Report No. 4009

Report on test in accordance with O.E.C.D. test code for agricultural Tractors

No. 39

HANOMAG - DIESEL - Tractor Perfekt 300
with type D 140R 2-cylinder engine

Manufactured by: Rheinstahl-Hanomag, Hannover-Linden



Date of Test: October 1962 /January 1963

SCHLEPPER - PRÜFFELD DARMSTADT
Darmstadt - Kranichstein

SCHLEPPER-PRÜFFELD

KURATORIUM FÜR TECHNIK IN DER LANDWIRTSCHAFT

KTL

REPORT ON TEST No. 4009 / O E C D

HANOMAG - PERFEKT 300

Manufacturer: RHEINSTAHL HANOMAG, Hannover-Linden

Test requested by: RHEINSTAHL HANOMAG, Hannover-Linden

Date of test: October 1962 / January 1963

This report has been approved by the
O.E.C.D. Coordinating 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: 6. Mai 1963

Number of Approval: 039

Darmstadt, 21. March 1963

TABLE OF CONTENTS

		Page
	Contents of appendix	3
SECTION I	Specification of tractor	4-8
SECTION II	Laboratory tests:	
	1. Compulsory tests:	
	At the main power take-off	9
	2. Supplementary tests	
	a) Engine tests	10
	b) Belt tests	11
SECTION III	Drawbar tests on concrete track	
	a) Tests with ballast	12-13
	b) Tests without ballast	14
SECTION IV	Location of centre gravity	
	Turning space and turning radius	15
SECTION V	Repairs and adjustments	
	during tests, remarks	15

CONTENTS OF APPENDIX

LABORATORY TESTS

Page

Compulsory tests at main p.t.o.

Curves of p.t.o. horse power, equivalent crankshaft torque and specific fuel consumption versus engine speed 16

Curves of engine speed, equivalent crankshaft torque and fuel consumption versus p.t.o.horse power 17

SUPPLEMENTARY TESTS

a) Engine tests

Curves of engine horse power, crankshaft torque and fuel consumption versus engine speed 18

Curves of engine speed, crankshaft torque and fuel consumption versus engine horse power 19

b) Belt tests

Curves of belt horse power, equivalent crankshaft torque and fuel consumption versus engine speed 20

Curves of engine speed, equivalent crankshaft torque and fuel consumption versus belt horse power 21

DRAWBAR TESTS

With ballast

Curves of drawbar horse power and wheel-slip versus drawbar pull 22

Curves of specific fuel consumption versus drawbar pull 23

Without ballast

Curves of drawbar horse power and wheel-slip 24

Curves of specific fuel consumption versus drawbar pull 25

SECTION I

SPECIFICATION OF TRACTOR

Tractor

Make:	RHEINSTAHL HANOMAG, Hannover - Linden
Model:	Perfekt 300
Type:	Diesel wheel-type-tractor, unit construction for mid-mounted implements
No.:	Serial No. 2 364 298

Engine

Make:	RHEINSTAHL HANOMAG, Hannover - Linden
Model:	D 14 CR
Type:	4-stroke-diesel with swirl-chamber
No.:	Serial No. 1240 272
Rated output:	25 hp (metric) at 2400 r.p.m. rated engine speed
Cylinders:	2 cylinders; vertical in line; 90 mm bore x 110 mm stroke; compression ratio 21 : 1; replaceable wet liners; overhead valves.
Rated speeds:	For p.t.o. work 2240 r.p.m. according to 540 r.p.m. standard p.t.o. speed, setting controlled by tractor-meter for belt work 2400 r.p.m. for drawbar work 2400 r.p.m. for road transport work 2400 r.p.m.
Fuel system:	Fuel-commercial available diesel oil; Bosch type PES 2A 65B 310 LS 1038 injektion pump; Bosch type DN 4 SD 24 injection nozzles; injection timing 22° before T.D.C.; injection pressure 150 kp/cm²; Bosch type pre-cleaner FJ/SJ 1/3 and Bosch; type felt-tube filter FJ/DF 3/103; capacity of fuel tank 47 l.
Governor:	Bosch type mechanical centrifugal variable; speed governor EP/RSV 300/1200 A2 A (B) 155 d; governed range of engine speed from 450 r.p.m. to 2620 r.p.m. with no load.

Air cleaner: Mann and Hummel oil bath cleaner with centrifugal pre-cleaner, oil capacity 0,5 l.

Oiling system: Forced feed from gear type pump with screen in sump and screen-tube filter in full flow;
recommended oil in summer: HD SAE 20
in winter: HD SAE 10 W;
recommended oil change period 100 h;
oil capacity 5,0 l.

Cooling system: Pressurised water cooled, impeller and 4-blade fan assisted, thermostat with dual water circuit for temperature control;
cooling water capacity 10 l.

Transmission

Clutch: Fichtel and Sachs A.G., Schweinfurt, type K 225, dry single plate clutch (or optional dry dual clutch DO 225/100 K for operating p.t.o. shaft and gear box drive respectively, (not fitted), foot pedal operated.

Gearbox: Own make, model „Perfekt 300", sliding gear type, 6 forward speeds and 2 reverse singel lever shifted;
oil capacity 18 l.

Differential: Own make, bevel gear type with crown wheel and pinion; lock fitted operated by hand lever.

Gear No.	Number of engine revolutions for one revolution of driving wheel	Theoretical travelling speed for 2400 r.p.m. rated engine speed km/h	m/s
1.	307,47 : 1	1,67	0,464
2.	187,63 : 1	2,72	0,755
3.	110,00 : 1	4,68	1,300
4.	75,27 : 1	6,85	1,900
5.	45,93 : 1	11,20	3,110
6.	26,94 : 1	19,00	5,280
1. R.	108,65 : 1	2,46	0,683
2. R.	51,08 : 1	10,06	2,795

Steering divice: Zahnradfabrik Friedrichshafen make, type ZF-Gemmer GD 28 with single drop arm and fixed drag link.

