Report No.4013/SPF

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

Güldner-Diesel Tractor G 30 S Nr. 59

with type 3 L 79 - 3 cylinder engine

Manufactured by: Gesellschaft für Linde's Eismaschinen AG., Niederlassung Güldner-Motorenwerke, Aschaffenburg



Date of Test: February/April 1964

SCHLEPPER - PRÜFFELD DARMSTADT

Darmstadt - Kranichstein

SCHLEPPER-PRÜFFELD

KURATORIUM FÜR TECHNIK IN DER LANDWIRTSCHAFT

KTL

REPORT ON TEST No. 4013 / S P F

GÜLDNER G 30 S

Manufacturer: Gesellschaft für Linde's Eismaschinen AG., Niederlassung Güldner - Motorenwerke, Aschaffenburg

Test requested by: Gesellschaft für Linde's Eismaschinen AG., Niederlassung Güldner - Motorenwerke, Aschaffenburg

Date of tests: February 1964 - April 1964

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

It does not contain an evaluation of the performance of the tractor on practical farm work.

Date of Approval: 9. November 1964

Number of Approval: 0 5 9

Darmstadt, den 8.Juni 1964

Schlepper-Prüffeld Kuratorium für Technik in der Landwirtschaft

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S E C T I O N I

SPECIFICATION OF TRACTOR

Tractor

Make:	Gesellschaft für Linde's Eismaschinen AG., Niederlassung Güldner - Motorenwerke, Aschaffenburg
Model:	G 30 S
Type:	Diesel wheel type tractor, unit construction
No.:	215 365 002

Engine

Make:	Gesellschaft für Linde's Eismaschinen AG., Niederlassung Güldner - Motorenwerke, Aschaffenburg
Model:	3 L 79
Type:	4-stroke-diesel with swirl-chamber
No.:	118 36 12 76

Rated engine output (manufacturers rating) 30 hp (metric)
Rated engine speed 1800 r.p.m.

Cylinders: 3 cylinders; vertical in line;
100 mm bore x 100 mm stroke;
compression ratio: 19:1;
replaceable single cylinders, ribbed, alloied cast iron; overhead valves

Rated speeds:
For p.t.o. work: 1800 r.p.m.
for field drawbar work: 1800 r.p.m.
for belt work: 1800 r.p.m.

Fuel system: Fuel - commercial available diesel oil;
Bosch type PES 3A 70C 300 RS 1037 injection pump
Bosch type DNOSD 211 injection nozzles
injection timing: 23° before T.D.C.,
injection pressure: 140 kp/cm²
Bosch type FJ/AF 11/3 felt tube fuel filter
capacity of fuel tank: 48 l

Governor: Güldner-make, mechanical centrifugal variable speed governor; governor range of engine speed with no load: from 715 r.p.m. to 1940 r.p.m.

Air cleaner: Mann & Hummel make: oil bath cleaner with Venturi reduction tube and cyclonic precleaner, oil capacity 1 l

Oiling System: Forced feed from gear type pump; Mann type multi high efficiency filter 675049 2116 Patr. 932/1 in full flow;

recommended oil in winter HD SAE 10
in summer HD SAE 20
in the tropics HD SAE 30
oil-change period 200 hrs
oil capacity 10 l

Cooling system: Air cooling with gear driven axial flow blower

Transmission

Clutch: Fichtel & Sachs type DO 250/225 K dry disc dual clutch for p.t.o. shaft and gearbox drive respectively, foot pedal operated.

Gearbox: Make Zahnradfabrik Friedrichshafen (ZF) patentend easy shifting control *) ZF type with selector pins and constant mesh, 8 forward speeds and 4 reverse speeds by a group gear; oil capacity ca. 20 l.
(*) manufacturers name of the control)

Differential: Make Zahnradfabrik Friedrichshafen (ZF) crown wheel an pinion, bevel gear type differential; lock fitted, by handlever operated, automatically disengaging.

Speeds:

Gear No.	Number of engine revolutions for one revolution of driving wheel	Theoretical travelling speed for 1800 r.p.m. rated speed of engine km/h	m/s
1.	233,80:1	1,76	0,49
2.	136,70:1	2,99	0,83
3.	83,20:1	4,94	1,37
4.	51,40:1	7,99	2,22
5.	64,95:1	6,33	1,76
6.	38,00:1	10,80	3,00
7.	23,14:1	17,76	4,93
8.	14,28:1	28,75	7,98
1.R.	129,90:1	3,17	0,88
2.R.	76,00:1	5,40	1,50
3.R.	46,28:1	8,89	2,47
4.R.	28,56:1	14,37	3,99

Steering device:	Make Zahnradfabrik Friedrichshafen type ZF-Gemmer steering GD 28a with single trop arm and fixed drag link
Brakes:	Hand-brake internal shoe type brake; independant from foot brake actuating on drums on differential half-shafts.
	Foot-brake internal shoe type brake; actuating on drums on differential half-shafts: dual main foot pedal combined by a latch for normal use, idependant for steering brake use.

Wheels

Steering wheels:	Two at front, 5,50-16 AS Front 4ply pneumatic (acc. to DIN 7808) track 1270 mm(+) and 1426 mm (+)acc. to DIN 9677), changed by reversing wheels; maximum permissible weight on each tyre 450 kg at 2,0 kp/cm² 540 kg at 2,0 kp/cm² if transporting mounted implements (acc. to DIN 7808)
Driving wheels:	Two at rear, 12,4/11-28 AS 6ply pneumatic (acc. to DIN 7807) track 1250 mm and 1500 mm (acc. to DIN 9677); changed by reversing wheels; maximum permissible weight on each tyre 950 kg at 1,0 kp/cm² 1220 kg at 1,6 kp/cm² (acc. to DIN 7807) wheel base 1954 mm

Belt pully

Location:	At rear of tractor, p.t.o. driven;
Diamete x width:	220/150 mm
Speed:	1534 r.p.m. at 1800 r.p.m. rated engine speed
Linear belt speed:	17,66 m/s (acc. to DIN 9630)
Direction of rotation:	anticlockwise viewed from right hand side of tractor

