Report on test in accordance with
OECD STANDARD CODE I for the Official
Testing of Agricultural Tractor Performance

Full Code

OECD No. **1229**



Agricultural Tractor
DEUTZ-FAHR DX 4.51 (4WD)

Type denomination D 1064 A-T

Manufacturer
Klöckner-Humboldt-Deutz AG
D-5000 Köln-Deutz

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

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

Duration of tests: August till October 1989

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

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

Date of approval: 8th January 1990

OECD No. 1229
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In this report all performance characteristics are given corresponding to the International System of Units.

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

Forces	1 kN	=	1000 N	=	102	kp
Powers			1 kW	=	1,36	PS
Pressures	1 MPa	=	10 bar	=	10,2	kp/cm²
	100 kPa	=	1000 mbar	=	750,10	mm Hg

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PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.51

Test No. 89-144

Tractor manufacturer:	KLÖCKNER-HUMBOLDT-DEUTZ AG D-5000 Köln-Deutz
Location of tractor assembly:	D-5000 Köln-Deutz
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Köln and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 100 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	DEUTZ-FAHR
Trade name:	DX 4.51
Type denomination:	D 1064 A-T
Type:	Four-wheel-drive tractor, unit construction
Serial No.:	76350015
Start of series:	7635 0001

Engine

Make:	DEUTZ
Model:	BF 4L913T
Type:	4-stroke Diesel engine, direct injection, air cooled, supercharged
Serial No.:	755 7833
Cylinders:	4, in-line, bore 102 mm, stroke 125 mm, displacement 4086 cm³, compression ratio 15,5:1; replaceable ribbed cylinder liners
Valves:	Overhead
Supercharging	
Make:	GARRETT AIRESEARCH
Model:	TA 3112
Type:	Exhaust driven, without intercooler
Pressure:	Maximum 50 kPa
Fuel system:	PIERBURG fuel supply pump, BOSCH in-line injection pump PES 4A 85D 410/3RS 2638 serial no.: 850 12056; manufacturer's production setting 60±1 mm³/stroke at rated engine speed and full load; injection timing 27±1° before TDC; BOSCH multihole injection nozzles DLLA 149 S 774, injection pressure 17,5±0,8 MPa; PUROLATOR fuel filter, replaceable; capacity of fuel tank 132 dm³

Governor:	BOSCH centrifugal variable speed governor RSV 325-1150 AOC V 2168-4L without manifold-pressure compensator; governed range of engine speed 650 to 2460 rev/min, rated engine speed 2300 rev/min
Air cleaner:	MANN dry paper element filter with precleaner, replaceable cartridge, pilot lamp; air intake below bonnet
Lubrication system:	Forced-feed lubrication with gear pump, strainer in sump; MANN oil filter in full flow with by-pass valve and replaceable cartridge; engine oil cooler inside of cooling baffle
Cooling system:	Air cooling with axial blower with 11 blades, 270 mm dia, driven by V-belt and fluid coupling, blower speed controlled by exhaust gas temperature, additional priority control (full blower speed at raised temperature of hydraulic oil)
Starting system:	Electrical BOSCH solenoid pre-engaged-drive-starting motor JF 12V 2,7 kW; BERU flame plug in intake manifold
Safety device:	Pedal of travel clutch depressed
Electrical equipment:	12 Volt, negative earth; BOSCH 3-phase alternator K1-14V 23/55 A 770 W 1 lead acid battery 143 Ah at 20 hours rating
Exhaust silencer:	ROTH, 13.03.1031.0.00, multichamber-expansion-reflexion type silencer, conical, 170 to 100 mm dia, 948 mm long, vertical on the left, above the bonnet, mouth showing upwards; mouth 2710 mm above ground

Transmission

Clutch:	LUK dry dual disc clutch A2 031; travel drive pedal operated, disc 310 mm dia; p.t.o. drive handlever operated, disc 280 mm dia
Gear box:	DEUTZ-FAHR TW 901 synchromesh gearbox with 6 speeds; synchromesh group gear with 3 forward ranges (L, M and H) and 1 reverse range (R); total 18 forward and 6 reverse speeds; collar shifted creeper group optionally available, not fitted; 2 shift levers
Rear axle and final drives:	DEUTZ-FAHR, bevel gear drive, bevel gear differential on intermediate shaft; spur gear final drives; differential with pedal operated lock, lock not self disengaging; pilot lamp
Front axle and final drives:	SIGE, B916 KSD.00 driven by wet multi disc safety clutch and by universal joint shaft (placed in tractor's median plane); front axle drive shiftable by claw coupling; bevel gear, multi-disc limited slip differential; planetary final drives

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Total ratios and speeds

Gear	Range	Total ratio engine : driving wheels	Nominal travelling speed*) at rated engine speed of 2300 rev/min km/h
1	L	279,30	2,39
2		207,59	3,22
3		164,18	4,07
4		113,23	5,90
5		92,26	7,24
6		73,05	9,14
1	M	135,08	4,94
2		100,40	6,65
3		79,41	8,41
4		54,76	12,19
5		44,62	14,96
6		35,33	18,90
1	H	66,36	10,06
2		49,32	13,54
3		39,01	17,12
4		26,90	24,82
5		21,92	30,46
6		17,36	38,47
1	R	144,68	4,61
2		107,53	6,21
3		85,05	7,85
4		58,65	11,38
5		47,49	13,97
6		37,84	17,64

*) calculated with the radius index 770 mm (ISO 4251/1-1984)

Number of revolutions of front wheels for one revolution of rear wheels: 1,3443

Main p.t.o.