Brakes: Hand-brake - Perrot 200 x 30, internal shoe type, acting on gear shaft;
foot-brake - Perrot 350 x 60 S, internal shoe type, acting on rear wheels;
steering-brake
acting on rear wheels by 2 special pedals, if not used to be lowered on platform by turning pedal-plates.

Wheels:

Steering wheels: Two at front. Tyres 5,50 - 16 AS Front, 4ply pneumatic (acc. to DIN 7808);
track 1250 * - 1375 - 1495* - 1600 - 1700 - 1800 - 1950 mm (* acc. to DIN 9621);
track changed by extending front axle and reversing wheels;
maximum permissible wheight on each tyre:

450 kg at 2,0 kp/cm²
675 kg at 2,5 kp/cm² (acc. to DIN 7808)

Driving wheels: Two at rear. Tyres 11,2/10-28 AS, 6ply pneumatic (acc. to DIN 7807);
track 1250*mm and 1500 mm*, changed by reversing the disc-wheels.
(optionally the tractor may be fitted with changeable rim-disc type wheels, track: 1250* - 1365 - 1385 - 1500* - 1665 - 1800 mm, changed by reversing wheel centres and offset lugs on rims) (* acc. to DIN 9621)
maximum permissible weight on each tyre:

800 kg at 1,0 atü
1200 kg at 1,5 atü (acc. to DIN 7807);
wheel base 2035 mm.

Belt pulley:

Location: At rear of tractor, p.t.o. driven;
Dia.X width: 225/140 mm;
Speed: 1496 U/min at rated engine speed, giving 17,6 m/s linear belt speed (acc. to DIN 9630)

Direction of rot.: Clockwise, viewed from right hand side of tractor.

Power take-off

a) Main p.t.o.:	Gearbox p.t.o. (optional proportional engine speed p.t.o.) manually engaged;
Location:	At rear of tractor, 685 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.1495:1958)
Speed:	580 r.p.m. at rated engine speed 540 r.p.m. (acc. to DIN 9611 and B.S.1495:1958) at 2240 r.p.m. engine speed, setting controlled by tractormeter;
Direction of rot.:	clockwise viewed from tractor rear.
b) Mower drive shaft:	Driven from internal p.t.o. shaft; manually engaged;
Location:	centre line of tractor, below transmission case, 815 mm at front of rear axle, 550 mm above ground, in centre line of tractor;
Dimensions:	shaft with thread M 35 and V-belt pulley;
Speed:	1080 r.p.m. at rated engine speed.
Direction of rot.:	clockwise viewed from tractor rear.

Power lift

Make Zahnradfabrik Friedrichshafen, model A 216; live hydraulic with Bosch Hy/ZE 16 CR 13 gear type pump, single acting ram, Bosch Hy/S 20 C 2 B 1 control valve with hand operated rear axle load amplifier and Hanomag „Pilot" control valve for automatic control of the working-depth of implement; maximum oil pressure 120 kp/cm²; maximum load at end of lower links in horizontal position 1440 kp; oil flow 16 l/min; oil capacity 7,5 l.

Implement linkage: Three point linkage, categorie I controlled by power lift (acc. to DIN 9674 and B.S.1841:1951).

Drawbar: Fixed on hydraulically controlled implement linkage with central hole and 12 holes apart either side of central hole (acc. to DIN 9676 E); vertical adjustment from 180 mm to 820 mm above ground; distance from rear axle 895 mm.

Trailer hitch: At rear of tractor; height above ground 545-585-635-675-725-770-810 mm, adjustable by pins; distance from rear axle 505 mm.

Towing hitch: At front of tractor; height above ground 740 mm.

Electrical equipment:

Voltage: 12 Volts
Generator: Bosch type LJ/GEH 90/12/1800 FR 11
Battery: 1 2 Volts lead acid, capacity 84 Ah
Starting device: Bosch type EJD 1,8/12 R 33, solenoid engaged starter motor; starting aid Bosch glow plugs type KE/GSA 10/1.

Overall dimensions:

Ov.length : 3,39 m with three point linkage and towing hitch;
Ov.width : 1,55 m at 1250 mm track, without ballast weights;
Ov.height : 1,66 m to top of steering wheel;
Min.ground clearance: 415 mm in centre line of tractor;
390 mm at 300 mm apart either side of c.l.

Weights: Without driver, with full fuel tank, oil, cooling water, with power lift and three-point linkage, as tested.

	without Ballast kg	with Ballast kg
Weight		
on front wheels	553	664
on rear wheels	1117	2321
total	1670	2985

Special remarks: None

S E C T I O N II

1. COMPULSORY TESTS

Main power take-off test

Date and location of test: 11.Oktober 1962, Schlepper-Prüffeld, Darmstadt-Kranichstein

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 0,825 kg/l at 15°C, commercial quality in accordance with DIN 51 601

Engine oil: BP Energol Diesel D, HD 20 (SAE)
Transmission oil: SAE 90

(1) Sustained power tests

Duration of test	Horse power metric	Engine speed	Equiv. torque	Spec. fuel cons.	Mean temperatures fuel	oil	water	air	Atm. press.
h	hp	r.p.m.	kpm	g/hph	°C	°C	°C	°C	mm Hg.
Maximum powers									
2	25,7	2450	7,52	215	19	90	90	18	740
Power at 85 % of engine speed at maximum torque									
1	15,6	1400	7,98	203	19	90	90	18	740

(2) Varying speed tests

Horse power metric	Engine speed	Fuel consumption			Mean temperatures fuel	oil	water	air	Atm. press.
hp	r.p.m.	l/h	hph/l	g/hph	°C	°C	°C	°C	mm Hg.
Power at rated engine speed for road transportation-, field- and belt work									
25,2	2400	6,70	3,76	221	19	90	90	18	740
Power at engine speed relating to 540 r.p.m. standard p.t.o.speed									
24,8	2240	6,18	4,02	207	18	90	90	18	740
Maximum no load engine speed									
-	2590	2,30	-	-	18	90	90	18	740

