O.E.C.D. No.: 503
Printed: February 1976

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



Agricultural Tractor FENDT Farmer 105 S Turbomatik

Manufactured by: X. FENDT u.Co. Maschinen- und Schlepperfabrik
D-8952 Marktoberdorf

Date of Tests: March till May 1975

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

DEUTSCHE LANDWIRTSCHAFTS-GESELLSCHAFT e.V.
Prüfungsabteilung für Landmaschinen
D-6000 Frankfurt/Main 1, Zimmerweg 16

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: 5th February 1967

Serial No.: 503

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

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PRÜFUNGS-ABTEILUNG
Fendt Farmer 105 S

Test No. 74-172

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 105 S TURBOMATIC
Type:	Wheeled tractor, unit construction, rear wheel driven
Serial No.:	258/01/0006

Engine

Make:	MWM, MOTORENWERKE MANNHEIM AG
Model:	D 226-4
Type:	4 stroke Diesel engine with direct injection; watercooled
Serial No.:	226.4.01726
Cylinders:	4 in line, bore 105 mm, stroke 120 mm; displacement 4154 cm^3, compression ratio 17:1 dry forced-in cylinder liners
Valves:	Overhead
Fuel system:	SOLEX fuel feed pump PE 20136; ROTO-DIESEL distributor type injection pump: R 344 3200 manufacturer's production setting 48 mm^3/stroke at 2175 rev/min and full load; injection timing 26° before TDC; ROTO-DIESEL multihole injection nozzles RDLL 150 S 6542; injection pressure 180 + 10 bar; CAV fuel filter with replaceable cartridge capacity of fuel tank 93 l
Governor:	ROTO-DIESEL centrifugal variable speed type governor incorporated in injection pump; governed range of engine speed 650 to 2350 rev/min; rated engine speed 2175 rev/min

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Air cleaner:	MANN UND HUMMEL dry paper element filter with precleaner incorporated, with replaceable Micro-Top and safety-cartridge and maintenance indicator
Exhaust silencer:	Own make multi-chamber-reflection type silencer; 130 mm diameter, 415 mm lang; on the left hand side of tractor; mouth showing rearward under 45° to the left; (optional: silencer 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 9,5 l; recommended oil quality MIL-L 2104 B or DEF-2101 D; 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, 450 mm diameter; water capacity 14 l
Starting system:	Electrical; BOSCH starter motor DJ 12 V 3 kW; CAV or BERU flame plug in intake pipe
Electrical equipment:	12 Volt, negative earth; BOSCH 3 phase alternator: G 1 14 V 28 A; 1 lead acid battery: 110 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; flexible coated; for travel drive only; pedal operated
Gear box:	Own make; spur gear reduction gearing between fluid-clutch and disc clutch; synchromesh speed change gear with 3 forward and 1 reverse speed; sliding gear 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; (this 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); 1 synchronized high speed gear independent from fine stepped transmission and from group gear; totally 13 forward and 4 reverse speeds (reversing gear optionally available for all forward speeds,fitted on tractor but not tested; engaged 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	5,6 l
	spur gear reduction gear	5,7 l
	speed change gear, group gear and fine stepped transmission	24,0 l
	final drives in rear wheels each	3,0 l

Oil changing period:	Fluid clutch	5000 hours	
	gears	once the year	
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 and 9

Power take-off

Proportional engine speed p.t.o.:

Main p.t.o. at rear of tractor;
driven through an independent dry multiplate clutch, operated by hand lever situated below the steering wheel;
height above ground 685 mm, in median plane of tractor;
29 x 34,9 x 8,7 mm = 1 3/8"; 6 splines;
(DIN 9611 Form A; BS 1495; ASAE S. 203.7);
2 speeds are preselectable by hand lever:

540 rev/min p.t.o.
591 rev/min at rated engine speed;
standard p.t.o. speed 540 rev/min at 2000 rev/min engine speed

1000 rev/min p.t.o.
1052 rev/min at rated engine speed;
standard p.t.o. speed 1000 rev/min at 2073 rev/min engine speed

appr. 2,5% 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	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed at rated engine speed *) km/h	m/s
forward speeds					
field	slow	1	510,36	1,17	0,32
		2	308,68	1,93	0,54
		3	175,95	3,38	0,94
	fast	1	398,29	1,50	0,42
		2	240,90	2,47	0,69
		3	137,32	4,34	1,20
road	slow	4	123,47	4,82	1,34
		5	74,68	7,98	2,22
		6	42,57	13,99	3,89
	fast	4	96,36	6,18	1,72
		5	58,28	10,22	2,84
		6	33,22	17,93	4,98
independent high speed gear			22,76	26,17	7,27
reverse speeds					
field	slow	1	296,34	2,01	0,56
	fast	1	231,27	2,58	0,72
road	slow	2	71,69	8,31	2,31
	fast	2	55,95	10,64	2,96

*) calculated with the radius index 745 mm, as per WdK 154
2,5% slippage of the fluid clutch is included

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Total ratios and speeds (continuation)

Group	Fine stepped gear	Gear	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed at rated engine speed *) km/h	m/s
with reversing gear, if no creep speed gear is fitted					
reverse speeds					
field	slow	1	662,12	0,90	0,25
		2	400,48	1,49	0,41
		3	228,27	2,61	0,72
	fast	1	516,74	1,15	0,32
		2	312,54	1,91	0,53
		3	178,15	3,34	0,93
road	slow	4	160,19	3,72	1,03
		5	96,89	6,15	1,71
		6	55,23	10,78	3,00
	fast	4	125,02	4,76	1,32
		5	75,62	7,88	2,19
		6	43,10	13,82	3,84
independent high speed gear			29,53	20,17	5,60
reverse speeds are not allowed to be changed to forward speeds					

