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

O.E.C.D. No. **871**



Agricultural Tractor
FENDT FARMER 303 LS TURBOMATIK (4WD)

Manufacturer
X. Fendt & Co., Maschinen- und Schlepperfabrik
D-8952 Marktoberdorf

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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 tractor performance on practical work.

Duration of Tests: November 1982 till January 1983
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: 8th June 1983 O.E.C.D. No. 871

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		

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PRÜFUNGS-ABTEILUNG
FENDT FARMER 303 LS

Test No. 82-24

Tractor manufacturer:	X. Fendt D-8952 Marktoberdorf
Submitted for test by:	Manufacturer
Selected by:	Manufacutrer with agreement by DLG
Place of running-in:	Marktoberdorf and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 80 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	X. FENDT & CO.
Trade denomination:	FARMER 303 LS TURBOMATIK
Model:	FWA 152S
Type:	Wheel tractor, unit construction, four-wheel drive
Serial-No.:	152/21/0052

Engine

Make:	MOTORENWERKE MANNHEIM AG
Model:	D 226-3
Type:	Watercooled 4-stroke Diesel-engine, direct injection
Serial-No.:	D 226.3.2.11812
Cylinders:	3, in line, bore 105 mm, stroke 120 mm, displacement 3117 cm^3, compression ratio 17:1; replaceable dry cylinder liners
Valves:	Overhead
Fuel system:	SOLEX fuel feed pump PE 15509; BOSCH in line injection pump: PES 3A 80D 320/3 RS 1299, manufacturer's production setting 52,5±1 mm^3/stroke at rated speed and full load; injection timing 28° before TDC; BOSCH multihole injection nozzles 925 DLLB 150S 821, injection pressure 180±5 bar; BOSCH fuel filter with replaceable cartridge; capacity of fuel tank 80 l
Governor:	BOSCH centrifugal variable speed type governor: EP/RSV 325-1500 A 2 B 505 DR; governed range of engine speed 650 to 2485 rev/min; rated engine speed 2350 rev/min

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Air cleaner:	MANN dry paper element filter with replaceable main cartridge and safety cartridge, cyclone pre-cleaner, electrical maintenance indicator; air intake above bonnet; optionally available with longer air intake pipe
Exhaust silencer:	EBERSPÄCHER reflection-absorption-type silencer, 172 mm dia, 454 mm long; on the left hand side, mouth showing rearwards, 430 mm above ground; optionally available silencer above bonnet with mouth showing upwards
Lubrication system:	Forced feed from gear type pump; strainer in sump; filter in full flow with by-pass valve and replaceable cartridge; oil and cartridge change period 200 operating hours; oil capacity 7,25 l; specified oil quality MIL-L-46 152 or MIL-L-2104 C recommended oil viscosities: over + 5°C SAE 30 over -10°C to +10°C SAE 20W/20 below - 5°C SAE 10W
Cooling system:	Watercooling with impeller pump; overpressure valve set to 0,4 bar; cooling circuit with by-pass and thermostat; fan with 7 blades, 440 mm dia; water capacity 9,6 l
Starting system:	Electrical BOSCH pre engaged-drive starting motor 2,4 kW; BERU flame plug in intake manifold
Electrical equipment:	12 Volt, negative earth BOSCH 3-phase alternator G1-14V 33A 27, 462 W; 1 lead acid battery, 88 Ah at 20 hours rating

Transmission

Clutch:	1. VOITH GETRIEBE KG fluid clutch 358 TD-F for travel and p.t.o. drive 2. FICHTEL UND SACHS AG dry disc type clutch GT 310 N, 295 mm dia, for travel drive, hydraulically operated by pedal, self readjusting
Gear box:	FENDT sychromesh speed change gear with 3 forward speeds and 1 reverse speed; 2 group gears: synchronized closed stepped group gear high/low (FS/FL); 2nd group gear with collar shifted road group (S) and sliding gear shifted field group (A); 3 independent synchronized overdrive speeds; totally 15 forward speeds and 4 reverse speeds on tested tractor; optionally available creeper group excluding third overdrive speed
Rear axle:	FENDT portal construction; bevel gear drive; bevel gear differential, with pedal operated lock, not selfdisengaging, with pilot lamp; spur gear final drives in portals
Driven front axle:	ZAHNRADFABRIK FRIEDRICHSHAFEN AG APL 1351 driven by universal joint shaft on the left hand side of gear box, dry multi-disc clutch to be shifted by hand lever under load; bevel gear drive; bevel gear differential, optionally available with automatic lock; planetary final drives in wheel hubs
Oil change:	Fluid clutch all 5000 operating hours other gears all 1000 operating hours or once a year
Recommended oil qualities:	Gear box MIL-L-2105 final drives and front axle differential MIL-L-2105B fluid clutch MIL-L-2104B

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Oil capacity and viscosity:

Fluid clutch	5,7	1	SAE 10W
gear box	32,5	1	SAE 80
rear axle final drives	3	1 each	SAE 90
front axle differential	4,8	1	SAE 90
front axle final drives	0,5	1 each	SAE 90

Total ratios and speeds

Group	Closed stepped group	Gear	Total ratio engine : driving wheel	Nominal travelling speed at rated engine speed *) km/h
Forward speeds				
A	FL	1	429,81	1,41
		2	268,63	2,25
		3	165,92	3,65
	FS	1	352,22	1,72
		2	220,14	2,75
		3	135,97	4,45
S	FL	1	107,45	5,63
		2	67,16	9,01
		3	41,48	14,58
	FS	1	88,06	6,87
		2	55,03	10,99
		3	33,99	17,79
1st overdrive			26,19	23,09
2nd overdrive			20,79	29,09
3rd overdrive			16,73	36,15
Reverse speeds				
A	FL	R	296,91	2,04
	FS	R	243,31	2,49
S	FL	R	74,23	8,15
	FS	R	60,83	9,94

