O.E.C.D. Report No.: 242

Report on test in accordance with
O.E.C.D.-Test Code for agricultural tractors

FENDT FAVORIT 4 S (FF 180)

Manufactured by: XAVER FENDT & CO.
Maschinen- und Schlepperfabrik
8952 Marktoberdorf/Allgäu



Date of Tests: January - April 1968

This report has been approved by the O.E.C.D.
Co-ordinating Centre (C.N.E.E.M.A., France) as being
in accordance with the O.E.C.D.-Tractor Test Code.

Date of Approval: 27.August 1968 Serial No.: 242

DEUTSCHE LANDWIRTSCHAFTS-GESELLSCHAFT e.V.
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This Bulletin is based on engineering tests in accordance with the O.E.C.D.-Tractor Test Code. It does not contain on evaluation of the performance of the tractor on practical farm work.

M I T E I L U N G

zum O.E.C.D. Bericht Nr. 242

Die Herstellerfirma hat die Bezeichnung des Schleppers

FENDT FAVORIT 4 S (FW 181)

geändert in

FENDT FAVORIT 610 S (FW 181).

Eine Änderung, die die Leistung des Schleppers beeinflussen könnte, ist nicht vorgenommen worden.

Die O.E.C.D. hat die Änderung der Typbezeichnung und die weitere Gültigkeit des Berichtes unter der Anerkennungsnummer 242 am 16. Juli 1972 bestätigt.

B E R I C H T I G U N G

zum O.E.C.D. Bericht Nr. 242

Die Titelabbildung auf Seite 1 des Berichtes ist falsch, sie zeigt den Ackerschlepper in der nicht geprüften Ausführung mit Allradantrieb. Geprüft wurde die Ausführung mit Hinterradantrieb.

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SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

Tractor manufacturer:	Xaver Fendt & Co.,Maschinen-und Schlepperfabrik 8952 Marktoberdorf/Allgäu
Submitted for test by:	Manufacturer
Selected by:	Manufacturer by agreement with Schlepper-Prüffeld Darmstadt
Place of running-in:	Marktoberdorf and Darmstadt
Duration of running-in:	Engine 50 hours, tractor 30 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	Xaver Fendt & Co.,Maschinen-und Schlepperfabrik 8952 Marktoberdorf/Allgäu
Model:	Favorit 4 S (FW 180)
Type:	Diesel tractor, unit construction
Serial No.:	180/3/0119

Engine

Make:	Motorenwerke Mannheim A.G., 68 Mannheim
Model:	D 225-6
Type:	4-stroke Diesel engine, water cooled
Serial No.:	D 225.6.01061
Cylinders:	6 cylinders vertical in line; 95 mm bore, 120 mm stroke; capacity 5100 cm^3; compression ratio 17,5 : 1; overhead valves; wet replaceable cylinder liners
Fuel system:	Fuel: Commercially available diesel oil; Bosch type EP/VA 6/100 H 1150 AR 35 injection pump; Bosch type DLL 150 S 393 injection nozzles; injection pressure 180 kp/cm^2; injection timing 13° before TDC; Solex diaphragm type feed pump; Bosch type FJ 630 R/1 dual stage paper cartridge type fuel filter; capacity of fuel tank appr. 130 l
Governor:	Bosch hydraulic variable speed type governor incorporated in injection pump; governed range of engine speed 650 rev/min to 2450 rev/min; rated engine speed for p.t.o.-work 2300 rev/min; for field-work 2300 rev/min; for transportation-work 2300 rev/min; for belt-work 2300 rev/min
Air cleaner:	Mann & Hummel oil bath type cleaner ; oil capacity appr. 1,0 l

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 160)

Test No. 4042/SPF

Lubrication system:	Forced feed from gear type pump; strainer in sump; Knecht fine-filter cartridge in full flow; oil capacity 12 l; oil-change period 100-120 hours using normal branded HD oil; recommended oil in winter HD SAE 10 in summer HD SAE 20 in tropics HD SAE 30
Cooling system:	Water cooling, impeller assisted and 4-blade fan 450 mm dia; cooling water capacity 14 l
Electrical equipment	Voltage 12 Volt, negative earth
Starting device:	Bosch type JD 12 V 4 PS starter motor
Generator:	Bosch type G 14 V 16A 21 generator
Battery:	2 Bosch lead acid type batteries, 66 Ah each
Transmission	
Clutch:	1) Make: Voith, 792 Heidenheim; fluid clutch type Turbokupplung 2) Make: Fichtel & Sachs AG., 872 Schweinfurt; dry type single plate clutch type G 310, operated by foot pedal
Gearbox:	Make: Xaver Fendt & Co., 8952 Marktoberdorf/Allgäu; synchromesh selecting gear with 6 speeds, group gear with 2 forward groups and 1 group reverse, as well as a group gear for creeping speeds, giving total 16 forward and 8 reverse speeds. (optional 20 forward and 10 reverse speeds)
Rear axle and final drive:	Make: Zahnradfabrik Friedrichshafen AG., 799 Friedrichshafen; bevel gear type differential gear with differential lock foot pedal operated, self disengaging; planetary gear type final drive
Oil capacity:	Selecting gear and rear axle 35 l; planetary gears 12 l; oil change period 1000 hours

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

Total ratios and speeds

Group gear	Selecting gear No.	Number of engine revolutions for one revolution of the driving wheel	Theoretical travelling speed for 2300 rated speed of engine km/h	m/s
Creeping group				
slow	1.	680,62 : 1	0,95	0,264
	2.	433,37 : 1	1,50	0,416
fast	1.	525,67 : 1	1,23	0,342
	2.	335,06 : 1	1,94	0,539
Normal group				
slow	1.	277,52 : 1	2,34	0,650
	2.	177,12 : 1	3,66	1,017
	3.	114,19 : 1	5,68	1,578
	4.	74,03 : 1	8,76	2,432
	5.	46,45 : 1	13,96	3,878
	6.	29,34 : 1	22,11	6,139
fast	1.	214,88 : 1	3,02	0,838
	2.	136,98 : 1	4,73	1,314
	3.	88,41 : 1	7,34	2,080
	4.	57,24 : 1	11,33	3,148
	5.	35,96 : 1	18,04	5,040
	6.	22,72 : 1	28,55	7,928
Creeping group				
reverse	1.	530,77 : 1	1,22	0,338
	2.	338,36 : 1	1,92	0,533
Normal group				
reverse	1.	216,08 : 1	3,00	0,833
	2.	137,86 : 1	4,70	1,305
	3.	89,01 : 1	7,29	2,025
	4.	57,84 : 1	11,21	3,115
	5.	36,26 : 1	17,89	4,965
	6.	22,87 : 1	28,36	7,876

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

Power take-off	Main p.t.o.: live power take-off; operated by hand lever situated below steering wheel, engaged by a multiplate clutch, two speeds
Location:	At rear of tractor, in median plane, 630 mm above ground
Dimensions:	29 x 34,9 x 8,7 mm = 1 3/8", 6 splines (acc.to DIN 9611 Form A; BS 1495; ASAE 203.2) (optionally 1 3/4")
Speed:	586 rev/min at 2300 rev/min rated engine speed and 1022 rev/min at 2300 rev/min rated engine speed; standard p.t.o.-speed 540 rev/min at 2117 rev/min engine speed; standard p.t.o.-speed 1000 rev/min at 2250 rev/min engine speed; may be set by aid of tractormeter
Direction of rotation:	Clockwise viewed from tractor rear
Power lift	Make: Zahnradfabrik Friedrichshafen AG. 799 Friedrichshafen and Xaver Fendt & Co., 8952 Marktoberdorf/Allgäu Hydraulic power lift with power control, position control, both infinitely variable mixable, and floating position; power lift to be locked hydraulically in transporting position; single acting ram; Bosch type HY/ZFR 1/16 CL 125 gear type oil pump directly driven from engine; maximum oil pressure 175 kp/cm²; oil capacity 35 l (oil from transmission); 1 external tapping for single acting ram, 1 external tapping for dual acting ram
Pull atachment	
Implement linkage:	Three-point implement linkage catagorie II (acc.to DIN 9674) controlled by power lift; lift height above ground: from -25 mm to 960 mm by power lift and changed length of the lift rods
Drawbar:	Fixed on hydraulically controlled implement linkage with centrel hole and 8 holes with 4 x 80 mm + 1 x 240 mm + 3 x 80 mm distance apart either side of centre hole (acc.to DIN 9676); distance of centre hole from the end of p.t.o. 730 mm; distance from rear axle in horizontal position of lower links 1065 mm

Trailer hitch:	At rear of tractor; height above ground 900 mm and 990 mm, adjustable by reversing hitch; distance from rear axle 505 mm
Swinging drawbar:	Height above ground 505 mm; shiftable 100 mm to the left and to the right
Towing hitch:	At front of tractor; height above ground 725 mm

Steering device

Make: Zahnradfabrik Friedrichshafen AG.
799 Friedrichshafen;
hydrostatic steering type 180 400 090

Brakes

Parking brake:	Mechanically operated internal shoe type brake, acting on drums in rear wheels
Foot brake:	Hydraulically by two main brake cylinders operated internal servo brake, acting on drums in rear wheels
Steering brake:	Hydraulically operated by one of the single pedals of the foot brake; for normal use both single pedals are coupled by a safety bolt

Wheels

Steering wheels:	Two at front, 7,50-20 AS Front 6 ply tyres (acc.to DIN 7808); maximum permissible weight on each tyre 850 kp at 2,5 kp/cm², 1062 kp when transporting mounted implements; rim 5,50 F-20; track 1700 mm and 1800mm, changed by extending front axle
Driving wheels:	Two at rear, 18,4/15-34 AS 6 ply tyres (acc.to DIN 7807); maximum permissible weight on each tyre 2220 kp at 1,1 kp/cm², 2553 kp when transporting mounted implements; track 1700 mm and 1846 mm, changed by reversing wheels
Wheel base:	2608 mm

