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Report on test in accordance with
O.E.C.D. STANDARD CODE for the Official Testing
of Agricultural Tractors



Agricultural Tractor FENDT Farmer 103 S Turbomatik

Manufactured by: X. FENDT UND CO
Maschinen- und Schlepperfabrik
D-8952 Marktoberdorf

Date of Tests: August till September 1975

DLG-Testing Station for Agricultural Machinery
D-6114 Groß-Umstadt

DEUTSCHE LANDWIRTSCHAFTS-GESELLSCHAFT e.V.
Prüfungsabteilung für Landmaschinen
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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 Tractors. It does not contain an evaluation of the performance of the tractor on practical work.

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

Date of Approval: 26th February 1976

Serial No.: 511

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

The relation with the former used Technical System of Units is given by the following formulas:

Forces:	1 N	=	0,102 kp	or	1 kp	=	9,81 N
Powers:	1 kW	=	1,36 PS	or	1 PS	=	0,736 kW
Pressures:	1 bar	=	1,02 kp/cm ²	or	1 kp/cm ²	=	0,981 bar
	1000 mbar	=	750,1 mm Hg				

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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 S TURBOMATIK
Type: Wheeled tractor, unit construction,
rear wheel driven
Serial No.: 138/01/0007

Engine

Make: MWM MOTORENWERKE MANNHEIM AG
Model: D 226-3
Type: 4-stroke DIESEL engine with direct injection;
watercooled
Serial No.: 226.3.04850
Cylinders: 3 in-line; bore 105 mm, stroke 120 mm;
displacement 3116 cm³; compression ratio 17:1;
dry forced-in cylinder liners
Valves: Overhead
Fuel system: SOLEX fuel feed pump PE 20136;
BOSCH in-line injection pump:
PES 3 A 80 D 320/3 RS 1299;
manufacturer's production setting 53 mm³/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 type governor:
EP/RSV 325-1500 A 2 B 505 DR;
governed range of engine speed from
650 to 2280 rev/min;
rated engine speed 2175 rev/min



- Air cleaner: MANN UND HUMMEL
dry paper element filter with precleaner
incorporated, with replaceable cartridge;
maintenance indicator;
(safety cartridge optional)
- 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;
(optional: silencer make EBERSPÄCHER with
mouth showing upwards is available)
- Lubrication
system: Forced feed from gear type pump;
strainer in sump;
MANN MICRO-top oil filter in full flow with
by-pass valve and replaceable cartridge;
oil capacity 7,75 l;
oil changing period 200 hours or once a year;
recommended oil quality MIL-L-2104 C
or MIL-L- 46152
recommended oil viscosities:
winter HD SAE 10W
summer HD SAE 20W/20
tropics HD 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 starter motor with 1,84 kW;
BERU flame plug in intake pipe 154 GF
- Electrical
equipment: 12 Volt, negative earth;
BOSCH three phase alternator;
1 lead acid battery 88 Ah at 20 hours rating



Transmission

Clutch:

1. VOITH GETRIEBE KG
fluid clutch 332 TD;
for travel and p.t.o. drive
2. FICHTEL UND SACHS AG
dry disc type clutch G 250 K;
flexible coated;
for travel drive only;
pedal operated

Gear box:

Own make;
spur gear reduction gearing between
fluid clutch and disc clutch;
synchronesh speed change gear with
3 forward and 1 reverse group;
collar shifted group gear with 2 groups
(field and road group);
speed change gear and group gear are shifted
with the same lever;
fine stepped transmission with collar shifted
slow and fast group arranged before the
speed change gear and group gear;
1 synchronized high speed gear independent
from fine stepped transmission and from
group gear
totally 13 forward and 4 reverse speeds;
optional: the fine stepped transmission may be
fitted with a sliding gear shifted
creep speed group, not fitted on tractor
tested;
with creep speed group engaged the road group
is locked automatically;
optional: the tractor may be fitted with
a reversing gear for all forward speeds;
preselected by hand lever, operated by disc
clutch pedal

Rear axle and
final drive:

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



Oil capacity:	Fluid clutch	4,1 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	HD SAE 10W
	final drives	Hypoid oil	SAE 90 MIL-L-2105 B
	other gears	transmission	
		oil	SAE 80 MIL-L-2105 A

Total ratios and speeds see page 8

Main power take-off

Proportional

engine speed p.t.o.: Live p.t.o. at rear of tractor;
driven through an independent dry multiplate
clutch, operated by hand lever situated
below the steering hand wheel;
height above ground 600 mm, in median plane
of tractor;
29 x 34,9 x 8,7 mm = 1 3/8"; 6 splines;
(DIN 9611 Form 1; BS 1495; ASAE S 203.7);
2 speeds are preselectable by hand lever:

540 rev/min p.t.o.

586 rev/min at rated engine speed;
standard p.t.o. speed 540 rev/min at
2013 rev/min engine speed

1000 rev/min p.t.o.

1045 rev/min at rated engine speed;
p.t.o.-speed 1000 rev/min at
2083 rev/min engine speed

appr. 3,1% slippage of the fluid clutch is
included in all p.t.o. speeds quoted;
all p.t.o. speeds may be set by aid of
tractormeter;
direction of rotation clockwise, viewed
from tractor rear



Total ratios and speeds

Group	Fine stepped gear	Gear	Total ratio engine : driving wheel	Nominal travelling speed at rated engine speed *)	
				km/h	m/s
Forward speeds					
Field	slow	1	490,04	1,07	0,30
		2	296,40	1,78	0,49
		3	168,95	3,13	0,87
	fast	1	382,44	1,38	0,38
		2	231,31	2,29	0,63
		3	131,85	4,01	1,11
Road	slow	4	118,56	4,45	1,24
		5	71,71	7,36	2,05
		6	40,87	12,92	4,68
	fast	4	92,53	5,70	1,58
		5	55,96	9,43	2,62
		6	31,90	16,56	4,60
Independent high speed gear			21,85	24,16	6,71
Reverse speeds					
Field	slow	1	284,54	1,86	0,52
	fast	1	222,06	2,38	0,66
Road	slow	2	68,84	7,67	2,13
	fast	2	53,72	9,83	2,73

*) Calculated with the index radius 665 mm in accordance with WdK 154

3,1% slippage of the fluid clutch is included



Main p.t.o.