Independent, driven by second disc of dual disc clutch;
1 p.t.o. shaft at rear of tractor, 695 mm above ground, in tractor's median plane, shaft end 520 mm behind rear wheel centre;
35 mm dia, 6 splines, ISO 500-1979, DIN 9611, type 1;
sense of rotation clockwise, viewed facing tractor's rear;
2 speeds are preselectable by hand lever

P.t.o.	P.t.o speed rev/min	Engine speed rev/min	P.t.o. transmission ratio	Power restriction kW
540	540	2121	3,9286	59
	585	2300		
1000	1000	2111	2,1111	-
	1089	2300		

Power lift

DEUTZ-FAHR
K55.1 DEUTZ-FAHR TRANSFERMATIC;
hydraulic power lift in unit construction;
draft- and position-control, both steplessly mixable, floating position;
upper link sensing;
no lowering throttle

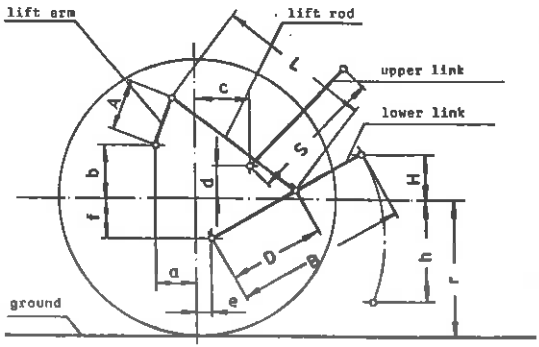
Hydraulic system:

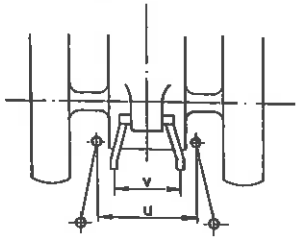
Open centre system;
BOSCH gear type tandem pump HV/ZFFS 11/19+11 (218/1), gear driven by engine, delivery 47 l/min at rated engine speed
oil cooler and oil filter (see page -11- steering) remote control;
DEUTZ-FAHR control valve, relief valve pressure setting 17,5+0,8 MPa;
single acting cylinder with 90 mm bore and 145 mm stroke, safety valve set to 24,0 MPa;
1 single acting additional ram with 55 mm bore and 200 mm stroke;

1 double acting additional DEUTZ-FAHR control valve SD 80, 2 couplings at rear of tractor; maximum 3 double acting additional control valves available;

1 separate oil return line at rear of tractor;
hydraulic oil tank with 13 dm³ capacity in power lift unit;
additional tank with 12 dm³ capacity optional;
max. 8 dm³ may be taken off if tractor is working stationary or travelling (up to 20 dm³ if tractor is fitted out with additional tank)

Implement linkage: 3-point linkage, category 2 acc. to ISO 730/1-1977 or DIN 9674
WALTERSCHEID quick couplers
(fitted on request)





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Dimensions of rear implement linkage (projected lengths in mm, underlined dimensions are valid for power lift measurements p.21)

Rear tyres Front tyres	radius index radius indes	(r) *) (r')*)	770 590
Length of lift arms		(A)	320
Length of lower links		(B)	940
Distance of lift arm pivot points from rear wheel centre	horizontal vertical	(a) (b)	-118 412
Horizontal distance between lower link pivot points		(u)	530
Horizontal distance between lift arm end points		(v)	635
Length of upper link		(S)	590 to 810, 700
Distance of upper link pivot point from rear wheel centre	horizontal vertical	(c) (d)	374 198
Distance of lower link pivot point from rear wheel centre	horizontal vertical	(e) (f)	130 197
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	512, 648
Length of lift rods		(L)	740 to 820, 760

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)	760	740		820	
Linkage distance of lift rods	(D)	512	512	648	512	648
Lowest position	(h)	570	520	365	690	515
Highest position	(H)	163	210	212	63	115
Transport position	(H')	-220	-160	-105	-330	-215

Type of transport lock: Hydraulic-mechanical

*) Assuming (r) = tyre dynamic radius index of ISO 4251/1-1984

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Pull attachment

Trailer hitch:	CRAMER, KU 94005R, automatical, height above ground adjustable by one-hand quick adjustment;
	diameter of hitch pin 32 mm
	hitch point
	above ground 395,510,610,720,800,860 or 910 mm
	behind rear wheel centre 670 mm
	above p.t.o. 25,105,165 or 215 mm
	below p.t.o. 300,185 or 85 mm
	behind p.t.o. shaft end 150 mm
	permissible vertical load 1630 kg
Swinging drawbar:	Optionally available, not fitted
Holed drawbar:	Short bar, length between joint balls 825 mm, thickness 30 mm, width 80 mm, 9 holes 33 mm dia with 80 mm distance each, holes' centres behind p.t.o. shaft end 550 mm (with horizontal lower links), height above ground (measured without load): minimum 80 mm, maximum 982 mm
Towing hitch:	at front, 853 mm above ground

Steering

DANFOSS, OSPC 100 OR, hydrostatic, oil in common with power lift; oil supply by tandem part of hydraulic pump, delivery 27 l/min at rated engine speed, maximum pressure 15,0 MPa; hydraulic oil cooler in steering-oil circuit, at engine's cooling air baffle; replaceable oil filter PUROLATOR PER 330 in suction line of steering oil circuit, maintenance indicator; 1 integrated SIGE cylinder (symmetrical design), 250 mm stroke, 65 mm bore and 45 mm piston rod diameter, directly acting on steering levers

Brakes

Service brake:

KNOTT and ATE; pedal operated muscle power brake with hydraulic transmission, acting on front- and rear axle;

at rear: KNOTT, internal-expanding-shoe brake, 1 drum with 254 mm dia and 70 mm width on intermediate shaft each on the left and right outside of gearbox

at front: ATE, 1 caliper disc brake with 224 mm disc diameter between propeller shaft and bevel gear drive of front axle

Parking brake:	Mechanical internal-expanding-shoe brake, acting on intermediate shaft, operated by pulling handle with ratchet; 1 brake drum with 180 mm dia and 40 mm width each on the left and right, outside of gearbox
Steering brake:	Divided pedal of service brake, for normal use locked together
Trailer brake:	Optionally available, for France hydraulic trailer brake

