



O.E.C.D. Report No.: 205

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

FENDT FARMER 3 S (FW 238)

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



Date of Tests: July 1966 - February 1967

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. - Tractor Test Code.

Date of Approval: 4. April 1967 Serial No.: 205

DEUTSCHE LANDWIRTSCHAFTS-GESELLSCHAFT e.V.
Schlepper-Prüffeld Darmstadt-Kranichstein

This Bulletin is based on engineering tests in accordance with the O.E.C.D. Tractor Code. It does not contain an avaluation of the performance of the tractor on practical form work .

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SCHLEPPER-PRÜFFELD

Fendt Farmer 3 S (FW 238)

- 4 -



Test No. 4033/SPF

Tractor manufacturer: Xaver Fendt & Co., Maschinen-und Schlepperfabrik
Marktoberdorf/Allgäu

Submitted for test by: manufacturer

Selected by: manufacturer with the agreement of
Schlepper - Prüffeld Darmstadt

Place of running-in: Marktoberdorf and Darmstadt

Duration of running-in: engine 100 hr, tractor 50 hr

SPECIFICATION OF TRACTORTractor

Make: Xaver Fendt & Co., Maschinen-und Schlepperfabrik
Model: Farmer 3 S (FW 238) Marktoberdorf/Allgäu
Type: Diesel-tractor, unit construction
Serial No.: 238/1/0015

Engine

Make: Motorenwerke Mannheim A.G., Mannheim
Model: D 208 - 4
Type: water cooled 4-stroke Diesel-engine
Serial No.: D 208.4.01122

Cylinders: 4 cylinders, vertical, in line; bore/stroke 95/105 mm,
capacity: 2975 cm³; compression ratio: 17 : 1;
overhead valves; wet, replaceable cylinder liners

Fuel system: Fuel-commercially available Diesel-oil; Bosch type
PES 4 A 75 C 320 RS 1166 injection pump; CAV type 4-bore
injection nozzles; injection pressure 180 kp/cm²;
injection timing 21° before TDC; Pierburg type PE-Solex
fuel feed pump; Hengst type H 5 K type B felt tube fuel
filter; capacity of fuel tank appr. 65 l

Governor: Make: Bosch type EP/RSV 300/1500 A 28 398, centrifugal
variable speed type, governed range of speed
530 - 2240 r.p.m.
rated speeds for
p.t.o.-work at standard p.t.o. speed 1935 r.p.m.
field-work 2075 r.p.m.
transportation-work 2075 r.p.m.
belt-work 2075 r.p.m.

Air cleaner: Make: Mann und Hummel, Stuttgart
oil-bath type
oil capacity appr. 0,7 l

SCHLEPPER-PRÜFFELD

Ford Farmer 3 S (FW 238)



Test No. 4033/SFF

Lubrication system: Forced feed from gear type pump; metal strainer in sump; Knecht type fine filter element in full flow; oil capacity 8,5 l; recommended changing period 100 hours using branded normal HD-oil; recommended oil in winter HD SAE 10
in summer HD SAE 20
in tropics HD SAE 30

Cooling system: Water cooled assisted by impeller and 4-blade fan 440 mm dia; cooling water capacity 14 l

Electrical equipment Voltage 12 Volt, negativ earth

Starting device: Bosch 12 Volt type JD 12V 1,8 PS

Generator: Bosch 12 Volt type EH (R) 14V 11 A 19

Battery: Bosch 12 Volt type lead acid, 90 Ah capacity

Transmission

Clutch: 1) make: Voith, Heidenheim type Turbo-Kupplung 332 TD, fluid type clutch
2) make: Fichtel & Sachs A.G., Schweinfurt type 250, dry plate type clutch, operated by foot pedal

Gearbox: make: Xaver Fendt & Co., Marktoberdorf, type Fendt; synchron meshed type selecting gear with group gear; 16 forward speeds, 5 (optional 13) reverse speeds

Rear axle and final driver: make: Xaver Fendt & Co., Marktoberdorf; bevel gear type differential gear with crown-wheel and pinion, differential lock fitted; operated by foot pedal, self-disengaging

Oil capacity: selecting gear, group gear and differential gear 24 l, final drive 2 l



Total ratios and speeds:

Group gear	Gear No.	Number of engine revolutions for one revolution of driving wheel	Theoretical travelling speed for 2075 r.p.m. rated speed of engine	
			km/h	m/s
creeping gears	1	1627,80 : 1	0,319	0,0885
	2	984,55 : 1	0,528	0,1466
	3	561,20 : 1	0,925	0,257
slow stage	1	406,95 : 1	1,28	0,356
	2	246,14 : 1	2,11	0,585
	3	140,30 : 1	3,70	1,028
	4	98,46 : 1	5,28	1,466
	5	59,55 : 1	8,72	2,420
	6	33,94 : 1	15,30	4,250
fast stage	1	321,71 : 1	1,61	0,447
	2	194,59 : 1	2,67	0,742
	3	110,91 : 1	4,68	1,300
	4	77,83 : 1	6,67	1,852
	5	47,08 : 1	11,00	3,055
	6	26,83 : 1	19,36	5,380
fast gear		18,67 : 1	27,82	7,730
creeping gear	1.R.	1126,90 : 1	0,461	0,128
slow stage	1.R.	281,73 : 1	1,84	0,511
	2.R.	68,16 : 1	7,62	2,120
fast stage	1.R.	222,73 : 1	2,33	0,647
	2.R.	53,88 : 1	9,64	2,680



<u>Power take-off</u>	a) Main p.t.o. proportional engine speed, independent from main clutch, manually engaged
Location:	At rear of tractor, in vertical centre plane of tractor, 619 mm above ground
Dimensions:	29 x 34,9 x 8,7 mm = $1\frac{3}{8}$ " , 6 spline (acc.to DIN 9611 form A; BS 1495 ; ASAE 203.2)
Speed:	579 r.p.m. at rated engine speed 540 r.p.m. standard p.t.o. speed at 1935 r.p.m. engine speed may be set by aid of tractormeter.
Direction of rotation:	Clockwise viewed from tractor rear
Location: } Dimensions: }	b) Ground speed p.t.o. Location and dimensions same as with main p.t.o.; ratio between p.t.o. and rear wheels = 24,9 : 1, at 1 revolution of p.t.o. travelling way of rear wheels = 168 mm
Direction of rotation:	Clockwise viewed from tractor rear in all forward gears; anticlockwise in reverse gears
	c) Medium p.t.o., proportional engine speed, independent from main clutch
Location:	1118 mm before centre line of rear axle, 538 mm above ground, 60 mm to the right hand of vertical centre plane.
Dimensions:	Spline shaft B 6 x 26 x 30 (acc. to DIN 5426)
Speed:	1197 r.p.m. at rated engine speed
Direction of rotation:	Anticlockwise viewed from tractor rear
<u>Belt pulley</u>	(Not fitted on tractor tested. Figures acc. to manufacturers statements)
Location:	At tractor rear; driving device attached to p.t.o. with a quick coupling; manually engaged.
Dimensions:	Dia 225 mm, width 150 mm
Speed:	1456 r.p.m. at rated engine speed; linear belt speed 17,15 m/s (acc.to DIN 9630)
Direction of rotation:	Clockwise or anticlockwise by reversible driving device.
<u>Power lift</u>	Make: Xaver Fendt & Co., Marktoberdorf/Allgäu Life hydraulic power lift with power control and position control, may be stepless mixed; floating position; mechanical and hydraulic lock of the linkage for transport; single acting ram. Bosch type HY/ZFR 1/1 $\frac{1}{2}$ AL 104 gear type pump directly driven from engine; maximum oil pressure 175 kp/cm ² ; oil capacity 7,5 l fitted with power lift only; oil capacity 9 l when also fitted front end loader; Bosch type HY/SR 10 H 1/150/1 control valve ; dual control valve available controlling front end loader and external booster rams; 1 external tapping.
<u>Pull attachment</u>	
Implement linkage:	Three point linkage categorie II (acc.to DIN 9674) controlled by power lift; lifting range from 0 mm to 960 mm. length of lift rods may be changed,



Drawbar: Fixed on hydraulically controlled implement linkage with central hole and 8 holes with 40 x 80 mm + 1 x 230 mm + 3 x 80 mm distance apart either side of centre line (acc.to DIN 9676); vertical adjustment from 0 to 960 mm by power lift; distance from rear axle 972 mm; distance of central hole from rear axle 670 mm.