(Continuation)

Ground speed
p.t.o.:

Optional, not fitted on tractor tested;
main p.t.o. may be changed by hand lever to
ground speed p.t.o.;
dimensions, location and direction of
rotation when travelling forward as main p.t.o.;
travelling distance for 1 rev of p.t.o. 0,171 m
25 rev of p.t.o. for 1 rev of the driving wheel

Secondary
power take-off

P.t.o. in the
middle of the
tractor:

Drive as main p.t.o.;
situated between the axles 356 mm before the
rear axle, 60 mm to the right hand side of
tractor's median plane; 540 mm above ground;
p.t.o. stub shaft showing forward;
B 6 x 26 x 30 DIN 5462;
1205 rev/min at rated engine speed;
3,1% slippage of the fluid clutch included;
direction of rotation anticlockwise,
viewed from tractor rear

Front p.t.o.

Optional, not fitted on tractor tested;
attached on the p.t.o. shaft in the middle
of the tractor by aid of an intermediate
gearing;
drive and dimensions as main p.t.o.;
540 mm above ground;
300 mm to the right hand side of tractor's
median plane;
603 rev/min at rated engine speed;
p.t.o. standard speed 540 rev/min at
1952 rev/min engine speed; 3,1% slippage of
the fluid clutch is included;
direction of rotation anticlockwise,
viewed from tractor rear

Belt pulley

Optional not fitted on tractor tested;
pulley drive attached on p.t.o. shaft;
only for use with 540 rev/min p.t.o.;
operated by p.t.o. hand lever;
225 mm diameter, 150 mm width;
1466 rev/min at rated engine speed;
17,3 m/s linear belt speed;
3,1% slippage of the fluid clutch included



Belt pulley

(Continuation)

direction of rotation clockwise and anticlockwise, changeable by turning drive device

Power lift

Hydraulic
system:

Own make;
hydraulic power lift, unit construction;
power control, position control, both stepless
mixable, floating position;
single acting ram;
bore 86 mm, stroke 138 mm;
BOSCH gear type pump with 14 cm³/rev delivery;
(with hydrostatic steering a BOSCH pump with
16 mm³/rev delivery is fitted);
directly driven by engine;
BOSCH control valve;
maximum oil pressure 175 bar;
no overpressure relief valve for ram;
2 oil tappings for double acting or 1 for
single acting additional control valves;
hydraulically acting linkage lock for
transport;
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 (HD) SAE 20W/20 MIL-L-2104 C or
MIL-L-46152
oil changing period 1000 hours

Implement
linkage:

Three point linkage, category II (DIN 9674);
dimensions see page 25;
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 890 mm
long lift rods from 62 to 780 mm
the ball joints of lower and upper links may
be changed against quick coupler;
not fitted on tractor tested



Holed drawbar: Fitted on the clevis of lower links;
length between the ball joints 830 mm;
thickness of the bar 30 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 77 to 905 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 980 mm
to p.t.o. shaft end 620 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;
optionally ZF column hydrosteering gear
7409 with flow dividing valve available;
operated by hand wheel;
acting on front wheels



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 shoe type brake;
without SERVO-ACTION device;
mechanically acting on 2 brake drums with
180 mm diameter on the differential half
shafts;
pedal operated
- Parking brake and foot brake have the brake
drums in common
- Steering brakes:** Divided pedal of foot brake;
for normal use locked together

Wheels

- Steering wheels:** Two pneumatics at front 7,50-16 AS 6 ply;
max. permissible load on each tyre 856 kg
at 2,25 bar inflation pressure and 25 km/h;
track width 1250, 1360 and 1500 mm;
changing by telescopic half axles;
rims 5,50 F x 16 B
- Driving wheels:** Two pneumatics at rear 14,9-30 AS 6 ply;
max. permissible load on each tyre 1780 kg
at 1,4 bar inflation pressure and 25 km/h;
track width 1360 and 1500 mm;
changeable by reversing wheels;
(track adjustment wheels are optionally
available for track width from 1280 to 1850 mm
by turning wheels and offset lug type rims,
not fitted on tractor tested)
- Wheel base:** 2078 mm



Overturning
protection frame

Own make;
steel tube construction;

Weights

Ready for use as tested
with frame

without driver with driver

Without ballast:	front	865 kg	870 kg
	rear	1585 kg	1655 kg
	total	2450 kg	2525 kg
Front ballast:	1 ground plate		33 kg
	7 front weights		231 kg
Rear ballast:	8 weights per wheel		1008 kg
	water in the tyres		403 kg
With ballast:	front	1200 kg	1200 kg
	rear	2925 kg	3000 kg
	total	4125 kg	4200 kg

Seat

GRAMMER
DS 50;
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 seat above platform 490 mm,
seat not compressed, seat mould in downmost
position, in longitudinal direction in
medium position;
up and down adjustable in 3 steps in the
range of 60 mm;
fore and aft adjustable 105 mm

Number of grease points 12



Dimensions

Total length: 3670 mm with 3 point linkage without ballast
3900 mm with 3 point linkage with ballast

Total width: 1736 mm at smallest track width
2185 mm at largest track width
without ballast