2. SUPPLEMENTARY TESTS

a) Engine tests (with power lift pump running with no load)

Date and location of tests: 16.8.1962, Schlepper-Prüffeld, Darmstadt-Kranichstein

Type of dynamometer: Schenck water brake

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

Fuel: Shell diesel-fuel, density 0,825 kg/l at 15°C commercial quality in accordance with DIN 51 601

Engine oil: BP Energol-Diesel D HD 20 (SAE 20)

(1) Sustained power tests

Duration of test h	Horse power metric hp	Engine speed r.p.m.	Torque kpm	Spec. fuel cons. g/hph	Mean temperatures fuel °C	oil °C	water °C	air °C	Atm. press mm Hg.
Maximum power									
2	26,0	2450	7,59	215	24	105	90	25	735
Power at 85 % of engine speed at maximum torque									
1	16,1	1396	8,26	195	24	91	90	25	735

(2) Varying speed tests

Horse power metric hp	Engine specd r.p.m.	Fuel consumption l/h	hph/l	g/hph	Mean temperatures fuel °C	oil °C	water °C	air °C	Atm. press mm Hg.
Power at rated engine speed for road transportation-, field-work and belt work at standard belt speed									
25,5	2400	6,73	3,79	217	22	98	90	23	735
Power at engine speed relating to 540 r.p.m. standard p.t.o. speed									
25,1	2240	6,42	3,91	211	23	100	90	23	735
Leerlaufdrehzahl									
-	2600	2,24	-	-	23	100	90	23	735

3. SUPPLEMENTARY TESTS

b) Belt tests

Date and location of tests: 14.9.1962, Schlepper-Prüffeld, Darmstadt-Kranichstein

Type of dynamometer: Schenck water brake

Type of belt: Siegling Extremultus, 80 mm wide, 6 mm thick, endless

Position of governor control: Fully open, relating to standard belt speed

Fuel: Shell-diesel-fuel, density 0,825 kg/l at 15°C, commercial quality in accordance with DIN 51 601

Engine oil: BP Energol-Diesel D, HD 20 (SAE 20)

Transmission oil: SAE 90

(1) Sustained power tests

Duration of test h	Horse power metric hp	Engine speed r.p.m.	Equiv. torque kpm	Spec. fuel cons. g/hph	Mean temperatures fuel °C	oil °C	water °C	air °C	Atm. press mm Hg.
Maximum power, belt slip 1,0 %									
2	24,2	2448	7,08	230	19	95	90	19	745
Power at 85 % of engine speed at maximum torque									
1	15,2	1403	7,75	209	19	95	90	20	745

(2) Varying speed tests

Horse power metric hp	Engine speed r.p.m.	Fuel consumption l/h	hph/l	g/hph	Mean temperatures fuel °C	oil °C	water °C	air °C	Atm. press mm Hg.
Power at rated engine speed and at standard belt speed									
24,0	2400	6,60	3,65	230	17	90	90	18	745
Maximum no load speed									
-	2600	2,25	-	-	17	90	85	19	745

S E C T I O N III

DRAWBAR TESTS ON ARTIFICIAL TRACK

Date of tests: 31. August - 10. September 1962

Position of governor control: Fully open

Type of tyres: Rear 11,2/10-28 AS, 6ply pneumatic, straight bar open centre, Conti Farmer.
Front 5,50-16 AS Front, 4ply, Conti

Fuel: Shell diesel-fuel, density 0,825 kg/l at 15°C, commercial quality in accordance with DIN 51 601

Engine oil: BP Energol-Diesel D, HD 20 (SAE 20)

Transmission oil: SAE 90

a) Tests with ballast

Weight of tractor with driver:

Without ballast:	at front 555 kg,	at rear 1195 kg
With ballast:	680 kg,	2385 kg

Total weight with ballast 3065 kg

Weight of ballast:

Front:	Water	36 kg	
	wheel-weights	89 kg	(1 per wheel)
Rear:	Water	220 kg	
	wheel-weights	970 kg	(12 per wheel)

Tyre inflation pressure:

Front: 2,5 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								Maximum pulls	
	Horse power metric hp	Pull kp	Wheel slip %	Engine speed r.p.m.	Speed km/h	Water temp. °C	Air temp. °C	Atm. press mm Hg.	Pull kp	Reason for stall
1.	14,5	2960	21,8	2485	1,32	90	19	739	3160	Wheelspin
2.	19,6	2244	13,2	2450	2,36	90	20	739	2484	Engine stall
3.	20,8	1283	6,4	2450	4,35	90	19	739	1464	Engine stall
4.	21,4	883	4,4	2450	6,51	90	15	739	1008	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 mor than 10 %
	Spec.fuel consumption g/hph	Drawbar hph/l	correspond pull kp	
1.	321	2,55	2600	1770 - 3070 kp
2.	295	2,79	2100	1230 - 2480 kp
3.	273	3,06	1300	790 - 1460 kp
4.	262	3,10	900	600 - 1000 kp

b) Tests without ballast

Weight of Tractor with driver

Front	555 kg
Rear	1195 kg
Total	1750 kg

Tyre inflation pressure:

Front	2,5 atü
Rear	1,5 atü

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

(1) Maximum powers and pulls

Gear No.	Maximum powers								Maximum pulls	
	Horse power metric hp	Pull kp	Wheel slip %	Engine speed r.p.m.	Speed km/h	Water temp. °C	Air temp. °C	Atm. press mm Hg.	Pull kp	Reason for stall
1.	8,2	1600	20,9	2525	1,32	90	20	733	1685	Wheelspin
2.	13,4	1600	20,5	2500	2,26	90	20	733	1680	Wheelspin
3.	19,7	1276	12,4	2450	4,17	90	19	736	1460	Engine stall
4.	21,1	390	7,8	2450	6,40	90	18	736	1010	Engine stall