*) calculated with the radius index 745 mm, as per WdK 154

2,5% slippage of the fluid clutch is included

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Proportional ground speed p.t.o.:	Optional, not fitted on tractor tested; live p.t.o. may be changed by hand lever to ground speed p.t.o.; dimensions, location and direction of rotation when travelling forward see live p.t.o.; travelling distance for one rev. of p.t.o. 0,151 m; 31,0 rev of p.t.o. for one rev. of the driving wheel
P.t.o. in the middle of the tractor:	Live p.t.o.; drive as proportional engine speed p.t.o.; situated between the axles; 1120 mm before the rear axle; 600 mm above ground; 60 mm to the right hand side of the median plane of tractor; p.t.o. shaft stub showing forward; B 6 x 26 x 30 DIN 5462; 1213 rev/min at rated engine speed; 2,5% slippage of fluid clutch is included; direction of rotation anticlockwise viewed from tractor rear
Front p.t.o.:	Optional, not fitted on tractor tested; fig. in acc. with manufacturer's specification; 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.; 600 mm above ground; 300 mm to the right hand side of the median plane of tractor; 607 rev/min at rated engine speed; standard p.t.o. speed 540 rev/min at 1935 rev/min engine speed; 2,5% slippage of fluid clutch is included; direction of rotation anticlockwise, viewed from tractor rear

Belt pulley

Optional, not fitted on tractor tested;
at rear of tractor;
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;
1475 rev/min at rated engine speed;
17,4 m/s linear belt speed;
2,5% slippage of fluid clutch is included;
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 steples mixable, floating position;
single acting ram:
bore 86 mm; stroke 138 mm;
1 external auxiliary ram:
bore 45 mm; stroke 180 mm;
BOSCH gear type pump with 16 cm^3/rev. delivery;
directly driven by engine;
BOSCH control valve;
maximum oil pressure 175 bar;
overpressure relief valve for ram not fitted;
2 oil tappings for single acting or 1 tapping for double acting additional control valves;
hydraulically acting linkage lock for transport;
hydraulic oil tank with maximum 22 l capacity;
max. 13 l may be taken off for remote rams through the oil tappings, when the tractor is working driving and 18 l may be taken off, when stationary;
oil changing period 1000 hours

Implement linkage:	Three point linkage, category II (DIN 9674); operated by power lift; lift rods length adjustable from 658 to 740 mm; lifting range above ground with: short lift rods from 264 to 944 mm long lift rods from 69 to 824 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 880 mm; thickness of the bar 25 mm; centre hole and 4 holes on either side with 80 mm distance each, DIN 9676; all holes 33 mm diameter; height above ground adjustable by power lift within the range from 82 to 957 mm, depending on lifting rods length, measured at the surface of the bar; in 255 to 555 mm height above ground mechanically-hydraulically lockable by changing lifting rods length; in 450 mm height above ground lifting rods length 690 mm; with lower links in horizontal position distance of holes centre line: to rear axle centre 980 mm to p.t.o. shaft end 595 mm

Pull attachment

Trailer hitch:	Own make height above ground 570, 620, 720, 820, 870, 920 and 970 mm; adjustable by shifting and turning hitch; diameter of clevis hole 33 mm; distance of clevis hole centre to rear axle centre 485 mm; permissible vertical load 1000 kg
Towing hitch:	Height above ground 735 mm

Steering	Own make and ZAHNRADFABRIK FRIEDRICHSHAFEN AG ZF-Column hydrosteering gear 7409, with flow dividing valve; operated by hand wheel; acting on front wheels; (optional ZF-GEMMER steering)
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:	Own make and GIRLING BREMSEN GMBH dry double disc type brake, mechanically acting on two brake discs with 165 mm diameter on each differential half shaft; pedal operated
Steering brakes:	Divided pedal of foot brake; for normal use locked together
Wheels	
Steering wheels:	Two pneumatics at front 7,50-20 AS Front 6 ply; maximum permissible load on each tyre 1006 kg at 2,25 bar inflation pressure and 25 km/h; track width from 1490 to 1770 mm, changeable by extending telescopic half axles; rims 5,50 F x 20
Driving wheels:	Two pneumatics at rear 16,9-34 AS 6 ply; max. permissible load on each tyre 2156 kg at 1,3 bar inflation pressure and 25 km/h; track width 1515 and 1640 mm; changeable by reversing wheels; track adjustment wheels are optionally available for track width from 1360 to 1880 mm in steps of appr. 100 mm by turning wheels and offset lug type rims, not fitted on tractor tested; rims DW 14 x 34
Wheel base:	2248 mm

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Seat

Own make and GRAMMER
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 790 mm;
height of seat above platform appr. 570 mm,
seat not compressed, seat mould in downmost position, in longitudinal direction in medium position;
fore and aft adjustable 105 mm;
up and down adjustable in 3 steps in the range of 60 mm

Dimensions

Total length:	3820 mm with 3 point linkage without ballast 4040 mm with 3 point linkage with ballast
Total width:	1890 mm at smallest track width without ballast 2309 mm at largest track width without ballast
Total height:	1670 mm to top of steering hand wheel
Ground-clearence:	440 mm in tractor median plane