*) calculated with the radius index 695 mm and the slip of the fluid clutch of 1,8%, measured at rated speed and maximum power

Power take-off

Main p.t.o.:

At rear of tractor;
driven by a multiplate clutch with 168 mm dia,
independent from travel drive clutch,
operated by hand lever on console;
height above ground 647 mm, in median
plane of tractor,
356 mm behind rear axle centre line;
35 mm dia, 6 splines ISO 500/DIN 9611, type 1;

3 speeds preselectable by hand lever:

540 rev/min p.t.o.
570 rev/min at rated engine speed and full load,
581 rev/min at rated engine speed with no load,
standard p.t.o. speed 540 rev/min at
2230 rev/min engine speed at full load or
2185 rev/min engine speed at no load

fluid clutch slippage at full load
at rated engine speed 1,8%
at standard p.t.o. speed 2,0%

750 rev/min p.t.o. (with pilot lamp)
744 rev/min at rated engine speed and full load,
759 rev/min at rated engine speed with no load,
standard p.t.o. speed 540 rev/min at
1722 rev/min engine speed and full load

1000 rev/min p.t.o. (with pilot lamp)
1060 rev/min at rated engine speed with no load,
standard p.t.o. speed 1000 rev/min at
2217 rev/min engine speed with no load

direction of rotation clockwise, viewed
from tractor rear

Ground speed p.t.o.:

Optional,
not fitted on tested tractor

Secondary p.t.o.:

Optionally available front p.t.o.
(1000 rev/min or 540 rev/min)
not fitted on tested tractor

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Power lift

FENDT
hydraulic power lift, unit construction
draft and position control
both steplessly mixable,
floating position;
top link sensing, lowering throttle

Hydraulic system:

Open centre system;
BOSCH tandem gear type pump HY/ZFFS 11/16+14
directly driven by engine,
delivery 16 cm^3/rev;
hydraulic filter with replaceable cartridge
incorporated in return line, cartridge change
after 1000 operating hours or once a year;
BOSCH control valve HY/SR 175/60L,
maximum working pressure 175 + 12 bar;
single acting cylinder with 86 mm bore and
138 mm stroke, without safety valve;
1 single acting auxiliary BOSCH control valve
with return line fitted;
up to 5 single, partially double acting
auxiliary valves with oil tappings and
return lines in the rear and middle of tractor
available;
optional flow dividing valve in steering oil
circuit and additional control valve:
residual oil flow of steering circuit may be
taken off directly and independently or in common
with oil flow of hydraulic circuit through oil
tappings

separate hydraulic tank with 18 l capacity;
max. 6 l may be taken off through oil tappings
when tractor is travelling,
15 l when tractor is working stationary

recommended oil:

engine oil SAE 20W/20 (tropics SAE 30)
MIL-L-2104C or MIL-L-46 152

oil change after 1000 operating hours
or once a year

Implement linkage at rear:	Three point linkage ISO 730/I or DIN 9674, category 2; length of lift rods adjustable by crank handles from 633 to 762 mm, mean length of lift rods 698 mm with lifting range above ground from 132 to 825 mm
Implement linkage at front:	Optionally available, not fitted on tested tractor
Holed drawbar:	Long bar, fitted on clevis of lower links, can be used as towing bar; total length 1700 mm; length between joint balls 830 mm, thickness 25 mm, width 100 mm, centre hole and 8 holes to each side, all holes 33 mm dia; height above ground adjustable by power lift; holed drawbar can be fixed hydraulically-mechanically to a height of 405 mm above ground measured at surface of bar; lower links stabilization by quick clamping devices; distance of holes' centre line with lower links in horizontal position: from rear axle centre 989 mm from p.t.o. shaft end 633 mm; short bar optionally available

Pull attachment

Trailer hitch:	ROCKINGER 273 U 140 non-automatical, optionally automatical hitch available; height above ground adjustable by one-hand quick adjustment to 677, 719, 761, 803 and 845 mm; hitch hole 33 mm dia, distance of hitch hole centre to rear axle centre 524 mm, to p.t.o. shaft end 168 mm; permissible vertical load 1500 kg

Swinging drawbar: Optionally available,
height above ground 391 and 301 mm by reversing; hitch hole 33 mm dia,
distance of hitch hole to rear axle centre 679 and 764 mm, to p.t.o. shaft end 323 and 408 mm; pivot point 200 mm behind rear axle, lateral swinging range 154 mm to each side;
optionally available fixed pin (piton fix) or hitch

Towing hitch: 665 mm above ground at front of tractor

Steering

FENDT and ZAHNRADFABRIK FRIEDRICHSHAFEN AG hydrostatic steering model 8491 with own oil circuit and oil filter,
filter change after 1000 operating hours or once a year;
oil supply by tandem part of hydraulic pump, displacement 14 cm^3/rev;
optional flow dividing valve in oil circuit of steering (see page 9, hydraulic system);
oil reservoir in common with power lift tank;
1 double acting ram,
directly acting on front axle,
235 mm stroke, 50 mm dia,
piston rod 22 mm dia

Brakes

Parking brake: Internal-expanding-shoe brake;
mechanically acting on 2 brake drums on the differential half shafts,
180 mm dia, 30 mm width,
operated by pulling handle with ratchet

Service brake: FENDT and MASCHINENBAU KNOTT muscle power brake with hydraulic transmission; 2 internal-expanding-shoe brakes on the differential half shafts;
1 disc brake situated on joint shaft of front wheel drive;