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

Weights With power lift, three-point linkage, full fuel tank, water and oil, as tested

		without driver	with driver
Weight of tractor without ballast:	Front axle load:	1256 kp	1263 kp
	Rear axle load :	2378 kp	2451 kp
	Total:	3634 kp	3714 kp
Ballast front:	11 front weights, 33 kp each = 363 kp		
Ballast rear:	8 weights per wheel, 61 kp each = 976 kp		
	water in tyres = 644 kp		
Weight of tractor with ballast:		without driver	with driver
	Front axle load:	1699 kp	1701 kp
	Rear axle load :	3918 kp	3996 kp
	Total:	5617 kp	5697 kp

Seat Make: Xaver Fendt & Co., 9852 Marktoberdorf/Allgäu; upholstered seat with hydraulically damped spring and parallel linkage suspension; spring adjustable acc.to operators weight; 50 mm in vertical direction adjustable, 100 mm in horizontal direction adjustable

Number of grease points (whole tractor): 12

Overall dimensions

Overall length: 4380 mm with three-point linkage
Overall width : 2145 mm at 1700 mm track, without ballast weights
Overall height: 1935 mm to top of back rest of co-drivers seat
Maximum ground clearance: 460 mm above centre line of tractor
415 mm apart median plane

Lighting equipment: Electric 12 Volt, acc.to StVZO (German lighting regulation), additional main light head beam

	Height above ground of centre mm	Dimensions of area mm	Distance from outside edge of tractor to centre mm
Head lights	1090	140 x 125	895
Side lights	1585	40 x 40	295
Rear lights	1500	40 x 70	316
Reflectors	1250	74 ø	70

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

FUELS AND LUBRICANTS USED IN TESTS

Laboratory tests

Fuel:	Shell Diesel oil, specific gravity at 15°C : 0,842 kg/l (commercially available quality acc.to DIN 51 601)
Engine oil:	Mobil Delvac HD 10
Transmission oil:	SAE 20

Track tests

Fuel:	Shell Diesel oil, specific gravity at 15°C : 0,842 kg/l (commercially available quality acc.to DIN 51 601)
Engine oil:	Mobil delvac HD 10
Transmission oil:	SAE 20

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 12.12.1967, Darmstadt-Kranichstein

Type of dynamometer: Schenck hydraulic dynamometer

Maximum power

Horsepower (metric) hp	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption specific g/hph	hph/l
At maximum power - 2 hours test					
88,1	2300	1022	20,00	191	4,40
At standard p.t.o.speed (1000 rev/min)					
87,0	2250	1000	19,50	189	4,46
At the speed recommended by the manufacturer for drawbar work					
88,1	2300	1022	20,00	191	4,40
Fuel consumption at part loads					
(i) 85% of torque at maximum power					
76,3	2349	1044	16,86	186	4,52
(ii) unloaded					
2,2	2430	1080	5,25	-	-
(iii) 50% of the load defined in (i)					
38,8	2390	1062	10,2	221	3,80
(iv) maximum power					
88,1	2300	1022	20,00	191	4,40
(v) 25% of the load defined in (i)					
19,6	2413	1071	7,35	316	2,66
(vi) 75% of the load defined in (i)					
57,6	2370	1051	13,45	197	4,28

No load maximum engine speed: 2450 rev/min

Torque*) at maximum power: 27,5 kpm

Maximum torque*) 30,8 kpm at 1573 rev/min of the engine

Mean atmospheric conditions: temperature: 6°C
pressure: 755 mm Hg
relative humidity: 40%

Maximum temperatures: coolant: 80°C
engine oil: 100°C
Fuel: 15°C

(*) The torque reported is the equivalent crankshaft torque)

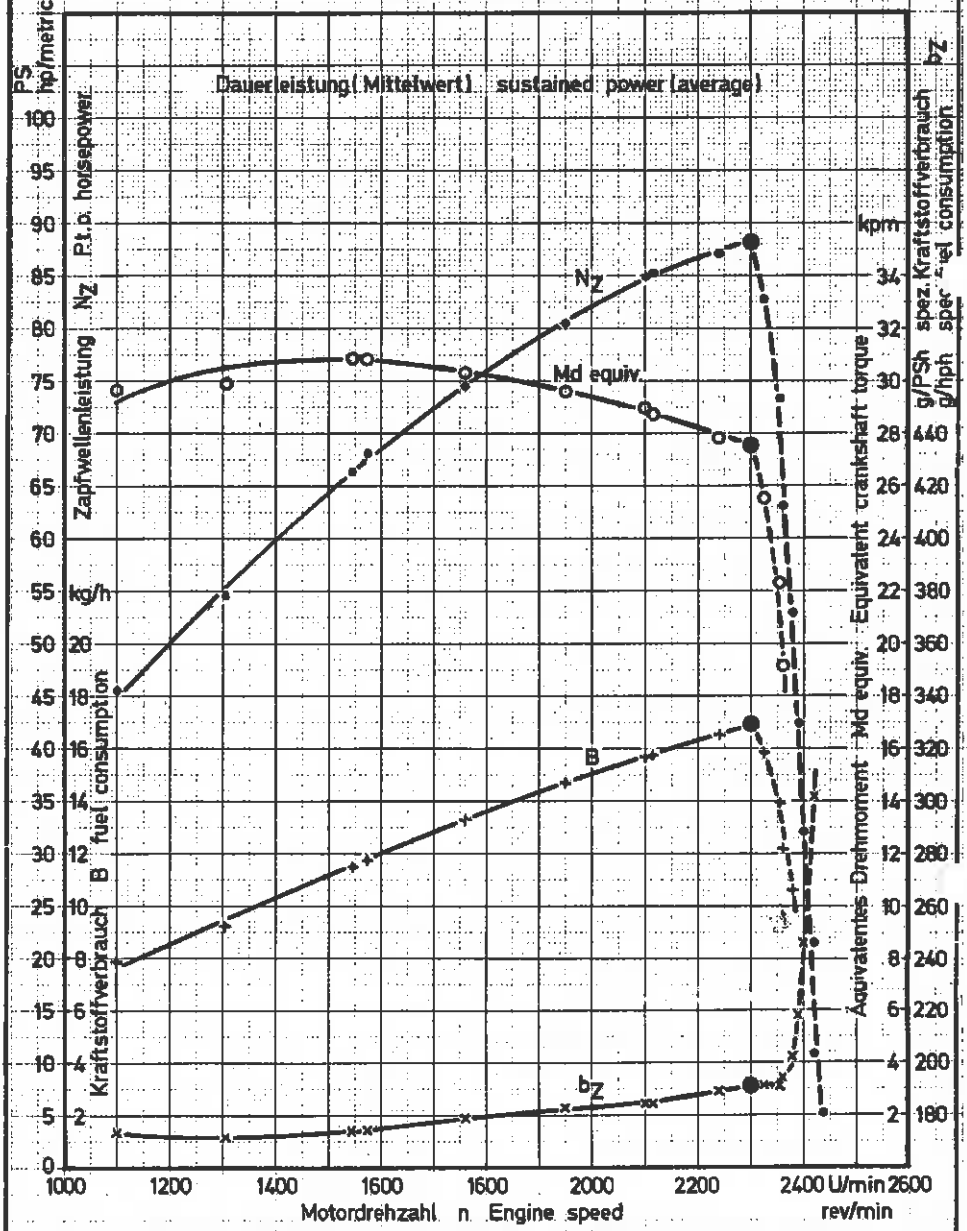
The Power Take-off Performance Tests has been carried out at a p.t.o.-speed of 1000 rev/min due to the fact that the capacity of the dynamometer was unsufficient for a test at 540 rev/min.