Number of grease points 13

Weights — Ready for use, as tested

		without driver	with driver
without ballast:	front	1020 kg	1025 kg
	rear	2050 kg	2125 kg
	total	3070 kg	3150 kg
front ballast:	1 groundplate		31 kg
	8 front weights 33 kg each		264 kg
rear ballast:	8 weights per wheel 63 kg each		1008 kg
	water in the tyres		547 kg
with ballast:	front	1405 kg	1415 kg
	rear	3515 kg	3585 kg
	total	4920 kg	5000 kg

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Permissible total weights and axle loads
for all available wheel equipment

Wheel equipment front *)	Wheel equipment rear *)	Permissible total weight kg	Permissible front axle load kg	Permissible rear axle load kg
6,50-20	13,6-38	4770	1450	3320
	13,6-36	4680	1450	3230
	8,3-44	4330	1450	2880
	16,9-30	5000	1450	3800
	18,4-30	5000	1450	4200
	15,5-38	4980	1450	3530
7,50-18	13,6-38	4940	1620	3320
	13,6-36	4850	1620	3230
	8,3-44	4500	1620	2880
	16,9-30	5000	1620	3800
	18,4-30	5000	1620	4200
	15,5-38	5000	1620	3530
7,50-20	16,9-34	5000	1800	4200

* all tyres 6 ply

Lighting equipment: Electrically, 12 Volt
acc. to German governmental regulations

	Dimensions mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Head lights	135 x 120	1000	800
Side lights	50 x 50	1500	250
Rear lights	85 x 65	1515	290
Reflectors			
1st pair	125 x 35	1450	290
2nd pair	78 Ø	655	625

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FUELS AND LUBRICANTS USED IN TESTS

Fuel:	ARAL-Diesel fuel (DIN 51601)
	specific gravity at 15°C:
	on laboratory tests 0,828 kg/l
	on track tests 0,825 kg/l
Engine oil:	MOBIL-DELVAC HD 20W/20
Transmission oil:	Speed change gear, group gear, fine stepped transmission 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
Hydraulic oil:	Hydraulic oil HLP 25

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COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date of tests: 21th March 1975
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Maximum power

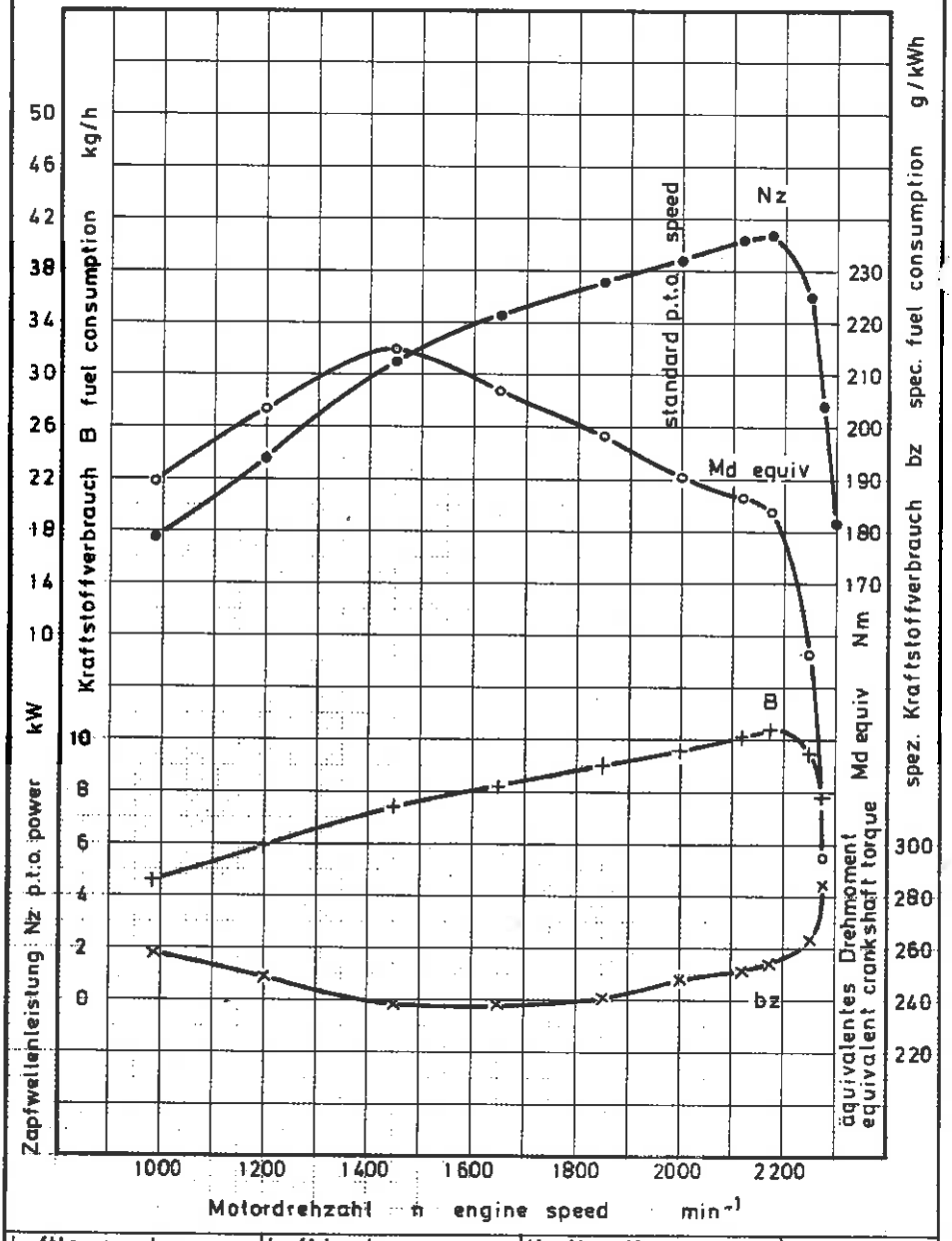
Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
At maximum power 2-hour test						
40,9	2175	591	12,52	10,37	254	3,27
At standard p.t.o. speed (540 rev/min)						
38,8	2000	540	11,59	9,60	248	3,35
At the speed recommended for drawbar work						
40,9	2175	591	12,52	10,37	254	3,27
Part loads						
(i) 85% of the torque at maximum power						
36,1	2250	613	11,45	9,48	263	3,15
(ii) unloaded						
-	2350	654	3,47	2,87	-	-
(iii) 50% of the load defined in (i)						
18,6	2300	632	7,43	6,15	331	2,50
(iv) maximum power						
40,9	2175	591	12,52	10,37	254	3,27
(v) 25% of the load defined in (i)						
9,4	2324	642	5,54	4,59	488	1,70
(vi) 75% of the load defined in (i)						
27,5	2274	623	9,44	7,82	284	2,91