Power take off

a) Main p.t.o.:	Independant p.t.o. by hand lever changeable to 1000 r.p.m. or 540 r.p.m. respectively foot pedal and dual clutch operated;
Location:	At rear of tractor, 498 mm above ground in centre line of tractor
Dimensions:	Spline shaft 29 x 34,9 x 8,7 mm 1 3/8" (acc. to DIN 9611 Form A and B.S. 1495)
Speed:	554 r.p.m. at 1800 r.p.m. rated engine speed or 1108 r.p.m. at 1800 r.p.m. rated engine speed (standard p.t.o. speed 540 r.p.m. acc. to DIN 9611 and B.S. 1495 may be set by aid of the tractormeter also p.t.o. speed of 1000 r.p.m.)
Direction of rotation:	Clockwise viewed from tractor rear (acc. to DIN 9611)

b) Shaft for moverbar drive:	818 mm at front of rear axle centre line, 445 mm above ground, 153 mm to the left hand side of centre line of tractor
Dimensions:	Shaft with thread M 30 x 3, 58 mm long
	1108 r.p.m. at 1800 r.p.m. rated engine speed
Direction of rotation:	Clockwise viewed from tractor rear, driven by p.t.o. drive out of gearbox
Power lift	Own make live hydraulic, draft and position controll system and floating position, with Bosch make control unit HY/SR/10H1/150/1 and Bosch make extra control unit HY/SRZ10H1/1 and Bosch make gear typ oil pump HY/ZF R1/16AR3, single acting ram cylinder, oil capacity 9,0 l, maximum load liftеable through complete range of movement at the implement connecting points at the rear of the lower links 1092 kp it connecting points are set for depest position 0 mm above ground for the beginning of movement.
Implement linkage	At rear of tractor: Three point linkage categorie I (acc. to DIN 9674) controlled by power lift.
Drawbar	Fixed on hydraulically controlled three point linkage with central hole and 6 holes apart either side; 3 with 80 mm distance, 1 with 240 mm; and 2 with 80 mm distance; height above ground from 0 mm to 890 mm adjustable by power lift; distance from rear axle in horizontal position of lower links 890 mm.
Trailer hitch	At rear of tractor: Height above ground 609 mm and 679 mm by reversing hitch. Distance from rear axle 490 mm
Towing hitch	At front of tractor: Height above ground 479 mm

Electrical equipment

Voltage:	12 Volts
Generator:	Bosch type LJ/GEH 90/12/1800 R 13
Battery:	Two batteries lead acid, 12 Volts, capacity 60 Ah each
Starting device:	Bosch type ESD 1,8/12 R 105 solenoid engaged starter motor
Lighting equipment:	Acc. to StVZO (German lighting regulation) additionally head-light main beam
Starting aid:	Glowing plugs Bosch type KE/GSA 10/8

Overall dimensions

Overall length:	3235 mm (with three point hitch)
Overall width:	1590 mm, at 1250 mm track, without ballast
Overall height:	1500 mm, to top of steering wheel
Maximum ground clearance:	420 mm below moverbar drive

Weights — With implement linkage, power lift, full fuel tank, öl, as tested, but without driver

	Without ballast kg	With ballast kg
On front wheels	630	709
On rear wheels	1260	1884
Total	1890	2593

Special remarks: non

S E C T I O N II
LABORATORY TESTS

1. COMPULSORY TESTS

Main power take - off test

Date and location of test: Schlepper-Prüffeld, Darmstadt-Kranichstein, 5.3.1964

Type of dynamometer: Schenck hydraulic brake

Position of governor control: Fully open and relating to standard p.t.o. speed respectively

Fuel: Shell diesel-fuel, density 0,830 kg/l at 15°C, commercial quality in accordance with DIN 51 601

Engine oil: Gasolin, HD 20/20W (SAE)

Transmission oil: SAE 90

Horse power	Speeds engine	Speeds pto	Equiv. Torque	Fuel consumption			Mean temperatures Coolt.	Engine oil	Fuel	Room	Atm. press.
metric hp	rpm	rpm	kpm	l/h	g/hph	hph/l	°C	°C	°C	°C	mm Hg.
A. Maximum power, 2 h											
29,4	1800	554	11,69	7,49	212	3,92	-	80	18	16	749
B. Power at standard p.t.o.-speed											
28,5	1755	540	11,61	7,26	212	3,93	-	80	18	16	749
C. Power at maximum torque											
28,6	1751	539	11,69	7,43	215	3,85	-	78	18	14	749
D. Power at engine rated speed											
29,4	1800	554	11,69	7,48	211	3,93	-	75	16	17	749

No load, maximum engine speed 1940 r.p.m.

2. SUPPLEMENTARY TESTS

a) Engine tests (power lift pump disconnectet)

Date and location of tests: Schlepper-Prüffeld, Darmstadt-Kranichstein, 2.3.1964

Type of dynamometer: Schenck water brake

Position of governor control: Fully open, giving maximum governor controlled engine speed

Fuel: Shell diesel-fuel, density 0,830 kg/l at 15°C, commercial quality in accordance with DIN 51 601

Engine oil: Gasolin, HD20/20W (SAE)

Horse power metric hp	Engine speed r.p.m.	Torque kpm	Fuel consumption l/h	g/hph	hph/l	Mean temperatures Coolt. °C	Engine oil °C	Fuel °C	Room °C	Atm. press. mm Hg.
A. Maximum power, 2 h										
31,1	1800	12,39	7,42	198	4,18	-	80	17	18	753
C. Power at maximum torque										
29,2	1665	12,52	6,92	197	4,22	-	86	17	20	753
D. Power at rated engine speed										
31,0	1800	12,32	7,37	197	4,21	-	75	18	16	753

No load, maximum engine speed 1940 r.p.m.

2. SUPPLEMENTARY TESTS

b) Belt tests

Date and location of tests: Schlepper-Prüffeld, Darmstadt-Kranichstein, 9.3.1964

Type of dynamometer: Schenck water brake

Belt: Siegling Extremultus 80 x 6 mm

Position of governor control: Fully open, giving maximum governor controlled engine speed

Fuel: Shell diesel-fuel, density 0,830 kg/l at 15°C, commercial quality in accordance with DIN 51 601

Engine oil: Gasolin, HD20/20W (SAE)

Transmission oil: SAE 90

Power hp	Speeds engine	Speeds belt	Equiv. torque	Fuel consumption			Mean temperatures Coolt.	Engine oil	Fuel	Room	Atm. press.
metric	r.p.m.	m/s	kpm	l/h	g/hph	hph/l	°C	°C	°C	°C	mm Hg.
A. Maximum power, 2 h, belt-slip ≤ 1,0 %											
28,3	1800	17,6	11,25	7,41	217	3,82	-	89	17	19	747
B. Power at standard belt-speed (acc. to DIN 9630)											
28,3	1800	17,6	11,25	7,41	217	3,82	-	89	17	19	747
C. Power at maximum torque											
26,0	1669	16,4	11,25	7,03	224	3,70	-	90	17	20	747
D. Power at engine rated speed											
28,1	1800	17,6	11,18	7,46	221	3,77	-	82	17	20	747

No load, maximum engine speed 1940 r.p.m.