(2) Fuel consumption

Gear No.	Optimum fuel consumption Spec.fuel consumption g/hph	Drawbar correspond pull hph/l	kp	Range of pull kp over which specific fuel consumption does not exeed optimum consumption by more than 10 %
1.	395	2,10	1580	1100 - 1685
2.	321	2,57	1450	930 - 1640
3.	282	2,92	1070	670 - 1460
4.	266	3,09	950	750 - 1010

S E C T I O N IV

1. Location of centre of gravity

	Test a) ballasted	Test b) unballasted
Height above ground	676	748
Distance forward from the vertical plane containing the axis of the rear wheels	422	656
Distance from the median plane parallel to the longitudinal axis of the tractor bisecting the track	C	0

2. Turning space and turning radius

Wheel equipment: Front 5,50-16 AS Front
Rear 11,2/10-28 AS

Track Front 1350 mm
Rear 1370 mm

Radius of turning space	with steering brakes		without brakes	
	right-hand	left-hand	right-hand	left-hand
	3,35	3,35	3,60	3,60
Turning radius	3,30	3,30	3,50	3,50

S E C T I O N V

1. Repairs and adjustments during tests: None
   Remarks: None

Darmstadt, am

Schlepperprüffeld Darmstadt

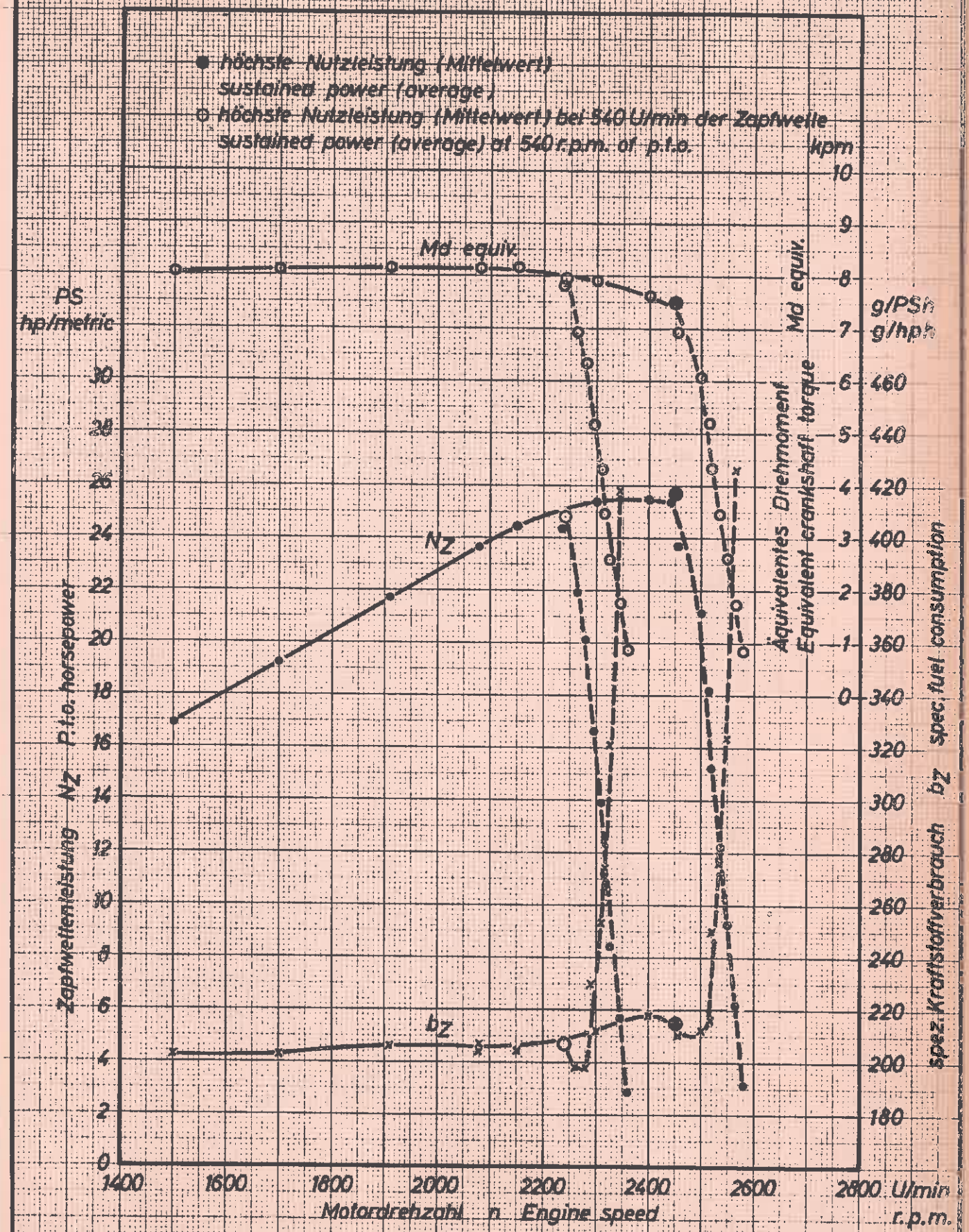
Zapfwellenleistung

Hanomag Dieselschlepper
Perfekt 300
Hanomag Dieselmotor Typ D 14 CR

P.t.o.-test

Test Nr: 4009

● höchste Nutzleistung (Mittelwert)
sustained power (average)
○ höchste Nutzleistung (Mittelwert) bei 540 U/min der Zapfwelle
sustained power (average) at 540 r.p.m. of p.t.o.