No load maximum engine speed: 2350 rev/min
Equivalent crankshaft torque at maximum power: 184 Nm *)
Maximum equivalent crankshaft torque: 215 Nm at 1450 rev/min of the engine *)

Mean atmospheric conditions:	temperature	20°C
	pressure	1006 mbar
	relative humidity	50%
Maximum temperatures:	coolant	85°C
	engine oil	104°C
	fuel	21°C

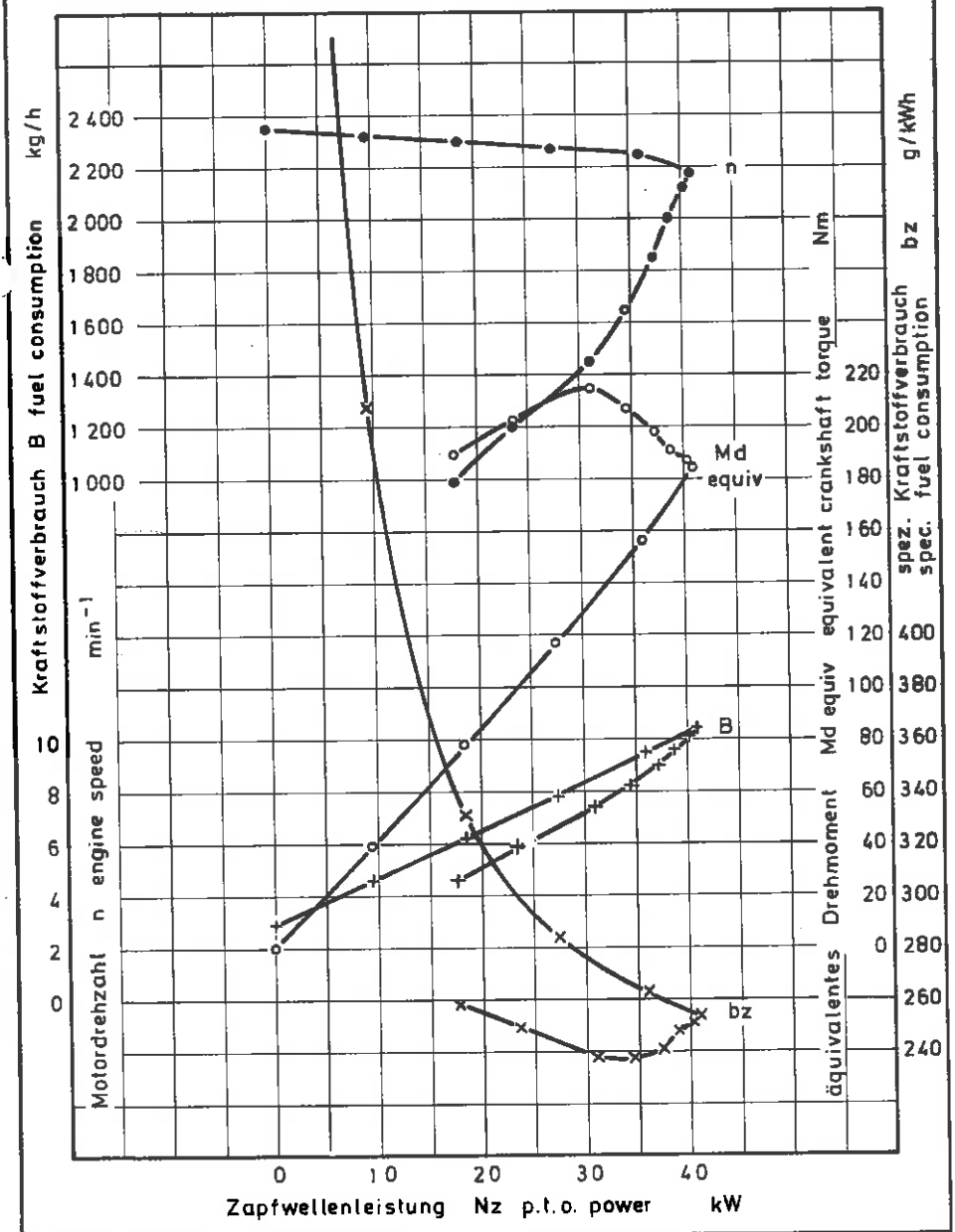
*) The equivalent crankshaft torque reported is relative to the output shaft of the fluid clutch

PRÜFUNGS-ABTEILUNG	Zapfwellenprüfung P.t.o.-test	FARMER 105S



Lufttemperatur : temperature :	20°C	Luftdruck : pressure :	1006 mb	Kraftstoff : fuel :	0,828 kg/l

