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

O.E.C.D. No. 685



Agricultural Tractor FENDT FARMER 103 ST

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: September 1979 till March 1980
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.N.E.E.M.A., France) as being in accordance with the O.E.C.D STANDARD CODE.

Date of Approval: 5th September 1980 O.E.C.D. No.685

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 = 750,1 mm Hg			

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PRÜFUNGS-ABTEILUNG
FENDT FARMER 103 ST

Test No. 78-247

Tractor manufacturer:	X. FENDT UND CO D-8952 Marktoberdorf
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Marktoberdorf and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 100 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	X. FENDT UND CO
Model:	FARMER 103 ST
Type:	Wheeled tractor, unit construction, rear wheel driven
Serial No.:	138/01/17689

Engine

Make:	MOTORENWERKE MANNHEIM AG
Model:	D 226-3
Type:	4-stroke DIESEL engine with direct injection; watercooled
Serial No.:	D 226.3.2.03033
Cylinders:	3 in-line; bore 105 mm, stroke 120 mm; displacement 3117 cm^3; compression ratio 18, dry forced-in cylinder liners
Valves:	Overhead
Fuel system:	PIERBURG fuel feed pump; BOSCH in-line injection pump PES 3 A 80 D 320/3 RS 1299; manufacturer's production setting 64 mm^3/stroke at 2175 rev/min and full load; injection timing 28° before TDC; BOSCH multihole injection nozzles 0.433.270.114; injection pressure 180 bar; BOSCH fuel filter with replaceable cartridge; capacity of fuel tank 73 l
Governor:	BOSCH centrifugal variable speed tape governor: EP/RSV 325-1500 A 2 B 505 DR; governed range of engine speed from 650 to 2320 rev/min; rated engine speed 2175 rev/min

Air cleaner:	MANN dry paper element filter with precleaner incorporated, with replaceable cartridge and maintenance indicator
Exhaust silencer:	Own make multi-chamber reflection type silencer; 130 mm diameter, 415 mm long; on the left hand side of tractor; mouth showing rearward under 45° to the left; mouth centre 500 mm above ground
Lubrication system:	Forced feed from gear type pump, strainer in sump; MANN full flow filter with by-pass and replaceable cartridge; cartridge change at all oil changes; oil capacity 7,75 l; oil changing period 200 hours or once a year; recommended oil quality MIL-L-2104 B recommended oil viscosities: winter SAE 10W summer SAE 20W/20 tropics SAE 30
Cooling system:	Water cooling with impeller pump; pressurized system adjusted to 0,3 bar overpressure with by-pass thermostat; fan with 7 blades, 410 mm diameter; water capacity 10 l
Starting system:	Electrical; BOSCH screw-push starter motor 12V 1,84 kW BERU flame plug 154 GF in intake pipe
Electrical equipment:	12 Volt, negative earth; BOSCH three phase alternator G1-14V 33A; 1 lead acid battery 88 Ah at 20 hours rating

Transmission

Clutch:

1. VOITH GETRIEBE KG
fluid clutch 358 TD;
for travel and p.t.o. drive

2. FICHTEL UND SACHS AG
dry disc type clutch G 250 K, pedal operated,
for travel drive only,
disc diameter 250 mm

Gear box:

own make
spur gear reduction gearing between
fluid clutch and disc clutch;
synchromesh speed change gear with
3 forward gears and 1 reverse gear;
collar shifted fine stepped group gear
with 2 groups (FL and FS);
sliding gear shifted group gear with
2 groups (AG and SG);
speed change gear and group gear (AG and SG)
are shifted with the same lever;
1 synchronized high speed gear,
independent from both group gears;
totally 13 forward and 4 reverse speeds

Rear axle and final drive:

Portal construction;
bevel gear drive with crown wheel and pinion;
bevel gear type differential with pedal
operated self disengaging lock;
spur gear final drives in portals

Oil capacity:

Fluid clutch	5,1 l
spur gear reduction gear	5,7 l
speed change gear, group gear and fine stepped transmission	25,75 l
final drives in rear wheels each	2,9 l

Oil changing period:

Fluid clutch	5000 hours
gears	1000 hours

Recommended oil qualities:

Fluid clutch	engine oil SAE 10W, MIL-L-2104 A
final drives	hypoid oil SAE 90 MIL-L-2105 B
other gears	transmission oil SAE 80 MIL-L-2105 A

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Total ratios and speeds

Group	Fine stepped gear	Gear	Total ratio engine : driving wheel	Nominal travelling speed at rated engine speed *) km/h
Forward speeds				
AG	FL	1	416,36	1,28
		2	251,83	2,11
		3	143,54	3,70
	FS	1	326,67	1,63
		2	197,58	2,69
		3	112,62	4,72
SG	FL	1	100,73	5,28
		2	60,93	8,73
		3	34,73	15,31
	FS	1	79,03	6,73
		2	47,80	11,12
		3	27,25	19,51
Independent high speed gear			18,67	28,48
Reverse speeds				
AG	FL	R	241,76	2,20
	FS	R	189,68	2,80
SG	FL	R	58,49	9,09
	FS	R	45,89	11,59

*) calculated with the RADIUS INDEX 665 mm as per WDK 154
2,5% slippage of the fluid clutch is included

Power take off:

Main p.t.o.: Live p.t.o., at rear of tractor;
driven by an independent dry multiplate clutch,
operated by hand lver,
height above ground 600 mm,
in median plane of tractor,
356 mm behind rear axle centre line;
35 mm dia, 6 splines DIN 9611 and
ISO 500 type 1

2 speeds are preselectable by hand lever:

540 rev/min p.t.o.

560 rev/min at rated engine speed and full load,
574 rev/min at rated engine speed without load;
standard p.t.o.-speed 540 rev/min at
2102 rev/min engine speed at full load or at
2045 rev/min engine speed without load

1000 rev/min p.t.o.

1023 rev/min at rated engine speed without load,
standard p.t.o.-speed 1000 rev/min at
2126 rev/min engine speed without load

fluid clutch slippage under full load
at rated engine speed: 2,6 %
at standard p.t.o.-speed 540 rev/min: 2,8 %

direction of rotation clockwise, viewed
from tractor rear

Power lift

Hydraulicsystem:	Own make hydraulic power lift, unit construction; draft control, position control, both steples mixable, floating position; single acting ram; bore 86 mm, stroke 138 mm; BOSCH gear type pump with 14 cm^3/rev delivery;*) BOSCH control valve with additional remote circuit connection, maximum oil pressure 177 bar; no overpressure relief valve for ram; 1 oil tapping fitted; optionally up to 2 oil tappings for single or double acting additional control valves available; hydraulically acting linkage lock for transport; with oil filter; hydraulic oil tank with 15,5 l capacity; maximal 7,5 l may be taken off for remote rams through the oil tappings when the tractor is working driving and 10 l when stationary; recommended oil quality: engine oil SAE 20W/20 MIL-L-2104 C or MIL-L-46152 oil changing period 1000 hours, filter 100 hours
Implement linkage:	Three point linkage, category II DIN 9674; category I is optionally available; lift rods length adjustable from 625 to 700 mm; lifting range above ground with short lift rods from 240 to 870 mm long lift rods from 60 to 770 mm

*) directly driven by engine

Holed drawbar: Fitted on the clevis of lower links;
length between the ball joints 830 mm;
thickness 25 mm, width 70 mm;
centre hole and 3 holes on either side
with 80 mm distance each;
all holes 33 mm diameter;
height above ground adjustable by power lift
within the range from 73 to 883 mm;
depending on lifting rods length,
measured at the surface of the bar;
in 430 mm height above ground mechanically-
hydraulically lockable with lift rods
625 mm long;
with lower links in horizontal position
distance of holes centre line:
to rear axle centre 944 mm
to p.t.o. shaft end 588 mm