Wheels

Steered wheels:	At front, 2 pneumatics 14.9 R 24 rims W12x24
Driving wheels:	At front and at rear, at rear: 2 pneumatics 18.4 R 34, rims W15Lx34
Wheelbase:	2441 mm
Track widths:	At front: 1500 or 1650 mm, by turning the wheels; at rear: 1600 mm or 1700 mm, by turning the wheels; on request adjustable-gauge bowl wheels, track widths from 1500 mm up to 2000 mm in steps of 100 mm each

Permissible tyre combinations:

Tyre size			
at front		at rear	
9.5 R 32	8 ply	9.5 R 48	8 ply
12.4 R 24	6 ply	12.4 - 38	12 ply
13.6 R 24	121 A8	13.6 R 38 16.9 R 34 16.9 R 34	128 A8 8 ply 139 A8
380/70 R 24	125 A8	480/70 R 34	143 A8
14.9 R 24	126 A8	16.9 R 38	141 A8
14.9 R 24 17.5LR24	6 ply 133 A8	18.4 R 34	8 ply
420/70 R 24	130 A8	520/70 R 34	148 A8
425/75 R 20	148 G	18.4 R 30	142 A8

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Protective structure	DEUTZ-FAHR safety-cab SK 82/5, with integrated safety-frame, OECD-approved, approval-no. CSS 0117/1 antivibration mounted by 4 silent blocks on tractor; 2 doors with 3 steps each, steps 510, 720 and 940 mm, driver's platform 1165 mm above ground; windscreen, rear and side windows tiltable; engine-oil heat exchanger heating-system with 3-step blower, air intake above engine bonnet, dry air filter; air outlet jets for feet and head at instrument panel, defroster nozzles

Noise reduction materials:

floor and seat support-surface	compound mat, consisting of:	
	rubber mat with PVC (structured)	7 mm
	polyurethan-foam with PVC-foil	15 mm
	heavy-foil	5 mm
seat support front side	rubber mat (molded)	4 mm
instrument panel and steering column, partially	polyether-foam	20 mm
mudguards	polyvinylacetat - mat	3 mm
	plastic-foam-leather on moltopren	27 mm
roof	polyether-foam	30 mm
	cotton fleece (molded part)	4 to 30 mm
	polyurethan-texture	1 mm
bulk head	polyurethan-heavy-foam	10 mm
draught proofing	rubber seals and silicon	

Seat	ISRI 6000/516 upholstered seat with back rest and arm rests, adjustable spring, hydraulic shock absorber, horizontal suspension; height of unloaded seat above platform adjustable in 9 steps from 490 to 555 mm; longitudinal adjustment 150 mm

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Running-time meter: Mechanical, combined with tachometer, driven by camshaft of engine (standard-type); reference engine speed for one really counted hour 1840 rev/min
on request (on tested tractor fitted): Electronic, central unit "DEUTZ-FAHR-agrotronic-i" for registration and indication of travelling speed, p.t.o. speed, engine speed and real operating hours

Lighting: Electrical, 12 Volt, as per German legislation

	Height above ground of centre mm	Size mm	Distance from outside edge to median plane of tractor mm
Headlights	1140	130 dia	265
Side lights	1740	55 x 60	810
Rear lights	1495	30 x 60	710
Reflectors			
1st pair	1435	181 x 41	780
2nd pair	740	103 x 58	448

TEST CONDITIONS

Overall dimensions

Length:	4210 mm without ballast 4350 mm with ballast
Width:	2160 mm without ballast 2310 mm with ballast
Height:	2660 mm to top of cab 2710 mm to exhaust silencer mouth
Ground clearance:	370 mm below trailer hitch bracket

Tractor mass

		Without driver kg	With driver kg
Without ballast:	at front	1525	1535
	at rear	2520	2585
	total	4045	4120
With ballast:	at front	2495	2505
	at rear	4030	4095
	total	6525	6600
Front ballast:	14 weights, total	560 kg	
	water in the tyres	330 kg	
Rear ballast:	8 weights per wheel, total	880 kg	
	water in the tyres	710 kg	

Tyres and track widths specifications

	Front	Rear
Tyres:	CONTINENTAL	CONTINENTAL
dimensions	14.9 R 24	18.4 R 34
type	radial	radial
ply rating/load and speed index	8/126 A8	8/144 A8
maximum load	1700 kg (40 km/h)	2800 kg (40 km/h)
inflation pressure	160 kPa	160 kPa
radius index	590 mm	770 mm
Chosen track width	1650 mm	1700 mm
Technically permissible axle load	2500 kg	4700 kg
Technically permissible total weight:	6600 kg	

Oils and lubrication

Capacity and change interval:

	Capacity dm³	Oil change h	Filter change h
Engine	11,0	250	500
Gear box with rear axle	44,0	1000	1000 *)
Front axle	5,0		-
Front final drives	2x 1,0		
Hydraulic system with steering	13,0		yearly

*) gear box strainer cleaning

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Specifications:

	Recommmended	Used during test
Engine oil:		
type	engine oil	DEUTZ HDC
viscosity		
below -5°C	SAE 10W	
-10°C to +10°C	SAE 20W/20	
+5°C to +30°C	SAE 30	SAE 15W/40
above +25°C	SAE 40	
above -10°C	SAE 15W/40	
classification	API-CD	API-CD
Transmission oils:		
gear box		
type	engine oil | STOU*)	DEUTZ HDC
viscosity	SAE 15W/40 | SAE 15W/30	SAE 15W/40
classification	API-CC or -CD | API-CD and API-GL4	API-CD
front axle and front final drives		
type	gear oil	gear oil
viscosity	SAE 90	SAE 90
classification	API-GL5	API-GL5
Hydraulic system with steering		
type	engine oil	DEUTZ HDC
viscosity	SAE 20W/20	SAE 20W/20
classification	API-CC or -CD	API-CD

*) STOU = Super-Tractor-Oil-Universal

Grease: Multi purpose grease
number of lubrication points: 30

Fuel

type: ARAL Diesel-fuel in conformity with DIN 51601
density: at 15°C at engine- and p.t.o.-tests 0,838 g/cm³
at drawbar power tests 0,837 g/cm³

