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

O.E.C.D. No. 894



Agricultural Tractor
DEUTZ-FAHR DX 4.70 (4WD)

Type denomination D 1040 A-T

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

Deutsche Landwirtschafts-Gesellschaft e. V.
Zimmerweg 16 · D-6000 Frankfurt a. M. 1
Telefon: (0611) 7168-0 · Telex: 0413185 dlg-d

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: October 1983 till January 1984
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: 18th May 1984 O.E.C.D. No. 894

The tractor DEUTZ-FAHR DX 4.70 (4WD) is produced in three variants:

1: as model D 1040 A-N with a 4 speed change gear and a max. design related speed of 25 km/h,
2: as model D 1040 A-S with a 5 speed change gear and a max. design related speed of 30 km/h,
3: as model D 1040 A-T with a 6 speed change gear and a max. design related speed of 40 km/h.

The Variants D 1040 A-N and D 1040 A-S with the old trade denomination DX 92 had been tested and OECD-approved under OECD-No. 881 formerly.

The 3rd variant D 1040 A-T with the new trade denomination DX 4.70 has been tested now.

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/cm²	or 1 kp/cm²	= 0,981 bar
	1000 mbar	=	750,10 mm Hg		

All rights including the right of translation, reprint and photomechanical copying — also of excerpts — reserved by the editor.

Printed in the Federal Republic of Germany
June 1984; DLG-No. 191

TABLE OF CONTENTS

	Page
SPECIFICATION OF TRACTOR	4 to 14
TEST CONDITIONS	15
COMPULSORY TESTS	
(1) Main power take-off performance	16 to 19
(2) Drawbar performance on a concrete track	20 and 21
(3) Turning space and turning circle	22
(4) Location of centre of gravity	22
(5) Braking	23
(6) Measurement of external noise level	24
(7) Noise measurement at the driver's ear	24
(8) Power lift and hydraulic pump performance	25 and 26
OPTIONAL TESTS	
(9) Engine performance	27 to 30
ADDITIONAL TEST	
(10) Power lift (with 2 additional lifting cylinders)	31

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

Tractor manufacturer:	KLÖCKNER-HUMBOLDT-DEUTZ AG 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 4.70
Type denomination:	D 1040 A-T
Type:	Four-wheel-drive tractor, unit construction
Serial No.:	7435 0001

Engine

Make:	DEUTZ
Model:	BF4L 913
Type:	Supercharged 4-stroke Diesel engine, direct injection, air cooled
Serial No.:	6862767
Cylinders:	4, in-line, bore 102 mm, stroke 125 mm, displacement 4086 cm^3, compression ratio 15,5 : 1; replaceable ribbed cylinder liners
Valves:	Overhead
Fuel system:	PIERBURG fuel feed pump; BOSCH in-line injection pump: PES 4A 85D 410/3 RS 2683; manufacturer's production setting 68 mm^3/stroke at rated engine speed and full load; injection timing $27^{\circ} \pm 1^{\circ}$ before TDC; BOSCH multihole injection nozzles DLLA 149S 774, injection pressure 175 + 8 bar; MANN fuel filter with replaceable cartridge; capacity of fuel tank 132 l;
Governor:	BOSCH centrifugal variable speed governor EP/RSV 325-1150 AOB 2168 L; governed range of engine speed 650 to 2475 rev/min, rated engine speed 2300 rev/min

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70 Test No. 83-180

Supercharger:	GARRETT TA 3112 exhaust driven turbo supercharger, maximum supercharge pressure 640 mbar
Air cleaner:	MANN dry paper element filter with precleaner, replaceable cartridge, electrical maintenance indicator; air intake below bonnet
Exhaust silencer:	multichamber-reflexion-expansion type silencer, 170 x 130 mm oval, 948 mm long; on the left hand side above bonnet; mouth showing upwards; mouth 2714 mm above ground
Lubrication system:	Forced feed from gear pump; strainer in sump; MANN oil filter in full flow with by-pass valve and replaceable cartridge; cartridge change every 500 operating hours; oil capacity 11 l; specified oil quality API-CD, oil change period 250 operating hours specified oil viscosities: below - 5°C SAE 10W from -10°C to +10°C SAE 20W/20 from + 5°C to +30°C SAE 30 over +25°C SAE 40 or over -10°C SAE 15W/40; engine oil cooler inside of cooling baffle
Cooling system:	Air cooling with axial blower driven by V-belt and fluid coupling, blower speed controlled by exhaust gas temperature
Starting system:	Electrical BOSCH solenoid pre-engaged-drive-starting motor JF 12V 2,7 kW; BERU flame plug in intake manifold
Electrical equipment:	12 Volt, negative earth; BOSCH 3 phase alternator G1 14V 33A, 462 W; 1 lead acid battery 110 Ah at 20 hours rating

Transmission

Clutch:	LAMELLEN- UND KUPPLUNGSBAU GMBH dry dual disc clutch A2 031, travel drive disc 310 mm dia, pedal operated; p.t.o. drive disc 280 mm dia, hand lever operated
Gear box:	DEUTZ-FAHR TW 902, synchromesh speed change gear with 6 speeds; synchronized range 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 on tested tractor
Rear axle and final drives:	DEUTZ-FAHR bevel gear drive, bevel gear type differential on intermediate shaft; spur gear final drives; differential lock in the rear axle, pedal operated, not self disengaging, with electrical indicator
Front axle and final drives:	SIGE 4180 OPTITRAC driven by universal joint shaft to central bevel gear drive, multi disc safety clutch, collar shifted by hand lever, automatical lock effect; planetary final drives