S E C T I O N III

DRAWBAR TESTS ON ARTIFICIAL TRACK

Date of tests: 25.3. - 7.4.1964
Type of track: Concrete
Position of governor control: Full open
Type of tyres: Rear 12,4/11-28 AS 6ply Conti Farmer
straight bar open centre type
Front 5,50-16 AS Front, 4ply Dunlop

Fuel: Shell diesel-fuel, density 0,830 kg/l at 15°C,
commercial quality in accordance with DIN 51 601

Engine oil: Gasolin, HD 20/20W (SAE)

Transmission oil: SAE 90

a) TESTS WITH BALLAST

Weight of tractor with driver

Without ballast: at front 640 kg at rear 1329 kg
With ballast: at front 717 kg at rear 1958 kg
Total with ballast: 2675 kg

Weight of ballast

Front:	3 weights below the hood	: 86 kg
Rear :	water	: 282 kg
	Wheel - weights (4 per wheel)	: 340 kg

Tyre inflation pressure

Front: 2,0 kp/cm²
Rear : 1,5 kp/cm²

Height of drawbar above ground: 400 mm (acc. to DIN 9670)

(1) Maximum powers and pulls

Gear No.	Maximum powers					Water temp.	Air temp.	Atm. press	Maximum pulls	
	Horse power metric hp	Pull kp	Wheel slip %	Engine speed r.p.m.	Speed km/h	°C	°C	mm Hg.	Pull kp	Reason for stall
1.	14,3	2650	18,8	1875	1,46	-	11	745	2740	Wheelspin
2.	22,7	2500	16,8	1802	2,46	-	11	747	2500	Engine stall
3.	25,1	1500	8,0	1802	4,52	-	10	744	1550	Engine stall
4.	25,6	920	4,4	1800	7,50	-	8	744	935	Engine stall
5.	25,6	1190	5,3	1790	5,80	-	10	744	1200	Engine stall

(2) Fuel consumption

Gear No.	Optimum fuel consumption			Range of pull kp over which specific fuel consumption does not exeed optimum consumption by more than 10%
	Spec.fuel-consumption g/hph	Drawbar hph/l	corresponding pull kp	
1.	301	2,76	2500	1545 - 2710 kp
2.	258	3,22	1900	1180 - 2500 kp
3.	239	3,48	1170	765 - 1550 kp
4.	242	3,43	900	510 - 935 kp
5.	236	3,51	1080	630 - 1200 kp

SCHLEPPER-PRÜFFELD
Güldner G 30 S

Test No.4013/SPF

b) TESTS WITHOUT BALLAST

Weight of tractor with driver

Front: 640 kg
Rear : 1329 kg
Total: 1969 kg

Tyre inflation pressure

Front: 2,0 kp/cm²
Rear : 1,5 kp/cm²

Height of drawbar above ground 400 mm (acc. to DIN 9670)

(1) Maximum powers and pulls

Gear No.	Maximum powers					Water temp.	Air temp.	Atm. press.	Maximum pulls	
	Horse power metric hp	Pull kp	Wheel slip %	Engine speed r.p.m.	Speed km/h	°C	°C	mm Hg.	Pull kp	Reason for stall
1.	10,3	1842	18,4	1888	1,51	-	15	750	1925	Wheelspin
2.	17,2	1805	17,8	1874	2,57	-	9	744	1893	Wheelspin
3.	23,8	1505	13,3	1800	4,27	-	13	746	1548	Engine stall
4.	26,0	915	6,2	1803	7,67	-	4	745	932	Engine stall
5.	25,3	1175	8,4	1805	5,82	-	4	750	1195	Engine stall

S E C T I O N IV

1. Location of centre of gravity

Tractor equipped as at		Test III.a) ballasted	Test III.b) unballasted
Height above ground	mm	677	728
Distance forward from the vertical plane containing the axis of the rear axle	mm	524	688
Distance from the medium plane parallel to the longitudinal axis of the tractor bisecting the track	mm	0	0

2. Turning space and turning radius

Tractor weight and wheel equipment as tested in section III.b), track front 1270 mm,
rear 1250 mm,

	with steering brakes right-hand	with steering brakes left-hand	without brakes right-hand	without brakes left-hand
Radius of turning space	3,1 m	3,1 m	3,4 m	3,4 m
Turning radius	3,0 m	3,0 m	3,3 m	3,3 m