PRÜFUNGS-ABTEILUNG	Zapfwellenprüfung P.t.o. – test	FARMER 105 S



Lufttemperatur: temperature :	20 °C	Luftdruck: pressure :	1006 mb	Kraftstoff: fuel :	0,828 kg/l

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(2) DRAWBAR PERFORMANCE

Date of tests: 28th April till 22th May 1975
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
(i) MAXIMUM POWER with ballast height of drawbar above ground 530 mm						
1 slow	1,05	13,7	47050	2279	15,0	1,90
1 fast	1,33	17,3	46960	2268	15,1	2,10
2 slow	1,70	22,2	47050	2253	15,1	2,29
2 fast	2,14	27,9	46930	2235	15,1	2,43
3 slow	2,95	32,3	39440	2174	12,0	2,57
3 fast	3,89	32,8	30330	2175	9,1	2,55
4 slow	4,37	33,4	27540	2175	8,1	2,67
4 fast	5,70	33,7	21310	2175	6,3	2,70
5 slow	7,47	34,2	16500	2173	4,9	2,73
5 fast	9,71	33,6	12450	2177	3,6	2,68
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 4th fast gear						
4 fast	6,00	26,6	15980	2236	4,6	2,52
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)						
2 fast	-	-	47050	2232	-	-
(v) MAXIMUM POWER without ballast height of drawbar above ground 570 mm						
2 fast	2,23	19,3	31190	2262	15,0	2,17
3 slow	2,98	25,8	31170	2241	14,9	2,35
3 fast	3,70	31,3	30450	2175	14,6	2,48
4 slow	4,21	32,3	27630	2176	12,2	2,57
4 fast	5,62	33,6	21520	2178	9,3	2,66
5 slow	7,38	34,1	16640	2175	6,8	2,71
5 fast	9,62	34,3	12840	2177	5,2	2,72
6 slow	13,38	33,9	9120	2174	3,5	2,69

Total oil consumption during ten hours duration of tests (ii) and (iii): 22 g/h

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Tyres make and size
front: CONTINENTAL 7,50-20 AS FRONT 6 ply
rear: VEITH-PIRELLI 16,9-34 AS AGRAR 6 ply

Specific fuel consumpt. g/kWh	Temperatures: Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions: Temperature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 1,3 bar rolling radius of tryres under static load 735 mm						
438	23	85	89	22	84	1013
397	22	85	91	20	87	1013
364	21	85	91	17	92	1013
344	20	85	90	17	94	1013
323	24	85	94	23	84	1013
316	26	85	93	22	79	1013
310	26	85	100	22	72	1010
307	28	85	104	23	70	1010
303	29	85	94	25	67	1010
308	29	85	100	25	69	1010
329	23	85	100	23	80	1008
-	25	85	100	23	80	1008
tyre inflation pressure 1,1 bar rolling radius of tyres under static load 742 mm						
377	27	85	95	25	58	1000
348	28	85	86	24	55	1005
329	27	85	93	24	56	1005
318	27	85	93	25	58	1000
307	26	85	95	24	60	1000
302	26	85	95	24	60	1000
302	21	85	90	21	65	1000
305	24	85	91	23	61	1000

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

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(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 7,50-20 AS Front 6 ply
rear: 16,9-34 AS 6 ply

Track of wheels front: 1490 mm
rear: 1515 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	3,93	3,95	4,31	4,37
Radius of turning circle	3,70	3,72	4,08	4,14

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	869 mm
Distance forward from the vertical plane containing the axis of the rear wheels	732 mm
Distance of the median plane of the tractor	0 mm

(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 15th and 16th May 1975
Type of track: Concrete
Type of decelerometer: MOTO METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor: 5000 kg with driver

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s^2	5,2	4,9
Stopping distance	m	5,4	6,0
Force on pedal	N	520	324
Force on pedal to achieve a deceleration of 2,5 m/s^2	N	265	186

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	76	98
Stopping distance	cold/hot	%	79	97
Force on pedal	cold/hot	%	96	110

B) PARKING BRAKE

Tractor facing up slope:
Pull on hand brake 280 N, tractor does not roll

Tractor facing down slope:
Pull on hand brake 290 N, tractor does not roll

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 7th May 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: 21 km/h
Sound level: 90 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 6th May 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 nominal km/h	Travelling speed effective km/h	Sound level dB(A)
1 slow	31210	1,17	1,03	93,5
1 fast	31180	1,50	1,22	93,0
2 slow	31340	1,93	1,65	95,0
2 fast	31210	2,47	2,14	95,0
3 slow	31290	3,38	2,78	96,0
3 fast	31100	4,34	3,61	97,0
4 slow	27660	4,82	4,18	95,5
4 fast	21750	6,18	5,57	95,0
5 slow +)	16690	7,98	7,45	95,5
5 fast	12900	10,22	9,57	95,0
6 slow	9320	13,99	13,36	95,5
6 fast	6940	17,93	17,28	95,5
high speed	light load	26,17	28,42	94,5

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

PRÜFUNGS-ABTEILUNG
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(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