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

Trailer brake: optionally available single- or dual-circuit air brake

Wheels

Steered wheels:	2 pneumatics in front 12.5-20 MPT 8 ply, diagonal type casing; max. permissible load per tyre 2125 kg at 2,5 bar inflation pressure and 30 km/h; track width 1573 mm; track width adjustable to 1713 mm by reversing wheels; rims 11 x 20,
Driven wheels:	At front and at rear driving rear wheels: radial type casing 2 pneumatics 16,9 R 30 8 ply; max. permissible load per tyre 2245 kg at 1,7 bar inflation pressure and 30 km/h; track width 1508 mm; rims DW 14 x 30, optionally offset lug type rims available
Wheel base:	2192 mm

Cab

FENDT
OECD-tested safety-cab
OECD-No. CSD 0274/11;
optionally OECD-tested safety frame with roof available, OECD No. CSD 0336/11;
cab mounted to tractor with 4 silent blocks;
front-, rear- and side windows tiltable;
doors on both sides with additional stop devices for ventilation;
2 steps each on either side 470 and 725 mm above ground;
combined heating and ventilation system with blower, connected to the cooling circuit;
air outlet jets near the cab floor and at the windscreen;
additional fan-assisted ventilation system in the roof optionally available

noise-reduction materials
floor:
bitumen-mat 4 mm,
heavy-layer nap pattern mat with rubber foam lining 12 mm

mudguards:
PUR-foam coated with imitation leather 15 mm
roof:
moulded resin-impregnated, cotton fibres 6 mm
instrument and steering console:
sheet metal plates coated with bitumen-mat 4 mm,
rubber foam mat 40 mm below instrument panel,
additional rubber foam stripes 50 to 70 mm in lower part of console

Seat

GRAMMER DS 85H/50R
upholstered seat with arm rests and folding back rest (upper part),
adjustable spring with shock absorber;
additional horizontal spring suspension with shock absorber in longitudinal direction;
height of platform above ground 990 mm,
height of unballasted seat above platform adjustable in 2 steps from 500 to 560 mm;
longitudinal adjustment range 150 mm;
optionally seat GRAMMER DS 85H/90 AR available

Number of grease points: 18

Dimensions

Total length:	3822 mm without ballast 4242 mm with ballast
Total width:	1970 mm without ballast 1970 mm with ballast
Total height:	2552 mm to top of cab roof, optionally cab with roof which is 70 mm lower available
Ground clearance:	369 mm below front axle differential

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Lighting equipment Electrical, 12 Volt
as per German legislation

	Dimensions mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Head lamps	135 x 115	965	808
Side lamps	65 x 20	1420	153
Rear lamps	33 x 60	1475	280
Reflectors			
1st pair	115 x 25	1418	278
2nd pair	70 ø	635	638

Available wheel equipment

wheel equipment	
front	rear
9.5-24 6 ply	12.4-36 6 ply 13.6-36 6 ply
10.5-20 MPT 6 ply	14.9-30 6 ply 16.9-30 6 ply
12.5-20 MPT 8 ply	16.9-30 8 ply 9.5-44 8 ply

Running-time meter Mechanical, with tachometer combined, driven by camshaft of engine; reference engine speed for one really counted hour 1715 rev/min

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TEST CONDITIONS

Track of wheels

front 1573 mm
rear 1508 mm

Weights during drawbar performance test

		without driver	with driver
Without ballast:	front	1235 kg	1245 kg
	rear	2000 kg	2065 kg
	total	3235 kg	3310 kg
Ballast in front:	12 weights, total		581 kg
	water in the tyres		200 kg
Ballast at rear:	3 weights per tyre		384 kg
	water in the tyres		525 kg
With ballast:	front	2165 kg	2175 kg
	rear	2760 kg	2825 kg
	total	4925 kg	5000 kg

Fuels and lubricants used in test

Fuel:	ARAL Diesel-fuel DIN 51 601	
	specific gravity at 15°C	
	at engine and p.t.o. test	0,838 kg/l
	at drawbar test	0,827 kg/l
Engine:	MOBIL DELVAC 1320	SAE 20W/20
Fluid clutch:	MOBIL DELVAC 1210	SAE 10W
Transmission:	MOBIL MOBILUBE GX 80	SAE 80
Differential in front, final drives at rear and in front:	MOBIL MOBILUBE HD 90	SAE 90
Power lift and power steering:	MOBIL DELVAC 1320	SAE 20W/20

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Test No. 82-24

COMPULSORY TESTS

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

Date of tests: 6th December 1982
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power	Speed engine	Speed fl.clutch output	Speed p.t.o.	Fuel consumption hourly	Fuel consumption hourly	Fuel consumption spec.	Specific energy
kW	rev/min	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
Maximum power							
At 2-hour test							
35.1	2350	2308	570	10.71	8.97	255	3.28
At rated engine speed							
35.1	2350	2308	570	10.71	8.97	255	3.28
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							
30.3	2382	2345	580	9.50	7.96	262	3.19
(ii) unloaded							
-	2478	2476	612	3.44	2.88	-	-
(iii) 50% of the torque defined in (i)							
15.6	2428	2409	595	6.30	5.28	339	2.47
(iv) maximum power							
35.1	2350	2308	570	10.71	8.97	255	3.28
(v) 25% of the torque defined in (i)							
7.9	2450	2441	603	4.78	4.01	507	1.65
(vi) 75% of the torque defined in (i)							
23.1	2408	2378	588	7.87	6.59	286	2.93

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Power	Speed engine	Speed fl.clutch output	Speed p.t.o.	Fuel consumption hourly	Fuel consumption hourly	Fuel consumption spec.	Specific energy
kW	rev/min	rev/min	rev/min	l/h	kg/h	g/kWh	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							
30.1	2292	2255	557	9.24	7.74	257	3.26
(ii) unloaded							
-	2373	2369	586	3.17	2.66	-	-
(iii) 50% of the torque defined in (i)							
15.5	2338	2317	573	6.02	5.05	326	2.57
(iv) maximum power							
34.4	2230	2185	540	10.26	8.60	250	3.35
(v) 25% of the torque defined in (i)							
7.8	2354	2337	578	4.51	3.78	485	1.73
(vi) 75% of the torque defined in (i)							
22.9	2314	2284	565	7.58	6.36	278	3.02