S E C T I O N V

1. **Repairs and adjustments during tests: none**
2. **Remarks: none**

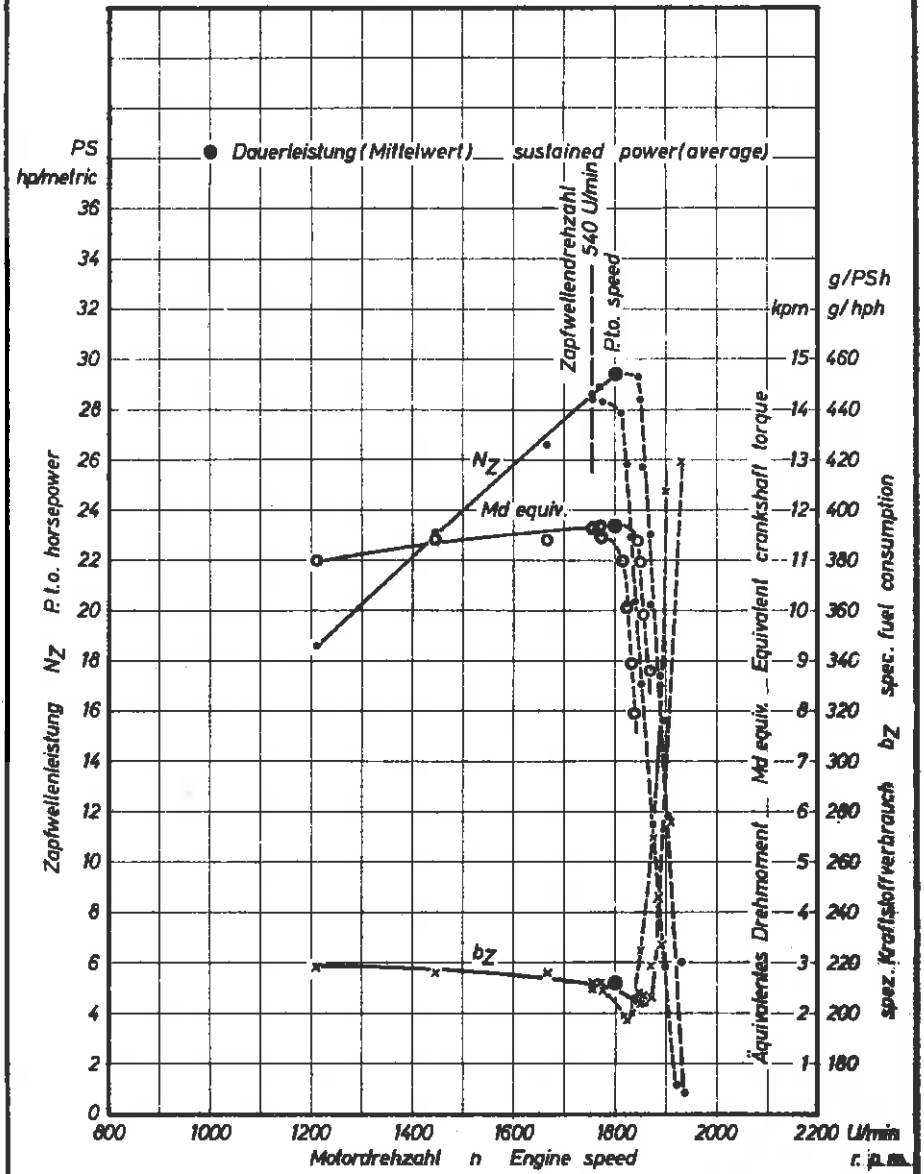
Darmstadt, am 12. November 1964

Schlepper-Prüffeld Darmstadt-Kranichstein

Schlepperprüffeld Darmstadt	Zapfwellenleistung	Güldner Dieselschlepper G 30 S Güldner Dieselmotor Typ 3 L 79

P t o - test

Test Nr: 4013

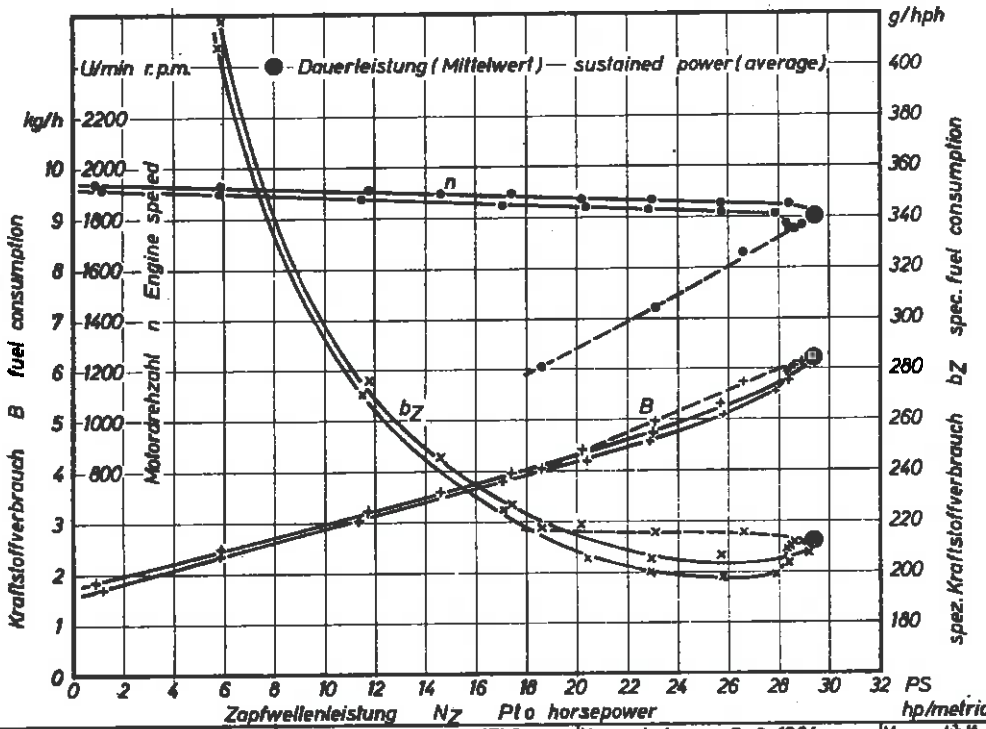


Motor Nr.: 118 36 1276	Motoröl: HD 20	Versuchstag: 5. 3. 1964	Versuchsfeld:
Schlepper Nr.: 215 36 5002	Lufttemperatur.: 17° C	Versuchs Nr.: 60/4013/64	
Kraftstoff: DK 0,830 / 15°C	Barometerstd.: 749 mm QS	Kurvenblatt: 1	FL

Schlepperprüffeld Darmstadt	Zapfwellenleistung	Güldner Dieselschlepper G 30 S Güldner Dieselmotor Typ 3 L 79