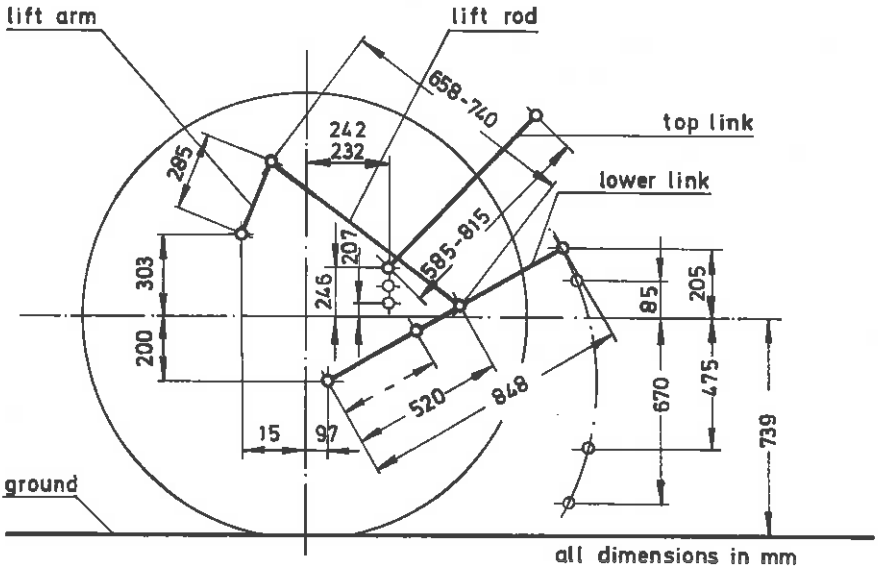
Date of tests: 15th April 1975

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	32,3 l/min
(3) Pump delivery rate	28,2 l/min
Delivery pressure	162 bar
Hydraulic Power	7,6 kW

POWER LIFT

Dimensions of linkage geometry for the table on page 28



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LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-480	-470	-400	-300	-275	-200	-100	0
at hitch points maximum mechanical advantage								
N					22752	24093	25018	25111
minimum mechanical advantage								
N		20394	21041	21874		22290	22336	22151

Max. force exerted throughout the whole range 22752 N

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

at test frame maximum mechanical advantage								
N					23104	23705	23797	23335
minimum mechanical advantage								
N	21948		21763	21578		21208	20745	19913

Max. force exerted throughout the whole range 19358 N

Force at which front of tractor lifts with maximum allowable front ballast 20067 N

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+100	+200	+285	+300	+310	+400	+405	+430

lift rods 658 mm long

24833	24463		24140		24000	24000	

lift rods 740 mm long

21966	21966	21874					

lift rods 658 mm long, high top link pivot point

22595	21578		20560		19543		19358

lift rods 740 mm long, low top link pivot point

19173	18526		17693	17600			

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

LINKAGE GEOMETRY when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	848 mm	848 mm
Lift arms	285 mm	285 mm
Lift rods	658 mm	740 mm
Top link	648 mm	653 mm
Distance of lift rod connection point from pivot point of lower link	520 mm	520 mm
The following dimensions are given relative to rear axle centre line 739 mm above ground		
Lower link pivot point	97 mm behind, 200 mm below	97 mm behind, 200 mm below
Top link pivot point	232 mm behind, 246 mm above	242 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	205 mm above, 475 mm below	85 mm above, 670 mm below
Height of lower link hitch points above ground when locked in highest transport position	944 mm	824 mm

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OPTIONAL TESTS

(9) ENGINE PERFORMANCE

Date of tests: 18th and 19th March 1975
Type of dynamometer: SCHENCK eddy current dynamometer W 150