Pull attachment

Trailer hitch: Own make
height above ground 485, 635, 785 mm
and 535, 735, 835, 885 mm;
adjustable by shifting and turning hitch;
diameter of clevis hole 33 mm;
distance of clevis hole centre to rear
axle centre 593 mm;
permissible vertical load 1000 kg

Towing hitch: Height above ground 710 mm

Steering Own make in cooperation with
ZAHNRADFABRIK FRIEDRICHSHAFEN AG
Gemmer steering 7430;
acting on front wheels;
optionally hydrostatic steering available

Brakes

Parking brake:	Band brake; mechanically acting on 2 brake drums with 205 mm diameter on the differential half shafts; operated by hand lever with ratchet
Service brake:	Internal-expanding-shoe brake; mechanically acting on 2 brake drums with 180 mm diameter on the differential half shafts; pedal operated
Steering brakes:	Divided pedal of service brake; for normal use locked together

Wheels

Steering wheels:	Two pneumatics at front 7,50-16 6 ply; max. permissible load on each tyre 745 kg at 2,25 bar inflation pressure and 30 km/h; track width 1250, 1360 and 1500 mm; changing by telescopic half axles; rims 5,50F x 16B
Driving wheels:	Two pneumatics at rear 14,9-30 6 ply; diagonal type tyre casing; max. permissible load on each tyre 1665 kg at 1,4 bar inflation pressure and 30 km/h; track width 1360 mm, changeable by reversing wheels to 1500 mm rims DW 12 x 30
Wheel base:	2078 mm

Safety frame: Own make
OECD tested, approval no. CS 168

Weights: Ready for use as tested, with frame

		without driver	with driver
Without ballast:	front	860 kg	870 kg
	rear	1560 kg	1630 kg
	total	2420 kg	2500 kg
Front ballast:	1 base plate		33 kg
	7 front weights each 33 kg		231 kg
Rear ballast:	8 weights per wheel each 63 kg		1008 kg
	water in the tyres		428 kg
With ballast:	front	1190 kg	1200 kg
	rear	2930 kg	3000 kg
	total	4120 kg	4200 kg

Seat: GRAMMER
DS 50/1
upholstered mould seat with back rest;
back rest adjustable up and down;
adjustable spring with shock absorber;
parallelogram suspension;
height of seat platform above ground 700 mm;
height of unloaded seat above platform
infinitely adjustable on inclined plane
from 540 to 565 mm;
in doing so, a longitudinal shifting of
100 mm is obtained

Number of grease points: 12

Track setting during tests

front axle	1360 mm
rear axle	1360 mm

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Dimensions

Total length:	3670 mm	without ballast
	3900 mm	with ballast
Total width:	1726 mm	without ballast
	2320 mm	with ballast
Total height:	2300 mm	to top of frame
Ground clearance:	425 mm	in tractor's median plane

Lighting equipment: Electrical, 12 Volt
in accordance with German legislation

	Dimensions mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Head lights	135 x 120	900	700
Side lights	50 x 50	670	165
Rear lights	80 x 65	1350	220
Reflectors			
1st pair	125 x 36	1285	220
2nd pair	80 ø	620	480

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Permissible axle loads and total weights
for all available wheel equipments

Wheel equipment front	Wheel equipment rear	Permissible front axle load kg	Permissible rear axle load kg	Permissible total weight kg
6,00-16	11,2-36	1120	2510	3630
	12,4-36		2880	4000
	14,9-30		3330	4000
	16,9-30		3400	4000
	8,3-44		2880	4000
7,5L-15 or 7,50-16	11,2-36	1440	2510	3950
	12,4-36		2880	4000
	14,9-28		3220	4000
	14,9-30		3330	4000
	16,9-30		3400	4000
	8,3-44		2880	4000