Total height: 1580 mm to top of steering wheel
2320 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 of centre mm	Distance from outside edge of tractor to centre mm ***)
Head lights	135 x 120	900	690
Side lights *)	50 x 50	670	165
Rear lights **)	80 x 65	1350	210
Reflectors			
1st pair	125 x 36	1285	210
2nd pair	80 ø	620	480

*) in combination with direction indicator

**) in combination with direction indicator and stop light

***) at smallest track width



Permissible axle loads and total weights
for all available wheel equipments

Wheel equipment **)		Permissible front axle load kg	Permissible rear axle load kg	Permissible total weight kg
front	rear			
6,00-16 or 6,50-16	9,5-36	1120	2260	3380
	11,2-36		2510	3630
	12,4-32		2710	3830
	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
7,5 L-15 or 7,50-16	9,5-36	1440	2260	3700
	11,2-36		2510	3950
	12,4-32		27,0	4000
	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

*) no standard tyre, special product of MICHELIN and KLEBER

**) all tyres 6 ply



FUELS AND LUBRICANTS USED IN TESTS

Fuel: ARAL Diesel fuel (DIN 51601)
specific gravity at 15°C
at engine tests 0,830 kg/l
at p.t.o. tests 0,830 kg/l
at drawbar tests 0,839 kg/l

Engine oil: Engine oil HD SAE 20W/20 MIL-L-2104 B

Transmission oil: Speed change gear, group gear,
fine stepped gear and spur gear
reduction gearing
Transmission oil SAE 80 MIL-L-2105 A
Final drives
Hypoid oil SAE 90 MIL-L-2105 B

Fluid clutch: Engine oil HD SAE 10W

Power lift: Hydraulic oil HLP 25



COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date of tests: 19th August 1975
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Maximum power

Power kW	Speed		Fuel consumption			Specific energy kWh/l
	engine rev/min	p.t.o. rev/min	total l/h	kg/h	specific g/kWh	
At maximum power 2-hour test						
32,8	2175	586	10,35	8,59	262	3,17
At standard p.t.o. speed (540 rev/min)						
31,5	2013	540	9,71	8,06	256	3,24
At the speed recommended for drawbar work						
32,8	2175	586	10,35	8,59	262	3,17

Part loads

(i) 85% of the torque at maximum power						
28,5	2214	599	8,96	7,44	261	3,18
(ii) unloaded						
-	2280	633	2,41	2,00	-	-
(iii) 50% of the load defined in (i)						
14,7	2256	617	5,55	4,61	313	2,65
(iv) maximum power						
32,8	2175	586	10,35	8,59	262	3,17
(v) 25% of the load defined in (i)						
7,5	2272	625	4,02	3,34	445	1,87
(vi) 75% of the load defined in (i)						
21,6	2236	609	7,18	5,96	276	3,01

No load maximum engine speed: 2280 rev/min
Equivalent fly-wheel torque at maximum power: 149 Nm
Maximum equivalent fly-wheel torque: 176 Nm at 1412 rev/min
at the output shaft of the fluid clutch

Mean atmospheric conditions: temperature 23°C
pressure 1001 mbar
relative humidity 78%

Maximum temperatures: coolant 80°C
engine oil 96°C
fuel 26°C

The equivalent crankshaft torque reported is relative to the output shaft of the fluid clutch