Schlepperprüffeld

Zapfwellenleistung
P.t.o. - test

Fendt Dieselschlepper
Favorit 4 S (FW 180)
MWM Dieselmotor D 225/6

Test Nr.: 4042



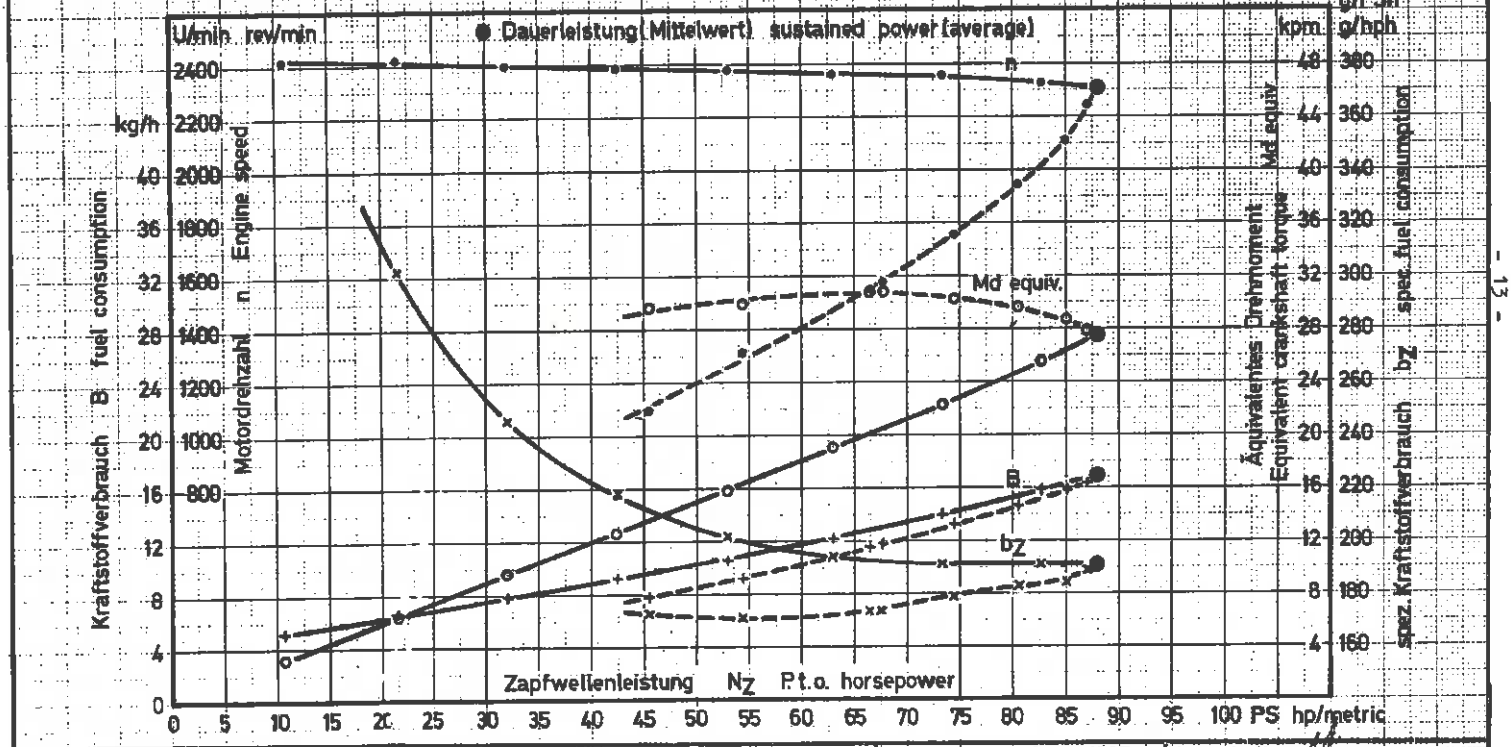
Motor Nr.: 01061	Motoröl: Mobil Delvac HD10	Versuchstag: 12.12.1967	Versuchsltg.:
Schlepper Nr.: 180/3/0119	Lufttemperatur: 6° C	Versuchs Nr.: 146/4042/67	
Kraftstoff: DK 0,842 / 15° C	Barom. std.: 755 mm QS	Kurvenblatt: 1	Fl.

Schlepperprüffeld

Zapfwellenleistung
P.t.o. - test

Fendt Dieselschlepper
Favorit 4 S (FW 180)
MWM Dieselmotor D 225/6

Test Nr. 4042



Motor Nr.:	01061	Kraftstoff: DK 0,842 / 15 °C	Lufttemperatur	6° C	Versuchstag:	12. 12. 1967	Versuchsltg.: FL
Schlepper Nr.:	180 / 3 / 0119	Motoröl: Mobil Delvac HD 10	Barom. std.:	755 mm QS	Versuchs Nr.:	146 / 4042 / 67	Kurvenblatt: 2

(2) DRAWBAR PERFORMANCE with ballast

Date of tests: 1.4.-17.4.1968

Type of track: concrete

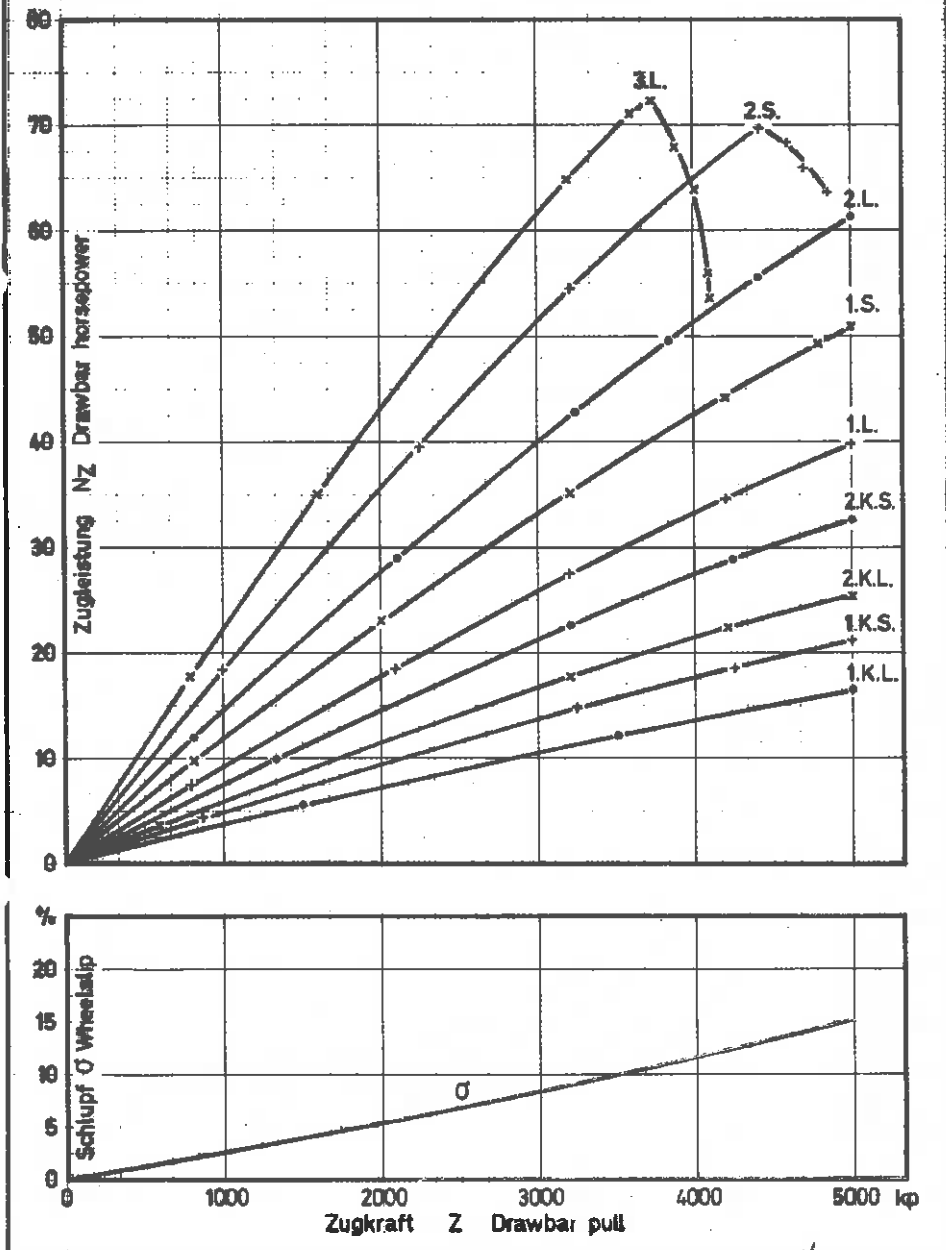
Height of drawbar above ground: 640 mm

Gear No. and Group	Horse-power (metric) hp	Drawbar pull kp	Engine speed rev/min	Slip of wheels %	Specific work hph/l	Specific fuel consumpt. g/hph	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure mm Hg
(i) MAXIMUM POWER												
1.K.L.	16,4	5000	2420	15,0	2,05	408	12	70	70	12	67	749
1.K.S.	21,1	5000	2415	15,2	2,46	342	7	70	72	7	64	760
2.K.L.	25,4	5000	2415	15,2	2,67	316	7	70	72	7	63	760
2.K.S.	32,6	5000	2410	15,4	2,90	291	7	72	74	7	64	760
1.L.	39,8	5000	2385	15,0	3,25	259	5	72	74	5	67	760
1.S.	50,8	5000	2360	15,2	3,47	242	2	70	72	2	77	760
2.L.	61,3	5010	2340	15,3	3,55	239	7	75	78	4	78	760
2.S.	69,7	4420	2300	13,7	3,55	240	3	75	78	3	73	759
3.L.	72,3	3730	2300	11,4	3,66	231	4	76	80	5	73	759
3.S.	73,3	2840	2300	8,7	3,66	229	14	80	85	13	42	759
4.L.	74,0	2390	2295	7,5	3,72	226	10	80	85	12	43	760
4.S.	74,4	1810	2300	5,9	3,73	225	14	80	86	14	41	760
5.L.	75,0	1460	2305	4,9	3,76	223	14	80	86	15	42	760
5.S.	73,7	1100	2300	3,2	3,70	231	14	80	86	15	44	759
(ii) FIVE-HOUR-TEST AT 75% OF PULL AT MAXIMUM POWER IN 3.GEAR OF L.GROUP												
3.L.	57,8	2800	2365	9,1	3,71	225	21	80	82	22	56	750
(iii) FIVE-HOUR-TEST AT PULL CORRESPONDING TO 15% WHEEL SLIP IN TEST (i)												
2.L.	61,3	5010	2340	15,3	3,55	239	21	75	78	22	60	750

Total oil consumption during ten hours duration of tests (ii) and (iii) : 36,6 g/h

Schlepperprüffeld	Zugprüfung Drawbar - test	Fendt Dieselschlepper Favorit 4 Si (FW 180) MWM Dieselmotor D 225/6