All tyres 6 ply

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FUELS AND LUBRICANTS USED IN TESTS

Fuel:	ARAL Diesel fuel DIN 51601	
	specific gravity at 15°C	
	at p.t.o. tests	0,820 kg/l
	at drawbar tests	0,826 kg/l
Engine:	MOBIL engine oil MOTREX 8920 SAE 20W/20	
Transmission:	final drives	MOBIL hypoid transmission oil GX 90 SAE 90
	other gears	MOBIL multi purpose transmission oil GX 80 SAE 80
Fluid clutch:	MOBIL engine oil MOTREX 8910 SAE 10W	
Power lift:	MOBIL engine oil GX 20 SAE 20W/20	

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COMPULSORY TESTS

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

Date of tests: 3rd and 4th September 1979
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
At 2-hour test						
37.4	2175	560	12.51	10.26	275	2.99
At standard p.t.o. speed						
37.3	2102	540	12.35	10.12	271	3.02
At the speed recommended for drawbar work						
37.4	2175	560	12.51	10.26	275	2.99
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						
32.4	2212	572	10.49	8.60	265	3.09
(ii) unloaded						
-	2318	612	2.77	2.27	-	-
(iii) 50% of the load defined in (i)						
16.8	2268	592	6.34	5.19	309	2.65
(iv) maximum power						
37.4	2175	560	12.51	10.26	275	2.99
(v) 25% of the load defined in (i)						
8.6	2296	604	4.52	3.70	432	1.90
(vi) 75% of the load defined in (i)						
24.8	2248	584	8.24	6.76	272	3.02

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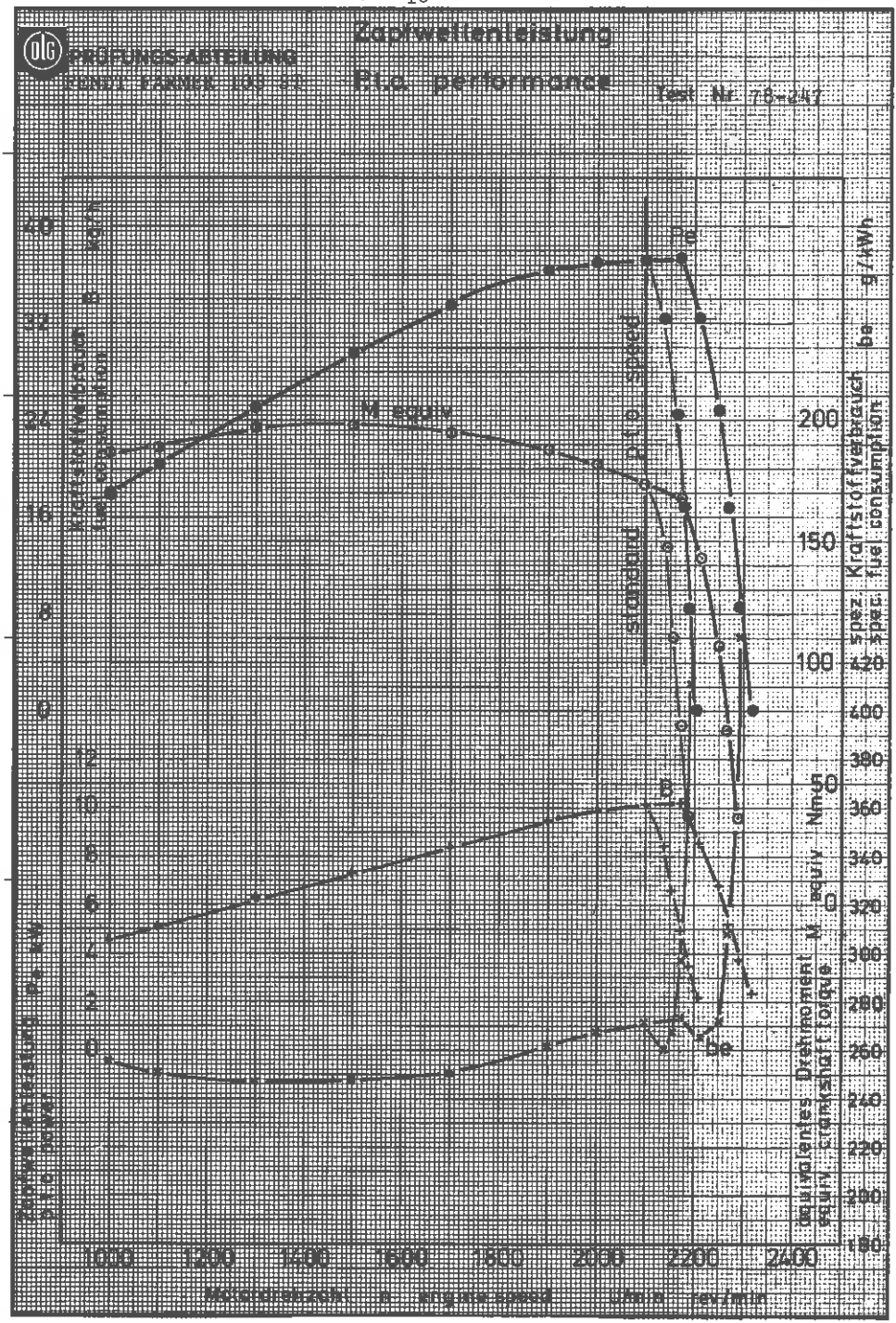
Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load						
(i) 85% of the torque at maximum power at standard p.t.o. speed						
32.4	2140	552	10.31	8.45	260	3.15
(ii) unloaded						
-	2204	582	2.54	2.08	-	-
(iii) 50% of the load defined in (i)						
16.7	2175	567	6.05	4.96	297	2.76
(iv) maximum power						
37.3	2102	540	12.35	10.12	271	3.02
(v) 25% of the load defined in (i)						
8.5	2190	576	4.26	3.50	413	1.99
(vi) 75% of the load defined in (i)						
24.6	2156	559	8.02	6.58	267	3.07