Motor Nr.: 1240 272	Motoröl: HD 20	Versuchstag: 11. 10. 1962	Versuchsing.:
Schlepper Nr.: 2364 298	Lufttemperatur: 18° C	Versuchs Nr.: 169/4009/62	
Kraftstoff: DK 0,825 / 15° C	Barometerstd.: 740 mm QS	Kurvenblatt: 1	Fl.

A 4 210 × 297 mm

A 4 210 x 297 mm

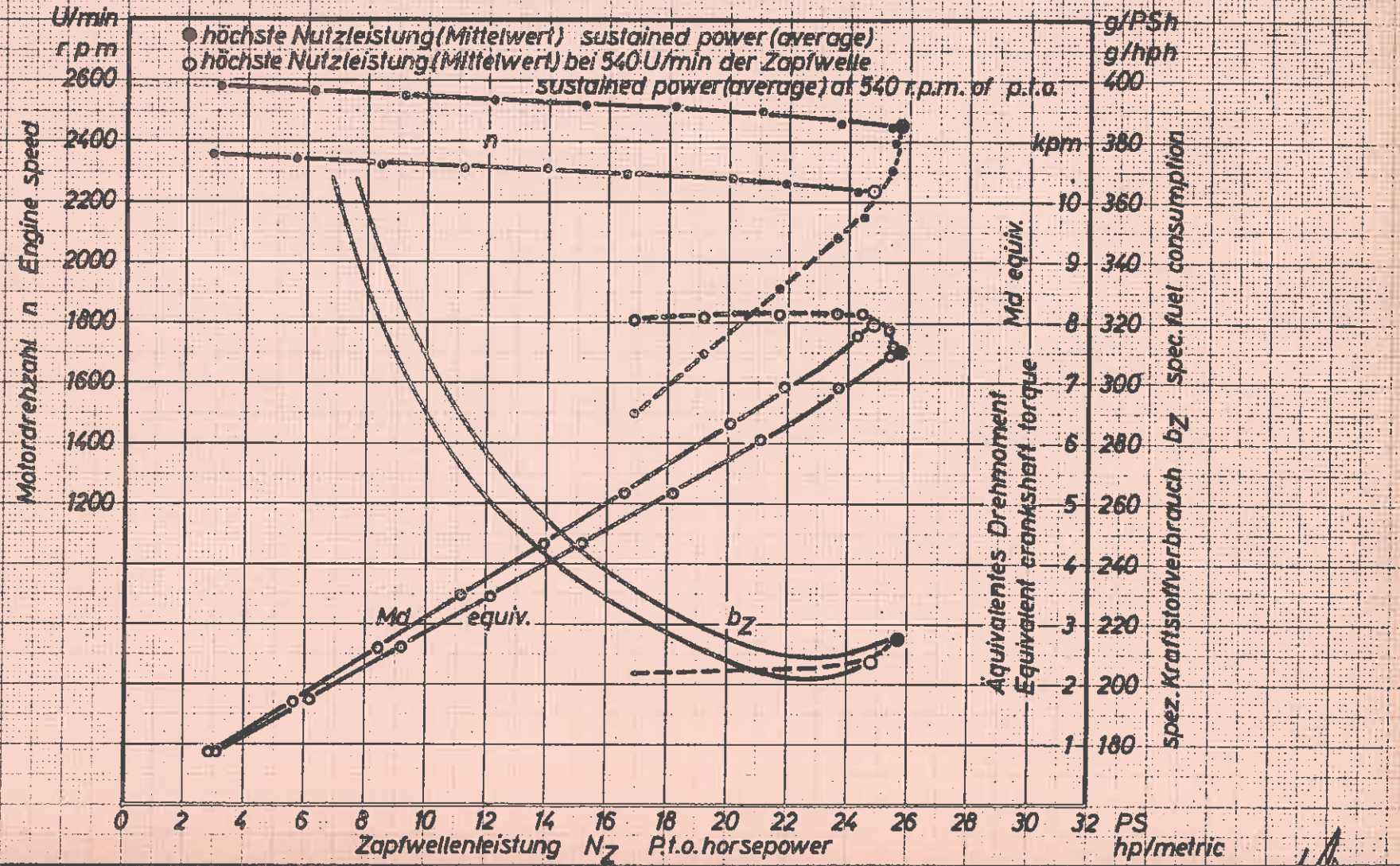
Schlepperprüffeld Darmstadt

Zapfwellenleistung

Hanomag Dieselschlepper
Perfekt 300
Hanomag Dieselmotor Typ D14 CR

Test Nr: 4009

P.t.o.-test



Motor Nr.: 1240 272	Motoröl: HD 20	Lufttemperatur: 18° C	Versuchstag: 11. 10. 1962	Versuchsltg.:
Schlepper Nr.: 2364 298	Kraftstoff: DK 0,825/15°C	Barometerstd.: 740mm QS	Versuchs Nr.: 169/4009/62	Kurvenblatt: 2

Schlepperprüffeld Darmstadt

Motorleistung

Engine - test

Hanomag Diesetschlepper Perfekt 300
Hanomag Dieselmotor Typ D 14 CR

Test Nr: 4009

● Höchste Nutzleistung (Mittelwert)
sustained power

Md

Ne

B

b_e

PS hydrometric

Motorleistung N_e Crankshaft horsepower

kg/h

Kraftstoffverbrauch B fuel consumption

Motordrehmoment Md Crankshaft torque

g/PSh

spez. Kraftstoffverbrauch b_e spec. fuel consumption

Upm g/hph

0 400 800 1200 1600 2000 2400 2800 U/min
Motordrehzahl n Engine speed r.p.m.