Test Nr: 4013

P.t.o. - test

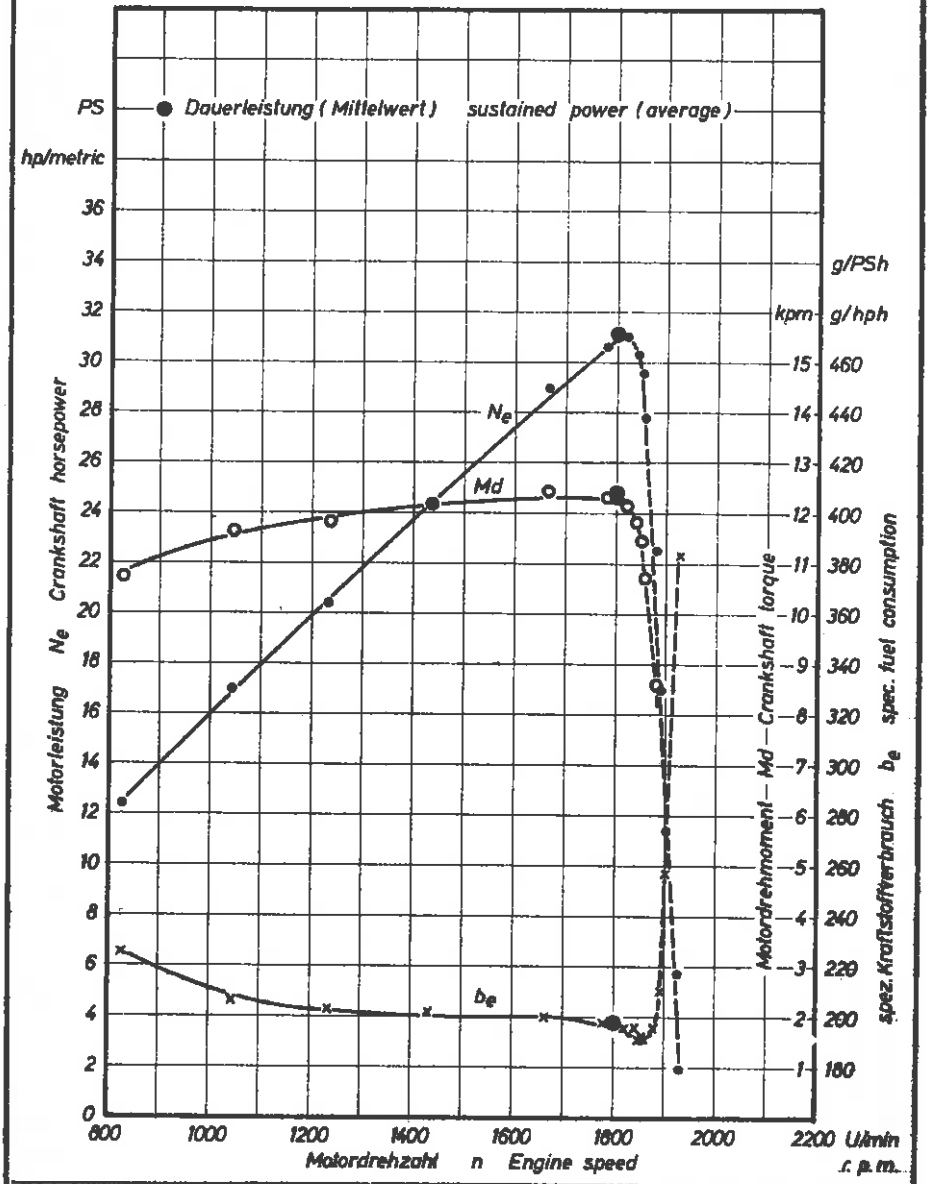


Motor Nr.: 118 36 1276	Kraftstoff: DK 0,830/15°C	Lufttemperatur: 17° C	Versuchstag: 5. 3. 1964	Versuchsltg.:	
Schlepper Nr.: 215 36 5002	Motoröl: HD 20	Barometerstd.: 749 mm QS	Versuchs Nr.: 60/4013/64	Kurvenblatt: 2	Fl.

Schlepperprüffeld Darmstadt	Motorleistung	Güldner Dieselschlepper G 30 S Güldner Dieselmotor Typ 3L 79

Engine - test

Test Nr: 4013



Motor Nr.: 118 36 1276	Motoröl: HD 20	Versuchstag: 2. 3. 1964	Versuchsstg.:
Schlepper Nr.: 215 36 5002	Lufttemperatur: 16° C	Versuchs Nr.: 46/4013/64	
Kraftstoff: DK 0,830 / 15° C	Barometerstd.: 753 mm QS	Kurvenblatt: 3	FT.