REPAIRS none

REMARKS none

PRÜFUNGS-ABTEILUNG
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COMPULSORY TESTS

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

Date of tests: 7th September 1989
Location of tests: DLG-Testing Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed Engine rev/min	Speed P.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
1.1 At 2-hour test						
56,0	2111	1000	15,85	13,27	237	3,53
1.2 At rated speed						
55,1	2300	1089	16,28	13,64	248	3,38
1.3 At standard p.t.o. speed						
56,0	2111	1000	15,85	13,27	237	3,53
1.4 Part loads, the governor hand lever in the position corresponding to maximum power at full load (curve a)						
1.4.1 the torque corresponding to maximum power at rated speed						
55,1	2300	1089	16,28	13,64	248	3,38
1.4.2 85% of the torque obtained in 1.4.1						
47,5	2331	1104	14,57	12,20	257	3,26
1.4.3 75% of the torque defined in 1.4.2						
35,9	2352	1114	12,00	10,05	280	2,99
1.4.4 50% of the torque defined in 1.4.2						
24,2	2373	1124	9,66	8,09	335	2,51
1.4.5 25% of the torque defined in 1.4.2						
12,2	2405	1139	7,09	5,94	486	1,72
1.4.6 unloaded						
-	2440	1156	4,78	4,00	-	-

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Power kW	Speed Engine rev/min	Speed P.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
1.5 Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
1.5.1 the torque corresponding to maximum power						
56,0	2111	1000	15,85	13,27	237	3,53
1.5.2 85% of the torque obtained in 1.5.1						
48,3	2144	1016	14,06	11,78	244	3,44
1.5.3 75% of the torque defined in 1.5.2						
36,5	2162	1024	11,44	9,58	262	3,19
1.5.4 50% of the torque defined in 1.5.2						
24,6	2182	1034	8,94	7,49	305	2,75
1.5.5 25% of the torque defined in 1.5.2						
12,4	2205	1044	6,34	5,31	427	1,96
1.5.6 unloaded						
-	2240	1061	3,75	3,14	-	-

No load maximum engine speed: 2440 rev/min
Equivalent flywheel torque at rated engine speed 229 Nm
Equivalent flywheel torque at 2-hour test: 253 Nm
Maximum equivalent flywheel torque 297 Nm at 1602 rev/min of the engine

Mean atmospheric conditions

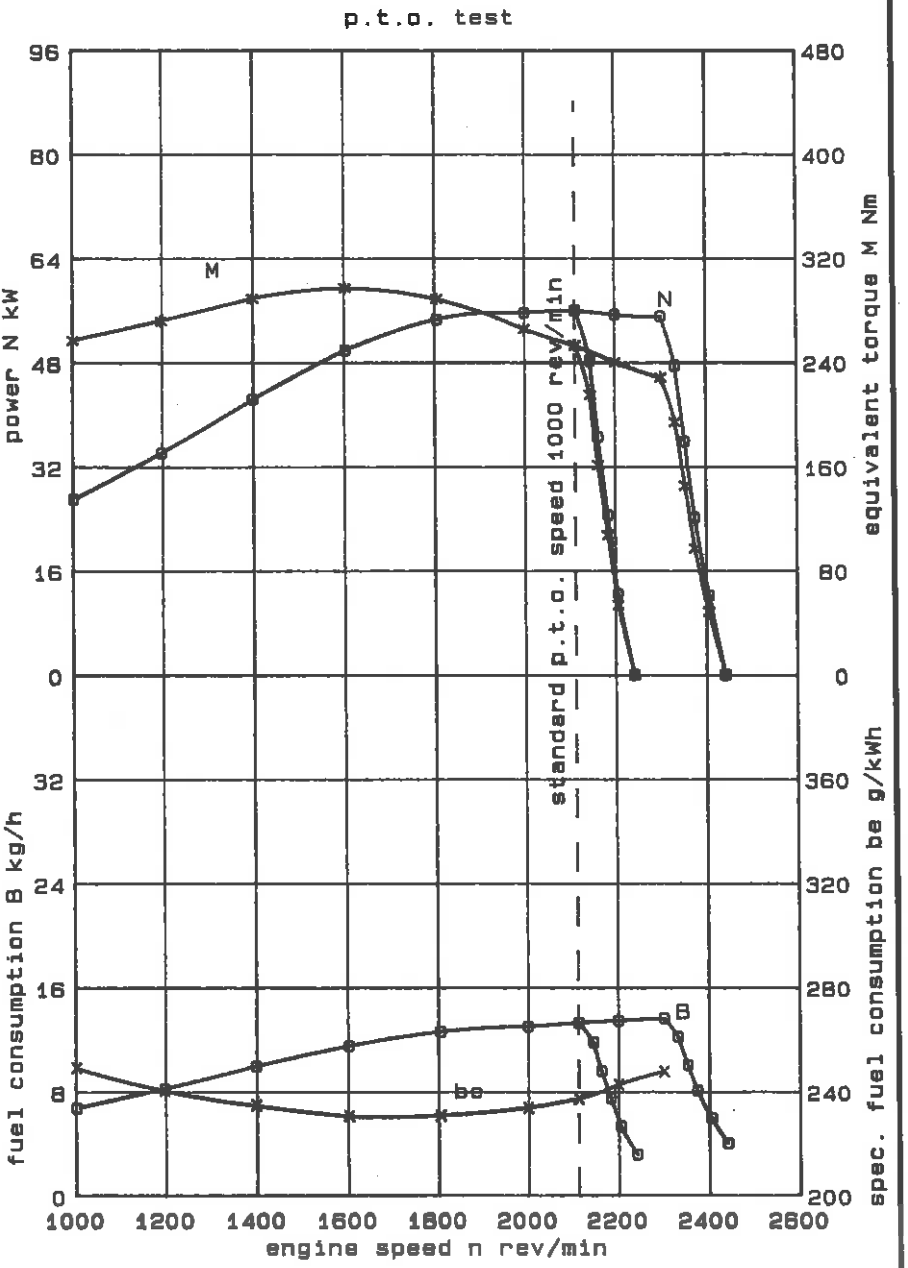
temperature	24 °C
pressure	101 kPa
rel. humidity	45 %