Trailer hitch: At rear of tractor; height above ground 725 - 755 - 785 - 850 - 880 - 910 mm, changed by a pin and reversing hitch; distance from rear axle 451 mm.

Towing hitch: At front of tractor; height above ground 655 mm

Steering device Make: Zahnradfabrik Friedrichshafen, Friedrichshafen; ZF-Gemmer-steering type GD 38 a; (optional ZF-Column Hydrosteering type 7409) Steering operated by a hand wheel.

Brakes

Parking brake: Mechanically operated by ratchet hand lever, external band type brake acting on drums on differential half shafts.

Foot brake: Mechanically operated by foot pedal, internal shoe type brake acting in drums in rear wheels.

Steering brake: Operated by the divided foot pedal of the foot brake; at normal use both parts are connected by a bolt.

Wheels

Steering wheels: Two at front, 6,50-16 AS Front 6 ply pneumatic (acc.to DIN 7808); maximum permissible weight on each tyre 780 kp at 3,0 kp/cm²; when transporting mounted implements 975 kp; track from 1360 mm-1500 mm changed by extending front axle. (tracks acc.to DIN 9621)

Driving wheels: Two at rear, 14,9/13-30 AS 6 ply (acc.to DIN 7807); maximum permissible weight on each tyre 1585 kp at 1,3 kp/cm²; when transporting mounted implements 1820 kp; track 1360 mm and 1500 mm changed by reversing wheels (acc.to DIN 9621); rims DW 12 x 30.

Wheel base: 2253 mm

Weights

With power lift, three-point linkage, full fuel tank and oil, as tested, without driver with driver

Weight of tractor	Front axle load:	876 kp	884 kp
without ballast:	Rear axle load :	1484 kp	1546 kp
	Total:	2360 kp	2430 kp

Ballast front: 3 front-weights mounted on the front axle carrier
 = 124 kp at drawbar test
 (5 front-weights = 205 kp permitted by manufacturer)

Ballast rear: 5 wheel-weights per wheel, total 570 kp
 (12 wheel-weights total = 660 kp available by
 manufacturer);
 Water in tyres 386 kp

Weight of tractor	Front axle load:	1000 kp
with ballast:	Rear axle load :	2440 kp
	Total:	3440 kp

Seat

Make: Xaver Fendt & Co., Maschinen-und Schlepperfabrik, Marktoberdorf/Allgäu; upholstered seat, sprang and hydraulic shock absorber; spring adjustable acc.to drivers weight; height above ground 1175 mm, 16 mm to the left of vertical centre plane.

Number of grease points (whole tractor) 17

Overall dimensions

overall length:	3675 mm with drawbar in three point linkage
Overall width :	1904 mm without ballast weights
Overall height:	1670 mm to top of back rest of the seat
Maximum ground	400 mm in vertical centre plane
clearance:	350 mm apart vertical centre plane

Lighting equipment

Electric 12 Volt, acc.to StVZO (German lighting regulation) additionally head-light main beam.

	Height above ground of centre mm	Diameter mm	Distance from outside edge of tractor to centre mm
Head lights	1000	130	702
Side lights	1360	45 x 30	220
Rear lights	1360	80 x 40	264
Reflectors	1097	80	47



Fendt Farmer 3 S (FW 238)

Test No. 4033/SFF

FUELS AND LUBRICANTS USED IN TESTSLaboratory tests

Fuel: Shell Diesel oil, specific gravity at 15°C: 0,823 kg/l
(commercially available quality acc.to DIN 51 601)

Engine oil: BP HD 20 (SAE)

Transmission oil: SAE 90

Track tests

Fuel: Shell Diesel oil, specific gravity at 15°C: 0,823 kg/l
(commercially available quality acc.to DIN 51 601)

Engine oil: BP HD 20 (SAE)

Transmission oil: SAE 90

COMPULSORY TEST

(1) MAIN POWER + TAKE-OFF PERFORMANCE

Date and location of tests: 26.8.1966, Darmstadt-Kranichstein

Type of dynamometer: Schenck hydraulic dynamometer

Maximum power

Horsepower (metric hp)	Engine r.p.m.	Speed p.t.o. r.p.m.	Fuel consumption Total l/h	Specific g/hp	hph/l
<u>At maximum power - 2 hours test</u>					
44,1	2075	579	9,90	186	4,45
<u>At standard p.t.o. speed (540 rev/min)</u>					
42,8	1935	539	9,62	186	4,45
<u>At standard belt speed</u>					
44,1	2075	579	9,90	186	4,45
<u>At the speed recommended by the manufacturer for drawbar work</u>					
44,1	2075	579	9,90	186	4,45
<u>Fuel consumption at part loads</u>					
<u>(i) 85% of torque at maximum power</u>					
38,4	2110	592	8,59	186	4,47
<u>(ii) unloaded</u>					
0,4	2220	635	3,01	-	-
<u>(iii) 50% of the load defined in (i)</u>					
19,7	2153	609	5,54	233	3,56
<u>(iv) maximum power</u>					
44,1	2075	579	9,90	186	4,45
<u>(v) 25% of the load defined in (i)</u>					
10,1	2192	622	4,22	343	2,39
<u>(vi) 75% of the load defined in (i)</u>					
29,3	2133	601	7,02	199	4,17

No load maximum engine speed: 2230 r.p.m.

Torque*) at maximum power: 15,2 kpm

Maximum torque*) 16,95 kpm at 1390 r.p.m. of the engine

Mean atmospheric conditions: temperature: 24°C
pressure: 750 mm Hg.
relative humidity: 52%

Maximum temperatures: coolant: 80°C
 engine: 80°C
 fuel: 32°C

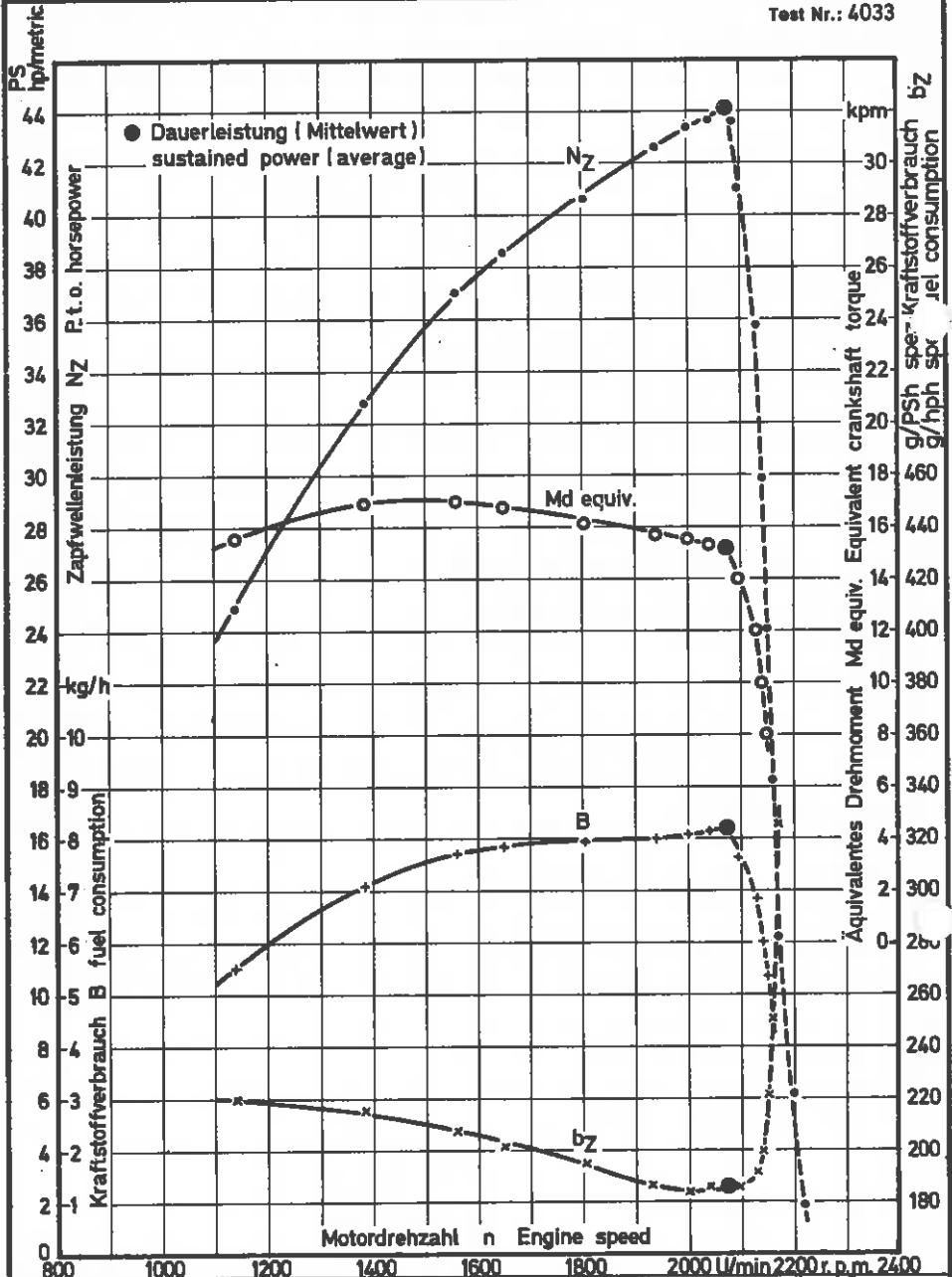
(*) The torque is the equivalent crankshaft torque)