PS hp/metric mit Ballast with ballast Test Nr.: 4042



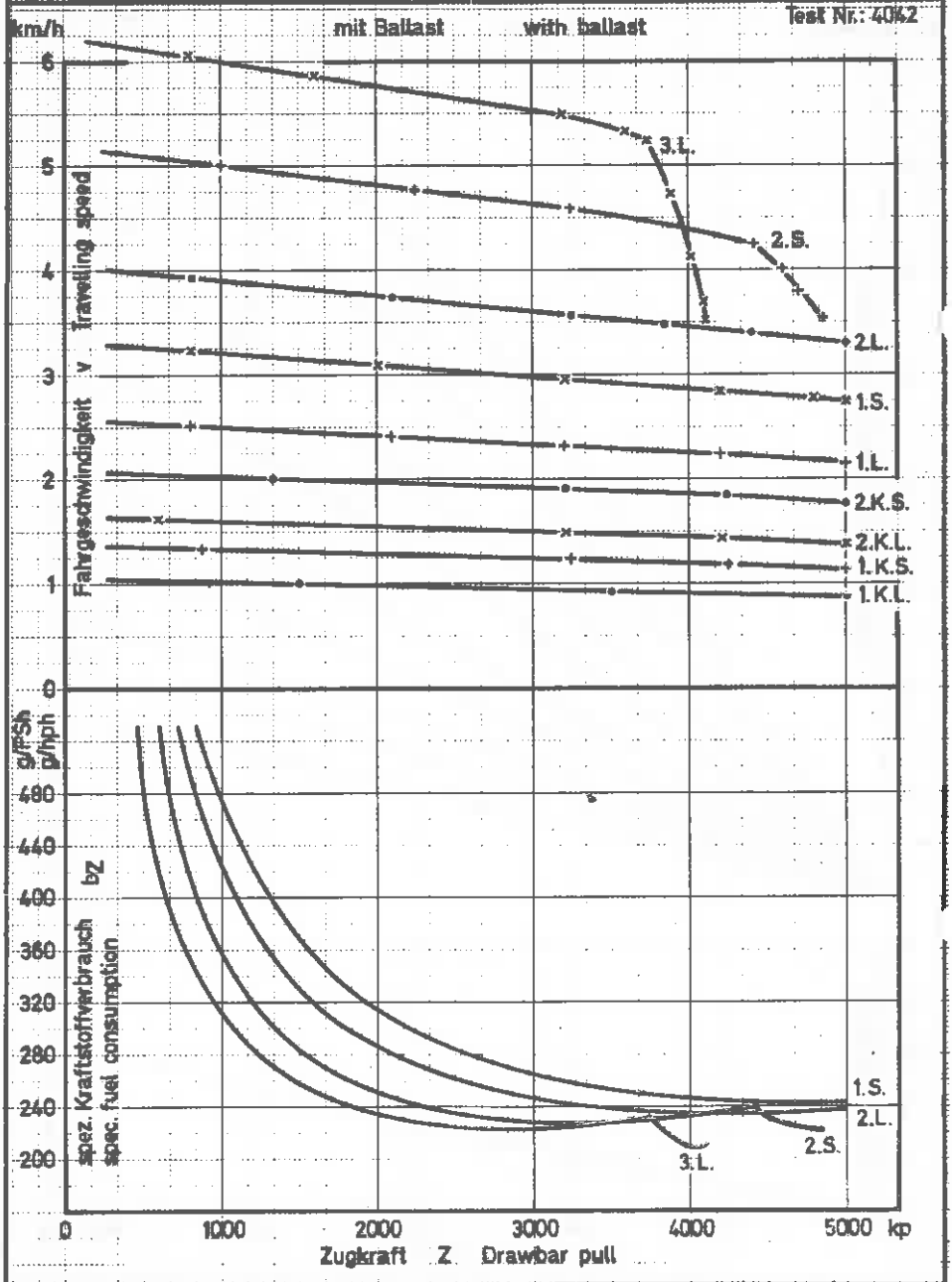
Motor Nr.: 010161	Motoröl: Mobil Delvac HDO	Versuchstag: 9. 4. 1968	Versuchsltg.:	
Schlepper Nr.: 180/3/0119	Lufttemperatur: 14° C	Versuchs Nr.: 4042/50/68		
Kraftstoff: DK 0,842/15°C	Barom.std.: 761 mm QS	Kurvenblatt: 3		FL

Schlepperprüffeld

Zugprüfung
Drawbar - test

Fendt Dieselschlepper
Favorit 4 S (FW 180)
MWM Dieselmotor D 225/6

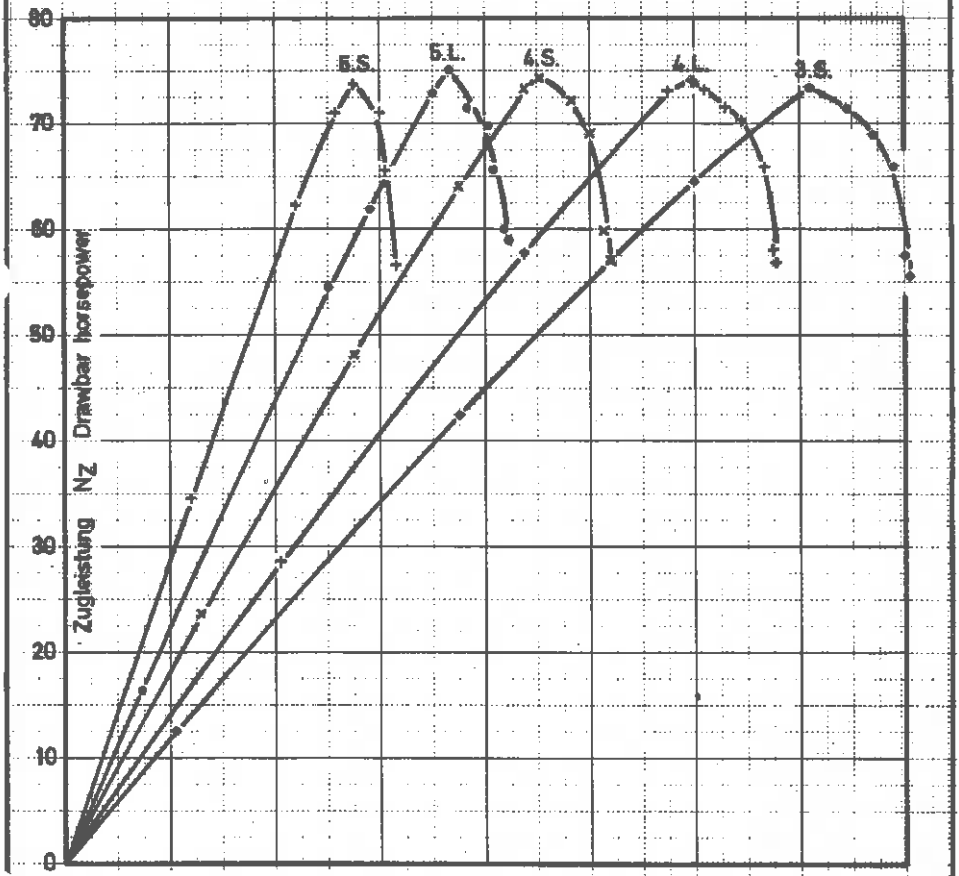
Test Nr.: 4042

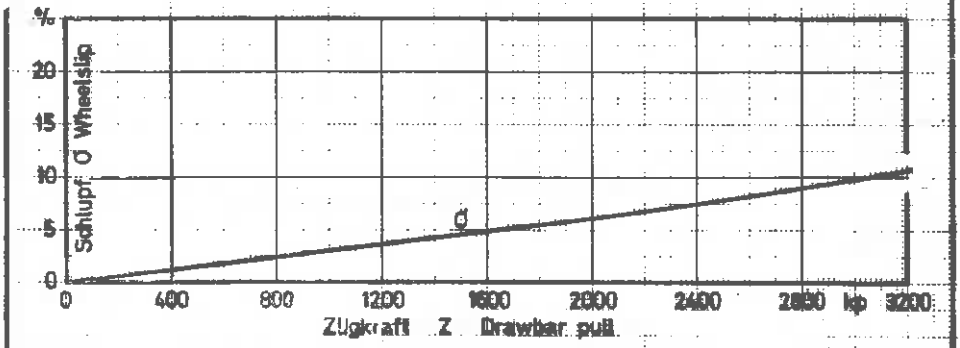


Motor Nr.: 01061	Motoröl: Mobil Delvac HD 10	Versuchstag: 9. 4. 1968	Versuchsltg.:
Schlepper Nr.: 180 / 3 / 0119	Lufttemperatur: 14°C	Versuchs Nr.: 4042 / 50 / 68	
Kraftstoff: DK 0,842 / 15°C	Barom. std.: 761 mm QS	Kurvenblatt: 4	Fl.