Maximum temperatures

cylinder head	96 °C
oil	114 °C
fuel	24 °C
air intake	26 °C

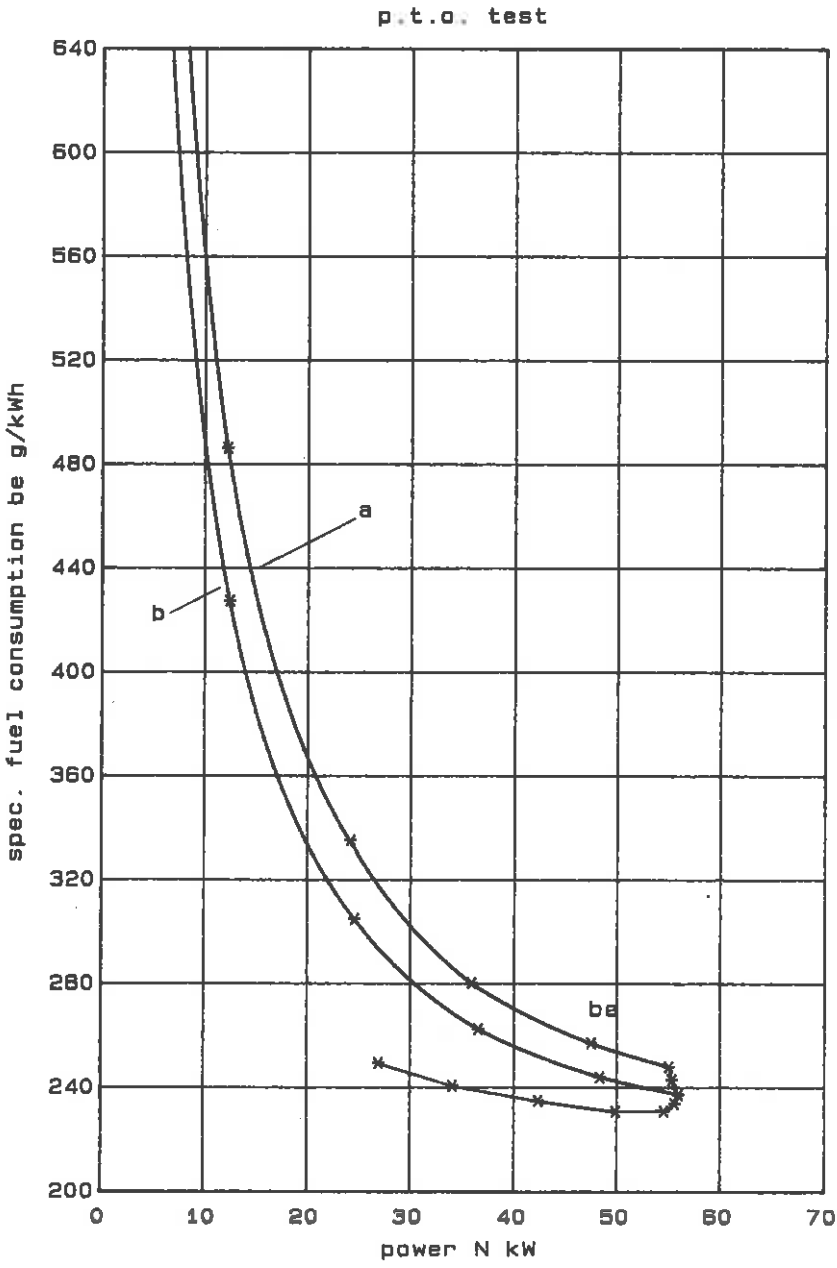
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2 HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 22nd September and 9th October 1989

2.1 Hydraulic power test

Sustained pressure with relief valve open 18,1 MPa
Pump delivery rate at minimum pressure 49,4 l/min

	Hydraulic power kW	Flow rate l/min	Pressure MPa	Oil temperature °C
At 90% of the actual relief valve setting	9,5	34,9	16,3	65
At max. power	11,9	46,0	15,5	

Tapping point used for test: At rear of tractor

2.2 Power lift test

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	200 mm	
Vertical movement without lifting force	733 mm	895 mm
with lifting force	700 mm	823 mm
Max. corrected force exerted through full range	24,8 kN	19,1 kN
Corresponding pressure	15,5 MPa	
Moment about rear axle	-	32,1 kNm
Max. tilt angle of mast from vertical		11°

Lifting heights relative to horizontal lower links

mm	-423	-400	-373	-300	-200	-100	0	+100	+200	+300	+327	+400

Lifting forces at hitch points, corrected to 15,5 MPa

kN			24,8	25,0	25,5	26,1	26,8	27,0	27,0	27,6	27,8	

Lifting forces at standard frame, corrected to 15,5 MPa

kN	23,1	23,1		22,9	22,9	22,5	22,1	21,6	20,8	19,9		19,1

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3 DRAWBAR PERFORMANCE

Date of tests: 8th to 18th September 1989
Type of track: Concrete

Gear	Driving speed km/h	Power kW	Drawbar pull kN	Engine speed rev/min	Slip of wheels %
3.1 Maximum power in tested gears (unballasted tractor) height of drawbar above ground 410 mm					
2L	2,73	32,1	42,31	2311	15,0
3L	3,43	40,2	42,22	2307	15,0
1M	3,90	43,6	40,29	2109	12,9
4L	4,87	46,2	34,14	2115	9,1
2M	5,59	46,4	29,89	2113	7,3
5L	6,14	46,0	26,97	2111	6,3
3M	7,18	46,5	23,31	2107	5,3
6L	7,88	45,1	20,61	2111	4,5
1H	8,73	46,6	19,23	2111	4,2
4M	10,66	46,7	15,76	2115	3,4
2H	11,86	46,0	13,96	2111	2,9
5M	13,15	45,6	12,48	2113	2,6
3.2 Maximum power in tested gears (ballasted tractor) height of drawbar above ground 380 mm					
1L	2,01	36,1	64,59	2318	15,1
2L	2,55	43,3	61,16	2113	12,2
3L	3,42	45,9	48,28	2111	6,7
1M	4,23	47,0	40,01	2111	4,8
4L	5,09	47,4	33,55	2111	3,8
2M	5,78	46,8	29,16	2111	3,2
5L	6,32	45,6	26,00	2111	2,8
3M	7,34	46,7	22,89	2109	2,3
6L	8,01	45,4	20,39	2111	2,2
1H	8,82	45,8	18,69	2111	2,0
3.3.1 Five-hour-test at 75% of pull at maximum power in 3M gear					
3M	8,12	38,7	17,15	2322	1,9
3.3.2 Five-hour-test at pull corresponding to 15% wheel slip in test 3.2					
1L	1,88	33,7	64,60	2316	-