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

Total ratios and speeds (tyres 18.4 R 34)

Range	Speed	Total ratio engine : driving wheels	Nominal travelling speed *) at rated engine speed km/h
L	1	292,37	2,28
	2	217,30	3,07
	3	171,86	3,88
	4	118,53	5,63
	5	96,58	6,91
	6	76,47	8,73
M	1	141,40	4,72
	2	105,09	6,35
	3	83,12	8,03
	4	57,32	11,65
	5	46,71	14,29
	6	36,98	18,05
H	1	69,46	9,61
	2	51,63	12,93
	3	40,83	16,35
	4	28,16	23,71
	5	22,94	29,10
	6	18,17	36,75
R	1	151,45	4,41
	2	112,56	5,93
	3	89,03	7,50
	4	61,40	10,87
	5	50,03	13,34
	6	39,61	16,86

*) calculated with the radius index 770 mm

Gear lubrication: Oil screen filter in gear housing, cleaning every 2000 operating hours

oil capacity in gearbox including rear axle with final drives 44 l
specified: engine oil SAE 15W/40 recommended quality API-CC or API-CD; oil change period 2000 operating hours

oil capacity in front axle bevel gear drive 5 l
in front axle final drives, each 0,6 l
specified: gear oil SAE 90, quality API-GL5; oil change period 1000 operating hours

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70 Test No. 83-180

Power-take-off	Independent p.t.o. driven by 2nd plate of dual disc clutch, hand lever operated, at rear of tractor in tractor's median plane; 700 mm above ground, p.t.o. shaft's end 536 mm behind rear axle centre line; 35 mm dia, 6 splines, ISO 500/DIN 9611, type 1 2 speeds are preselectable by shift rod at rear of tractor 540 rev/min p.t.o. 613 rev/min at rated engine speed, standard p.t.o. speed 540 rev/min at engine speed 2025 rev/min 1000 rev/min p.t.o. 1089 rev/min at rated engine speed, standard p.t.o. speed 1000 rev/min at engine speed 2111 rev/min p.t.o. shaft rotates clockwisely, viewed from tractor rear
Power lift	DEUTZ-FAHR K 55.4 DEUTZ TRANSFERMATIC-System; hydraulic power lift in unit construction; draft and position control, both steplessly mixable, floating position; lower link sensing; no lowering throttle
Hydraulic system:	Open centre system; REXROTH tandem gear pump 2 PF 2G 230/19 + 11 LC 2020 KP; directly driven by engine, delivery 19 cm^3/rev; oil filter with replaceable cartridge, electrical maintenance indicator; cartridge change yearly

DEUTZ-FAHR control valve;
maximum working pressure 175 + 8 bar,
single acting cylinder with 90 mm bore and 145 mm stroke, overpressure relief valve in cylinder set to 240 bar; 1 single acting additional ram with 55 mm bore and 200 mm stroke, second additional ram optionally available;

1 single acting DEUTZ-FAHR additional control valve, oil tapping and separate return pipe at rear of tractor;
maximum 3 double acting additional control valves available;

hydraulic oil reservoir with 13 l capacity in power lift unit, additional tank with 25 l capacitiy optionally available;
by oil tap may be taken off 8 l if tractor is working stationary or travelling,
30 l may be taken off if additional tank is fitted;
hydraulic oil cooler inside of engine's cooling air baffle

Hydraulic oil: Recommended:engine oil SAE 20W/20 API-CC,
oil change period 1000 operating hours,
or engine oil SAE 20W/20 API-CD,
oil change period 2000 operating hours

Implement linkage: Three point linkage, quick couplers optional, fitted on tested tractor;
joint balls category 2 acc. to ISO 730/I;
lift rods adjustable from 730 to 890 mm;
lifting range with mean lift rods' length of 810 mm:
from 306 mm to 880 mm above ground;
length of lower links 940 mm,
length of top link 580 to 860 mm

Pull attachment

Trailer hitch:	CRAMER, KU 9602 automatical; height above ground 910 mm, adjustable to 845 mm; coupling pin 32 mm dia; distance of hitch hole centre to rear axle centre line 585 mm to p.t.o. shaft end 49 mm; permissible vertical load 2000 kg
Swinging drawbar:	Optionally available, not fitted on tested tractor
Holed drawbar:	Short bar, fitted on hitch points of lower links; length between the joint balls 825 mm; thickness of bar 30 mm, width 80 mm; centre hole and 4 holes on either side with 80 mm distance each; all holes 33 mm dia; distance of holes' centre line with lower links in horizontal position from rear axle centre line 1087 mm from p.t.o. shaft end 551 mm with lift rods adjusted to mean length of 810 mm lifting range from 321 mm to 895 mm above ground; the drawbar may be mechanically-hydraulically fixed in the height of 590 mm above ground; these data were determined at the surface of this bar
Towing hitch:	At front of tractor, 820 mm above ground

Steering

Hydrostatic, DANFOSS
OSPC 100 OR
oil circuit in common with power lift, supplied by tandem part of the REXROTH gear pump with 11 cm^3/rev delivery;
1 differential cylinder directly acting on front axle; bore 50 mm dia, stroke 250 mm, piston rod 25 mm dia

Brakes

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

Service brake: pedal operated muscle power brake with hydraulical transmission,
acting on front- and rear axle;
at rear: TEVES
1 brake disc with 276 mm dia and 2 brake calipers each on the left and right, outside of gearbox, on intermediate shaft
at front: TEVES
1 caliper disc brake between universal joint shaft and bevel gear drive of front axle;
brake disc 256 mm dia