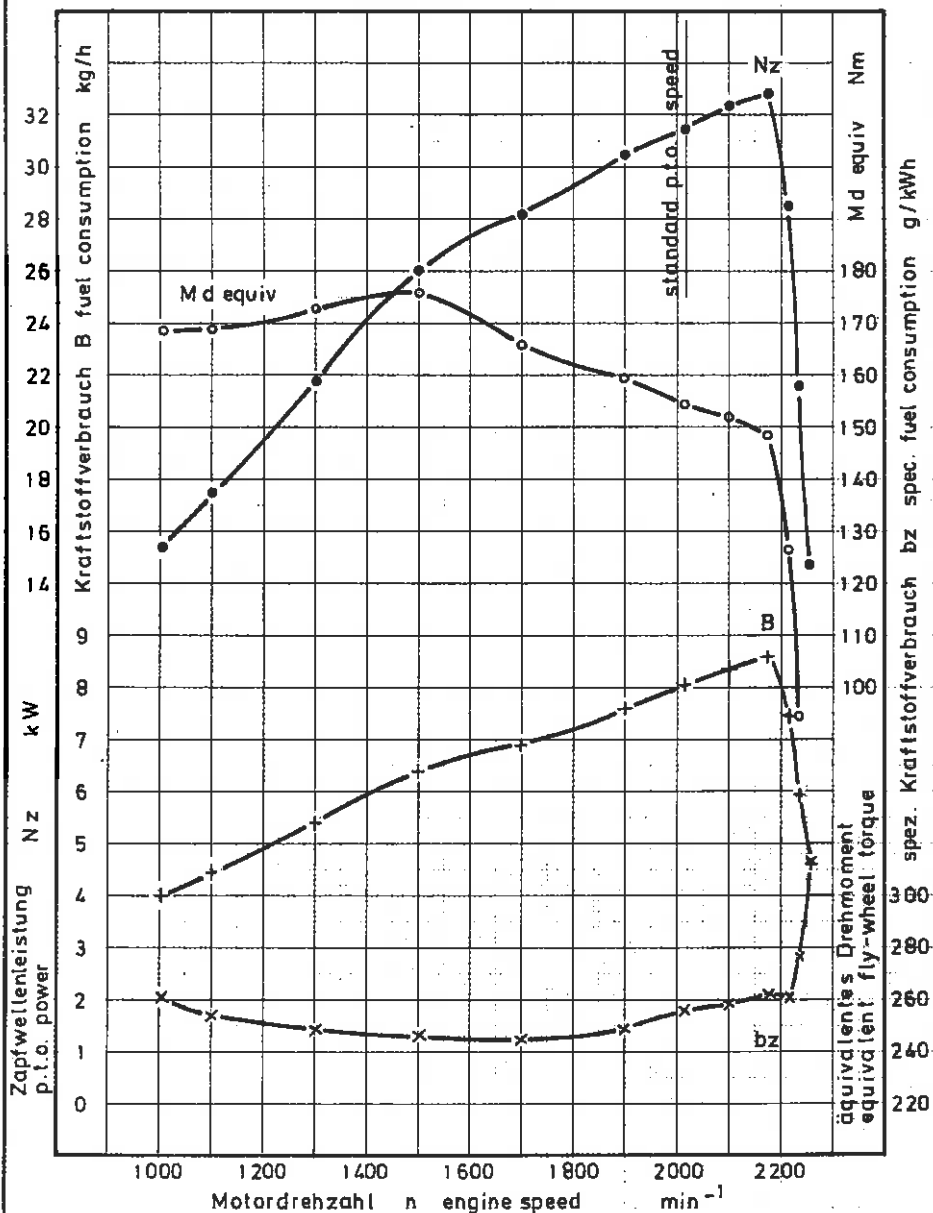


PRÜFUNGS-ABTEILUNG

Zapfwellenprüfung

P.t.o. - test

FARMER 103 S



Lufttemperatur: 23°C
temperature

Luftdruck: 1001 mb
pressure

Kraftstoff: 0.930 kg/l
fuel

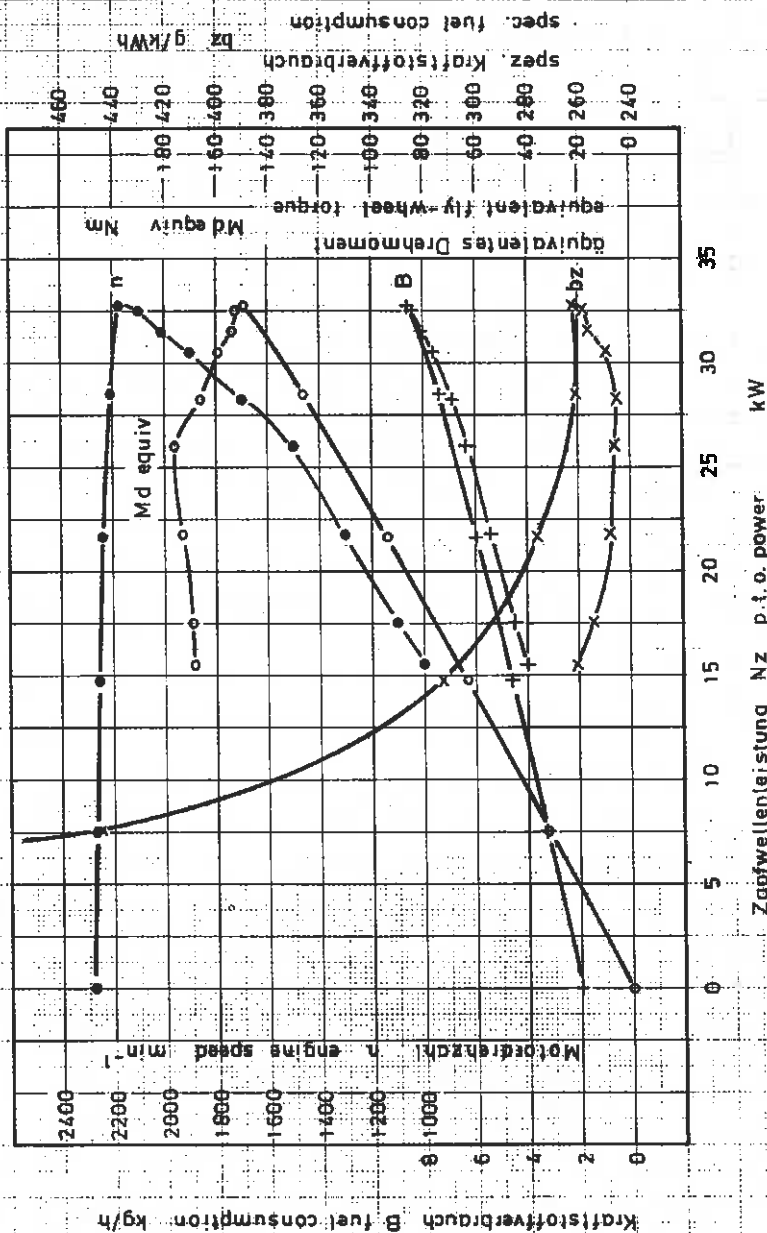


PRÜFUNGS-ABTEILUNG

Zapfwellenprüfung

P.t.o. - test

FARMER 103 S



Lufttemperatur: 23 °C
temperature

Luftdruck: 1001 mb
pressure

Kraftstoff: 0,830 kg/h
fuel



(2) DRAWBAR PERFORMANCE

Date of tests: 1st till 11th September

Type of track: Concrete

Gear No. and Group	Speed km/h	Power kW	Drawbar pull N	Engine speed rev/min	Slip of wheels %	Specific energy kWh/l
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(i) MAXIMUM POWER with ballast
height of drawbar above ground 500 mm

1 slow	0,98	9,1	33630	2252	15,0	1,88
1 fast	1,24	11,6	33640	2246	15,0	2,06
2 slow	1,59	14,9	33870	2236	14,9	2,26
2 fast	2,01	19,0	33960	2220	14,9	2,39
3 slow	2,66	25,0	33860	2174	15,0	2,43
3 fast	3,57	26,3	26510	2177	11,0	2,55
4 slow	4,01	27,1	24340	2174	10,3	2,65
4 fast	5,27	27,5	18760	2174	7,7	2,69
5 slow	6,95	27,5	14260	2174	5,5	2,69
5 fast	9,03	27,7	11060	2175	4,0	2,70
6 slow	12,51	27,0	7780	2175	2,8	2,62