Standard specific fuel consumption (g/kWh): 265/309/260/297

No load maximum engine speed: 2318 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 168 Nm
Maximum equivalent crankshaft torque: 198 Nm at 1500 rev/min of the engine

Mean atmospheric conditions:	temperature	27 °C
	pressure	1000 mbar
	relative humidity	47 %
Maximum temperatures:	coolant	88 °C
	engine oil	107 °C
	fuel	30 °C
	engine air intake	27 °C

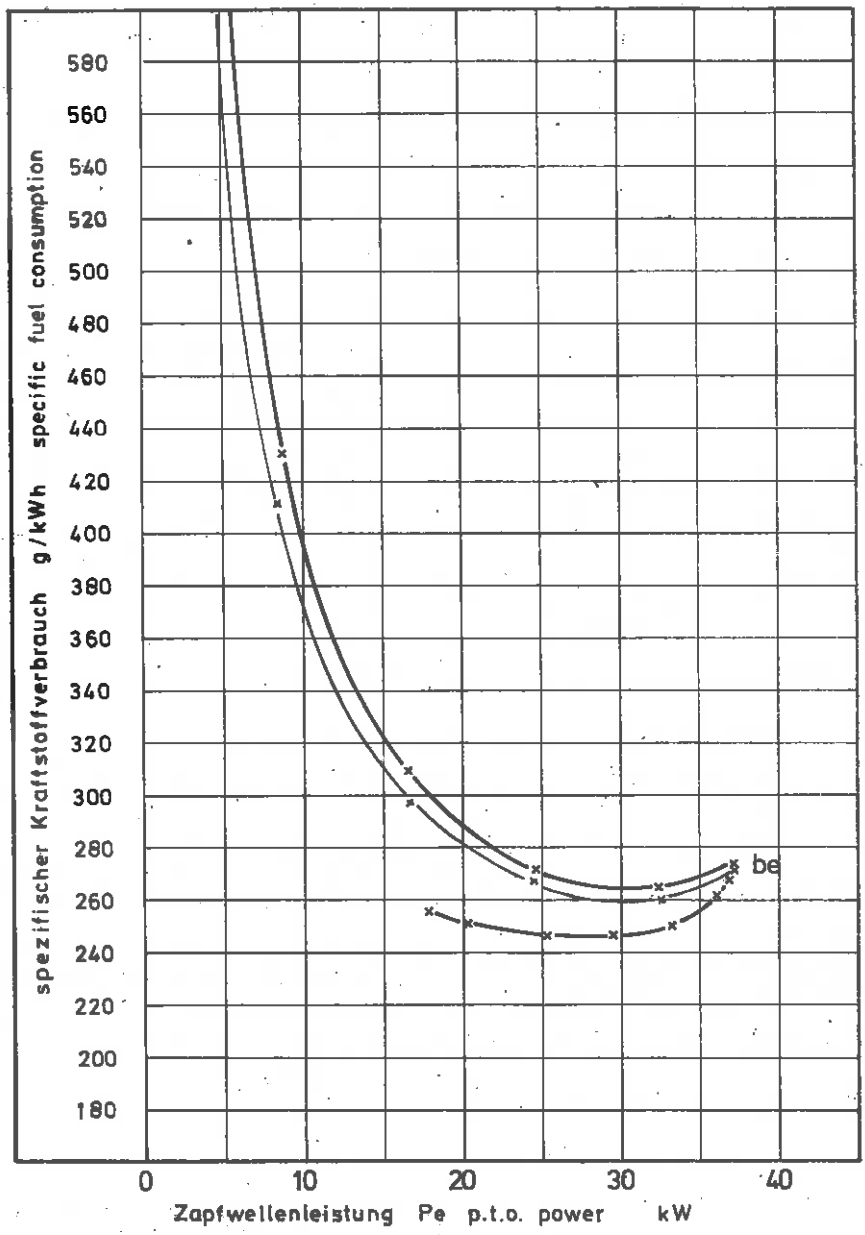
The equivalent crankshaft torques are given relative to the output shaft of the fluid clutch


Zapfwellenleistung
PTO performance
PRÜFUNGS-ABTEILUNG
Test Nr. 78-247
Motor-Nutzleistung
Engine power
kW
PS
Motordrehzahl n
Engine speed
rpm
M equiv
Nm
Standard PTO speed
Äquivalentes Drehmoment
equiv. standard torque
spez. Kraftstoffverbrauch
spec. fuel consumption
g/kWh
ba

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Zapfwellenleistung
P.t.o. performance

Test Nr. 78-247



PRÜFUNGS-ABTEILUNG
FENDT FARMER 103 ST

(2) DRAWBAR PERFORMANCE

Date of tests: 5th till 18th March 1980
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 with ballast height of drawbar above ground 550 mm					
1FL AG	1,14	10,9	3450	2285	15,0
1FS AG	1,43	13,8	3461	2267	15,0
2FL AG	1,84	17,8	3472	2250	14,9
2FS AG	2,31	22,2	3455	2229	15,0
3FL AG	3,07	29,2	3426	2174	14,7
3FS AG	4,09	30,5	2688	2175	11,0
1FL SG	4,64	31,1	2415	2175	10,0
1FS SG	6,07	31,2	1849	2176	7,4
2FL SG	8,01	31,7	1424	2174	5,8
2FS SG	10,39	30,9	1070	2176	4,3
3FL SG	14,46	30,2	752	2173	3,0
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 1st FS SG gear					
1FS SG	6,33	24,2	1387	2217	5,5
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)					
2FS AG	2,34	22,6	3472	2229	-
(iv) MAXIMUM POWER without ballast height of drawbar above ground 610 mm					
3FS AG	4,04	24,6	2189	2225	15,1
1FL SG	4,48	26,7	2143	2202	15,0
1FS SG	5,72	30,3	1909	2173	13,2
2FL SG	7,68	31,5	1478	2174	10,0
2FS SG	10,07	31,1	1113	2176	7,4
3FL SG	14,20	30,5	774	2176	5,3