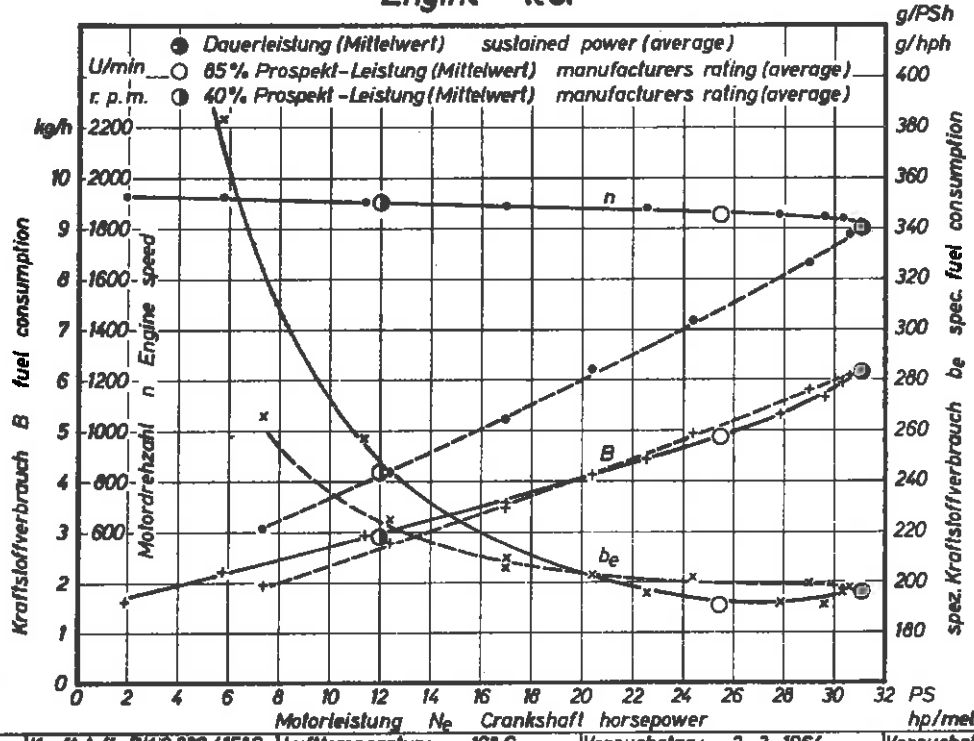
Schlepperprüffeld Darmstadt

Motorleistung

Güldner Dieselschlepper
G 30 S
Güldner Dieselmotor Typ 3 L 79

Test Nr: 4013

Engine - test

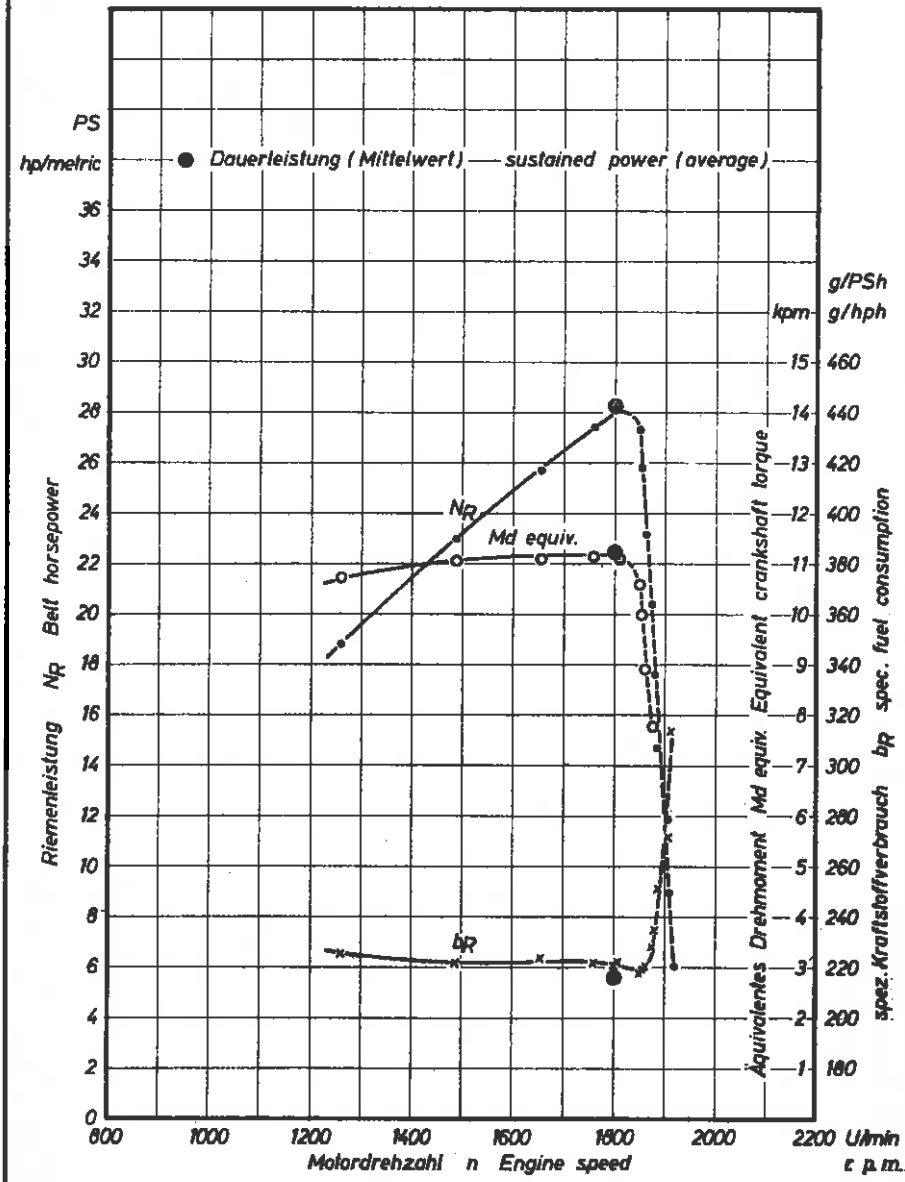


Motor Nr.: 118 36 1276	Kraftstoff.: DK 0,830 / 15°C	Lufttemperatur: 16° C	Versuchstag: 2. 3. 1964	Versuchsltg.:	
Schlepper Nr.: 219 36 3002	Motoröl: HD 20	Barometerstd.: 753 mm QS	Versuchs Nr.: 46/4013/64	Kurvenblatt: 4	Fl.

Schlepperprüffeld Darmstadt	Riemenleistung	Güldner Dieselschlepper G 30 S Güldner Dieselmotor Typ 3 L 79

Belt-test

Test Nr: 4013



Motor Nr.: 118 36 1276	Motoröl: HD 20	Versuchstag: 4. 3. 1964	Versuchsfld.:
Schlepper Nr.: 215 36 5002	Lufttemperatur: 19° C	Versuchs Nr.: 64/4013/64	
Kraftstoff: DK 0,830 / 15°C	Barometerstd.: 747mm QS	Kurvenblatt: 5	FL