(ii) FIVE-HOUR-TEST
at 75% of pull at maximum power in 4th gear of fast group

4 fast	5,52	21,6	14070	2217	5,8	2,63
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(iii) FIVE-HOUR-TEST
at pull corresponding to 15% wheel slip in test (i)

3 slow	-	-	33960	2175	-	-
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(v) MAXIMUM POWER without ballast
height of drawbar above ground 580 mm

3 fast	3,52	22,3	22760	2208	15,0	2,46
4 slow	3,89	24,6	22750	2203	15,0	2,49
4 fast	5,11	26,9	18930	2174	11,3	2,62
5 slow	6,83	27,6	14550	2175	8,1	2,70
5 fast	8,88	27,9	11290	2175	6,7	2,71
6 slow	12,45	27,8	8060	2175	4,1	2,72
6 fast	16,10	27,6	6160	2174	3,4	2,72

Total oil consumption during ten hours duration of tests
(ii) and (iii): 33 g/h



Tyres make front: VEITH-PIRELLI 7,50-16 AS FRONT 6 ply
and size rear: FULDA-PIONIER 14,9-30 AS 6 ply

Specific fuel consumpt. g/kWh	Temperatures			Atmospheric conditions		
	Fuel °C	Coolant °C	Engine- oil °C	Tempe- rature °C	Relative humidity %	Pressure mbar

tyre inflation pressure 1,4 bar

rolling radius of tyres under static load 666 mm

447	25	80	89	20	88	1004
406	24	80	80	20	91	1004
371	23	80	86	20	87	1004
351	27	80	80	25	71	1009
345	26	80	86	25	76	1009
329	25	80	88	25	81	1009
318	23	80	86	21	91	1009
314	22	80	88	17	98	1009
311	22	80	85	19	98	1009
311	22	80	91	22	96	1009
319	25	80	94	23	73	1010

319	25	80	86	25	80	1004
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-	25	80	87	25	82	1004
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tyre inflation pressure 1,1 bar

rolling radius of tyres under static load 681 mm

340	27	80	85	25	87	1008
337	25	80	86	25	90	1008
322	25	80	86	24	91	1008
311	23	80	86	22	98	1008
310	23	80	88	22	98	1008
308	22	80	85	22	98	1008
308	23	80	86	22	98	1008

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 AS FRONT 6 ply
rear: 14,9-30 AS 6 ply

Track of wheels front: 1500 mm
rear: 1500 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	3,58	3,65	4,06	4,13
Radius of turning circle	3,50	3,57	3,98	4,05

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	825 mm
Distance forward from the vertical plane containing the axis of the rear wheels	716 mm
Distance of the median plane of the tractor	0 mm



(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 5th September 1975
Type of track: Concrete
Type of decelerometer: MOTO METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor: 4200 kg with driver

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s ²	5,4	4,5
Stopping distance	m	6,0	6,6
Force on pedal	N	735	460
Force on pedal to achieve a deceleration of 2,5 m/s ²	N	420	295

Brake fade characteristics (hot tests)

Deceleration	hot/cold %	93	100
Stopping distance	cold/hot %	97	100
Force on pedal	cold/hot %	100	78

B) PARKING BRAKE

Tractor facing up slope:
Pull on hand brake 235 N, tractor does not roll

Tractor facing down slope:
Pull on hand brake 235 N, tractor does not roll



(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 3rd September 1975
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2203

Results of test

Gear: Independent high speed gear
Travelling speed before acceleration: 19,25 km/h
Sound level: 88 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 2nd September 1975
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2607
Type of frequency analyser: BRÜEL AND KJAER model 1614
(fitted with octave filter)

The tractor was fitted with an overturning protection frame

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level N	Travelling speed		Sound level dB(A)
		nominal km/h	effective km/h	
1 slow	21780	1,07	0,95	91
1 fast	22180	1,38	1,19	91,5
2 slow	21950	1,78	1,57	92
2 fast	22210	2,29	1,97	92,5
3 slow	21010	3,13	2,58	93,5
3 fast	21430	4,01	3,38	94,5
4 slow	20900	4,45	3,71	93
4 fast	15650	5,70	5,27	93
5 slow *)	11970	7,36	7,11	93
5 fast	8630	9,43	9,29	92,5
6 slow	7480	12,92	12,57	93
6 fast	5600	16,56	16,35	93,5
high speed	light load	24,16	25,70	92,5