Steering brake: Divided pedal of service brake;
for normal use locked together

Trailer brake: optionally available;
dual line or combined single-dual line compressed air brake

Wheels

Steering wheels:	At front, 2 radial-ply tyres KLEBER 13.6 R 24 8 ply; maximum permissible load per tyre 1545 kg at 2,0 bar inflation pressure and 30-40 km/h road speed; track width adjustable to 1600 mm or by turning the wheels to 1800 mm; rims W 12 x 24
Driving wheels:	At front and at rear; rear wheels: 2 radial-ply tyres CONTINENTAL 18.4 R 34 8 ply; maximum permissible load per tyre 2565 kg at 1,4 bar inflation pressure and 30-40 km/h road speed; track width adjustable from 1600 to 2000 mm in steps of 100 mm each by adjustable-gauge bowl wheels; rims W 15 L x 34
Wheel base:	2400 mm

Cab

DEUTZ-FAHR, SK 1905-37/4
OECD-tested safety cab,
approval no. CSD 0501/15
antivibration mounted by 4 silent blocks on tractor;
1 door and 2 steps each on the left and right hand side, steps 520 mm and 820 mm above ground; driver's platform 1120 mm above ground

windscreen and upper rear window tiltable;
engine-oil heat exchanger heating-system,
3-step blower for fresh and warm air incorporated in instrument and steering support;
air intake above engine bonnet, air outlet jets at cab floor, at instrument panel and at windscreen;
heating by circulating air possible

noise reduction materials:

floor	foam PUR	25 mm
	in PE-foil	0,05 mm
	rubber mat	5 mm
mudguards	imitation leather on moltoprene foam	8 mm
front wall, engine side	polyetherurethan cold foam (PU)	15 mm
	in PE-foil	0,05 mm
seat support	rubber mat	4 mm
roof	cotton fleece, phenolic resin bonded	2-6 mm
	needle fleece	2 mm
	foam	30 mm
	needle fleece	3 mm

Seat

GRAMMER, DS 85 H/90 AR;
upholstered seat with back rest and arm rests, adjustable spring with shock absorber; height of unloaded seat above driver's platform adjustable in 2 steps from 470 to 530 mm, back rest inclination adjustable about 10°, longitudinal adjustment 160 mm, seat revolving about vertical axle to the left and right each about 25°

Number of grease points

18

Dimensions

Total length: 4170 mm without ballast
4395 mm with ballast

Total width: 2304 mm with and without ballast

Total height: 2714 mm to mouth of exhaust silencer

Ground clearance: 410 mm below front axle brake

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

Possible combinations of tyres

tyre size			
at front		at rear	
9.5 - 32	10 ply	9.5 - 48	8 ply
12.4 - 24	6 ply	13.6 - 38	6 ply
14.9 - 24	6 ply	16.9 - 38	8 ply
13.6 - 24	8 ply	18.4 - 34	8 ply

Lighting equipment — Electrical 12 V, in accordance with German legislation

	Dimensions mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Head lights	130 dia	1117	952
Side lights	50x50	1650	380
Rear lights	45x60	1600	350
Reflectors			
1st pair	103x58	1305	143
2nd pair	103x58	625	663

Running-time meter — Mechanical, combined with tachometer, driven by camshaft of engine; reference engine speed for one really counted hour 1500 rev/min

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

TEST CONDITIONS

Track setting

1600 mm at front
1700 mm at rear

Weights

		without driver	with driver
Without ballast:	at front	1500 kg	1510 kg
	at rear	2670 kg	2740 kg
	total	4170 kg	4250 kg
Front ballast:	water in the tyres		255 kg
	8 front weights		320 kg
	3 weights per wheel, total		240 kg
Rear ballast:	water in the tyres		645 kg
	5 weights per wheel, total		490 kg
With ballast:	at front	2390 kg	2400 kg
	at rear	3730 kg	3800 kg
	total	6120 kg	6200 kg

Fuels and lubricants used in tests

Fuel:	ARAL Diesel-fuel DIN 51601	
	density at 15°C	
	at engine test and p.t.o. test	0,830 kg/l
	at drawbar test	
	without ballast	0,832 kg/l
	with ballast	0,837 kg/l
Engine oil:	DEUTZ HDC SAE 15W/40	
Gear oil:	DEUTZ HDC SAE 15W/40 in gearbox including rear axle	
	DEUTZ gear oil API-GL5 hypoid SAE 90 in front axle including final drives	
Hydraulic oil:	DEUTZ SGHD-B SAE 20W/20 in power lift and in steering	

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

COMPULSORY TESTS

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

Date of tests: 24th November 1983
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						
At 2-hour test						
62.4	2300	1089	18.67	15.50	248	3.34
At standard p.t.o. speed						
61.0	2111	1000	17.59	14.60	239	3.47
At rated engine speed						
62.4	2300	1089	18.67	15.50	248	3.34
Part loads, the governor hand lever in the position corresponding to the maximum power at full load (curve a)						
(i) 85% of the torque at maximum power at 2-hour test						
54.1	2345	1111	16.50	13.70	253	3.28
(ii) unloaded						
-	2431	1152	4.40	3.65	-	-
(iii) 50% of the load defined in (i)						
27.5	2388	1131	10.22	8.48	308	2.69
(iv) maximum power						
62.4	2300	1089	18.67	15.50	248	3.34
(v) 25% of the load defined in (i)						
13.8	2399	1136	7.15	5.93	429	1.93
(vi) 75% of the load defined in (i)						
41.1	2376	1126	13.49	11.19	272	3.05