Schlepperprüffeld Darmstadt

Zapfwellenleistung P.t.o.- test

Fendt Dieselschlepper
Farmer 3S (FW 238)
MWM Dieselmotor 208-4

Test Nr.: 4033



Motor Nr.: 01122

Motoröl: BP HD 20

Versuchstag: 26. 8. 1966

Versuchsltg.:

Schlepper Nr.: 238/1/0015

Lufttemperatur: 19° C

Versuchs-Nr.: 281/ 4033 / 86

Kraftstoff: DK 0,823 / 15° C

Barometerstd.: 750 mm QS

Kurvenblatt: 1

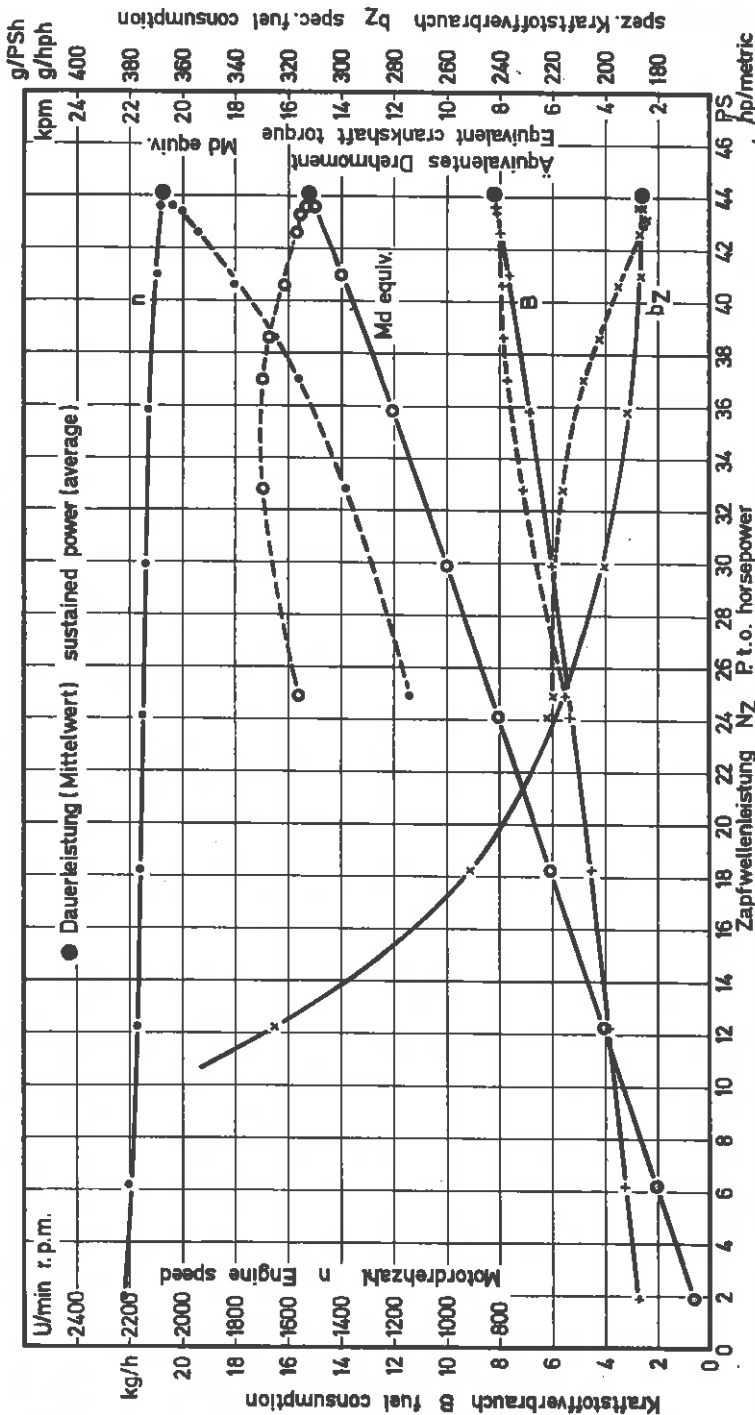
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**Schlepperprüffeld
Darmstadt**

Zapfwellenleistung P.t.o.- test

Fendt Dieselschlepper
Farmer 3 S(FW 238)
MWM Dieselmotor 208-4

Test Nr.: 4033



Motor Nr.: 01122	Kraftstoff: DK 0,823 / 15°C	Lufttemperatur: 19° C	Versuchstag: 26. 8. 1966	Versuchstlg.: <i>W. Müller</i>
Schlepper Nr.: 238/1/0015	Motoröl: BP HD 20	Barometerstd.: 750 mm Q.S	Versuchs Nr.: 281/4033 / 66	Kurvenblatt: <i>W. Müller</i>

(2) DRAWBAR PERFORMANCE

Date of tests: 4.-7. 10. 1966

Type of track: concrete

Height of drawbar above ground: 550 mm

With ballast

Gear No. and group	Horse- power hp(metric)	Drawbar pull kp	Engine speed r.p.m.	Slip of wheels %	Specific		Temperatures Fuel Coolant Engine oil °C	Atmospheric conditions				
					work hph/l	fuel consumpt. g/hph		Temperature °C	Relative humidity %	Pressure mm Hg.		
(i) MAXIMUM POWER												
1.eg	3,4	3220	2190	15,2	0,97	861	16	70	65	16	98	750
2.eg	5,6	3220	2185	15,1	1,41	584	16	70	66	16	98	750
3.eg	9,7	3220	2155	15,2	2,05	406	16	72	68	16	98	750
1.eg	13,0	3220	2140	15,2	2,45	338	27	78	80	27	74	750
1.eg	16,5	3220	2130	15,2	2,76	300	26	76	80	27	72	750
2.eg	21,2	3220	2110	15,1	3,02	274	26	76	80	26	73	751
2.eg	26,7	3220	2100	15,1	3,22	250	24	77	78	26	74	751
3.eg	35,1	3020	2075	12,4	3,56	234	21	80	80	21	85	750
3.eg	36,1	2350	2078	8,9	3,66	227	19	80	80	19	94	750
4.eg	36,7	2090	2075	7,5	3,72	223	29	80	82	26	62	730
4.eg	37,0	1636	2075	5,6	3,75	221	20	78	80	20	94	730
5.eg	37,3	1240	2078	4,4	3,78	220	26	80	82	26	72	732
5.eg	37,1	968	2075	3,4	3,76	221	21	79	80	22	84	732
6.eg	36,8	680	2078	2,9	3,71	224	23	80	81	24	80	732
(ii) FIVE HOUR TEST AT 75% OF PULL AT MAXIMUM POWER IN 4th GEAR OF SLOW GROUP												
4.eg	28,6	1570	2110	6,1	3,58	232	12	70	75	12	96	730
(iii) FIVE HOUR TEST AT PULL CORRESPONDING TO 15% WHEEL SLIP IN TEST (i)												
2.eg	27,2	3220	2100	15,0	3,36	247	16	80	80	17	85	745

Total oil consumption during ten hours duration of tests (ii) and (iii): 10,2 g/h