Total oil consumption during ten hours duration of tests 3.3.1 and 3.3.2 : 78 g/h

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Tyre size **front: 14.9 R 24**
rear: 18.4 R 34

Specific fuel consumtion g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Cylinder-head °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure kPa
tyre inflation pressure: 80 kPa at front and 100 kPa at rear							
346	2,42	26	50	90	11	92	99,8
323	2,59	26	58	90	11	89	99,8
302	2,77	26	68	94	11	93	99,8
287	2,92	27	64	94	11	90	99,8
283	2,95	26	67	95	12	87	99,8
288	2,91	27	66	93	14	84	99,8
283	2,96	27	68	95	14	77	99,8
295	2,84	27	67	95	15	75	99,8
282	2,97	26	65	93	15	74	99,8
282	2,97	26	67	94	17	73	99,8
286	2,92	27	68	94	18	72	99,8
289	2,89	26	65	93	18	72	99,7
tyre inflation pressure: 100 kPa at front and 100 kPa at rear							
339	2,47	28	55	90	18	99	99,6
303	2,76	27	63	93	18	99	99,6
287	2,91	28	63	92	18	99	99,6
282	2,97	27	66	95	18	100	99,6
277	3,02	25	69	95	17	98	99,6
281	2,98	26	68	95	17	99	99,6
288	2,91	26	69	96	17	97	99,6
282	2,97	27	68	95	18	98	99,6
290	2,89	28	72	95	18	94	99,6
287	2,91	28	70	96	18	94	99,6
313	2,67	30	72	100	23	72	99,5
-	-	32	68	90	20	80	99,5

Test 3.3.2 was carried out with additional ballast of 270 kg, the figures not quoted are therefore irrelevant

4 TURNING AREA AND TURNING CIRCLE (front wheel drive disengaged)

Wheel equipment — front: 14.9 R 24
rear: 18.4 R 34

Track of wheels — front: 1650 mm
rear: 1700 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning area	4,15	4,24	4,67	4,77
Radius of turning circle	3,77	3,87	4,29	4,40

5 LOCATION OF CENTRE OF GRAVITY

Height above ground	958 mm
Distance forward from rear axle centre	906 mm
Distance from tractor's median plane, to the left	12 mm

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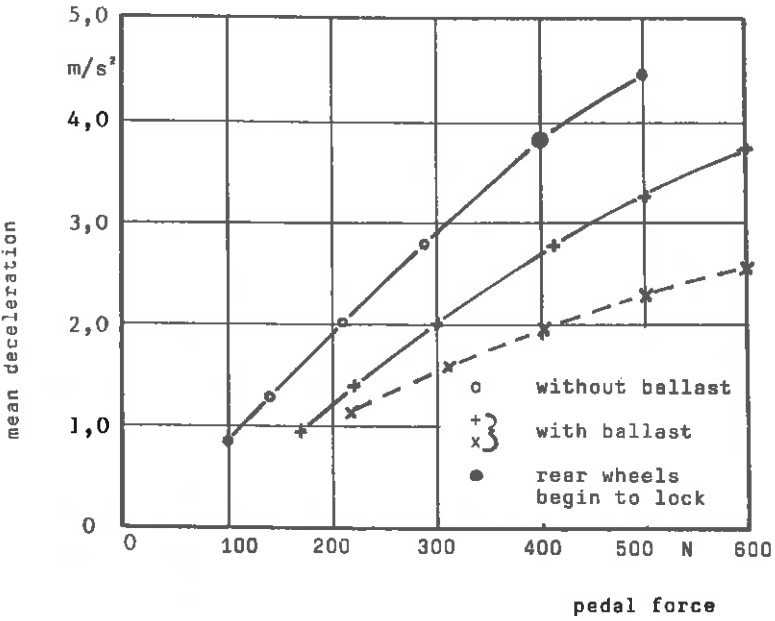
6 BRAKING (Front wheel drive disengaged)

Date of tests: 11th and 12th September 1989

	Tractor mass (with driver) front kg	rear kg	total kg	Speed before application of brakes km/h
Without ballast	1535	2585	4120	39,4
With ballast	2505	4095	6600	38,5

6.1 Cold service braking device test

6.2 Fade test



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

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

6.3 Parking braking device test

		Ballasted tractor on 18% - slope up	down
Braking device control force	N	280	310

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7 MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 11th September 1989
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2233

Results of test

Gear: 6H
Travelling speed before acceleration: 29,8 km/h
Sound level: 82,0 dB(A)

APPENDIX

MEASUREMENTS OF NOISE IN THE PROTECTIVE STRUCTURE

with
results of OECD-test no. CSS 0117/1/NM 0231

Date of test: 11th May 1989
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2209

Gear	Drawbar pull kN	Travelling speed km/h	Sound level dB(A)
5L *)	23,79	6,79	76,5
5L *)	light load	7,42	73,5
6H +)	light load	39,49	75,5

*) The 5L gear corresponds to the nominal travelling speed nearest to 7,5 km/h

+) front wheel drive disengaged

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OPTIONAL TEST

8. ENGINE PERFORMANCE

Date of tests: 25th August 1989
Location of tests DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current-dynamometer W 150