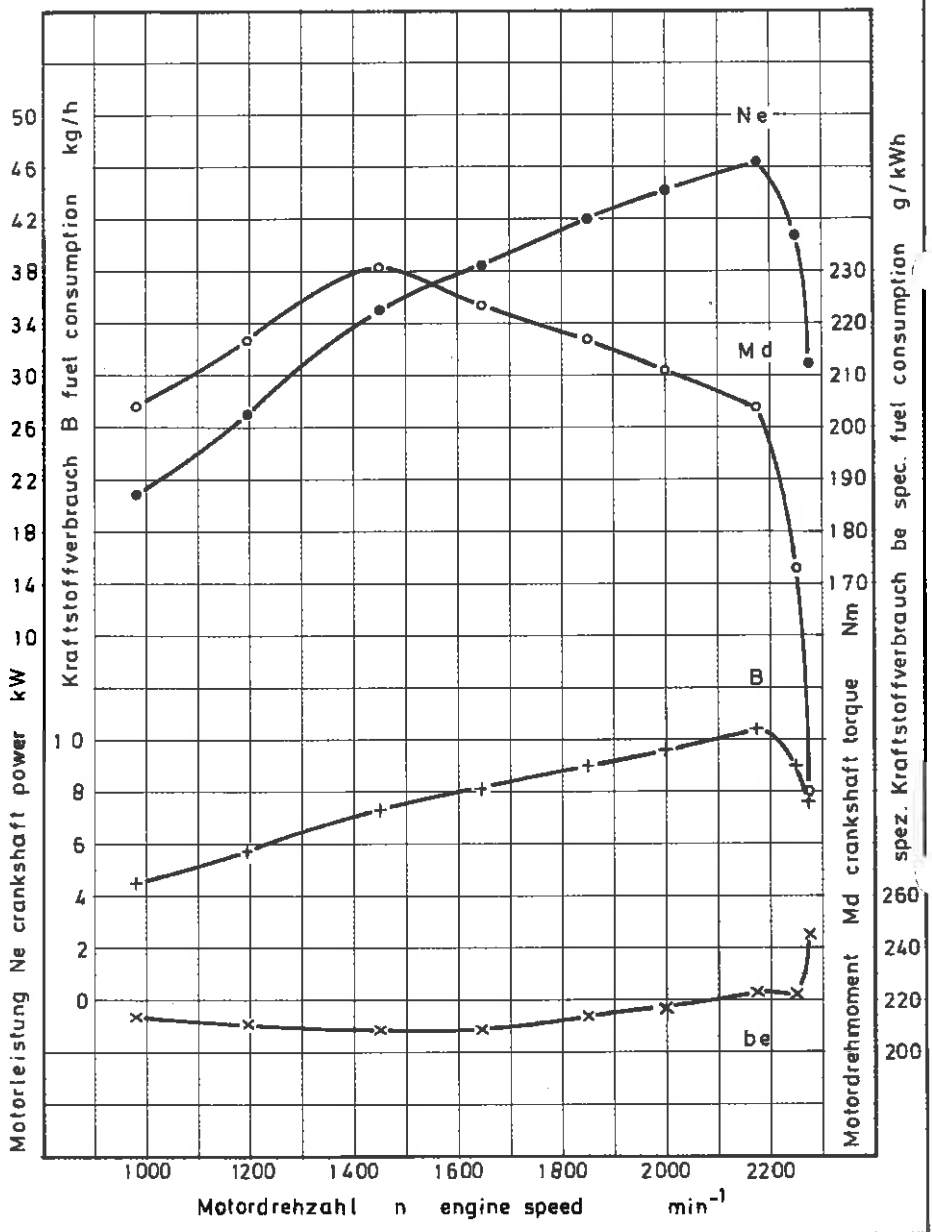
Maximum power

Power kW	Engine speed rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
At maximum power 2-hour test					
46,4	2175	12,50	10,35	223	3,71
At standard p.t.o. speed (540 rev/min)					
44,2	2000	11,59	9,60	217	3,81
At the speed recommended for drawbar work					
46,4	2175	12,50	10,35	223	3,71
Part loads					
(i) 85% of torque at maximum power					
40,7	2250	10,89	9,02	222	3,74
(ii) unloaded					
-	2358	3,19	2,64	-	-
(iii) 50% of the load defined in (i)					
20,8	2302	6,92	5,73	275	3,01
(iv) maximum power					
46,4	2175	12,50	10,35	223	3,71
(v) 25% of the load defined in (i)					
10,6	2327	4,92	4,07	384	2,15
(vi) 75% of the load defined in (i)					
31,0	2274	9,17	7,59	245	3,38

Optimum fuel consumption: 209 g/kWh at 33,1 kW and 1500 rev/min
Standard fuel consumption 1/2 (DIN 9606): 5,16/10,30 l/h
No load maximum engine speed: 2358 rev/min
Torque at maximum power: 204 Nm
Maximum torque: 231 Nm at 1450 rev/min of the engine

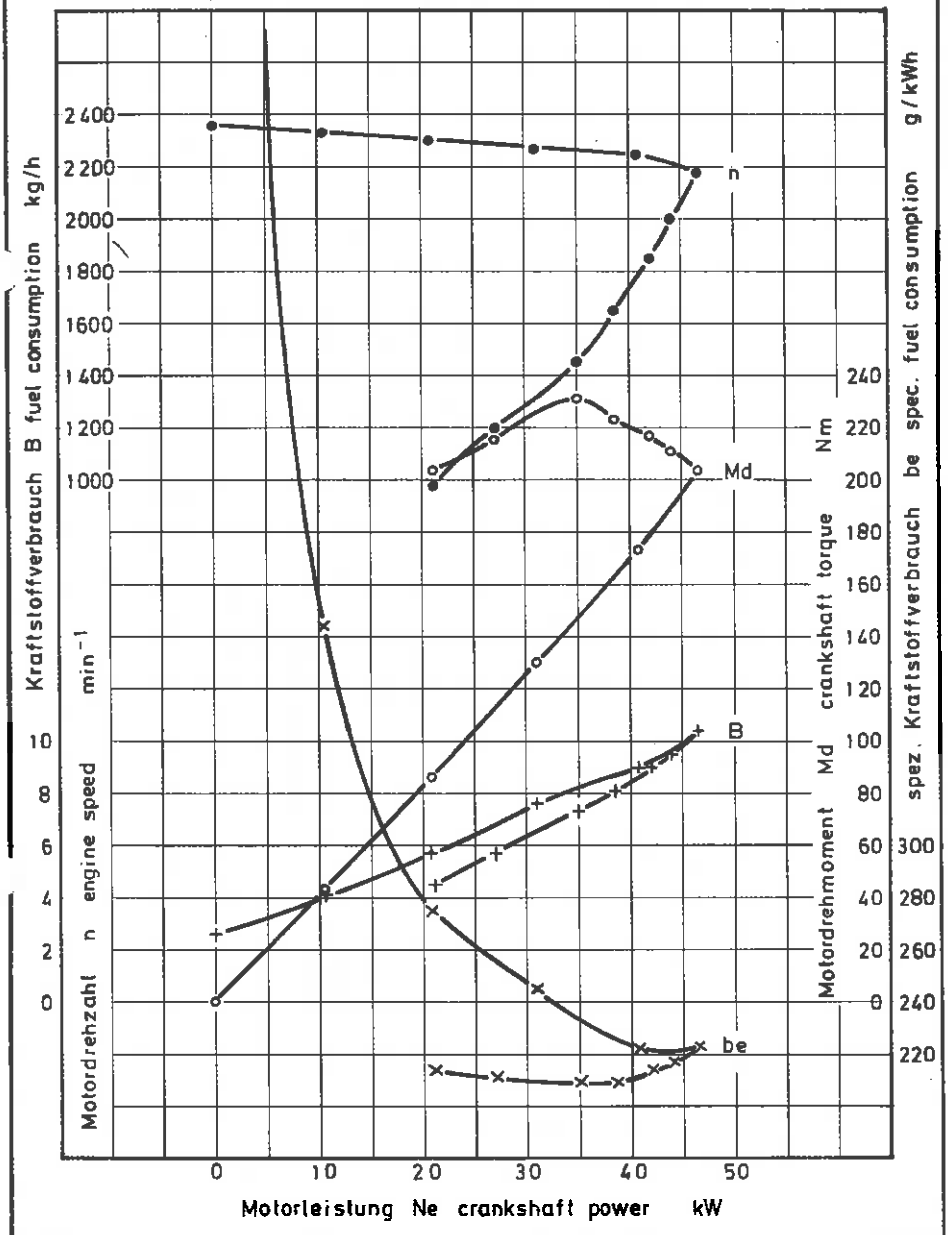
Mean atmospheric conditions:	temperature	18°C
	pressure	991 mbar
	relative humidity	48%
Maximum temperatures:	coolant	85°C
	engine oil	101°C
	fuel	21°C