(2) DRAWBAR PERFORMANCE

Date of tests: 4.-7. 10. 1966

Type of track: concrete

Height of drawbar above ground: 550 mm

Without ballast

Gear No. and group	Horse- power hp(metric)	Drawbar pull kp	Engine speed r.p.m.	Slip of wheels %	Specific work hph/l	Specific fuel consumpt. g/hph	Temperatures			Atmospheric conditions		
							Fuel °C	Coolant °C	Engine oil °C	Temperature °C	Relative humidity %	Pressure mm Hg.
(3) MAXIMUM POWER												
3.ig	32,2	2190	2105	15,2	3,34	248	13	70	75	12	96	746
4.ig	34,8	2100	2075	14,0	3,52	236	22	80	80	22	70	748
4.ig	36,1	1636	2075	9,1	3,63	228	22	80	80	21	66	750
5.ig	37,0	1232	2075	5,7	3,72	223	15	78	80	15	75	750
5.ig	37,1	968	2080	4,8	3,73	222	10	70	75	8	88	750
6.ig	36,1	668	2078	3,2	3,66	228	14	80	80	13	77	750

**Schlepperprüffeld
Darmstadt**

**Zugprüfung
Drawbar - test**

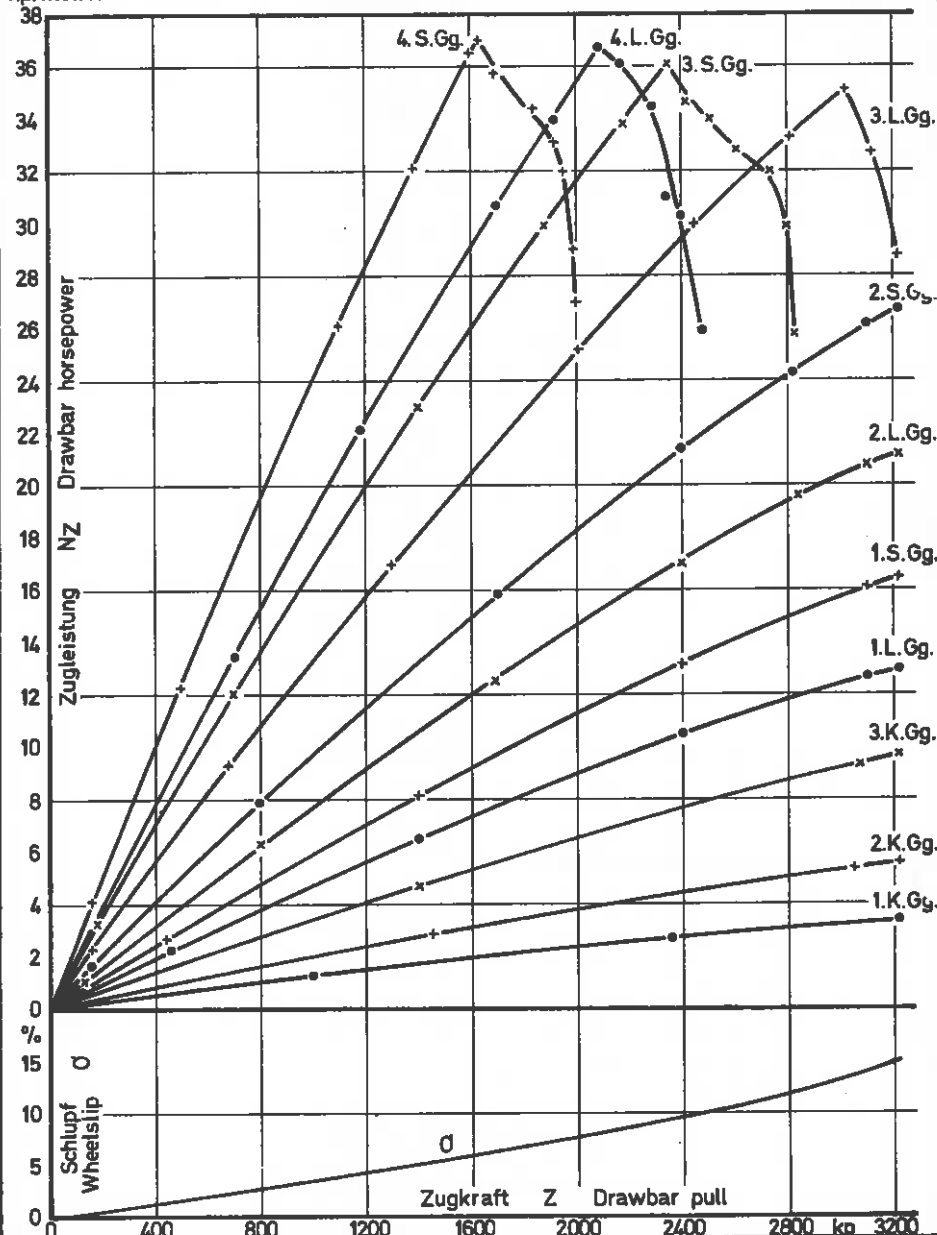
Fendt Dieselschlepper
Farmer 3 S (FW 238)
MWM Dieselmotor 208-4

Test Nr.: 4033

PS
hp/metric

mit Ballast

with ballast



Motor Nr.: 01122

Motoröl: BP HD 20

Versuchstag: 4. 10. 1966

Versuchstlg.: *[Signature]*

SchlepperNr.: 238/1/0015

Lufttemperatur: 24°C

Versuchs Nr.: 4033/143/66

Kraftstoff: DK 0,823/15°C

Barometerstd.: 750mm QS

Kurvenblatt: 6

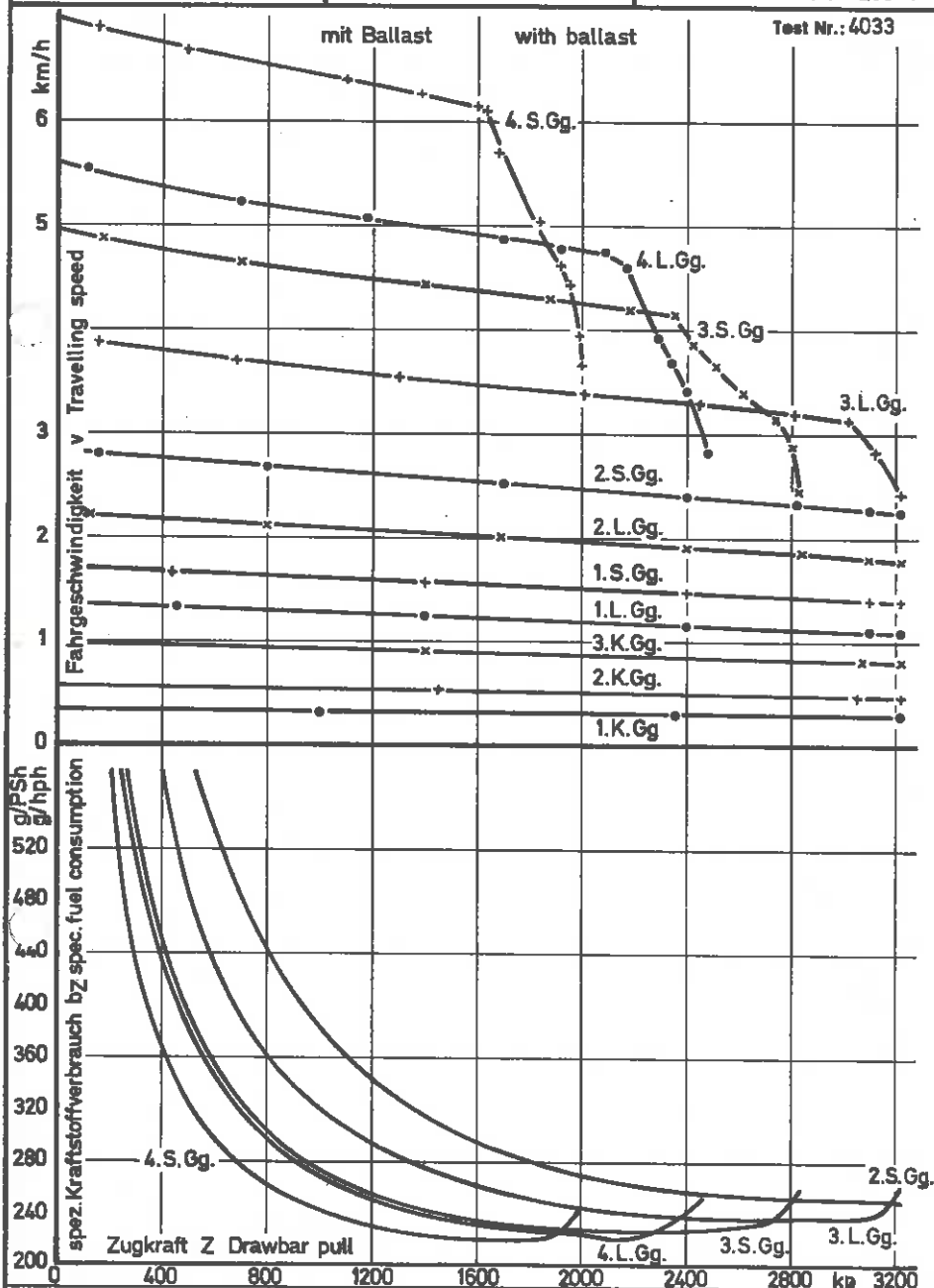
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**Schlepperprüffeld
Darmstadt**