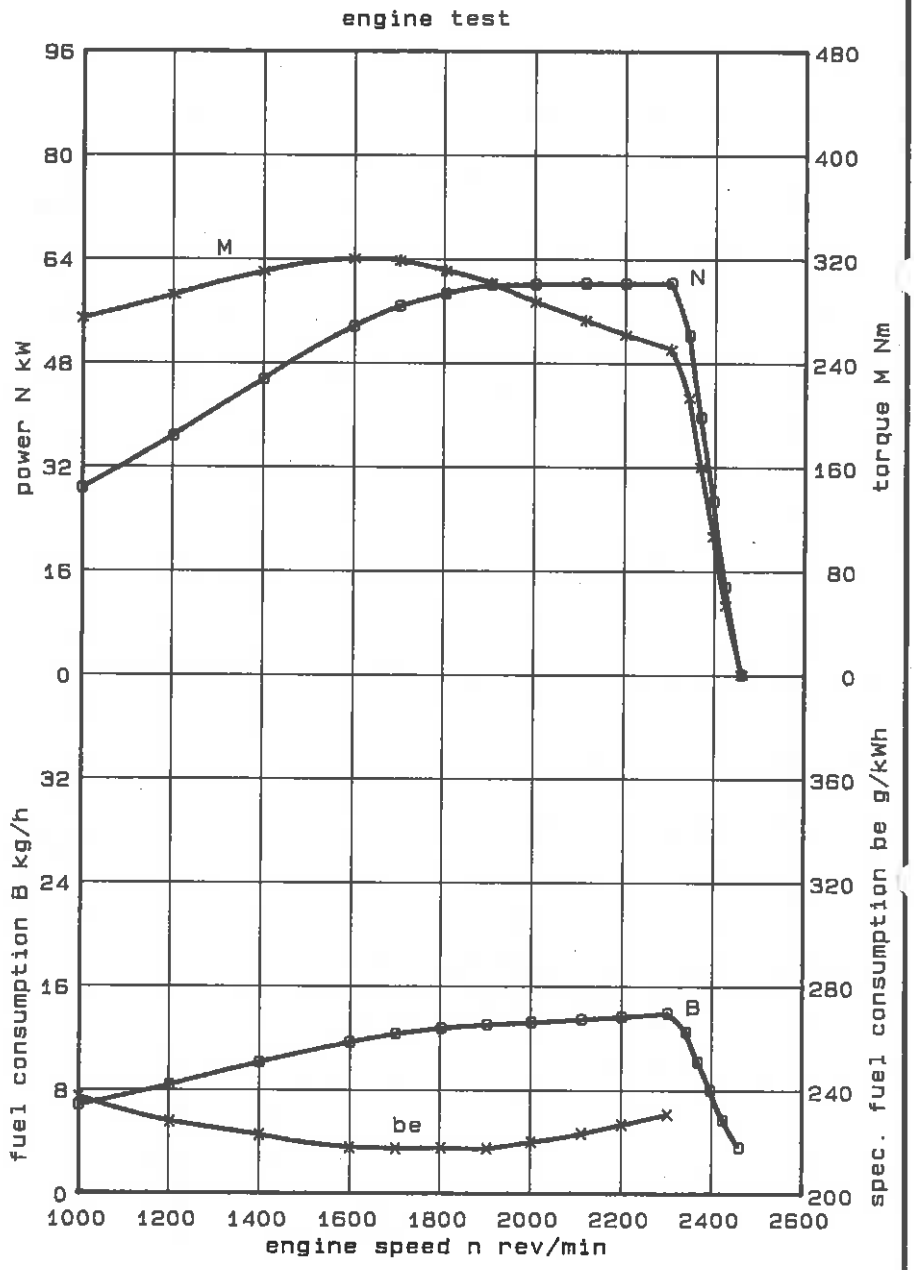
	Power kW	Engine speed rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
8.1 At 2-hour test	60,3	2300	16,62	13,92	231	3,63
8.2 At rated engine speed	60,3	2300	16,62	13,92	231	3,63
8.3 At standard p.t.o. speed (1000 rev/min)	60,3	2111	16,06	13,45	223	3,75
8.4 Part loads						
8.4.1 the torque corresponding to maximum power at rated speed	60,3	2300	16,62	13,92	231	3,63
8.4.2 85% of the torque obtained in 8.4.1	52,2	2341	14,90	12,48	239	3,50
8.4.3 75% of the torque obtained in 8.4.2	39,6	2368	12,14	10,17	257	3,26
8.4.4 50% of the torque obtained in 8.4.2	26,7	2396	9,55	8,00	299	2,80
8.4.5 25% of the torque obtained in 8.4.2	13,5	2423	6,82	5,71	423	1,98
8.4.6 unloaded	-	2459	4,30	3,60	-	-

Optimum fuel consumption 214 g/kWh at 46,4 kW and 1610 rev/min
No load maximum engine speed 2459 rev/min
Torque at rated engine speed 250 Nm
Maximum torque 320 Nm at 1598 rev/min of the engine

Mean atmospheric conditions	temperature	27 °C
	pressure	100 kPa
	relative humidity	35 %
Maximum temperatures	cylinder head	94 °C
	oil	105 °C
	fuel	26 °C
	engine air intake	28 °C