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

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
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
(i) 85% of the torque at maximum power at standard p.t.o. speed						
53.4	2172	1029	15.51	12.88	241	3.44
(ii) unloaded						
-	2256	1069	3.78	3.14	-	-
(iii) 50% of the load defined in (i)						
27.3	2218	1051	9.40	7.80	286	2.90
(iv) maximum power						
61.0	2111	1000	17.59	14.60	239	3.47
(v) 25% of the load defined in (i)						
13.7	2230	1056	6.36	5.28	385	2.15
(vi) 75% of the load defined in (i)						
40.6	2201	1042	12.42	10.31	254	3.27

Standard specific fuel consumption (g/kWh): 253/308/241/286

No load maximum engine speed: 2431 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 259 Nm
Maximum equivalent crankshaft torque: 301 Nm at 1695 rev/min of the engine

Mean atmospheric conditions:	temperature	18 °C
	pressure	1004 mbar
	relative humidity	38 %
Maximum temperatures:	cylinder head	130 °C
	engine oil	96 °C
	fuel	16 °C
	engine air intake	18 °C

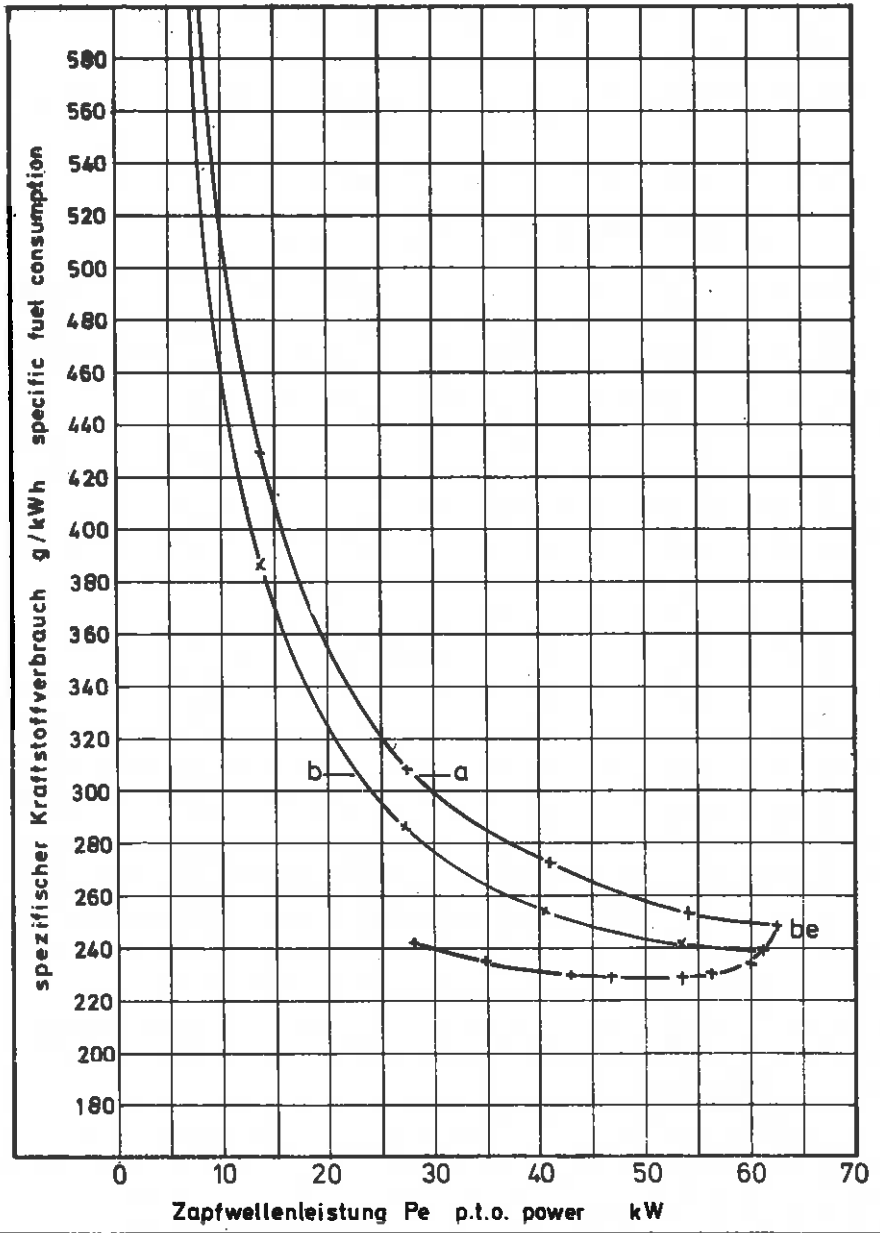
PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70
Zapfwellenleistung
- 18 -
P.t.o. performance
Test Nr. 83-180
Pe
M equiv
be
Kraftstoffverbrauch fuel consumption l/h
Zapfwellenleistung P.t.o. power kW
standard p.t.o. speed 1000 t/min
äquivalentes Drehmoment M equiv Nm
equiv. crankshaft torque
spez. Kraftstoffverbrauch spec. fuel consumption be g/kWh
Motordrehzahl n engine speed t/min rev/min
1100
1300
1500
1700
1900
2100
2300
2500