Standard specific fuel consumption (g/kWh): 262/339/257/326

No load maximum engine speed: 2478 rev/min
Equivalent flywheel torque at maximum power (2 hours): 145 Nm
Maximum equivalent flywheel torque: 185 Nm at 1512 rev/min of the engine

Mean atmospheric conditions:	temperature	19 °C
	pressure	1003 mbar
	relative humidity	50 %
Maximum temperatures:	coolant	84 °C
	engine oil	100 °C
	fuel	15 °C
	engine air intake	19 °C

The equivalent flywheel torques are given relative to the output shaft of the fluid clutch

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Zapfwellenleistung

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P.t.o. performance

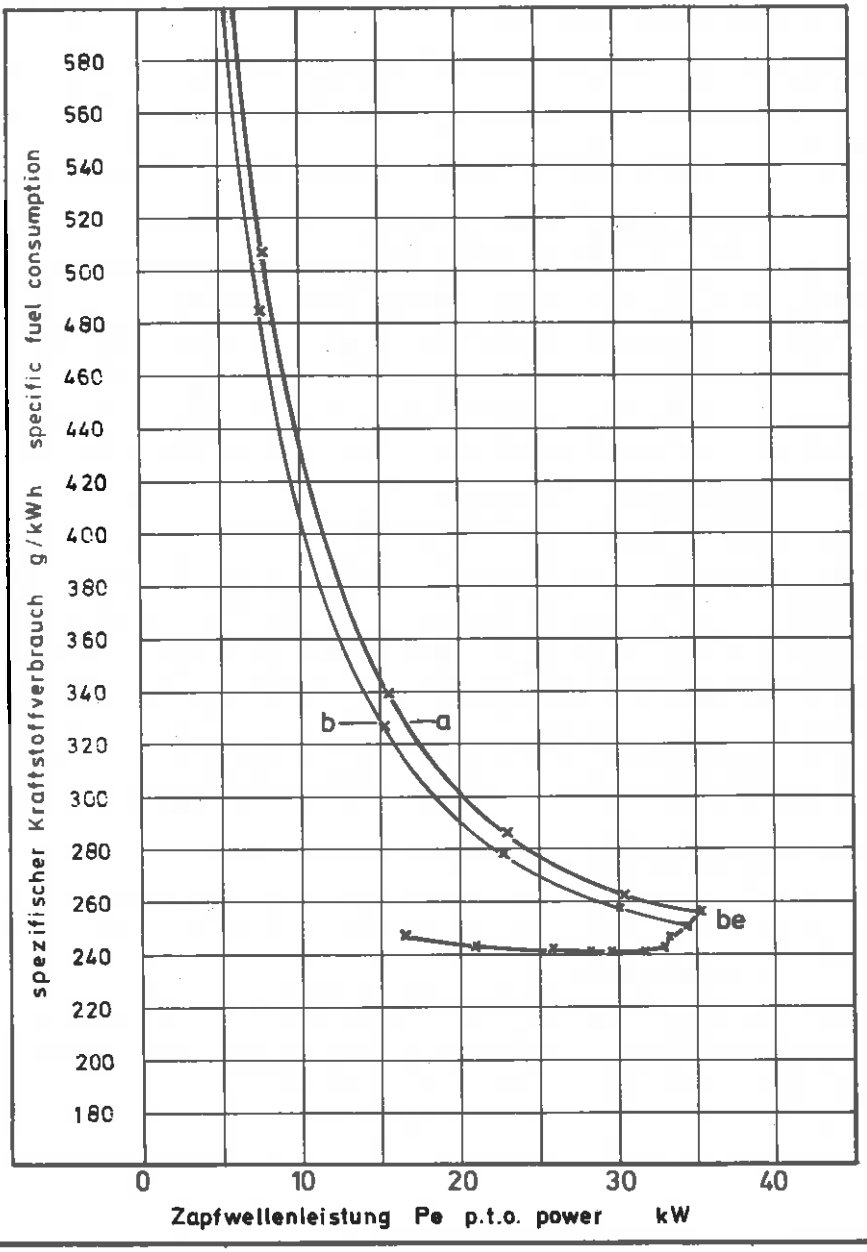
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Zapfwellenleistung
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P.t.o. performance

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(2) DRAWBAR PERFORMANCE

Date of tests: 9th and 22nd December 1982
Type of track: Concrete

Gear no. and group	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 455 mm					
2 A FL	2,01	19,5	3495	2407	15,1
2 A FS	2,42	23,3	3461	2393	15,1
3 A FL	3,29	29,6	3234	2351	11,5
3 A FS	4,16	30,0	2600	2351	8,2
1 S FL	5,35	29,9	2011	2351	6,3
1 S FS	6,58	29,7	1625	2346	5,0
2 S FL	8,73	28,8	1188	2352	3,6
(ii) MAXIMUM POWER (ballasted) height of drawbar above ground 470 mm					
1 A FL	1,26	17,5	4993	2417	15,0
1 A FS	1,53	21,2	4980	2403	15,1
2 A FL	1,97	27,0	4942	2366	15,0
2 A FS	2,52	29,0	4142	2351	10,3
3 A FL	3,46	29,2	3036	2351	7,2
3 A FS	4,28	29,1	2446	2347	5,6
1 S FL	5,49	28,9	1896	2350	4,1
1 S FS	6,76	28,8	1532	2350	3,4
2 S FL	8,94	27,1	1092	2349	2,4
2 S FS	10,97	25,5	836	2349	1,8
(iii) FIVE-HOUR-TEST at 75% of pull at maximum power in 1 S FS gear					
1 S FS	6,99	22,3	1149	2398	2,5
(iv) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (ii)					
2 A FL	2,01	27,9	4993	2368	-