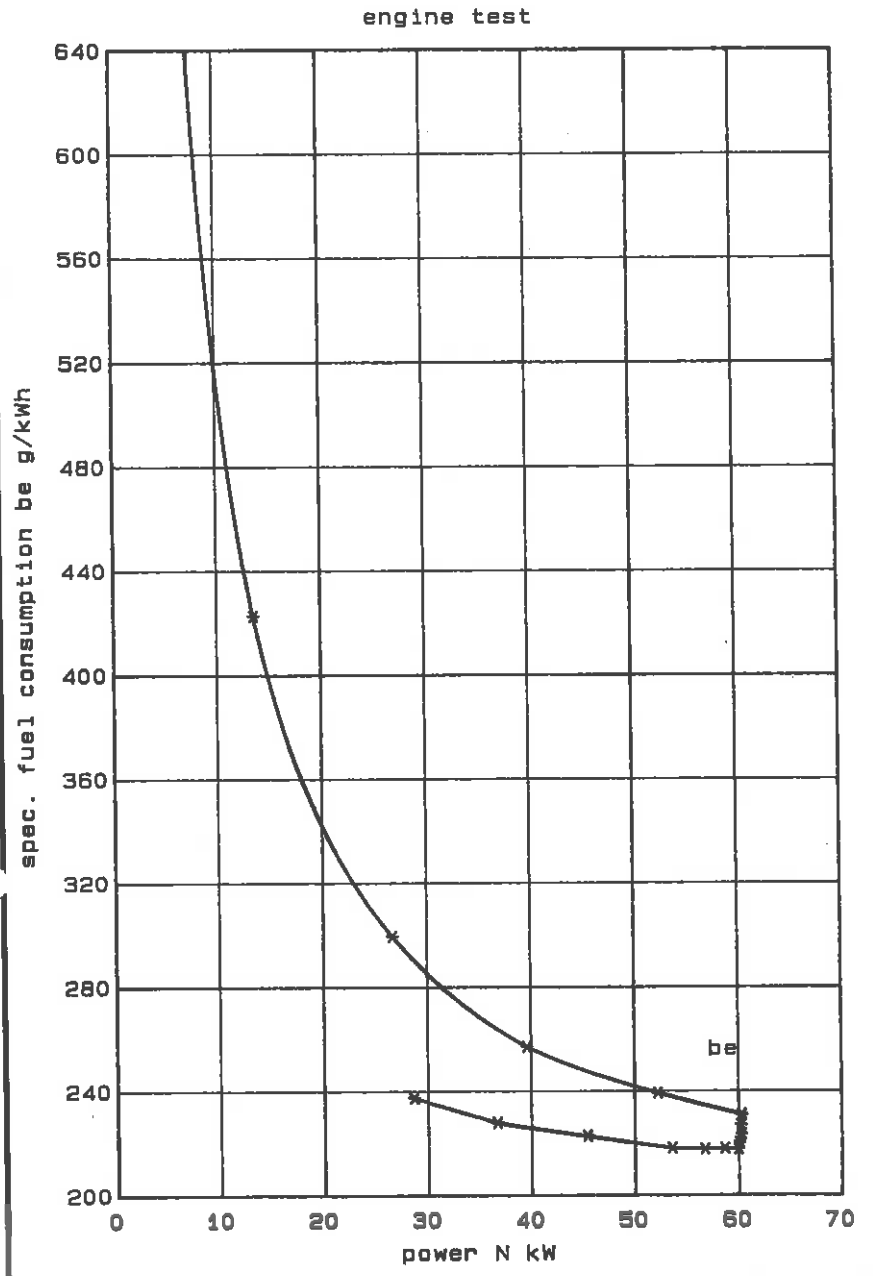
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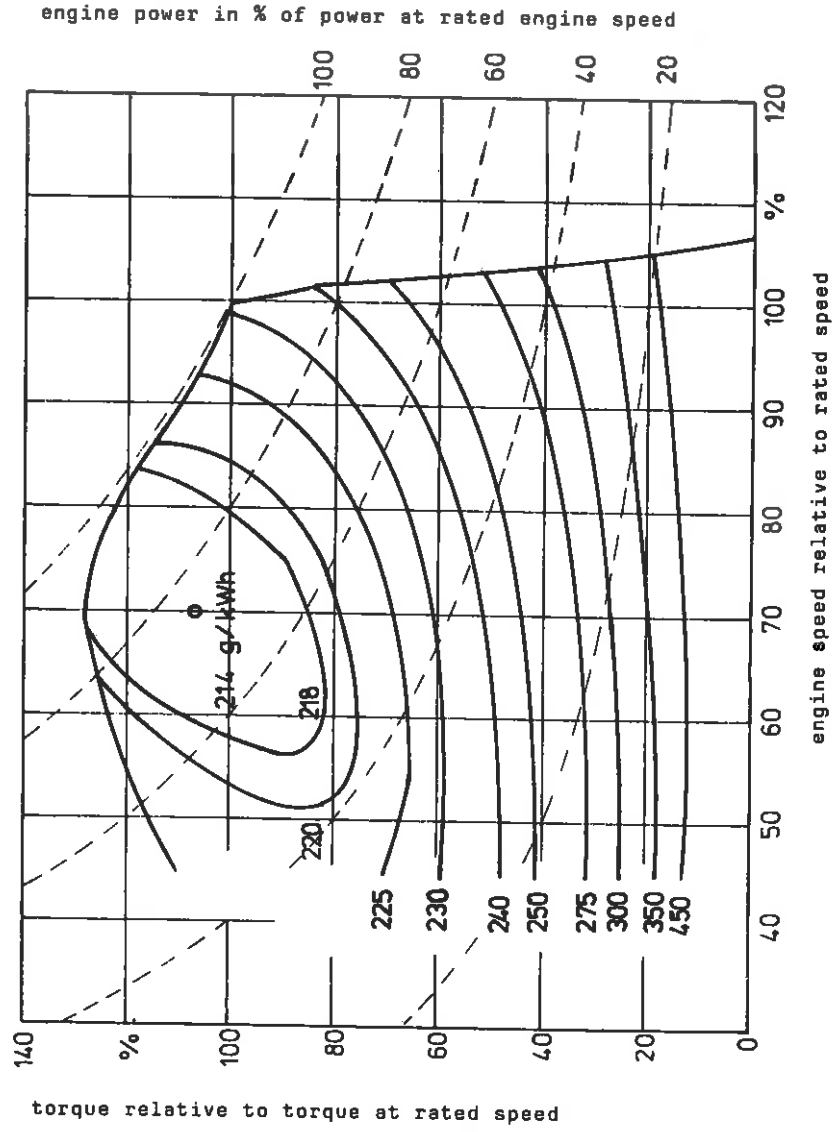
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