Motor Nr.: 1240 272	Motoröl: HD 20	Versuchstag: 16. 8. 1962	Versuchstg.:
Schlepper Nr.: 2364 298	Lufttemperatur: 23°C	Versuchs Nr.: M67-009/62	
Kraftstoff: DK 0,825/15° C	Barometerstd. 735 mm QS	Kurmotor: 3	

A 4 210 · 297 mm

A 4 210 x 297 mm

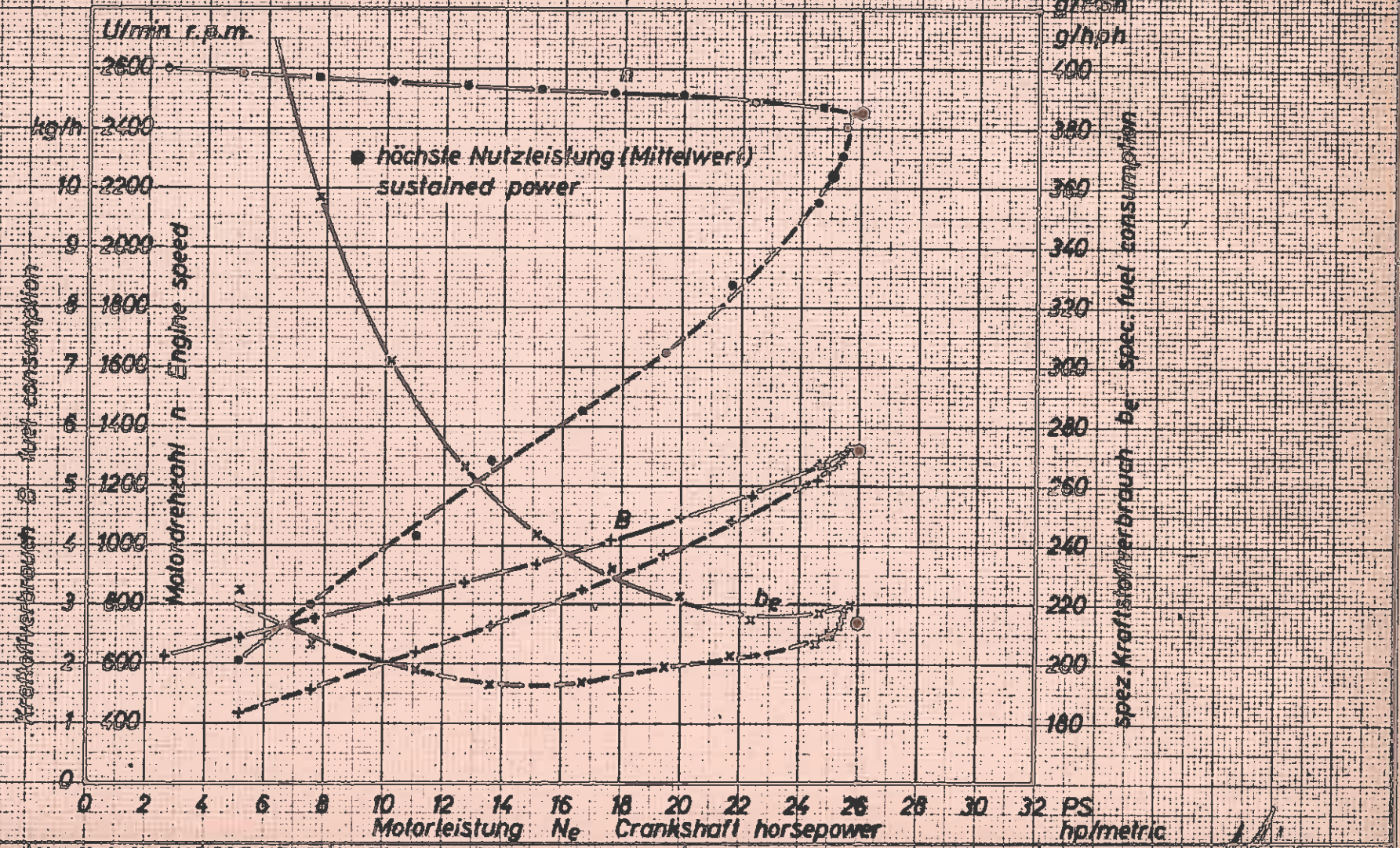
Schlepperprüffeld
Darmstadt

Motorleistung

Hanomag Dieselschlepper
Perfekt 500
Hanomag Dieselmotor Typ D 14 CR

Engine - test

Test Nr. 4009



Motor Nr.: 1230 272	Kraftstoff: DK 0,825/15° C	Lufttemperatur: 23° C	Versuchstag: 16. 8. 1962	Versuchsl'g.:
Schlepper Nr.: 2364 298	Motoröl: HD 20	Barometerstd.: 735 mm QS	Versuchs Nr.: 116/4009/62	Kurvenblatt: 4