Total oil consumption during ten hours duration of tests (iii) and (iv) 18 g/h

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Tyre size front: 12.5 - 20 MPT 8 ply
rear: 16.9 R 30 8 ply

Tread bar height at the beginning of drawbar tests 74% at front, 80% at rear of the value, when new

Specific fuel consumpt. g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 0,8 bar at rear, 1,5 bar at front							
358	2,31	16	72	86	6	80	985
335	2,47	16	71	86	6	81	985
305	2,71	16	65	86	6	80	985
299	2,77	17	76	87	7	80	985
303	2,73	17	75	87	6	80	985
305	2,71	17	76	84	6	80	985
314	2,63	15	72	85	6	81	984
tyre inflation pressure 0,8 bar at rear, 1,5 bar at front							
369	2,24	16	78	86	9	94	988
344	2,40	16	78	87	9	93	988
324	2,55	16	75	86	9	92	988
307	2,69	17	74	90	10	92	988
304	2,72	17	78	90	10	89	988
309	2,68	16	79	88	10	91	988
309	2,68	17	78	88	10	92	988
314	2,64	17	78	88	10	91	988
330	2,50	17	78	88	10	89	988
353	2,34	16	79	88	10	86	988
350	2,36	14	73	89	6	85	988
-	-	14	74	90	4	94	995

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

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 20.5 - 20 MPT 8 ply
rear: 16.9 R 30 8 ply

Track of wheels front: 1573 mm
rear: 1508 mm

Front wheel drive disengaged

	With brakes left-hand m	With brakes right-hand m	Without brakes left-hand m	Without brakes right-hand m
Radius of turning space	4,30	4,39	4,78	4,82
Radius of turning circle	4,02	4,12	4,50	4,60

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	1098 mm
Distance forward from rear axle centre	824 mm
Distance from tractor's median plane, to the left	4 mm

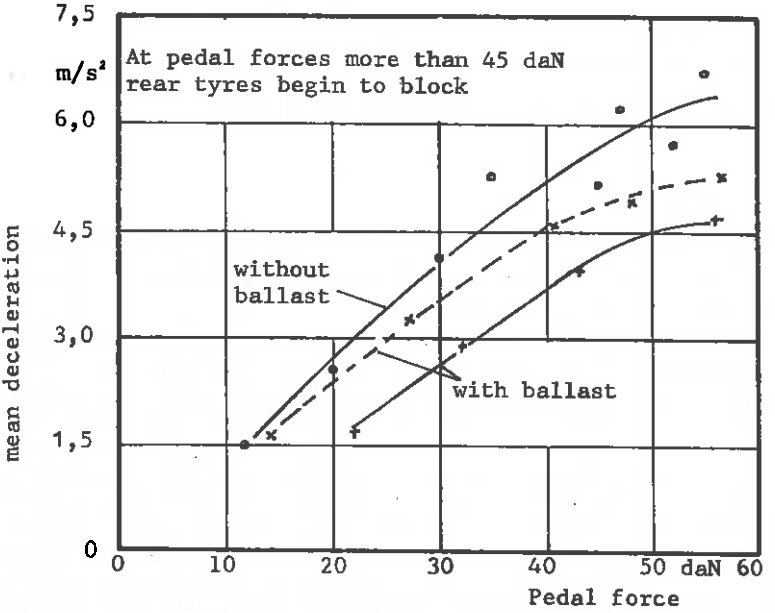
(5) Braking

Date of tests: 21st December 1982

Tractor masses during tests with driver:	front kg	rear kg	total kg
without ballast	1245	2065	3310
with ballast	2500	2500	5000

A) Service brake

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



Speed before application of brakes, without ballast 36,2 km/h
with ballast 35,5 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	21	20	18	17

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Test No. 82-24

(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 23rd December 1983
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2203

Results of test

Gear: 3rd overdrive
Travelling speed before acceleration: 27,3 km/h
Sound level: 87,5 dB(A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 23rd December 1982
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

The tractor was fitted with a FENDT safety cab

Results of tests

Gear no. and range	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 A FL	3421	1,41	1,20	81,0
1 A FS	3399	1,72	1,52	81,5
2 A FL	3413	2,25	2,00	82,5
2 A FS	3410	2,75	2,41	82,0
3 A FL	3224	3,65	3,30	82,5
3 A FS	2592	4,45	4,16	83,0
1 S FL	1999	5,63	5,35	82,5
1 S FS*)	1618	6,87	6,58	82,5
1 S FS*)	light load	6,87	7,35	80,5
2 S FL	1168	9,01	8,71	82,5
2 S FS	918	11,00	10,70	82,0
3 S FL	602	14,59	14,33	82,0
3 S FS	499	17,81	17,33	82,0
3rd overdrive	light load	36,07	37,96	81,5**)

*) The 1 S FS gear corresponds to the travelling speed nearest to 7,5 km/h

**) Front wheel drive disengaged

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(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of tests: 3rd January 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	132	693	1400	158	1322	-
On the frame	132	815	1260	158	1958	12*)

Temperature of hydraulic fluid at start of test 65 °C

*) max. tilting angle of mast from vertical position to max. height 8°

Lifting heights relative to horizontal lower links

mm	-415	-400	-363	-300	-200	-100	±0	+100	+200	+300	+330	+400
Lifting forces at hitch points												
daN			1400	1480	1580	1650	1650	1650	1620	1600	1650	
Lifting forces at test frame												
daN	1260	1280		1360	1430	1450	1410	1340	1320	1320		1260

Hydraulic Pump Performance

Opening pressure of the relief valve in remote circuit	163 bar
Sustained pressure with relief valve open	181 bar
Pump delivery rate at minimum pressure, the governor control lever being set for max. power	42,8 l/min
Hydraulic power at 90% of relief valve setting	10,9 kW
Corresponding delivery rate	40,3 l/min
Pressure	163 bar
Temperature of hydraulic fluid	65 °C