**Zugprüfung
Drawbar - test**

Fendt Dieselschlepper
Farmer 3 S (FW 238)
MWM Dieselmotor 208-4

Test Nr.: 4033



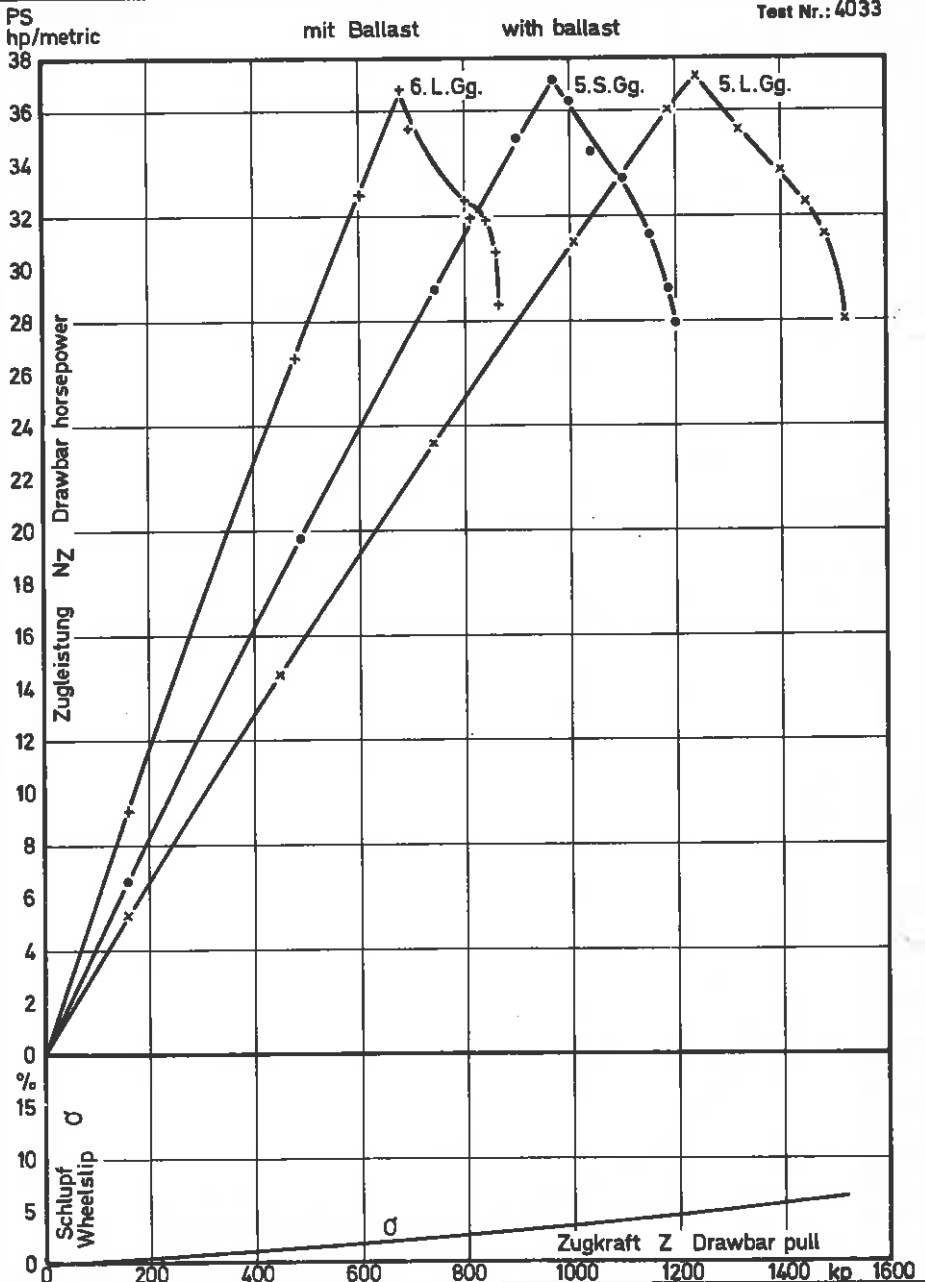
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Schlepper Nr.: 238/1/0015	Lufttemperatur: 24° C	Versuchs Nr.: 4033/143/66	
Kraftstoff: DK 0,823/15° C	Barometerstd.: 750 mm QS	Kurvenblatt: 7	Fl.