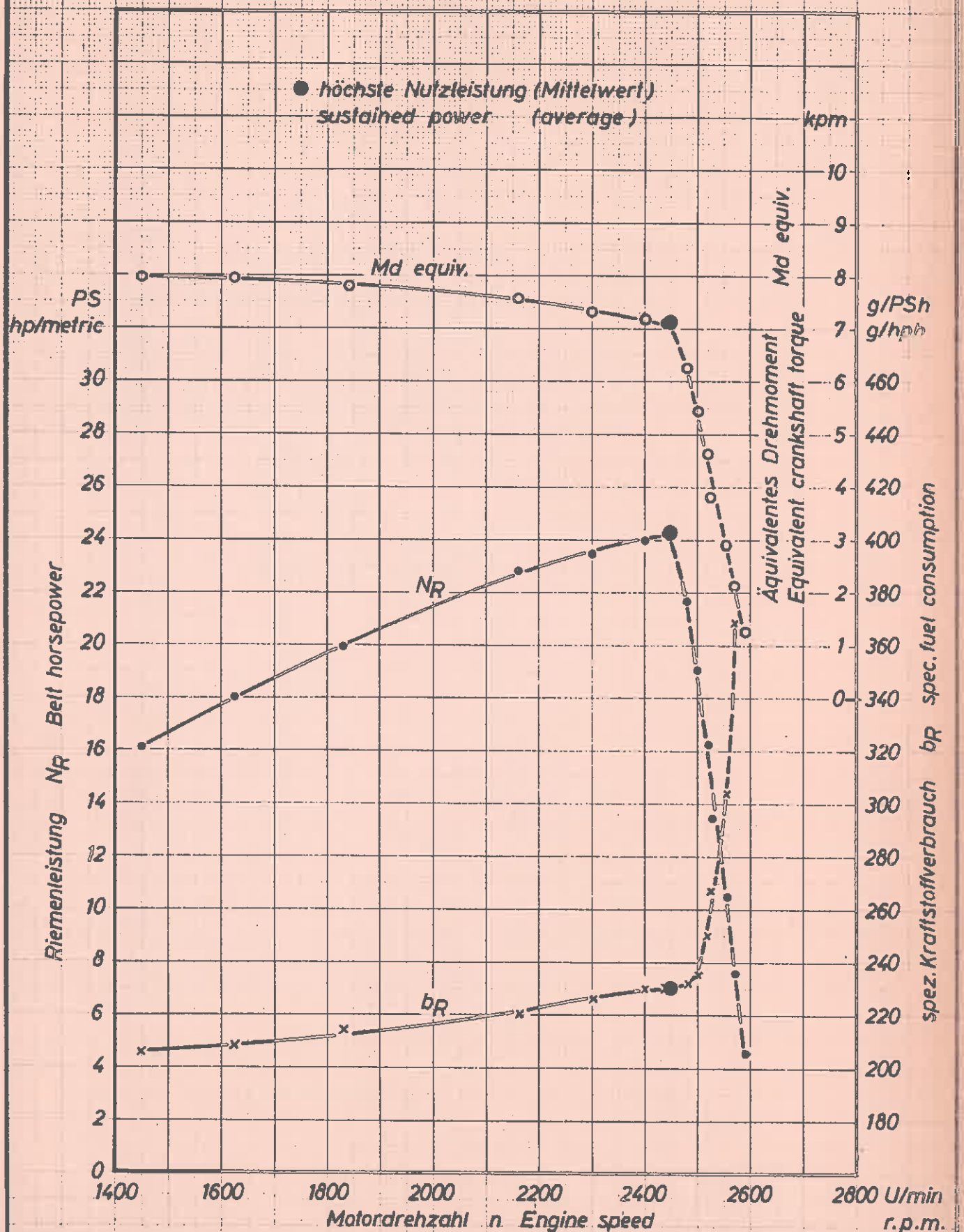
Schlepperprüffeld Darmstadt

Riemenleistung

Hanomag Dieselschlepper
Perfekt 300
Hanomag Dieselmotor Typ D14CR

Belt-test

Test Nr: 4009



Motor Nr.: 1240 272	Motoröl: HD 20	Versuchstag: 14. 9. 1962	Versuchsltg.:
Schlepper Nr.: 2364 298	Lufttemperatur: 18° C	Versuchs Nr.: 143/4009/62	
Kraftstoff: DK 0,825/15° C	Barometerstd.: 745mm QS	Kurvenblatt: 5	Fl.