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Zapfwellenleistung

P.t.o. performance

Test Nr. 83-180



PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

(2) DRAWBAR PERFORMANCE

Date of tests: 8th December 1983 till 5th January 1984
Type of track: Concrete

Gear	Driving speed km/h	Power kW	Drawbar pull daN	Engine speed rev/min	Slip of wheels %
(i)	MAXIMUM POWER (unballasted) height of drawbar above ground 490 mm				
3 L	3,43	41,7	4381	2331	14,9
1 M	4,08	49,6	4393	2303	15,1
4 L	5,20	54,7	3786	2301	9,1
2 M	6,02	54,7	3273	2304	7,0
5 L	6,58	54,9	3004	2297	6,1
3 M	7,72	54,9	2561	2297	5,0
6 L	8,45	54,3	2315	2299	4,5
1 H	9,35	55,0	2116	2299	4,0
4 M	11,42	55,2	1741	2303	3,3
2 H	12,70	53,8	1524	2296	2,7
5 M	14,09	51,6	1318	2300	2,4
(ii)	MAXIMUM POWER (ballasted) height of drawbar above ground 470 mm				
1 L	2,01	34,4	6179	2354	15,0
2 L	2,66	45,5	6159	2326	15,1
3 L	3,58	53,2	5349	2303	8,9
1 M	4,47	55,0	4429	2296	6,0
4 L	5,41	56,0	3729	2298	4,7
2 M	6,16	55,2	3224	2301	3,9
5 L	6,74	54,6	2916	2303	3,2
3 M	7,85	55,0	2524	2301	2,8
6 L	8,57	52,9	2224	2299	2,4
1 H	9,46	53,5	2035	2302	2,1
4 M	11,50	52,3	1636	2299	1,6
2 H	12,81	50,9	1431	2302	1,4
(iii)	FIVE-HOUR-TEST at 75 % of pull at maximum power in 3 M gear				
3 M	8,10	42,6	1893	2355	2,0
(iv)	FIVE-HOUR-TEST at pull corresponding to 15 % wheel slip in test (ii)				
2 L	2,67	45,8	6178	2326	-

Total oil consumption during ten hours duration of tests (iii) and (iv) 145 g/h

PRÜFUNGS-ABTEILUNG

Test No. 83-180

Tyre size front: 13.6 R 24 8 ply
rear: 18.4 R 34 8 ply

Tread bar height at the beginning of drawbar tests: at front 94 %, at rear 93 % of the value when new

Specific fuel consumpt. g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Cylinder head °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 0,9 bar at front; 1,0 bar at rear							
308	2,70	17	112	81	2	61	1008
311	2,68	15	115	83	2	75	1008
282	2,95	16	105	83	1	92	1008
283	2,94	16	105	85	1	95	1008
281	2,96	15	101	83	1	91	1008
281	2,97	15	105	85	1	90	1008
285	2,92	14	104	89	2	92	1008
281	2,96	14	103	88	2	93	1008
281	2,96	15	102	85	2	93	1008
289	2,88	11	103	83	1	93	1010
303	2,75	15	104	84	1	91	1010
tyre inflation pressure 1,4 bar at front; 1,0 bar at rear							
332	2,52	16	111	88	5	75	1006
315	2,66	13	110	88	6	61	1006
289	2,89	19	108	86	4	79	1006
281	2,98	17	102	87	3	79	1006
278	3,01	15	108	88	3	80	1006
284	2,95	14	106	86	3	85	1006
286	2,92	15	103	87	2	81	1006
284	2,95	14	104	88	3	80	1006
294	2,85	15	108	89	3	79	1006
290	2,88	14	102	87	3	81	1006
296	2,82	15	107	88	3	78	1006
307	2,72	14	103	88	3	79	1006
300	2,79	14	113	83	1	79	994
-	-	12	105	84	1	86	1006

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

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 13.6 R 24 8 ply
rear: 18.4 R 34 8 ply

Track of wheels front: 1600 mm
rear: 1700 mm

Front wheel drive disengaged

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	4,17	4,21	4,85	4,87
Radius of turning circle	3,83	3,87	4,51	4,53

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	939 mm
Distance forward from rear axle centre	855 mm
Distance from tractor's median plane, to the left	13 mm

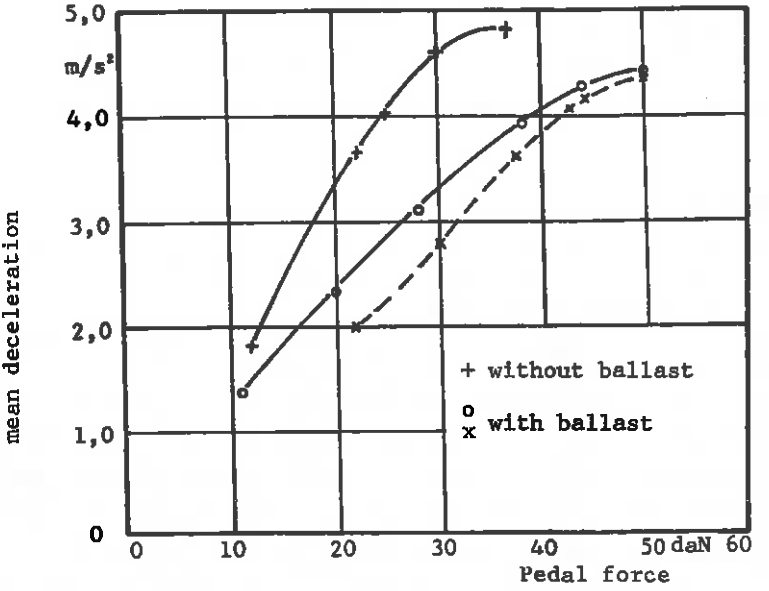
(5) Braking

Date of tests: 20th and 25th october 1983

Tractor masses during tests with driver:	front kg	rear kg	total kg
without ballast	1510	2740	4250
with ballast	2400	3800	6200