*) the 5th slow gear corresponds to the travelling speed nearest to 7,5 km/h



(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

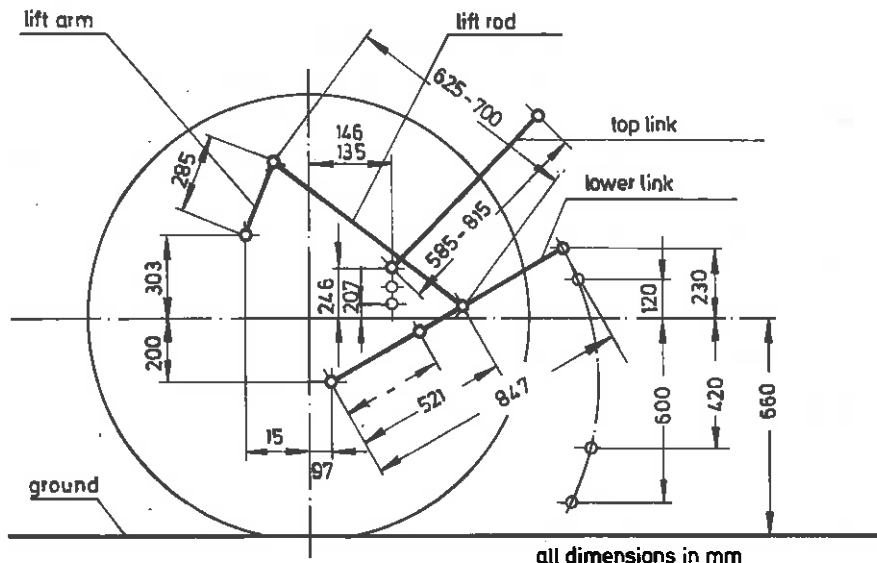
Date of tests: 30th September 1975

HYDRAULIC PUMP

- | | |
|--|------------|
| (1) Opening pressure of relief valve
in remote circuit | 177 bar |
| Sustained pressure by open relief valve | 172 bar |
| (2) Pump delivery rate at minimum pressure
and maximum engine speed | 33,6 l/min |
| (3) Pump delivery rate | 25,9 l/min |
| Delivery pressure | 162 bar |
| Hydraulic power | 7,0 kW |

POWER LIFT

Dimensions of linkage geometry for the table on page 28
(category II)



LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-417	-400	-300	-225	-220	-200	-100	0
----	------	------	------	------	------	------	------	---

at hitch points maximum mechanical advantage

N					15350	16280	17250	17810
---	--	--	--	--	-------	-------	-------	-------

minimum mechanical advantage

N		13550	15030			16140	16790	16970
---	--	-------	-------	--	--	-------	-------	-------

Max. force exerted throughout the whole range 15350 N

Front of tractor does not lift with max. allowable front ballast

at test frame maximum mechanical advantage

N				15860		16510	17160	16970
---	--	--	--	-------	--	-------	-------	-------

minimum mechanical advantage

N	13830	14110	15030			15490	15490	15120
---	-------	-------	-------	--	--	-------	-------	-------

Max. force exerted throughout the whole range 14290 N

Force at which front of tractor lifts with maximum allowable front ballast 15740 N



+100	+200	+300	+320	+365	+400	+430	+480
------	------	------	------	------	------	------	------

lift rods 645 mm long

17990	17810	17710			17900	17900	
-------	-------	-------	--	--	-------	-------	--

lift rods 700 mm long

16970	16970	17250	17250				
-------	-------	-------	-------	--	--	--	--

lift rods 645 mm long, high top link pivot point

16420	15860	15220			14480		14290
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lift rods 700 mm long, low top link pivot point

14570	14010	13550		13270			
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All values of forces for pressure at max. hydraulic power
162 bar, see page 25; calculated from measurements at max.
oil pressure 172 bar



<u>LINKAGE GEOMETRY</u> when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view: Lower links Lift arms Lift rods Top link Distance of lift rod connection point from pivot point of lower link	847 mm 285 mm 625 mm 695 mm 521 mm	847 mm 285 mm 700 mm 686 mm 521 mm
The following dimensions are given relative to rear axle centre line 660 mm above ground		
Lower link pivot point Top link pivot point Lift arm pivot point Maximum and minimum height of lower link hitch points Height of lower link hitch points above ground when locked in highest transport position	97 mm behind, 200 mm below 135 mm behind, 246 mm above 15 mm forward, 303 mm above 230 mm above, 420 mm below 890 mm	97 mm behind, 200 mm below 146 mm behind, 207 mm above 15 mm forward, 303 mm above 120 mm above, 600 mm below 780 mm



OPTIONAL TESTS

(9) ENGINE PERFORMANCE

Date of tests: 5th August 1975

Type of dynamometer: SCHENCK eddy current dynamometer W 150

Maximum power

Power kW	Engine speed rev/min	Fuel consumption			Specific energy kWh/l
		total 1/h	kg/h	specific g/kWh	
At maximum power 2-hour test					
37,2	2175	10,35	8,59	231	3,59
At standard p.t.o. speed (540 rev/min)					
36,1	2013	9,86	8,18	227	3,66
At the speed recommended for drawbar work					
37,2	2175	10,35	8,59	231	3,59

Part loads

(i) 85% of torque at maximum power					
32,5	2216	8,93	7,41	228	3,64
(ii) unloaded					
-	2309	2,09	1,70	-	-
(iii) 50% of the load defined in (i)					
16,4	2259	5,23	4,34	265	3,14
(iv) maximum power					
37,2	2175	10,35	8,59	231	3,59
(v) 25% of the load defined in (i)					
8,37	2273	3,57	2,96	354	2,34
(vi) 75% of the load defined in (i)					
24,6	2242	6,77	5,62	228	3,63

Optimum fuel consumption: 210 g/kWh at 19,1 kW and 1300 rev/min

Standard fuel consumption 1/2 (DIN 9606): 4,13/8,67 l/h

No load maximum engine speed: 2309 rev/min

Torque at maximum power: 163 Nm

Maximum torque: 191 Nm at 1345 rev/min of the engine

Mean atmospheric conditions:	temperature	26°C
	pressure	1002 mbar
	relative humidity	67%