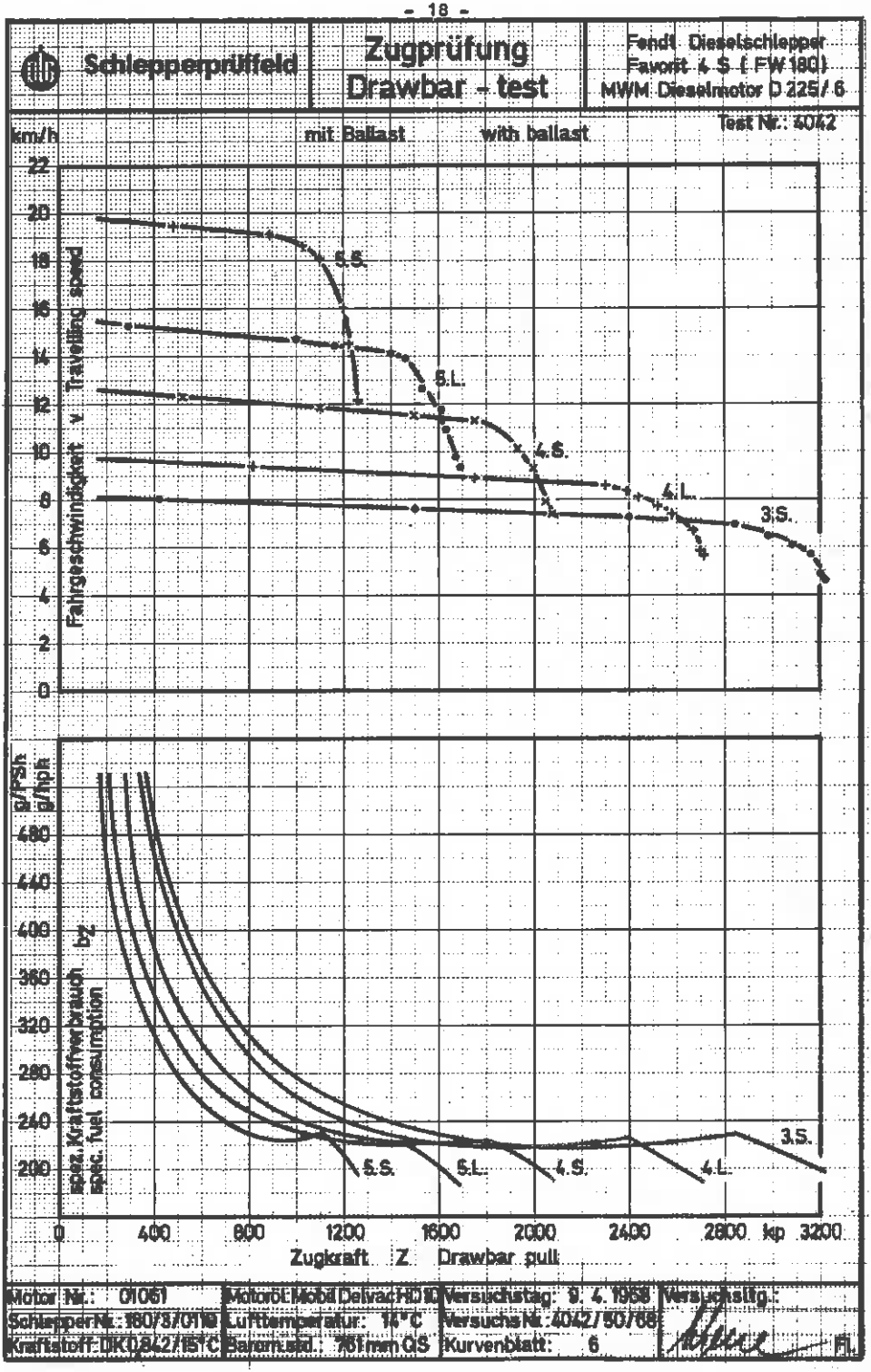
Schlepperprüffeld	Zugprüfung Drawbar - test	Fendt Dieselschlepper Favorit 4 S (FW 180) MWM Dieselmotor D 226/6

PS hp/metric — mit Ballast — with ballast — Test Nr.: 4042





Motor Nr.: 01061	Motoröl: Mobil Delvac HDD	Versuchstag: 9. 4. 1988	Versuchsfeld:
Schlepper Nr: 180/3/0119	Lufttemperatur: 14° C	Versuchs Nr: 4042/50/88	
Kraftstoff: DK 0,842/15° C	Barom. std.: 761 mm QS	Kurvenblatt: 5	


Schlepperprüffeld
Zugprüfung
Drawbar - test
Fendt Dieselschlepper
Favorit 4 S (FW 180)
MWM Dieselmotor D 225/6
Test Nr.: 4042
km/h
mit Ballast
with ballast
Fahrgeschwindigkeit v Travelling speed
5.S.
5.L.
4.S.
4.L.
3.S.
g/PSh
g/hph
spez. Kraftstoffverbrauch be
spec. fuel consumption
5.S.
5.L.
4.S.
4.L.
3.S.
0
400
800
1200
1600
2000
2400
2800
kp
3200
Zugkraft Z Drawbar pull
Motor Nr.: 01061
Motoröl: Mobil Delvac HD 30
Versuchstag: 9. 4. 1968
Versuchsltg.:
Schlepper Nr.: 180/3/0118
Lufttemperatur: 14°C
Versuchs Nr.: 4042/50/68
Kraftstoff: DIN 0,842/15°C
Barem. std.: 761 mm QS
Kurvenblatt: 6
Fl.

(2) DRAWBAR PERFORMANCE without ballast

Date of tests: 4.4.1968

Type of track: concrete

Height of drawbar above ground: 640 mm

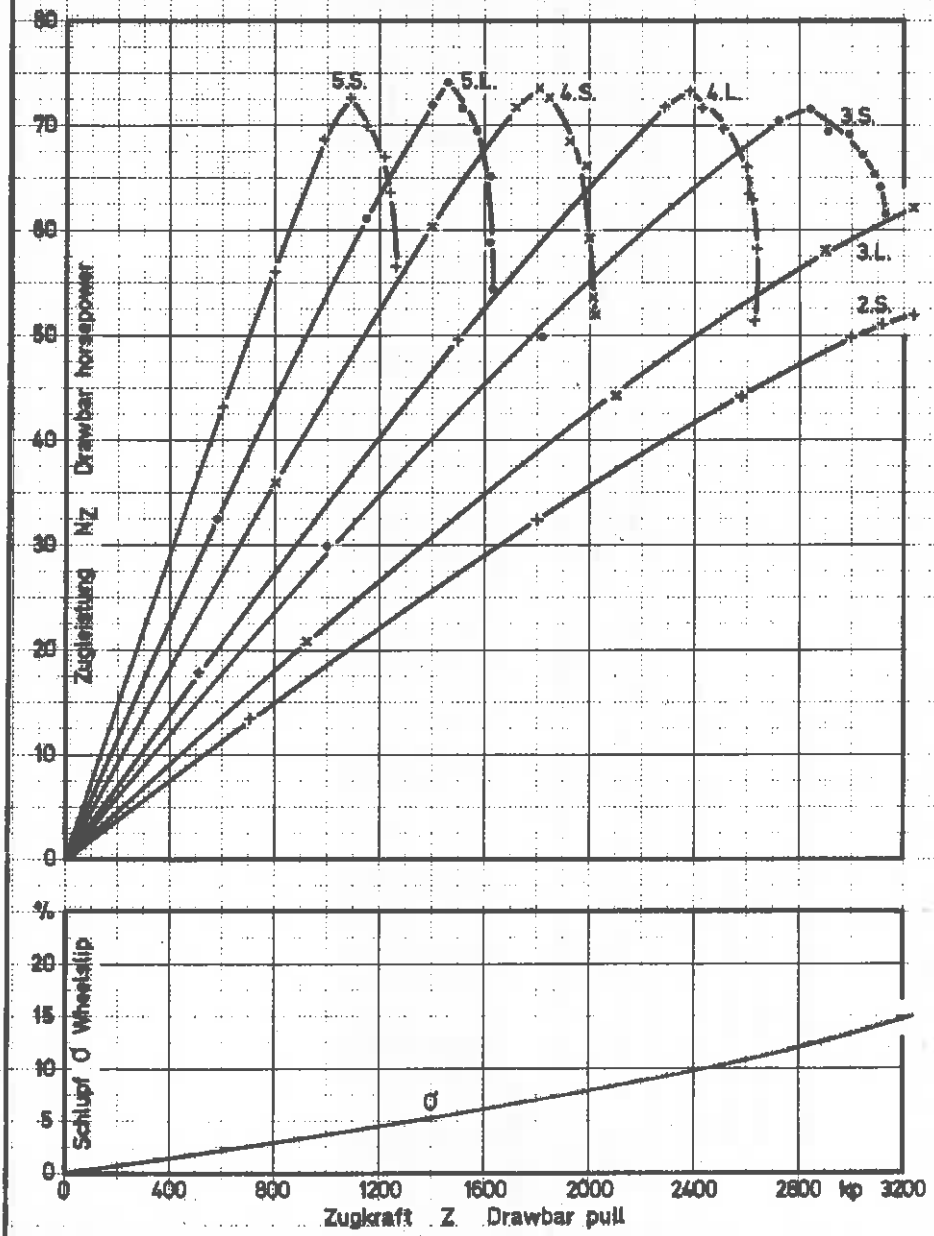
Gear No. and Group	Horse-power (metric) hp	Drawbar pull kp	Engine speed rev/min	Slip of wheels %	Specific work hph/l	Specific fuel consumpt. g/hph	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure mm Hg
(v) MAXIMUM POWER												
2.S.	52,0	3240	2360	15,1	3,49	240	12	75	78	12	44	747
3.L.	62,2	3240	2350	15,3	3,68	228	12	75	78	13	46	747
3.S.	71,5	2840	2300	12,3	3,61	234	12	76	80	13	50	747
4.L.	73,3	2380	2300	9,3	3,70	228	5	74	76	6	77	750
4.S.	73,5	1810	2300	7,6	3,71	227	5	76	80	7	68	750
5.L.	74,1	1460	2300	6,3	3,74	225	7	80	82	9	64	750
5.S.	72,6	1090	2300	5,4	3,67	230	8	80	82	9	63	750

Schlepperprüffeld

Zugprüfung
Drawbar - test

Fendt Dieselschlepper
Favorit 4 S (FW 180)
MWM Dieselmotor D 225/6

PS hofmatric ohne Ballast without ballast Test Nr.: 4042



Motor Nr.: 01051	Motoröl: Mobil Delvac HDK	Versuchstag: 4. 4. 1968	Versuchsltg.
Schlepper Nr.: 180/3/0119	Lufttemperatur: 10° C	Versuchs Nr.: 4042/42/68	
Kraftstoff: DK 0,842/15° C	Barom.std.: 754 mm QS	Kurvenblatt: 7	Fl.