A) Service brake (front wheel drive disengaged)

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



Speed before application of brakes, without ballast 38,9 km/h
with ballast 38,4 km/h

The brakes were heated by towing of the tractor for 1 km

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	18	20	13	14

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

(6) MEASUREMENT OF EXTERNAL NOISE LEVEL *)

Date of test: 15th December 1983
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2203

Results of test

Gear: 6 H
Travelling speed before acceleration: 29,2 km/h
Sound level: 84,5 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 9th December 1983
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Tractor fitted out with DEUTZ-FAHR safety cab SK 1905-37/4

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed nominal km/h	Travelling speed effective km/h	Sound level dB(A)
1 L	4380	2,28	2,01	83,0
2 L	4398	3,07	2,65	83,0
3 L	4362	3,88	3,40	83,5
1 M	4389	4,72	4,05	84,0
4 L	3777	5,63	5,18	84,5
2 M	3241	6,35	6,02	84,0
5 L	2956	6,91	6,62	84,5
3 M+)	2372	8,03	7,91	85,0
3 M+)	light load	8,03	8,60	82,5
6 L	2144	8,73	8,59	85,0
1 H	2026	9,61	9,49	84,5
4 M	1677	11,65	11,57	84,0
2 H	1517	12,93	12,70	84,5
5 M	1248	14,29	14,12	84,0
3 H	1120	16,35	16,26	84,5
6 M	929	18,05	18,01	84,5
6 H*)	light load	36,75	38,90	83,0

*) Front wheel drive disengaged
+) The 3 M gear corresponds to the travelling speed nearest to 7,5 km/h

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of tests: 2nd December 1983

Power Lift

	Height of lower hitch point above ground in down pos. mm	Vertical movement 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	306	574	3155	158	-	-
On the frame	306	650	2495	158	4234	9° +)

Temperature of hydraulic fluid at start of test 65 °C

+) tilt angle of mast from vertical position to uppermost position 8°

Lifting heights relative to horizontal lower links

mm	-225	-204	-200	-100	0	+100	+200	+300	+370	+400	+425
Lifting forces at hitch points											
daN		3155	3175	3345	3405	3430	3385	3365	3385		
Lifting forces at test frame											
daN	3105		3130	3105	3045	2940	2790	2620		2525	2495

Hydraulic Pump Performance

Opening pressure of the relief valve in remote circuit	168 bar
Sustained pressure with relief valve open	183 bar
Pump delivery rate at minimum pressure, the governor control lever being set for max. power	48,8 l/min
Hydraulic power at 90% of relief valve setting	12,5 kW
Corresponding delivery rate	45,6 l/min
Pressure	165 bar
Temperature of hydraulic fluid	65 °C

Tapping point used for test: at rear of tractor

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

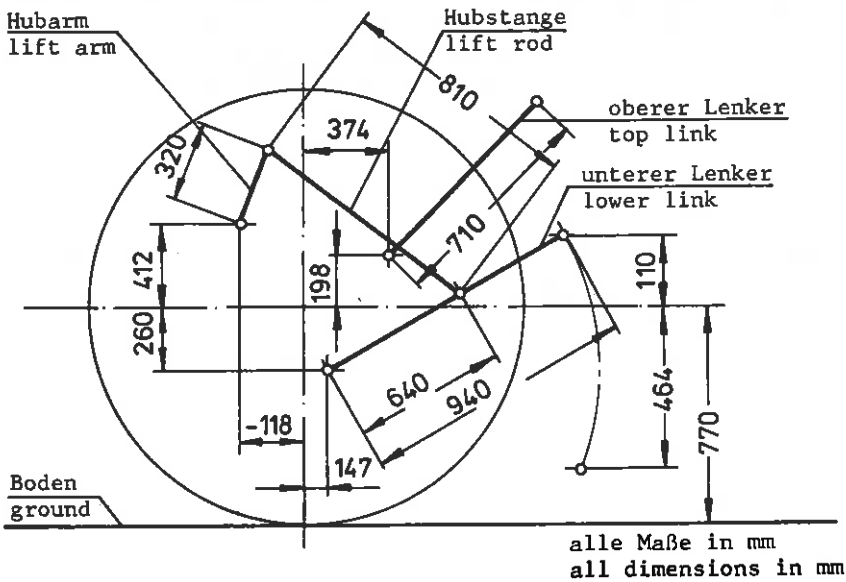
LINKAGE GEOMETRY when connected to the standard frame

Projected length in side view:

Lower links	940 mm
Lift arms	320 mm
Lift rods	810 mm
Top link	710 mm
Distance of lift rod connection point from pivot point of lower link	640 mm

The following dimensions are given relative to the rear wheel centre line, situated 770 mm above ground:

Lower link pivot point	147 mm behind,	260 mm below
Top link pivot point	374 mm behind,	198 mm above
Lift arm pivot point	118 mm behind,	412 mm above
Maximum and minimum height of lower link hitch points	464 mm below,	110 mm above
Height of lower link hitch points when locked in transport position	195 mm below	



alle Maße in mm
all dimensions in mm

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

OPTIONAL TESTS

(9) ENGINE PERFORMANCE

Date of tests: 15th November 1983
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					
At 2-hour test					
66.7	2300	18.71	15.53	233	3.57
At standard p.t.o. speed (1000 rev/min)					
65.3	2111	17.74	14.72	226	3.68
At rated engine speed					
66.7	2300	18.71	15.53	233	3.57
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
57.9	2348	16.36	13.57	234	3.54
(ii) unloaded					
-	2475	3.78	3.14	-	-
(iii) 50% of the torque defined in (i)					
29.6	2401	9.77	8.11	274	3.03
(iv) maximum power					
66.7	2300	18.71	15.53	233	3.57
(v) 25% of the torque defined in (i)					
14.9	2416	6.58	5.46	367	2.26
(vi) 75% of the torque defined in (i)					
44.0	2378	13.05	10.83	246	3.37

Optimum fuel consumption: 216 g/kWh at 39.0 kW and 1495 rev/min
No load maximum engine speed: 2475 rev/min
Torque at maximum power (2 hours): 277 Nm
Maximum torque: 320 Nm at 1703 rev/min of the engine

Mean atmospheric conditions:	temperature	17 °C
	pressure	994 mbar
	relative humidity	25 %
Maximum temperatures:	cylinder head	104 °C
	engine oil	85 °C
	fuel	16 °C
	engine air intake	17 °C