Maximum temperatures:	coolant	80°C
	engine oil	95°C
	fuel	27°C

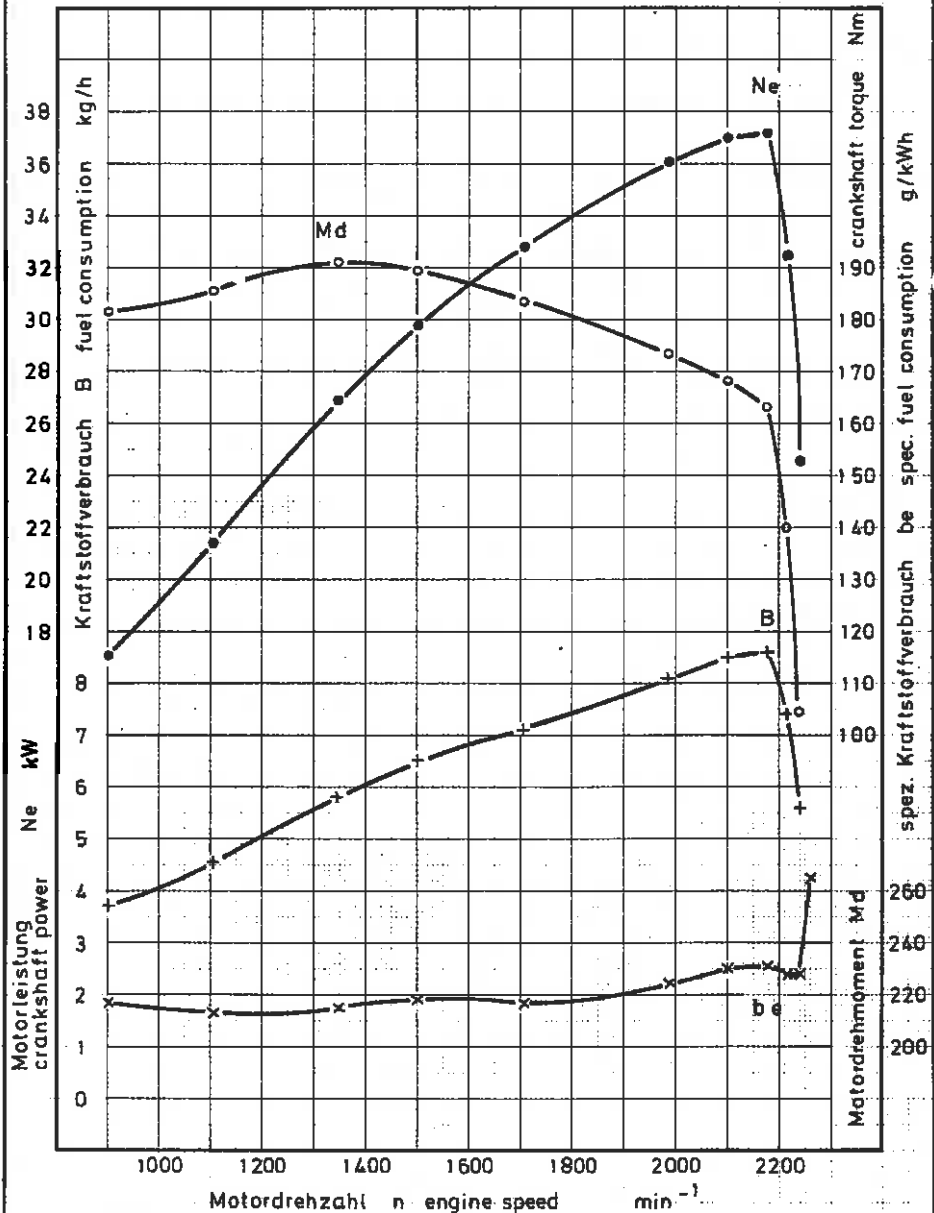


PRÜFUNGS-ABTEILUNG

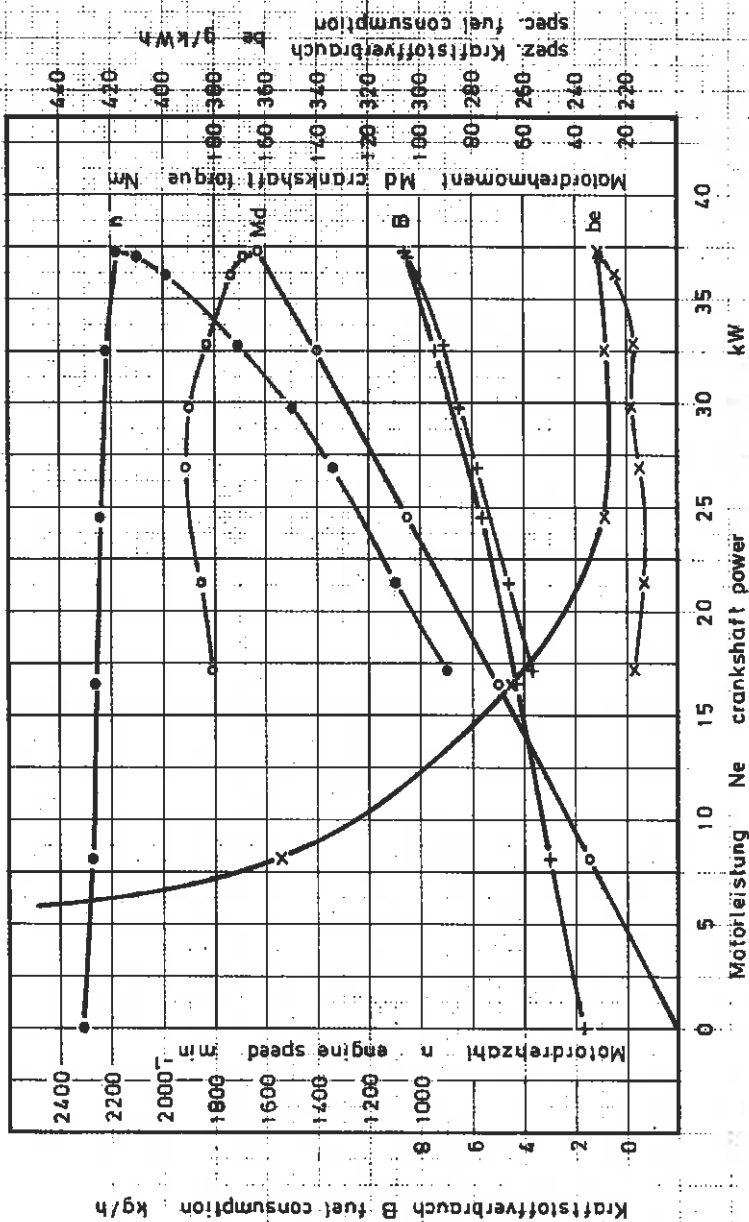
Motorprüfung

Engine - test

FARMER 103 S



Lufttemperatur: temperature	26°C	Luftdruck: pressure	1002 mb	Kraftstoff: fuel	0,830 kg/l
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Lufttemperatur: 26°C
temperature :