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

(3 and 4) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 7,50-20 AS Front, 6 ply, without ballast
rear: 18,4/15-34 AS, 6 ply, without ballast

Track of wheels front: 1700 mm
rear: 1700 mm

	With brakes		Without brakes	
	left-hand	right-hand	left-hand	right-hand
Radius of turning space	4,54 m	4,37 m	4,90 m	4,84 m
Radius of turning circle	4,35 m	4,18 m	4,73 m	4,65 m

(5) LOCATION OF CENTRE OF GRAVITY

	Without ballast
Height above ground	792 mm
Distance forward from the vertical plane containing the axis of the rear wheels	886 mm
Distance from the median plane of the tractor	0 mm

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

(6) BRAKE TESTS

A) FOOT BRAKE

Date of test: 8.4.1968

Type of track: concrete

Type of decelerometer: IFK Brake Recorder, August Fischer KG. 34 Göttingen

Travelling speed of tractor: 28,35 km/h

With cold brakes

		Tractor without ballast	Tractor with ballast
Maximum deceleration	m/s^2	6,0	5,6
Stopping distance	m	11,0	10,2
Force on pedal	kp	63	67

Brake fade characteristics, hot tests, tractor without ballast

Deceleration: hot/cold 94%

Stopping distance: cold/hot 95%

Force on pedal: cold/hot 116 %

B) PARKING BRAKE

Force applied on the brake lever, cold brake 28 kp.
No rotation of the rear wheels of tractor occured when the tractor has been towed.

Force applied on the brake lever, hot brake 28 kp.
One hour after the brake has been applied no rotation of the rear-wheels of tractor occured when the tractor has been towed.

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

(7) MEASUREMENT OF AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 16. 4. 1968

Type of track: concrete

Type of sound level meter: EZGN, Rohde & Schwarz
8 München

Results of test

Speed: 6.S.

Travelling speed before acceleration: 21,4 km/h

Sound level: 85 dBA

(8) NOISE MEASUREMENT AT THE DRIVERS EAR

Date of test: 16.4.1968

Type of track: concrete

Type of sound level meter: EZGN, Rohde & Schwarz
8 München

Type of octavfilter: PBO, Rohde & Schwarz
8 München

No cab fitted on tractor.

Results of tests

Gear	Travelling speed*) nominal km/h	real km/h	Sone
3.S.	7,34	7,17	79
2.L.	3,66	3,39	94
3.L.	5,68	5,46	96
4.L.	8,76	8,64	98

*)The first gear tested corresponds to the travelling speed nearest to 7,25 km/h

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

(9) TEST OF POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: 20.3.1968, Darmstadt-Kranichstein
Hydraulic fluid: SAE 20

POWER LIFT

Height above ground in down position hitch point mm	test frame mm	Total vertical movement mm	Maximum force exerted through full lift range kp	Pressure of hydr. oil kp/cm²	Lifting force at front axle load = 0 kp kp
Measured at the hitch points of lower links					
-67	-	827	2612	175	*)
275	-	715	2560	175	*)
Measured at the test frame 610 mm to the rear of the hitch points					
55	15	730	2232	175	1955
275	220	860	2215	175	1955

*) greater than maximum force exerted by power lift

Type of linkage lock for transport: hydraulic lock
Opening pressure of the cylinder over pressure relief valve: 200 kp/cm² (manufacturers rating)

PUMP CHARACTERISTICS

(i) opening pressure of relief valve: 178 kp/cm²
sustained pressure by the open relief valve: 175 kp/cm²

Pump delivery rate at external tapping
(ii) at minimum pressure: 38,5 l/min
(iii) at maximum hydraulic power: 36,8 l/min
maximum hydraulic power: 13,1 hp (metric)
delivery pressure: 160 kp/cm²

SCHLEPPER-PRÜFFELD
Fendt Favorit 4 S (FW 180)

Test No. 4042/SPF

OPTIONAL TESTS

(10) ENGINE TESTS

Date and location of tests: 2.1.1968, Darmstadt-Kranichstein
Type of dynamometer: Schenck hydraulic dynamometer

Maximum power

Horsepower (metric) hp	Engine speed rev/min	Fuel consumption total l/h	Fuel consumption specific g/hph	hph/l
At maximum power - 2 hours test				
91,5	2300	19,70	181	4,65
At standard p.t.o.speed (1000 rev/min)				
90,0	2250	19,20	179	4,68
At the speed recommended by the manufacturer for drawbar work				
91,5	2300	19,70	181	4,65
Fuel consumption at part loads				
(i) 85% of torque at maximum power				
79,0	2339	16,50	176	4,79
(ii) unloaded				
9,7	2430	-	-	-
(iii) 50% of the load defined in (i)				
40,3	2390	9,70	203	4,15
(iv) maximum power				
91,5	2300	19,70	181	4,65
(v) 25% of the load defined in (i)				
20,4	2417	6,85	283	2,98
(vi) 75% of the load defined in (i)				
59,6	2360	12,95	183	4,60

Optimum fuel consumption: 159 g/hph at 59,4 hp and 1698 rev/min
Standard fuel consumption 1/2 (acc.to DIN 9606): 7,32/15,80 l/h
No load maximum engine speed: 2450 rev/min
Torque at maximum power: 28,50 kpm
Maximum torque: 31,30 kpm at 1585 rev/min of the engine

Mean atmospheric conditions:
temperature: 16°C
pressure: 738 mm Hg
relative humidity: 35%

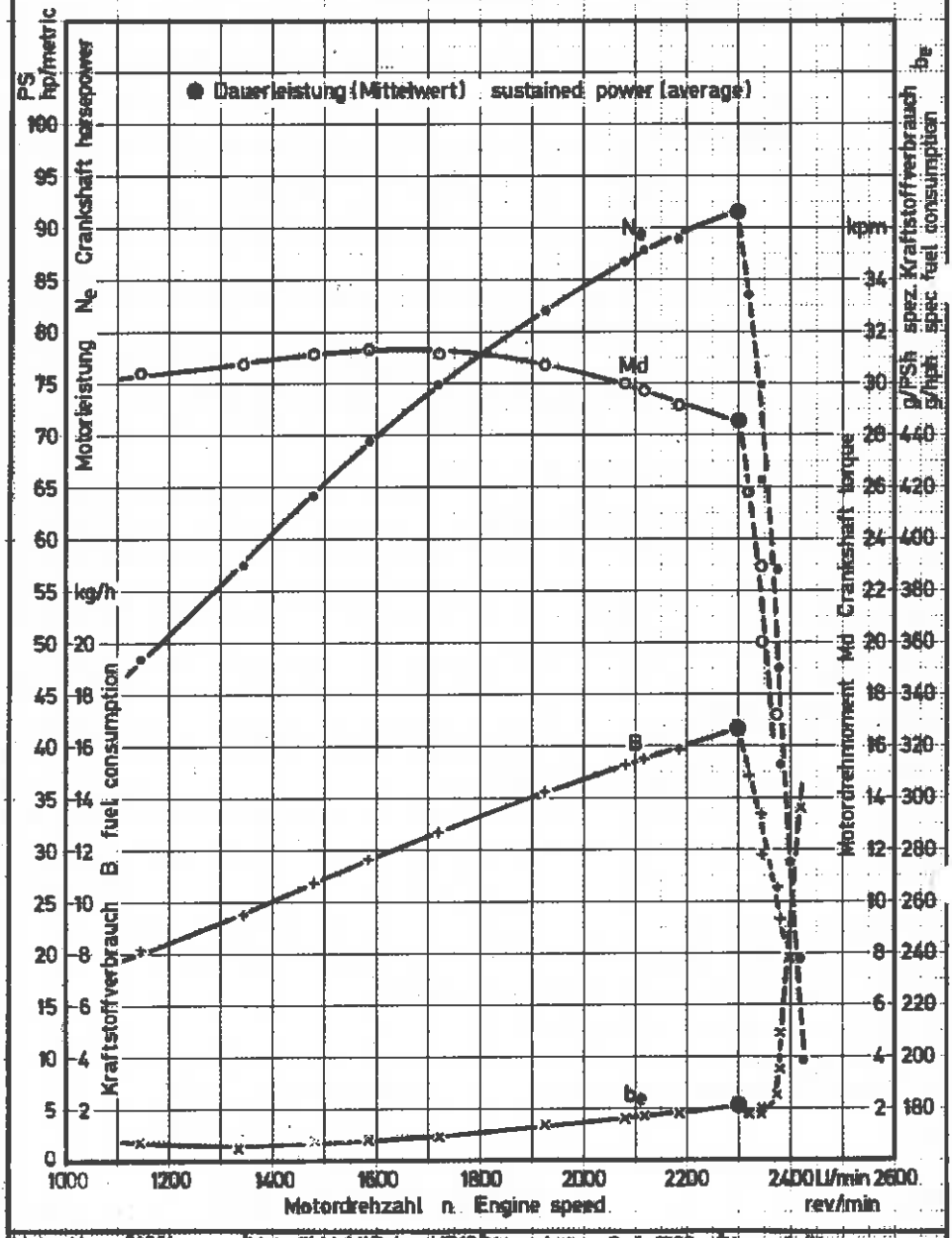
Maximum temperatures:
coolant: 80 °C
engine oil: 90 °C
fuel: 30 °C