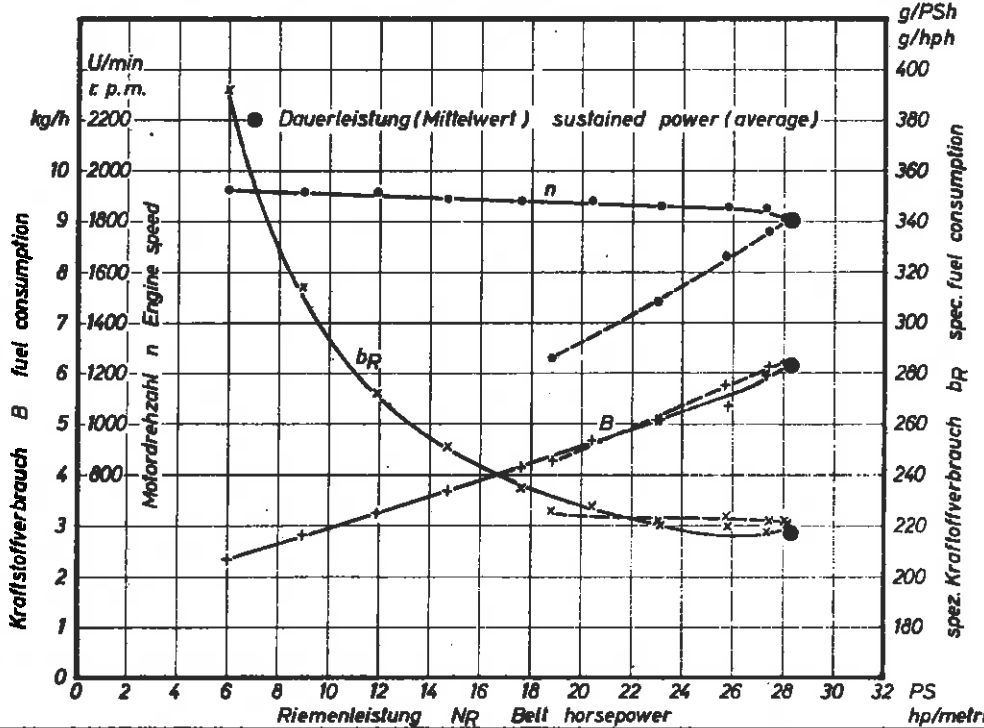
Schlepperprüffeld Darmstadt

Riemenleistung

Güldner Dieselschlepper
G 30 S
Güldner Dieselmotor Typ 3 L 79

Test Nr: 4013

Belt - test

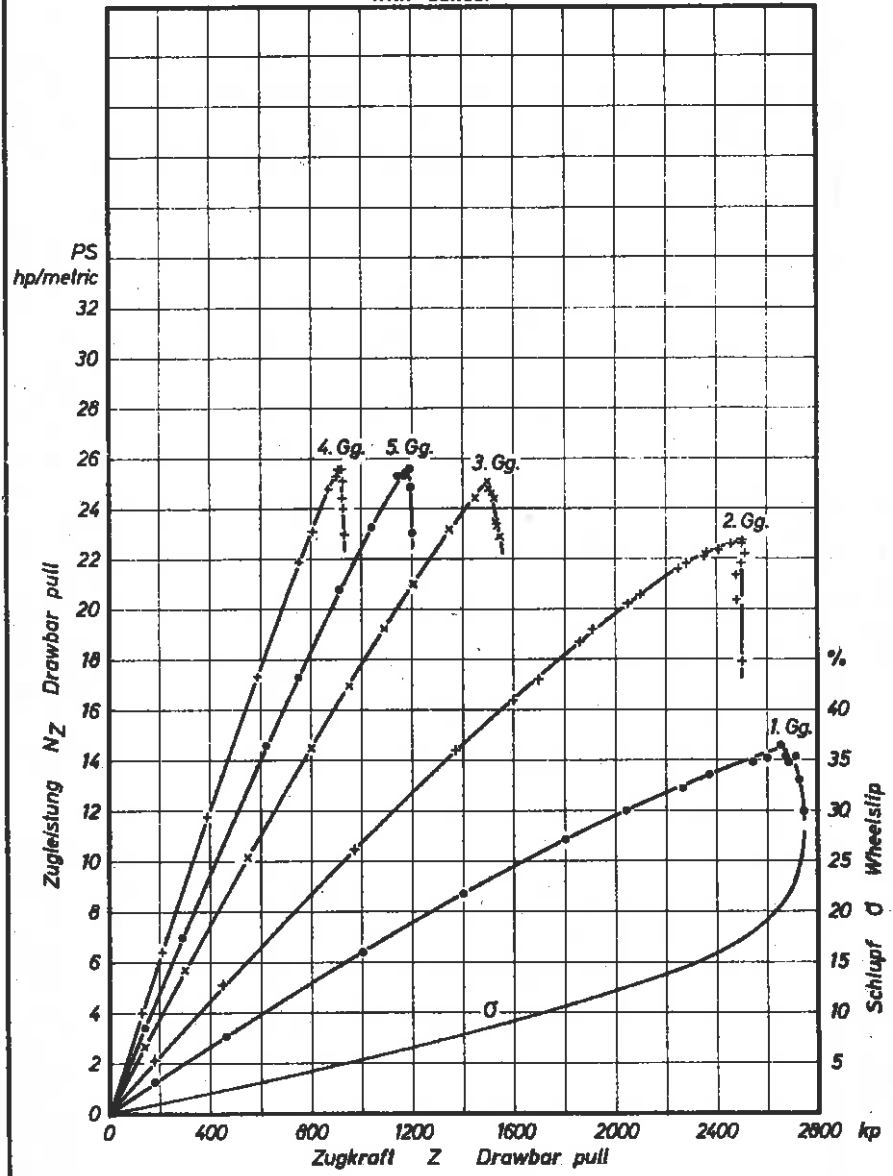


Motor Nr.: 118 36 1276	Kraftstoff: DK 0,830/15°C	Lufttemperatur: 19°C	Versuchstag: 4. 3. 1964	Versuchsltg.:
Schlepper Nr.: 215 36 5002	Motoröl: HD 20	Barometerstd.: 747 mm QS	Versuchs Nr.: 64/4013/64	Kurvenblatt: 6 Fl.

Schlepperprüffeld Darmstadt	Zugprüfung mit Ballast	Güldner Dieselschlepper G 30 S Güldner Dieselmotor Typ 3 L 79

Drawbar - test
with ballast

Test Nr: 4013



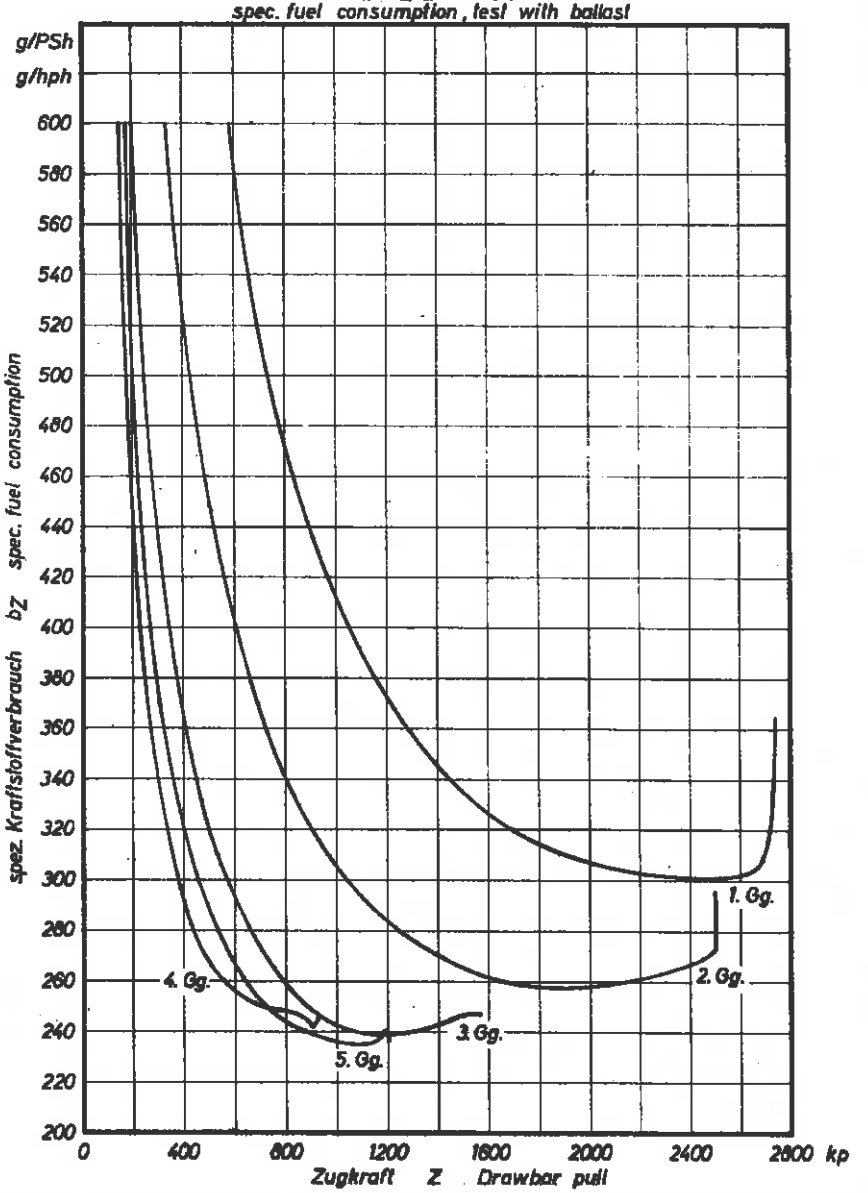
Motor Nr.: 118 36 1276	Motoröl: HD 20	Versuchstag: 25.3.–7.4.1964	Versuchsltg.:
Schlepper Nr.: 215 36 5002	Lufttemperatur.: 12° C	Versuchs Nr.: 4013/019/64	
Kraftstoff: DK 0,830 / 15° C	Barometerstd.: 744 mm QS	Kurvenblatt: 7	Fl.