Luftdruck	1002 mb
pressure	

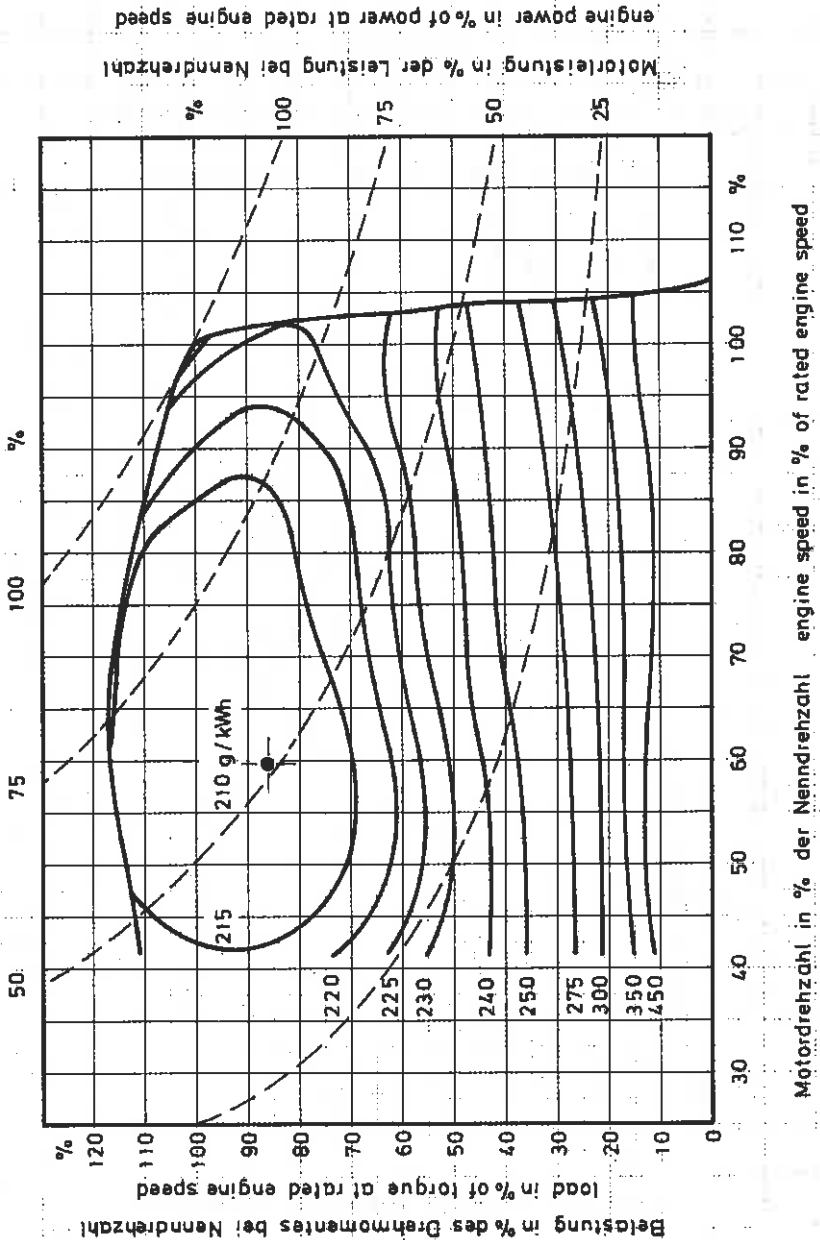
Kraftstoff:	0,830 kg/l
fuel	



PRÜFUNGS-ABTEILUNG

Motorprüfung Engine — test

FARMER 103 S



Lufttemperatur: 26°C
temperature

Luftdruck: 1002 mb
pressure

Kraftstoff: 0.830 kg/l
fuel



the 1990s, the number of people with a mental health problem has increased by 50% (Mental Health Foundation 1999).

There is a growing awareness of the need to address the needs of people with mental health problems. The Department of Health (1999) has set out a vision for the future of mental health care, which includes a focus on prevention, early intervention and recovery. The vision is based on the principles of partnership, shared decision-making and recovery. The vision is to ensure that people with mental health problems are able to live full and meaningful lives, and that they are able to participate in the community.

One of the key challenges in the development of mental health services is the need to ensure that services are accessible to all people who need them. This is particularly true for people who are living in poverty, who are at a higher risk of developing a mental health problem. The Department of Health (1999) has identified the need to ensure that mental health services are accessible to all people, and that they are able to meet the needs of people who are living in poverty.

One of the ways in which mental health services can be made more accessible is by providing services in the community. This can be done through a range of different approaches, including the use of community mental health teams, the use of peer support groups, and the use of self-help materials. The Department of Health (1999) has identified the need to ensure that mental health services are accessible to all people, and that they are able to meet the needs of people who are living in poverty.

Another key challenge in the development of mental health services is the need to ensure that services are able to meet the needs of people who are living in poverty. This is particularly true for people who are living in poverty, who are at a higher risk of developing a mental health problem. The Department of Health (1999) has identified the need to ensure that mental health services are accessible to all people, and that they are able to meet the needs of people who are living in poverty.

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