**Schlepperprüffeld
Darmstadt**

**Zugprüfung
Drawbar - test**

Fendt Dieselschlepper
Farmer 3 S (FW 238)
MWM Dieselmotor 208-4

Test Nr.: 4033



Motor Nr.: 01122

Motoröl: BP HD 20

Versuchstag: 5. 10. 1966

Versuchstg.: *Fl.*

SchlepperNr.: 238/1/ 0015

Lufttemperatur: 24°C

Versuchs Nr.: 4033/147/66

Kraftstoff: DK 0,823 / 15°C

Barometerstd.: 748mm QS

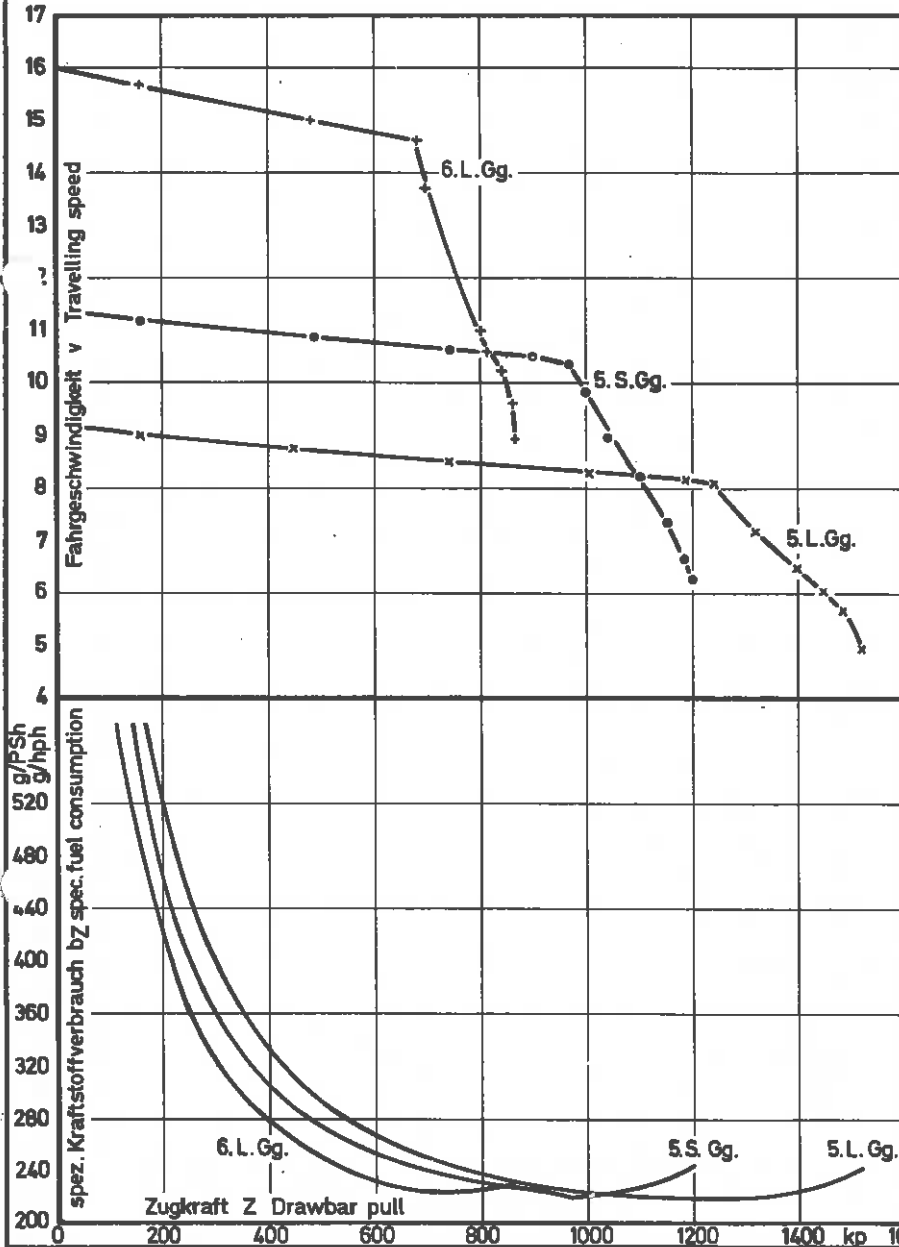
Kurvenblatt: 8

**Schlepperprüffeld
Darmstadt**

**Zugprüfung
Drawbar - test**

Fendt Dieselschlepper
Farmer 3 S(FW 238)
MWM Dieselmotor 208-4

km/h mit Ballast with ballast Test Nr.: 4033



Motor Nr.: 01122	Motoröl: BP HD 20	Versuchstag: 5. 10. 1966	Versuchstlg.: <i>[Signature]</i>
Schlepper Nr.: 238/1/0015	Lufttemperatur: 24° C	Versuchs Nr.: 4033/174/66	Fl. <i>[Signature]</i>
Kraftstoff: DK 0,823 / 15° C	Barometerstd.: 748 mm QS	Kurvenblatt: 9	

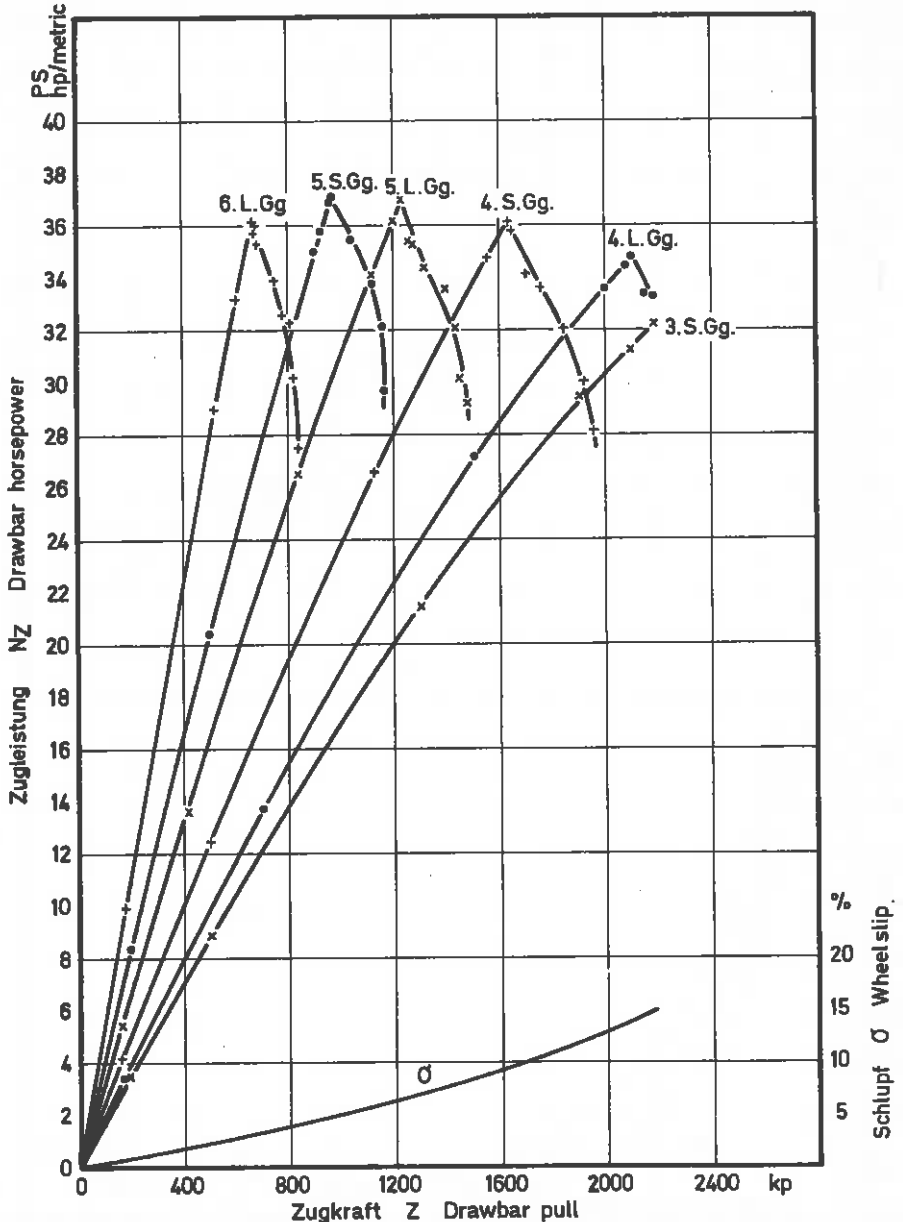
**Schlepperprüffeld
Darmstadt**

**Zugprüfung
Drawbar - test**

Fendt Dieselschlepper
Farmer 3 S (FW 238)
MWM Dieselmotor 208-4

ohne Ballast without ballast

Test Nr.: 4033



Motor Nr.: 01122	Motoröl: BP HD 20	Versuchstag: 28.9.1966	Versuchsblg.:
Schlepper Nr.: 238/1/0015	Lufttemperatur: 18° C	Versuchs Nr.: 4033/136/66	<i>Kilue</i>
Kraftstoff: DK 0,823 / 15° C	Barometerstd: 745 mm QS	Kurvenblatt: 10	Ft.

(3 and 4) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 6,50-20 AS Front, without ballast
 rear: 14,9/13-30 AS, without ballast

Track of wheels front: 1360 mm
 rear: 1360 mm

	With brakes		Without brakes	
	left-hand	right-hand	left-hand	right-hand
Radius of turning space	3,90 m	3,87 m	4,18 m	4,17 m
Radius of turning circle	3,78 m	3,75 m	4,07 m	4,05 m

(5) LOCATION OF CENTRE OF GRAVITY

	With ballast	Without ballast
Height above ground	675 mm	767 mm
Distance forward from the vertical plane containing the axis of the rear wheels	642 mm	810 mm
Distance from the medium plane parallel to the longitudinal axis of the tractor bisecting the track	0 mm	0 mm

(6) BRAKE TESTSA) FOOT BRAKE

Date of test: 13.10.1966

Type of track: concrete

Type of decelerometer: IFK Brake Recorder, August Fischer K.G.
Göttingen

Travelling speed of tractor: fast gear with 27,81 km/h

With cold brakes

		Tractor without ballast	Tractor with ballast
Maximum deceleration	m/s ²	5,0	5,2
Stopping distance	m	11,6	11,0
Force on pedal	kp	38,0	53,0

Brake fade characteristics, hot tests, tractor without ballast

Deceleration: hot/cold 108 %

Stopping distance: cold/hot 103 %

Force on pedal: cold/hot 91 %

B) PARKING BRAKE

Force on hand lever of the brake, cold brake 60 kp.
No rotation of the rear wheels of tractor occurred when
the tractor has been towed.

Force on hand lever of the brake, hot brake 60 kp.
One hour after applying the brake at hot conditions
no rotation of the rear wheels of the tractor occurred
when the tractor has been towed.