Tapping point used for test: At rear of tractor

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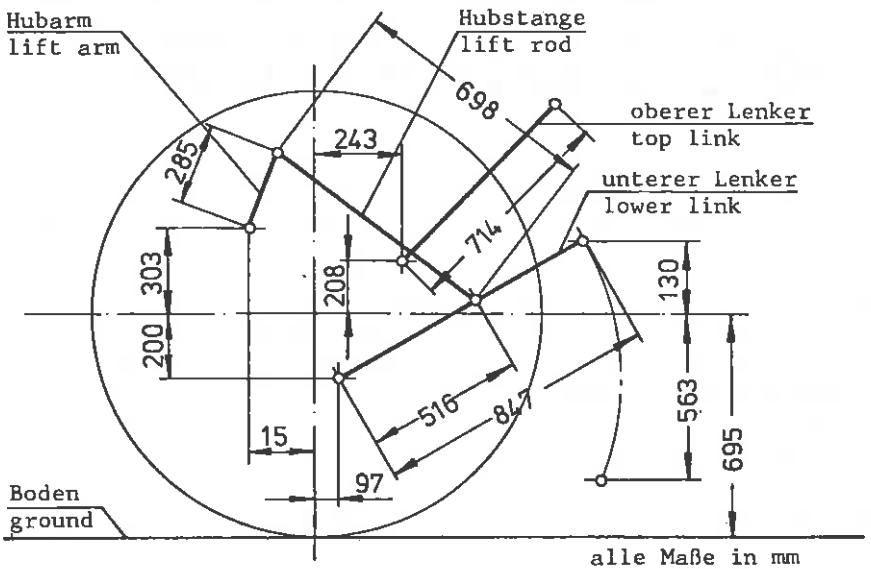
LINKAGE GEOMETRY when connected to the standard frame

Projected length in side view:

Lower links	847 mm
Lift arms	285 mm
Lift rods	698 mm
Top link	714 mm
Distance of lift rod connection point from pivot point of lower link	516 mm

The following dimensions are given relative to the rear wheel centre line, situated 695 mm above ground:

Lower link pivot point	97 mm behind,	200 mm below
Top link pivot point	243 mm behind,	207 mm above
Lift arm pivot point	15 mm forward,	303 mm above
Maximum and minimum height of lower link hitch points	563 mm below,	130 mm above
Height of lower link hitch points when locked in transport position	305 mm above	



alle Maße in mm
all dimensions in mm

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OPTIONAL TESTS

(9) ENGINE PERFORMANCE

Date of tests: 22nd November 1982
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					
39.9	2350	10.70	8.97	225	3.72
At standard p.t.o. speed (540 rev/min)					
39.3	2230	10.38	8.70	221	3.79
At rated engine speed					
39.9	2350	10.70	8.97	225	3.72
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
34.4	2384	9.47	7.94	231	3.63
(ii) unloaded					
-	2485	2.89	2.42	-	-
(iii) 50% of the torque defined in (i)					
17.5	2430	5.86	4.91	280	2.99
(iv) maximum power					
39.9	2350	10.70	8.97	225	3.72
(v) 25% of the torque defined in (i)					
8.9	2458	4.31	3.61	408	2.06
(vi) 75% of the torque defined in (i)					
26.1	2414	7.67	6.43	246	3.40

Optimum fuel consumption: 213 g/kWh at 28.5 kW and 1528 rev/min
No load maximum engine speed: 2485 rev/min
Torque at maximum power (2 hours): 162 Nm
Maximum torque: 201 Nm at 1499 rev/min of the engine

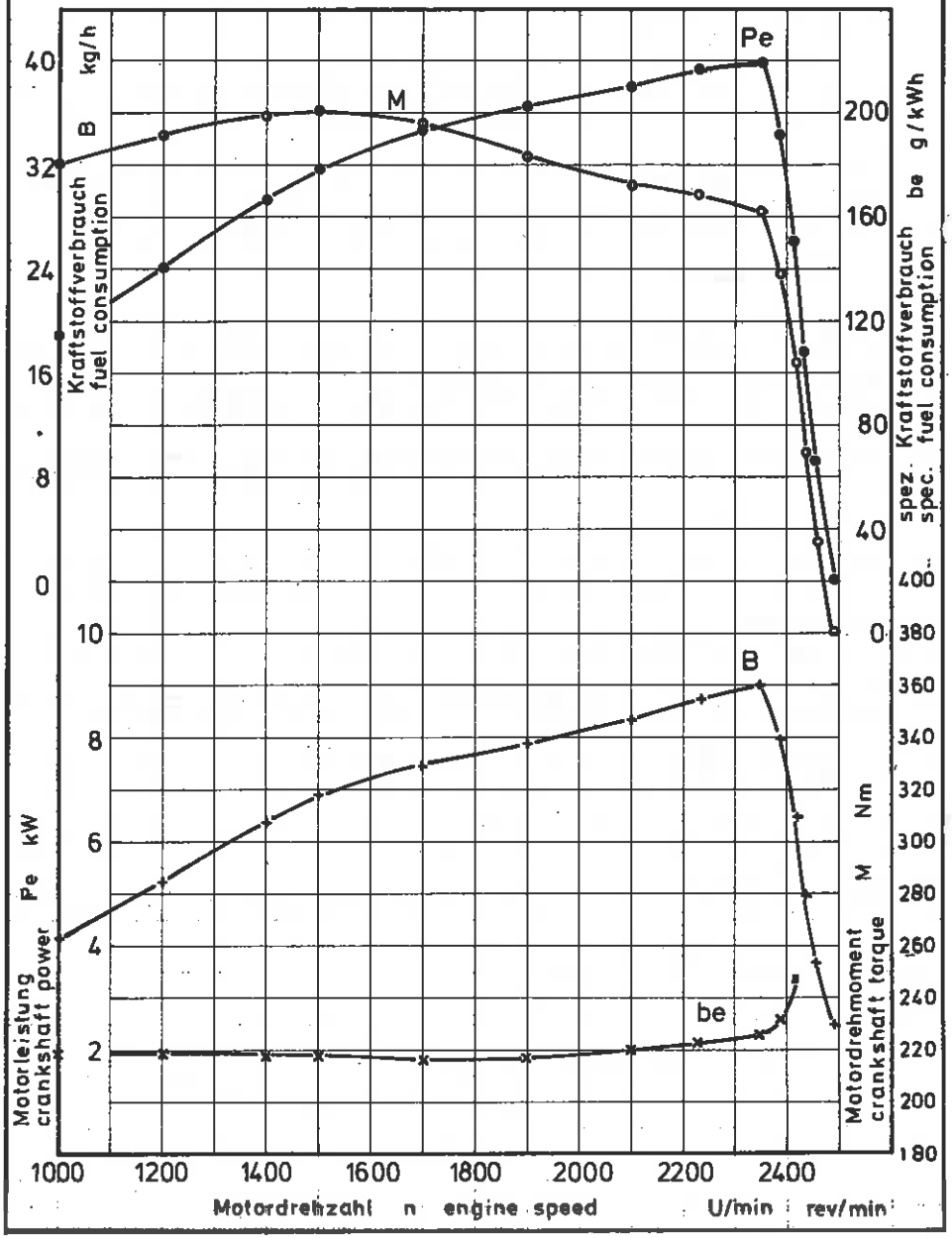
Mean atmospheric conditions:	temperature	18 °C
	pressure	997 mbar
	relative humidity	60 %
Maximum temperatures:	coolant	81 °C
	engine oil	99 °C
	fuel	19 °C
	engine air intake	19 °C