Schlepperprüffeld

Motorleistung
Engine - test

Fendt Dieselschlepper
Favorit 4 S (FW 180)
MWM Dieselmotor D 225/6

Test Nr.: 4042



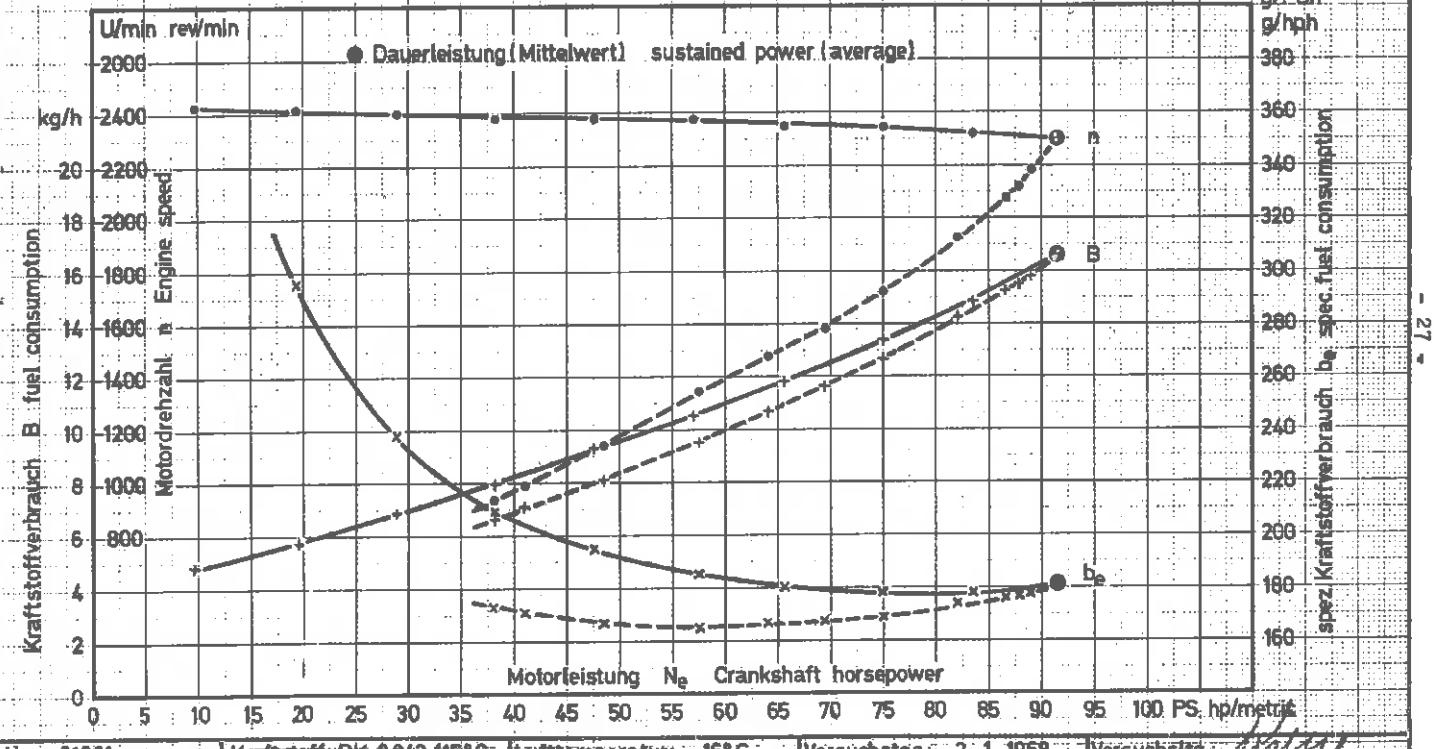
Motor Nr.: 01061	Motoröl: Mobil Delvac HD10	Versuchstag: 2. 1. 1968	Versuchsltg.:
Schlepper Nr.: 180/3/0119	Lufttemperatur: 16° C	Versuchs Nr.: 02/4042/68	
Kraftstoff: DIK 0,842/15°C	Barom. std.: 738 mm QS	Kurvenblatt: 8	FL.

Schlepperprüffeld

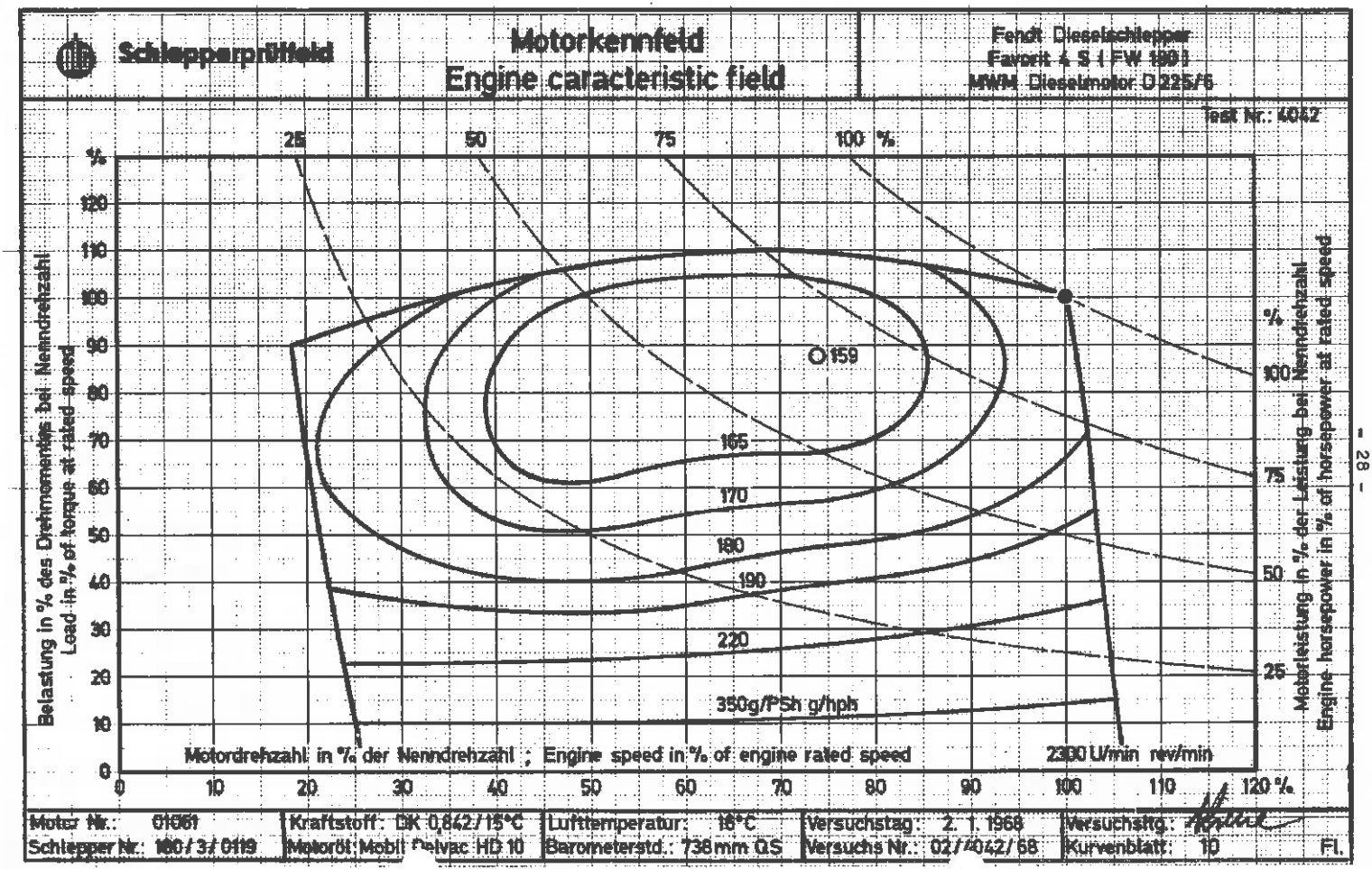
Motorleistung
Engine - test

Fendt Dieselschlepper
Favorit 4 S (FW 180)
MWM Dieselmotor D 225/6

Test Nr.: 4042



Motor Nr.: 01061	Kraftstoff: DK 0,842 /15° C	Lufttemperatur: 16° C	Versuchstag: 2. 1. 1968	Versuchsltg.:	
Schlepper Nr.: 180/3/0119	Motoröl: Mobil Delvac HD 10	Barom. std.: 738 mm QS	Versuchs Nr.: 02/4042/68	Kurvenblatt: 9	Fl.


Schlepperprüffeld
Motorkennfeld
Engine caracteristic field
Fendt Dieselschlepper
Favorit 4 S (FW 190)
MWM Dieselmotor D 225/6
Test Nr.: 4042
25
50
75
100 %
159
165
170
180
190
220
350g/PSh g/hph
Belastung in % des Drehmoments bei Nenndrehzahl
Load in % of torque at rated speed
Motorleistung in % der Leistung bei Nenndrehzahl
Engine horsepower in % of horsepower at rated speed
Motordrehzahl in % der Nenndrehzahl ; Engine speed in % of engine rated speed
2300 U/min rev/min
Motor Nr.: 01061
Schlepper Nr.: 180 / 3 / 0119
Kraftstoff: DK 0,842 / 15°C
Motoröl: Mobil Delvac HD 10
Lufttemperatur: 18°C
Barometerstd.: 738 mm QS
Versuchstag: 2. 1. 1968
Versuchs Nr.: 02 / 4042 / 68
Versuchsltg.:
Kurvenblatt: 10
FI.

SCHLEPPER-PRÜFFELD

Supplementary Tests

The p.t.o.-performance tests with the tractor

FENDT FAVORIT 4 S (FW 180)

have been carried out at a p.t.o.-speed of 1000 rev/min because no dynamometer was available having a sufficient capacity at a speed of 540 rev/min.

The test report in this form has been approved by the Secretariat of the O.E.C.D. as an O.E.C.D.-Report with the Serial No. 242 of the 27th August 1968.

Now, as a new dynamometer with a appropriate capacity is available the performance tests of the p.t.o. have been supplemented by tests at a p.t.o.-speed of 540 rev/min according to the O.E.C.D. Standard Code for the Official Testing of Agricultural Tractors, Compulsory Tests 1.) to e) and Appendix I, 14. and 19.

Before the beginning of these tests measurements have been made at a p.t.o.-speed of 1000 rev/min in order to verify that the p.t.o. performance is within the limit of 5 per cent either side of the original performance figures given in the main Test Report No. 242, page 11. The tractor used with the supplementary tests was the same as with the O.E.C.D. Test.