Schlepperprüffeld Darmstadt	Zugprüfung spez. Kraftstoffverbrauch mit Ballast	Güldner Dieselschlepper D 30 S Güldner Dieselmotor Typ 3 L 79

Drawbar - test

spec. fuel consumption, test with ballast

Test Nr: 4013

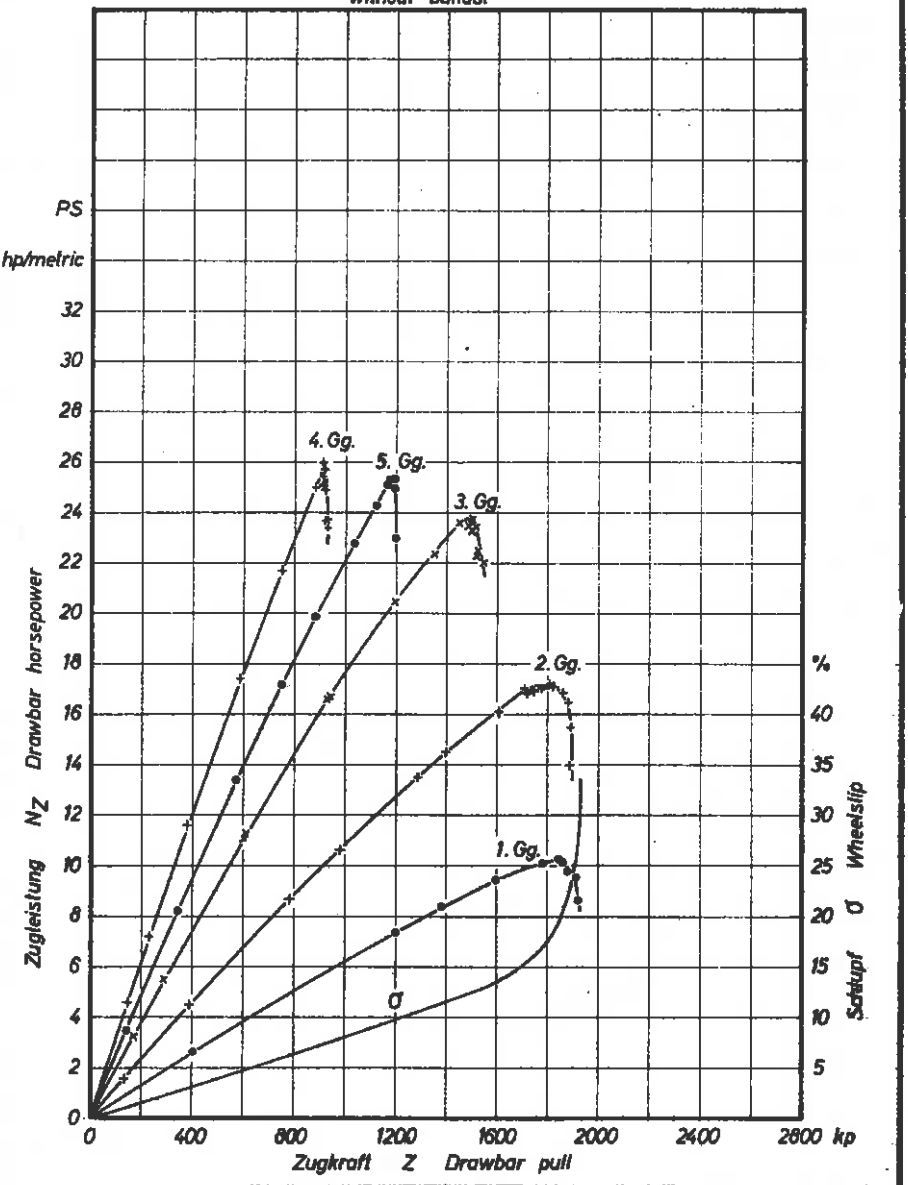


Motor Nr.: 118 36 1276	Motoröl: HD 20	Versuchstag: 25.3.-24.1964	Versuchsltg.:
Schlepper Nr.: 215 36 5002	Lufttemperatur: 12° C	Versuchs Nr.: 4013/019/64	
Kraftstoff: DK 0,830 / 15° C	Barometerstd.: 744 mm QS	Kurvenblatt: 8	Fl.

Schlepperprüffeld Darmstadt	Zugprüfung ohne Ballast	Güldner Dieselschlepper G 30 S Güldner Dieselmotor Typ 3 L 79

Drawbar - test
without ballast

Test Nr: 4013



Motor Nr.: 118 36 1276	Motoröl: HD 20	Versuchstag: 19.-24. 3. 1964	Versuchsltg.:
Schlepper Nr.: 215 36 5002	Lufttemperatur: 9° C	Versuchs Nr.: 4013/012/64	
Kraftstoff: DK 0,830 / 15° C	Barometerstd.: 764 mm QS	Kurvenblatt: 9	FL