PRÜFUNGS-ABTEILUNG

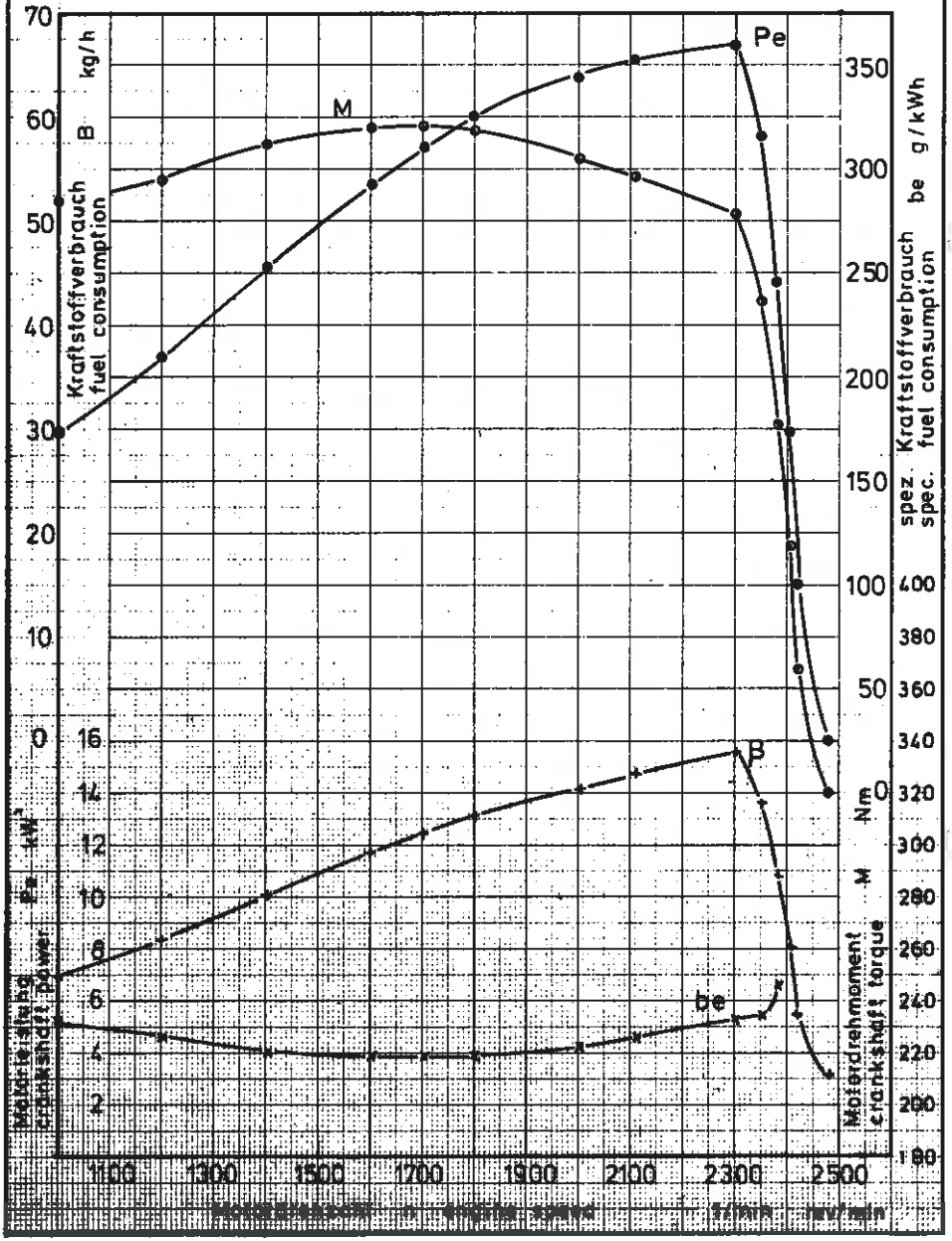
DEUTZ-FAHR DX 4.70

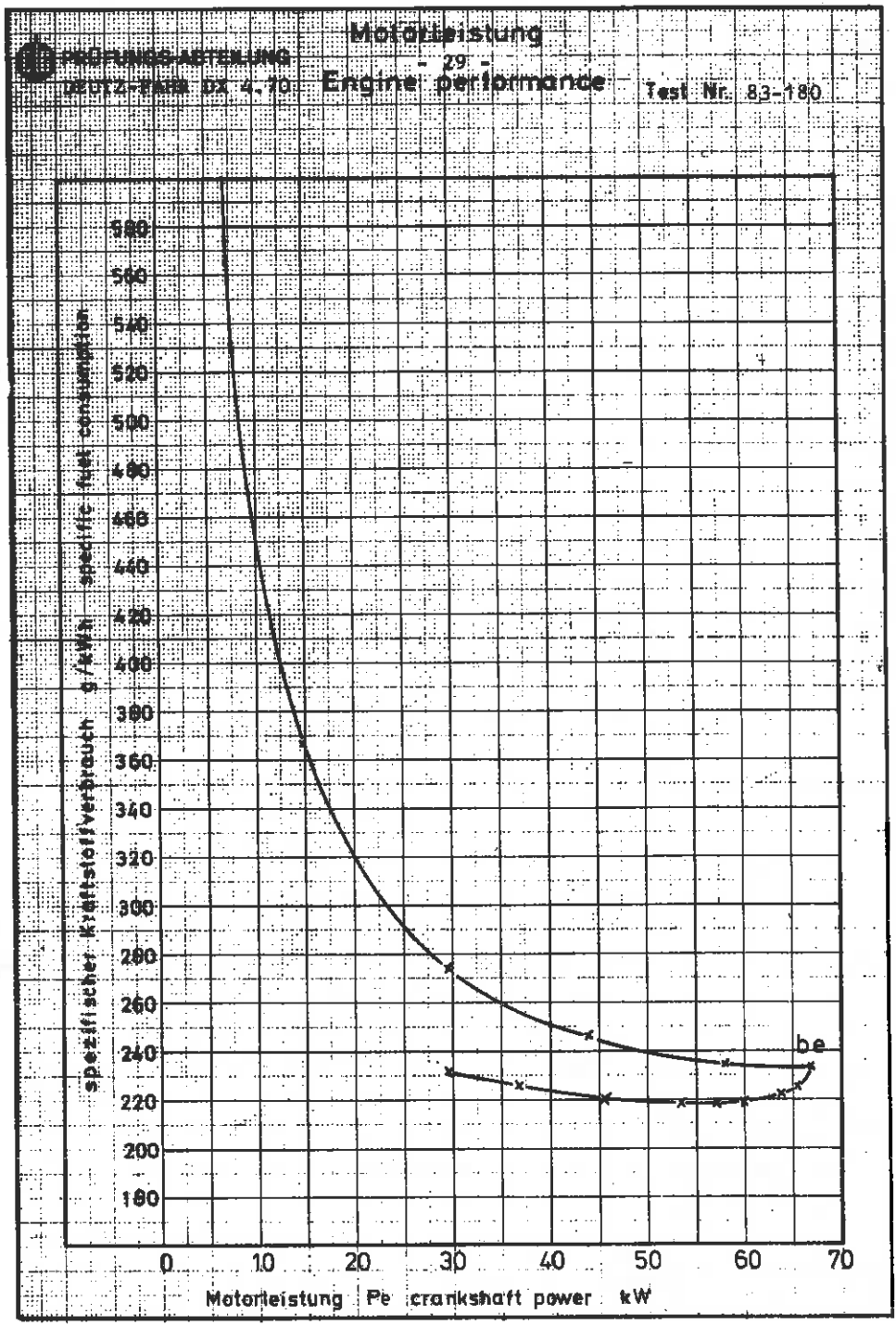
Motorleistung

- 28 -

Engine performance

Test Nr. 83-180




Motorleistung
- 29 -
Engine performance
Test Nr. 83-180
spezifischer Kraftstoffverbrauch g/kWh specific fuel consumption
580
560
540
520
500
480
460
440
420
400
380
360
340
320
300
280
260
240
220
200
180
be
0
10
20
30
40
50
60
70
Motorleistung Pe crankshaft power kW

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Motorleistung
- 30 -
Engine performance

Test Nr. 83-180

Motorleistung in % der Leistung bei Nenndrehzahl

engine power in % of power at rated engine speed

PRÜFUNGS-ABTEILUNG
DEUTZ-FAHR DX 4.70

Test No. 83-180

ADDITIONAL TEST

(10) POWER LIFT (with 2 additional lifting cylinders)
linkage geometry see on page 26

Date of test: 2nd December 1983

Power Lift

	Height of lower hitch point above ground in down pos. mm	Vertical movement 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	306	574	4180	158	-	-
On the frame	306	650	3260	158	5532	9° +)

Temperature of hydraulic fluid at start of test 65 °C
+) tilt angle of mast from vertical position to uppermost position 8°

Lifting heights relative to horizontal lower links

mm	-225	-204	-200	-100	0	+100	+200	+300	+370	+400	+425
Lifting forces at hitch points											
daN		4180	4180	4330	4330	4480	4430	4390	4390		
Lifting forces at test frame											
daN	4010		4010	4010	3920	3810	3670	3450		3290	3260

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

Deutsche Landwirtschafts-Gesellschaft e. V. (DLG)
Fachbereich Landtechnik — Prüfungsabteilung —
Zimmerweg 16 (DLG-Haus)
D-6000 Frankfurt am Main 1