CONTROL TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE (at 1000 rev/min p.t.o.-speed)

Date and location of tests: 16.10.1968

Type of dynamometer: Schenck hydraulic dynamometer U 1-40

Horsepower (metric) hp	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption specific g/hph	hph/l
At maximum power 2-hours test					
88,4	2300	1022	20,4	192	4,32
At standard p.t.o. speed (1000 rev/min)					
87,0	2250	1000	19,8	190	4,38
At the speed recommended by the manufacturer for drawbar work					
88,4	2300	1022	20,4	192	4,32

SCHLEPPER-PRÜFFELD

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 16.10.1968, Gross-Umstadt

Type of dynamometer: Schenck hydraulic dynamometer U 1-40

Maximum power

Horsepower (metric) hp	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption specific g/hph	hph/l
At maximum power 2-hours test					
88,6	2300	587	20,35	192	4,35
At standard p.t.o.-speed (540 rev/min)					
85,0	2115	540	18,92	186	4,49
At the speed recommended by the manufacturer for drawbar work					
88,6	2300	587	20,35	192	4,35
Fuel consumption at part loads					
(i) 85% of torque at maximum power					
77,0	2345	600	17,25	185	4,46
(ii) unloaded					
1,3	2445	624	4,88	-	-
(iii) 50% of the load defined in (i)					
39,3	2405	614	10,33	219	3,81
(iv) maximum power					
88,6	2300	587	20,35	192	4,35
(v) 25% of the load defined in (i)					
19,8	2420	618	7,35	309	2,79
(vi) 75% of the load defined in (i)					
58,2	2380	606	13,85	194	4,28

No load maximum engine speed: 2460 rev/min

Torque *) at maximum power: 27,6 kpm

Maximum torque*) 30,6 kpm at 1595 rev/min of the engine

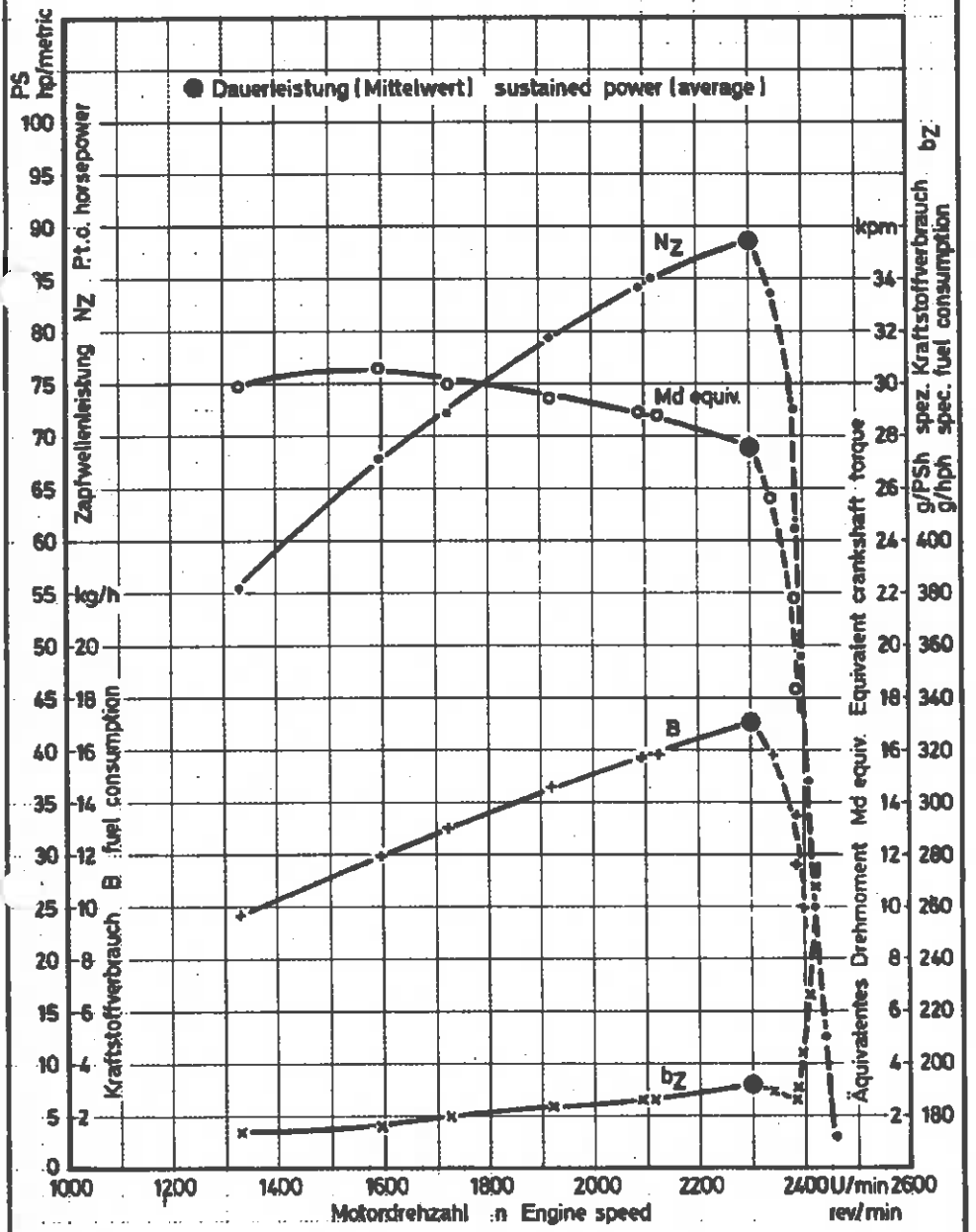
Mean atmospheric conditions: temperature: 20°C
pressure: 753 mm Hg
relative humidity: 65%

Maximum temperatures: coolant: 80°C
engine oil: 80°C
fuel: 21°C

*) The torque reported is the equivalent crankshaft torque

Prüfungs-Abteilung	Zapfwellenleistung P.t.o. - test	Fendt Dieselschlepper Favorit 4 S (FW 180) MWM Dieselmotor D 225/6

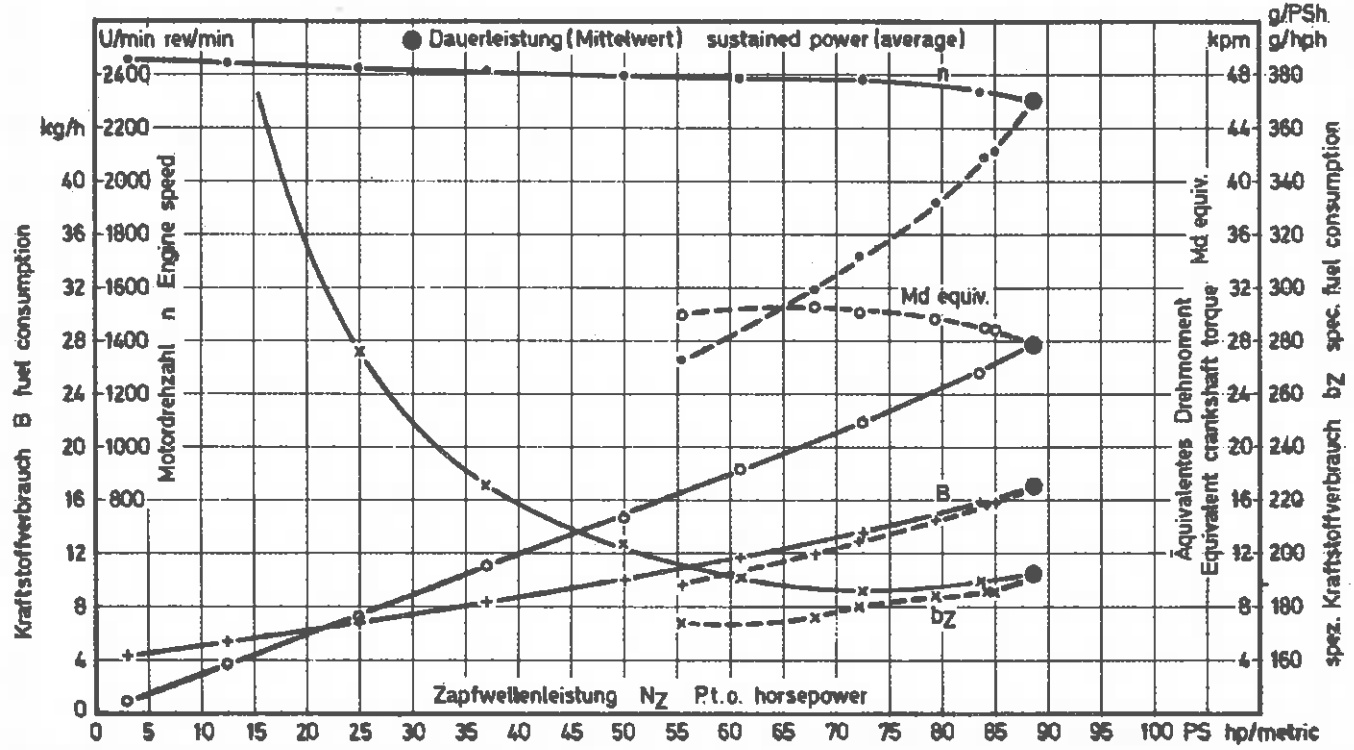
Test Nr.: 4042



Motor Nr.: D1061	Motoröl: Mobil Delvac HD10	Versuchstag: 15.10.1968	Versuchsltg.:
Schlepper Nr.: 180/3/0119	Lufttemperatur: 20° C	Versuchs Nr.: 170/4042/68	
Kraftstoff: DK 0,828/15° C	Barom. std.: 753 mm QS	Kurvenblatt: 11	FI.

Prüfungs-Abteilung	Zapfwellenleistung P.t.o. - test	Fendt Dieselschlepper Favorit 4 S (FW 180) MWM Dieselmotor D 225/6

Test Nr.: 4042



Motor Nr.: 01061	Kraftstoff: DK 0,828/15 °C	Lufttemperatur: 20° C	Versuchstag: 16. 10. 1968	Versuchsltg.:	
Schlepper Nr.: 180/3/0119	Motoröl: Mobil rac HD 10	Barom. std.: 753 mm QS	Versuchs Nr.: 170/ 2/68	Kurvenblatt: 12	Fl.