PRÜFUNGS-ABTEILUNG	Motorprüfung Engine — test	FARMER 105S



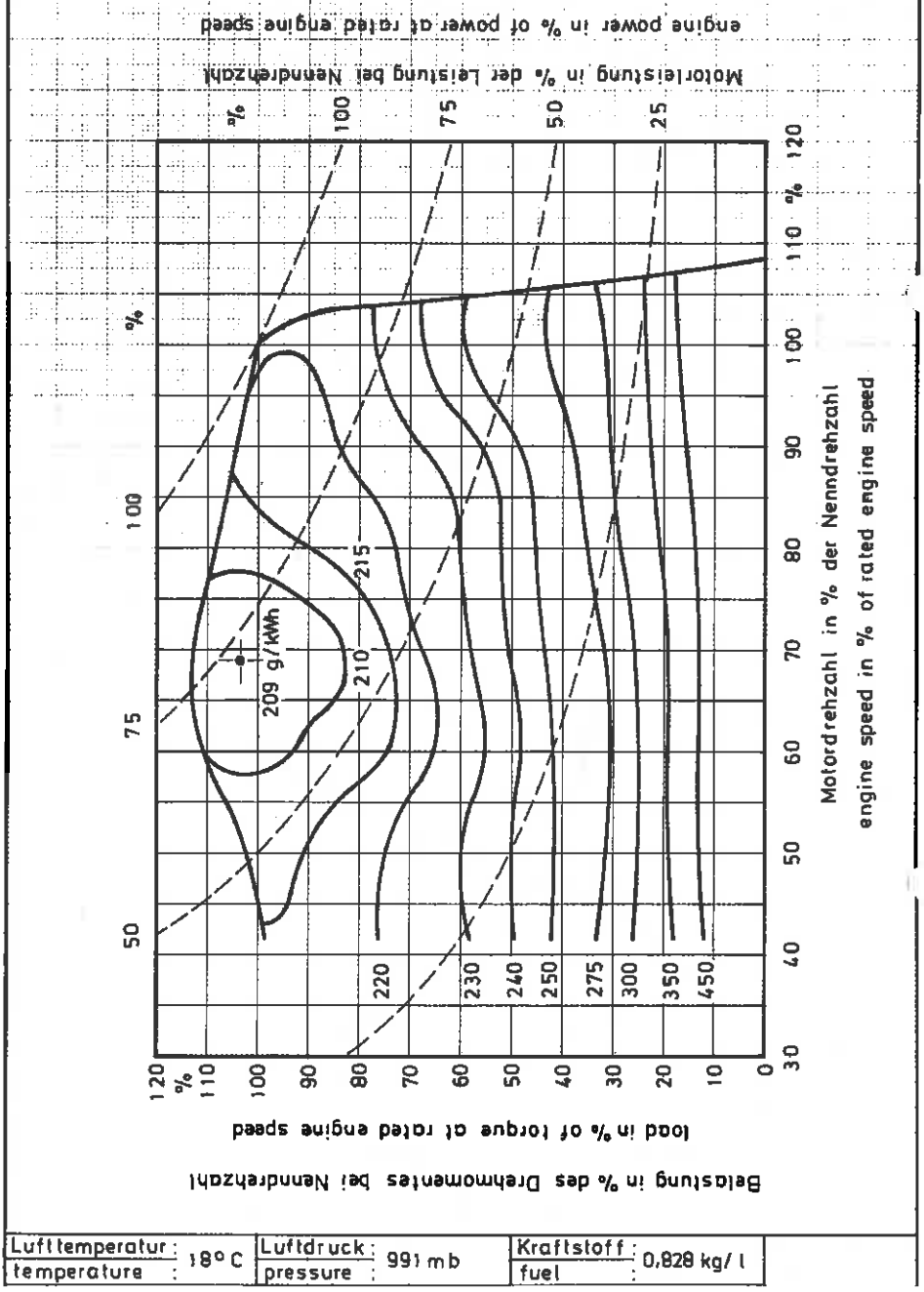
Lufttemperatur : temperature :	18°C	Luftdruck : pressure :	991 mb	Kraftstoff : fuel :	0,828 kg/l

PRÜFUNGS-ABTEILUNG	Motorprüfung Engine – test	FARMER 105 S



Lufttemperatur : temperature :	18 °C	Luftdruck : pressure :	991 mb	Kraftstoff : fuel :	0.828kg/l

PRÜFUNGS-ABTEILUNG	Motorprüfung Engine – test	FARMER 105 S



Lufttemperatur temperature	: 18° C	Luftdruck pressure	: 991 mb	Kraftstoff fuel	: 0,828 kg/ l