(7) MEASUREMENT OF AMBIENT NOISE EMITTED BY THE TRACTOR

Date of tests: 12. 10. 1966

Type of track: concrete

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

Results of tests

Speed: Fast gear with a theoretical speed of 27,8 km/h

Travelling speed before acceleration: 25 km/h

Sound level: 82 dBA

(8) NOISE MEASUREMENT AT THE DRIVERS EAR

Date of tests: 12. 10. 1966

Type of track: concrete

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

No cab fitted on tractor

Résultats of tests

Gear	Travelling speed*)		Sone
	nominal km/h	real	
4.fg	6,67	6,28	74
3.fg	4,68	4,25	90
3.sg	3,70	3,26	84
2.fg	2,67	2,38	82
1.fg	1,61	1,44	74

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

Fendt Farmer 3 S(FW 238)

Test Nr. 4033/SPF

(9) TEST OF POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: 14.2.1967, Darmstadt-Kranichstein

Hydraulic fluid: Engine oil BP HD 20 SAE

POWER LIFT

Height above ground in down position hitch point test frame mm	Total verti- cal move- ment mm	Maximum force exerted through full lift range kp	Pressure of hydr. oil kp/cm ²	Lifting force at front axle load = 0 kp kp
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Measured at the hitch points of lower links

100	-	750	1390	175	*)
285	-	690	1550	175	*)

Measured at the test frame 610 mm to the rear of the hitch points

100	105	805	1495	175	1145
285	305	745	1510	175	1145

*) greater than max.
lifting force

Type of linkage lock for transport: mechanical and hydraulical lock fitted
Opening pressure of the cylinder over pressure relief valve: no valve fitted

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: 25,0 l/min

- (iii) at maximum hydraulic power: 23,5 l/min

maximum hydraulic power: 8,4 hp (metric)

delivery pressure: 160 kp/cm²Remark

Using the tractor with ZF-Column Hydrosteering type 7409 the hydraulic pump Bosch type HY/ZFR 1/16 AL 104 gear type pump, maximum oil pressure 175 kp/cm² is fitted.

- (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: 37,5 l/min

- (iii) at maximum hydraulic power: 31,6 l/min

maximum hydraulic power: 10,9 hp (metric)

delivery pressure: 155 kp/cm²

The lifting forces of the power lift do not change if the tractor is fitted with this hydraulic pump.

SCHLEPPER-PRÜFFELD

Fendt Farmer 3 S (FW 238)

OPTIONAL TESTS

Test No. 4033/SPF

(10) ENGINE TEST

Date and location of tests: 21.7.1966, Darmstadt-Kranichstein

Type of dynamometer: Schenck hydraulic dynamometer

Maximum power

Horsepower (metric hp)	Speed Engine r.p.m.	Total l/h	Fuel consumption Specific g/hph	hph/l
<u>At maximum power - 2 hours test</u>				
46,6	2075	9,88	175	4,71
<u>At standard p.t.o. speed (540 r.p.m.)</u>				
44,9	1935	9,45	175	4,75
<u>At standard belt speed</u>				
46,6	2075	9,88	175	4,71
<u>At the speed recommended by the manufacturer for drawbar work</u>				
46,6	2075	9,88	175	4,71
<u>Fuel consumption at part loads</u>				
<u>(i) 85 % of torque at maximum power</u>				
41,5	2118	9,01	181	4,60
<u>(ii) unloaded</u>				
6,7	2215	3,60	446	1,86
<u>(iii) 50 % of the load defined in (i)</u>				
20,7	2161	5,35	215	3,87
<u>(iv) maximum power</u>				
46,6	2075	9,88	175	4,71
<u>(v) 25 % of the load defined in (i)</u>				
10,6	2205	4,12	223	2,57
<u>(vi) 75 % of the load defined in (i)</u>				
30,7	2150	7,13	193	4,30

Optimum fuel consumption: 174 g/hph at 25,3 hp and 1264 r.p.m.

No load maximum engine speed: 2230 r.p.m.

Torque at maximum power: 16,1 kpm

Maximum torque: 18,70 kpm at 1460 r.p.m. of the engine

Mean atmospheric conditions:

 temperature: 21°C
 pressure: 746 mm Hg.
 relative humidity: 64 %

Maximum temperatures:

 coolant: 80°C
 engine oil: 80°C
 fuel: 35°C

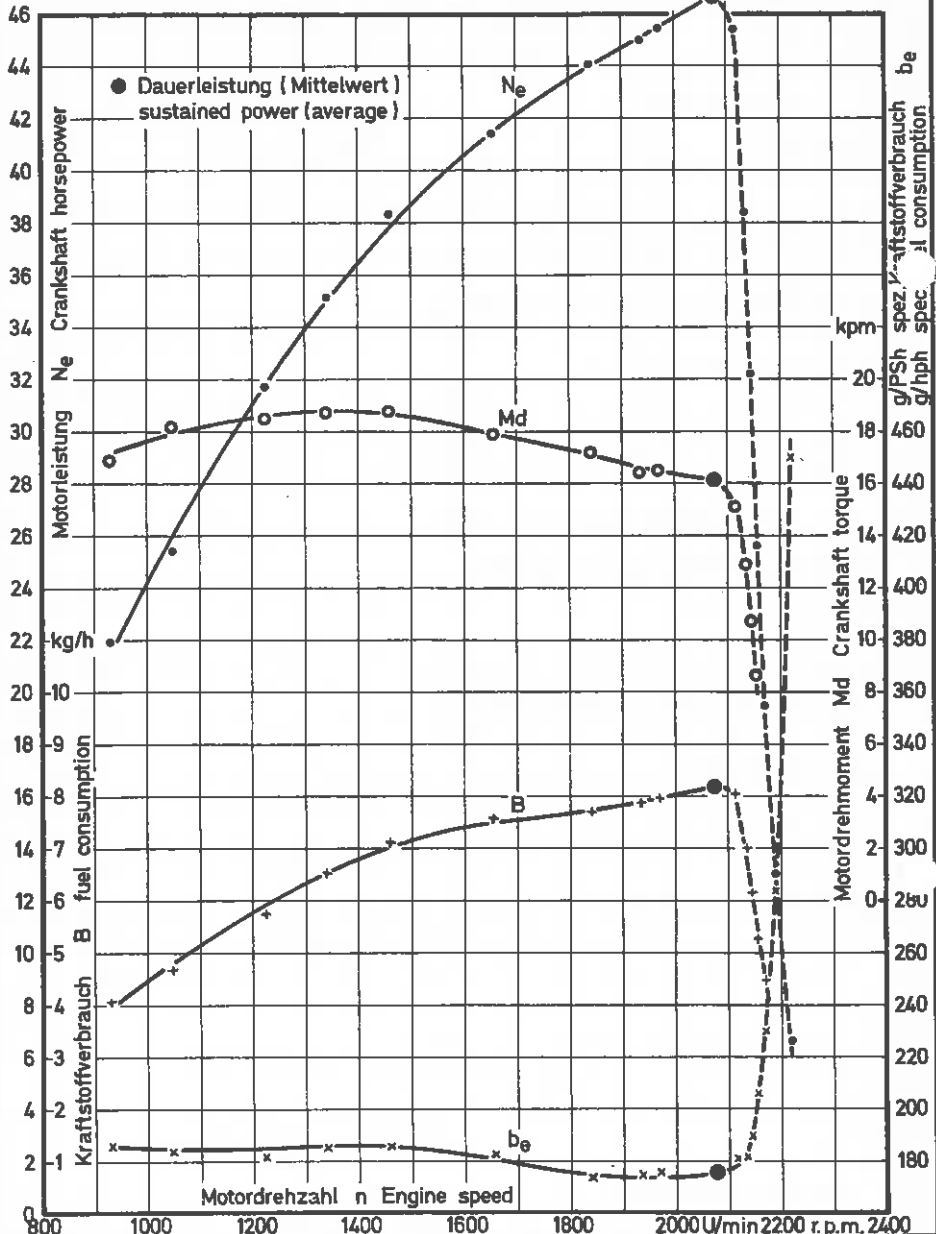
**Schlepperprüffeld
Darmstadt**

**Motorleistung
Engine - test**

Fendt Dieselschlepper
Farmer 3S (FW 238)
MWM Dieselmotor 208 - 4

Test Nr.: 4033

PS hp/metric

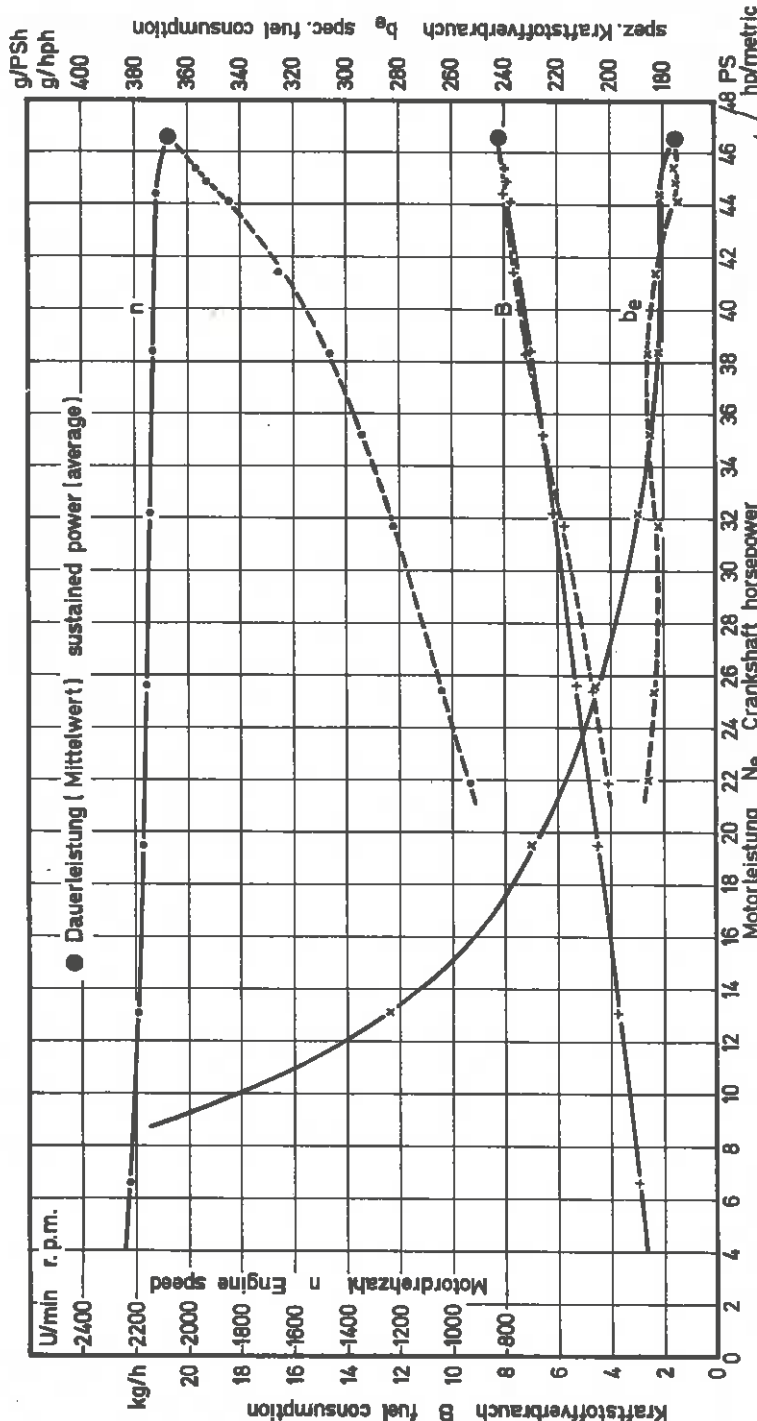


Schlepperprüffeld
Darmstadt

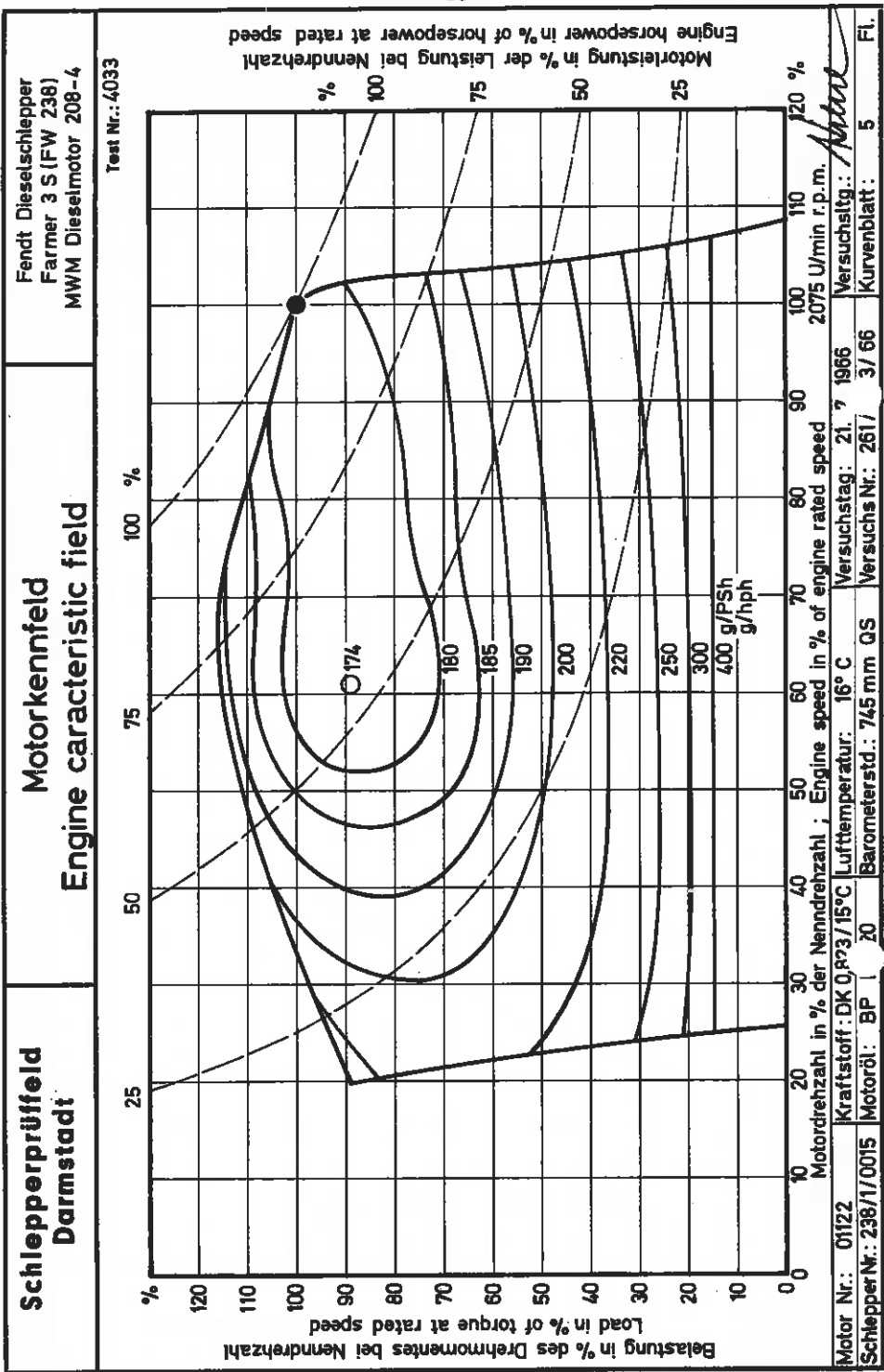
Motorleistung Engine - test

Fendt Dieselschlepper
Farmer 3 S (FW 238)
MWM Dieselmotor 208 - 4

Test Nr.: 4033



Motor Nr.: 01122	Kraftstoff: DK 0,823 / 15°C	Lufttemperatur: 16°C	Versuchstag: 21. 7. 1966	Versuchs Nr.: 261/4033/66	Versuchsblg.: <i>Motor</i>	Kurvenblatt: <i>Motor</i>	Fl.
Schlepper Nr.: 238/1/0015	Motoröl: BP HD 20	Barometerstd.: 746 mm QG					



Motor Nr.: 0122	Kraftstoff: DK O 873 / 15°C	Lufttemperatur: 16°C	Versuchstag: 21. 7 1966
SchlepperNr.: 238/1/0015	Motoröl: BP	Motoröl: 20	Versuchs Nr.: 261/ 3/ 66
			Kurvenblatt: 5
			Fl.