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Motorleistung
- 28 -
Engine performance

FENDT FARMER 303 LS

Test Nr. 82-24

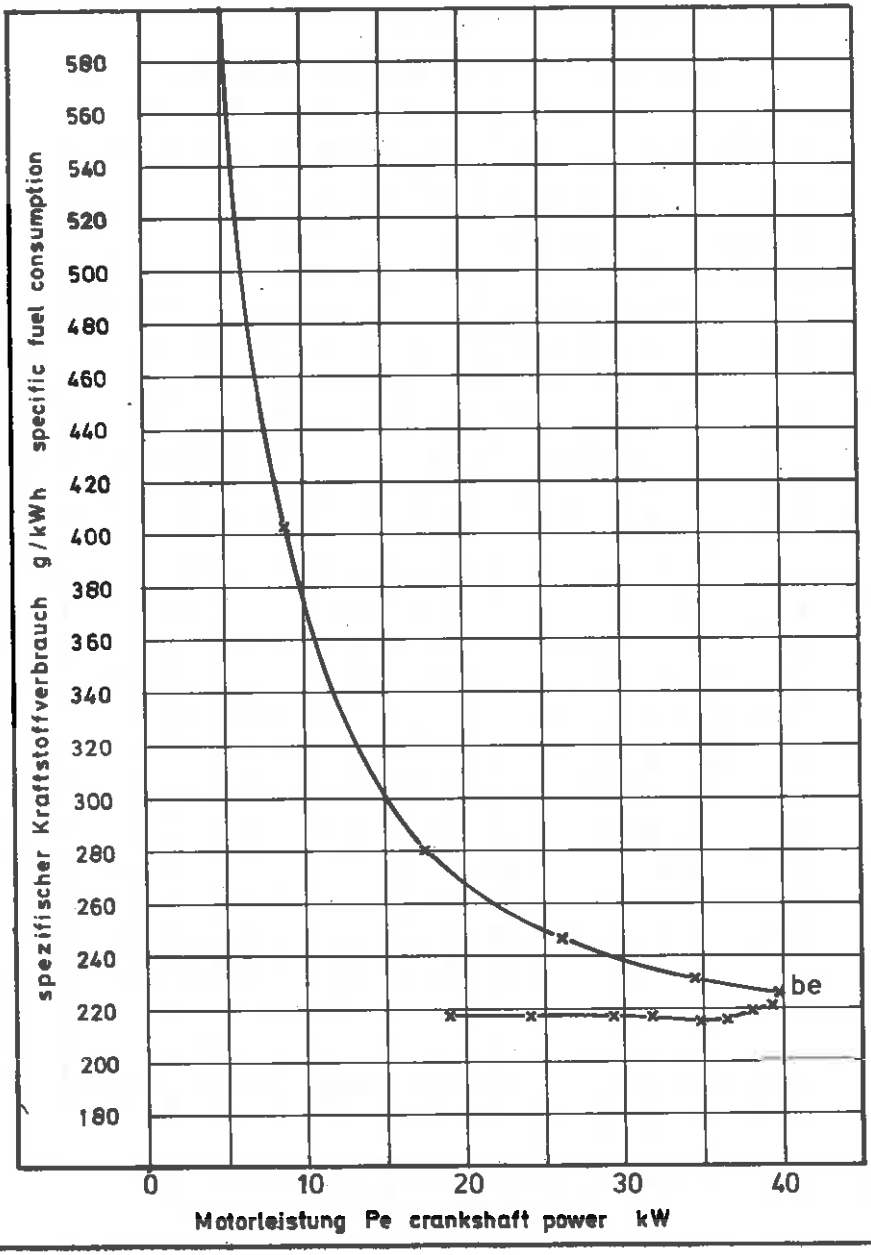


PRÜFUNGS-ABTEILUNG

FENDT FARMER 303 LS

Motorleistung
- 29 -
Engine performance

Test Nr. 82-24



PRÜFUNGS-ABTEILUNG

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Motorleistung

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Engine performance

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Motorleistung in % der Leistung bei Nenndrehzahl

engine power in % of power at rated engine speed

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FENDT FARMER 303 LS

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ADDITIONAL TESTS

(10) MAIN POWER TAKE-OFF PERFORMANCE (750 rev/min)