Total oil consumption during ten hours duration of tests (ii) and (iii) 12 g/h

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Tyres size front: 7,50-16 6 ply
rear: 14,9-30 6 ply

Tread bar height at the beginning of drawbar tests 87% of the value when new

Specific energy kWh/l	Specific fuel consumpt. g/kWh	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 1,2 bar							
1,93	433	14	80	86	10	80	989
2,12	394	13	80	87	10	80	989
2,30	363	14	80	86	10	72	989
2,39	349	14	81	87	10	75	989
2,35	354	15	80	84	12	75	989
2,46	339	14	80	86	10	75	989
2,50	333	15	81	86	12	75	989
2,50	332	15	80	86	12	75	989
2,55	326	15	80	86	12	75	989
2,49	335	15	80	85	12	70	989
2,45	342	17	81	87	13	90	997
2,55	326	17	87	89	13	90	997
-	-	16	88	97	13	85	997
tyre inflation pressure 0,8 bar							
2,40	342	19	80	84	10	68	1002
2,39	344	19	80	84	10	68	1002
2,43	339	18	80	85	8	74	1002
2,51	329	16	81	86	8	80	1002
2,51	329	14	80	85	7	81	1002
2,45	337	14	80	84	7	79	1002

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

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 7,50-16 6 ply
rear: 14,9-30 6 ply

Track of wheels front: 1360 mm
rear: 1360 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	3,55	3,59	4,14	4,18
Radius of turning circle	3,42	3,46	4,01	4,05

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	779 mm
Distance forward from rear axle centre	720 mm
Distance from tractor's median plane, to the right	1 mm

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(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 6th and 10th March 1980
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 4200 kg

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s^2	4,8	4,5
Stopping distance	m	6,6	7,4
Force on pedal	daN	42	27
Force on pedal to achieve a deceleration of 2,5 m/s^2	daN	22	13

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	96	100
Stopping distance	cold/hot	%	97	97
Force on pedal	cold/hot	%	100	108

B) PARKING BRAKE

Tractor facing up 16% slope
Pull on hand brake 28 daN, tractor does not roll

Tractor facing down 16% slope
Pull on hand brake 35 daN, tractor does not roll

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(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 6th March 1980
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Results of test

Gear: Independent high speed gear
Travelling speed before acceleration: 22,5 km/h
Sound level: 88,5 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 5th March 1980
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Th tractor was fitted with safety frame

Results of tests

Gear no. and group	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)
1FL AG	2157	1,28	1,08	90,5
1FS AG	2163	1,63	1,40	91,0
2FL AG	2152	2,11	1,82	91,5
2FS AG	2152	2,69	2,31	91,5
3FL AG	2136	3,70	3,19	92,5
3FS AG	2161	4,72	4,00	93,0
1FL SG	2149	5,28	4,46	93,5
1FS SG *)	1859	6,73	5,77	94,0
2FL SG	1450	8,73	7,72	93,0
2FS SG	1090	11,12	10,07	93,5
3FL SG	765	15,31	14,18	93,5
3FS SG	556	19,51	18,33	94,0
high speed	light load	28,48	30,0	91,0

*) the 1st FS gear is the gear with the travelling speed nearest to 7,5 km/h

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(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

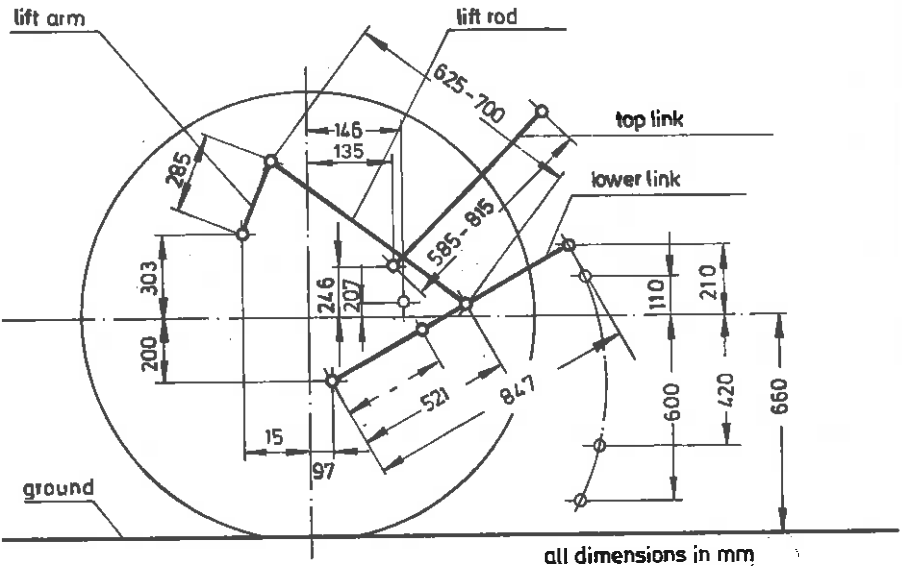
Date of tests: 14th November 1979

HYDRAULIC PUMP

(1) Opening pressure of relief valve in remote circuit	160 bar
Sustained pressure by open relief valve	177 bar
(2) Pump delivery rate at minimum pressure and rated engine speed	33,6 l/min
(3) Pump delivery rate	32,0 l/min
delivery pressure	165 bar
Hydraulic power	8,8 kW

POWER LIFT

Dimensions of linkage geometry for the table on page 28



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FENDT FARMER 103 ST

LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-417	-400	-300	-220	-200	-100	0
At hitch points maximum mechanical advantage							
daN				1660	1680	1800	1850
minimum mechanical advantage							
daN		1380	1540		1640	1710	1730

Max. force exerted throughout the whole range 1660 daN

Front of tractor does not lift if front axle is ballasted to its maximum permissible load (1440 kg)

At test frame maximum mechanical advantage							
daN				1720	1740	1770	1770
minimum mechanical advantage							
daN	1390	1440	1530		1580	1580	1550

Max. force exerted throughout the whole range 1460 daN

Front of tractor does not lift if front axle is ballasted to its maximum permissible load

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+100	+200	+300	+310	+340	+400	+410	+440
lift rods 625 mm long							
1820	1820	1800			1800	1820	
lift rods 700 mm long							
1730	1730	1750	1750				

lift rods 625 mm long							
1740	1650	1550			1480		1460
lift rods 700 mm long							
1480	1440	1370		1370			

All values of forces for pressure 165 bar at maximum hydraulic power, see page 25; calculated from measurements at max. oil pressure 177 bar

LINKAGE GEOMETRY when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	847 mm	847 mm
Lift arms	285 mm	285 mm
Lift rods	625 mm	700 mm
Top link	715 mm	708 mm
Distance of lift rod connection point from pivot point of lower link	521 mm	521 mm
The following dimensions are given relative to rear axle centre line 660 mm above ground		
Lower link pivot point	97 mm behind, 200 mm below	97 mm behind, 200 mm below
Top link pivot point	135 mm behind, 246 mm above	146 mm behind, 207 mm above
Lift arm pivot point	15 mm forward, 303 mm above	15 mm forward, 303 mm above
Maximum and minimum height of lower link hitch points	210 mm above, 420 mm below	110 mm above, 600 mm below
Height of lower link hitch points above ground when locked in highest transport position	870 mm	770 mm

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