Date of tests: 7th December 1982
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power	Speed engine	Speed fl.clutch output	Speed p.t.o.	Fuel consumption hourly		Fuel consumption spec.	Specific energy
kW	rev/min	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
Maximum power							
At 2-hour test							
35.5	2350	2304	744	10.71	8.98	253	3.31
At rated engine speed							
35.5	2350	2304	744	10.71	8.98	253	3.31
Part loads, the governor hand lever in the position corresponding to the maximum power at full load							
(i) 85% of the torque at maximum power at 2-hour test							
30.7	2384	2346	757	9.65	8.09	263	3.18
(ii) unloaded							
-	2471	2470	798	3.43	2.88	-	-
(iii) 50% of the torque defined in (i)							
15.7	2426	2406	777	6.36	5.33	339	2.47
(iv) maximum power							
35.5	2350	2304	744	10.71	8.98	253	3.31
(v) 25% of the torque defined in (i)							
8.0	2448	2434	786	4.82	4.04	507	1.65
(vi) 75% of the torque defined in (i)							
23.3	2408	2377	767	7.93	6.64	285	2.94

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Test No. 82-24

Power	Speed engine	Speed fl.clutch output	Speed p.t.o.	Fuel consumption hourly		Fuel consumption spec.	Specific energy
kW	rev/min	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load							
(i) 85% of the torque at maximum power at standard p.t.o speed							
27.1	1770	1724	557	7.82	6.55	242	3.47
(ii) unloaded							
-	1872	1867	603	2.06	1.73	-	-
(iii) 50% of the torque defined in (i)							
14.1	1820	1789	578	4.80	4.02	286	2.93
(iv) maximum power							
30.9	1722	1671	540	8.84	7.41	240	3.50
(v) 25% of the torque defined in (i)							
7.2	1846	1829	590	3.36	2.81	390	2.15
(vi) 75% of the torque defined in (i)							
20.8	1796	1759	568	6.24	5.23	252	3.33

Standard specific fuel consumption (g/kWh): 263/339/242/286

No load maximum engine speed: 2471 rev/min
Equivalent flywheel torque at maximum power (2 hours): 147 Nm
Maximum equivalent flywheel torque: 185 Nm at 1510 rev/min of the engine

Mean atmospheric conditions:	temperature	19 °C
	pressure	1003 mbar
	relative humidity	50 %
Maximum temperatures:	coolant	85 °C
	engine oil	100 °C
	fuel	16 °C
	engine air intake	19 °C

The equivalent flywheel torques are given relative to the output shaft of the fluid clutch

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Test No. 82-24

(11) POWER LIFT PERFORMANCE

at minimum lift rods' length 633 mm

Date of tests: 3rd January 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	300	625	1540	158	1331	-
On the frame	300	759	1240	158	1828	13,5

Temperature of hydraulic fluid at start of test 65°C

Lifting heights relative to horizontal lower links

mm	-234	-200	-195	-100	±0	+100	+200	+300	+400	+430	+500	+525
daN			1540	1730	1810	1830	1770	1730	1750	1750		

Lifting forces at test frame

daN	1410	1410		1470	1490	1470	1410	1340	1300		1260	1240

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Test No. 82-24

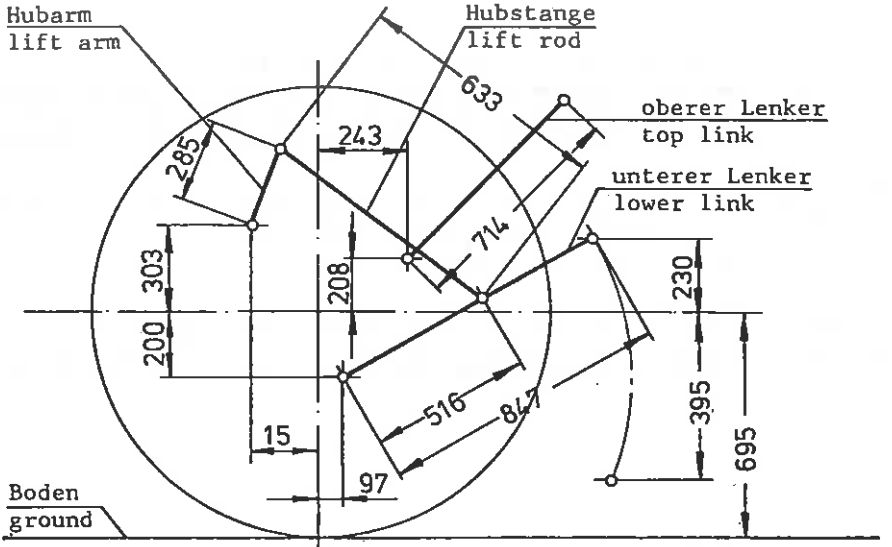
LINKAGE GEOMETRY when connected to the standard frame

Projected length in side view:

Lower links	847 mm
Lift arms	285 mm
Lift rods	633 mm
Top link	714 mm
Distance of lift rod connection point from pivot point of lower link	516 mm

The following dimensions are given relative to the rear wheel centre line, situated 695 mm above ground:

Lower link pivot point	97 mm behind,	200 mm below
Top link pivot point	243 mm behind,	207 mm above
Lift arm pivot point	15 mm forward,	303 mm above
Maximum and minimum height of lower link hitch points	395 mm below,	230 mm above
Height of lower link hitch points when locked in transport position	190 mm below	



alle Maße in mm
all dimensions in mm

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