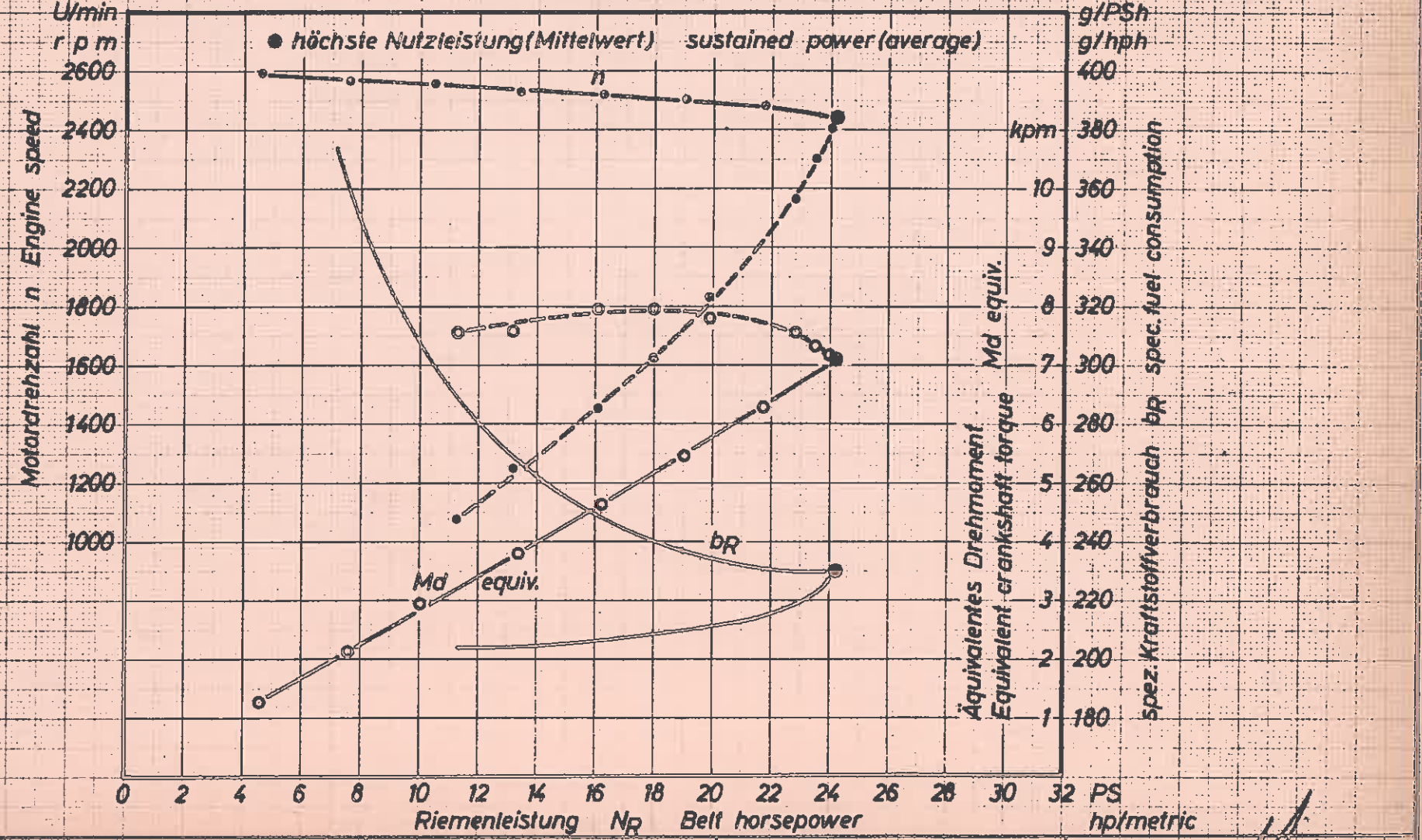
Schlepperprüffeld Darmstadt

Riemenleistung

Hanomag Dieselschlepper
Perfekt 300
Hanomag Dieselmotor Typ D 14 CR

Belt-test

Test Nr: 4009



Motor Nr.: 1240 272	Motoröl: HD 20	Lufttemperatur: 18° C	Versuchstag: 14. 9. 1962	Versuchsltg.: Fl.
Schlepper Nr.: 2364 298	Kraftstoff: DK 0,825/15°C	Barometerstd.: 745 mm Q S	Versuchs Nr.: 143/4009/62	Kurvenblatt 6

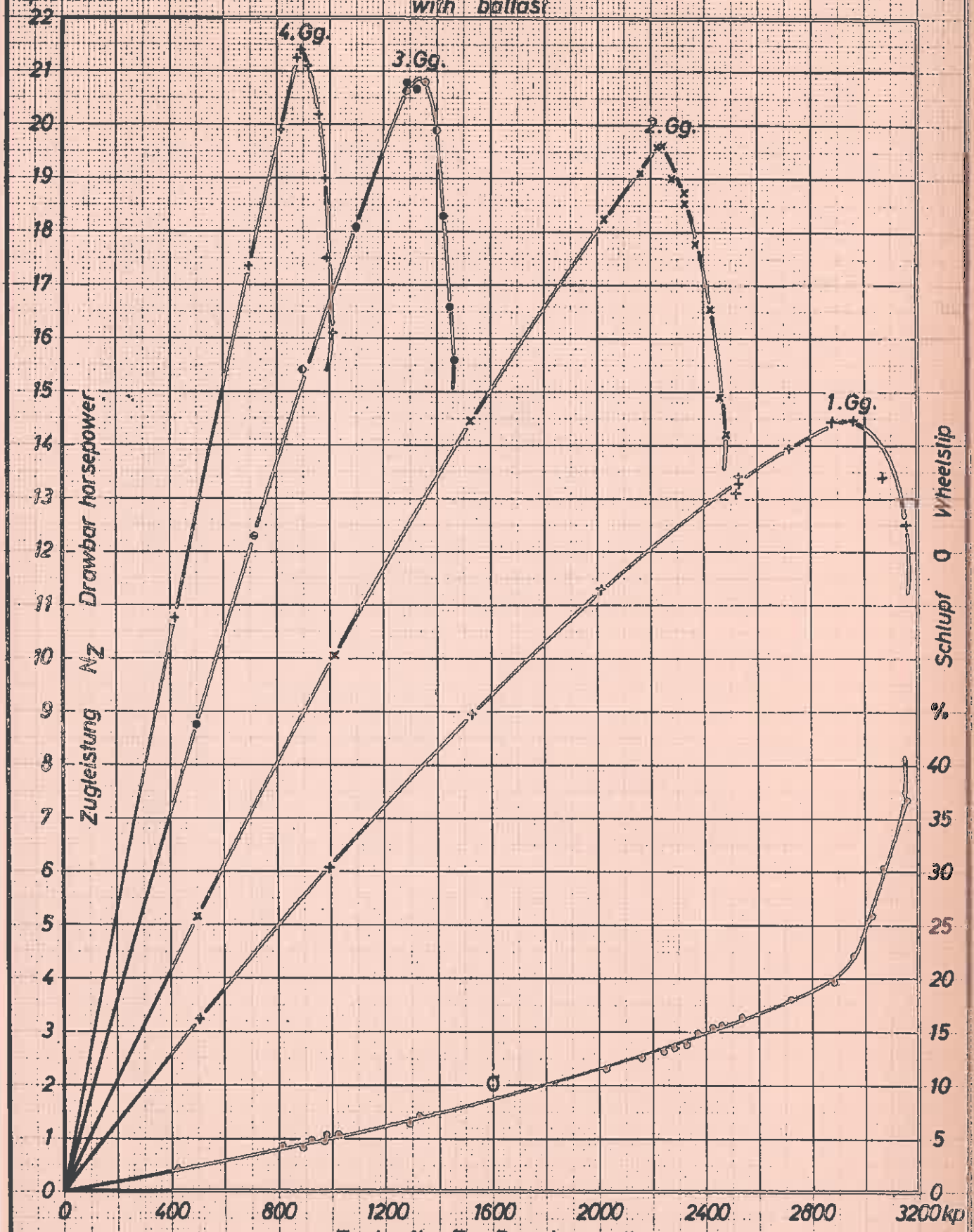
Schlepperprüffeld Darmstadt

Zugprüfung
mit Ballast

Hanomag Dieselschlepper
Perfekt 300
Hanomag Dieselmotor Typ D14CR

Drawbar - test
with ballast

Test Nr: 4009



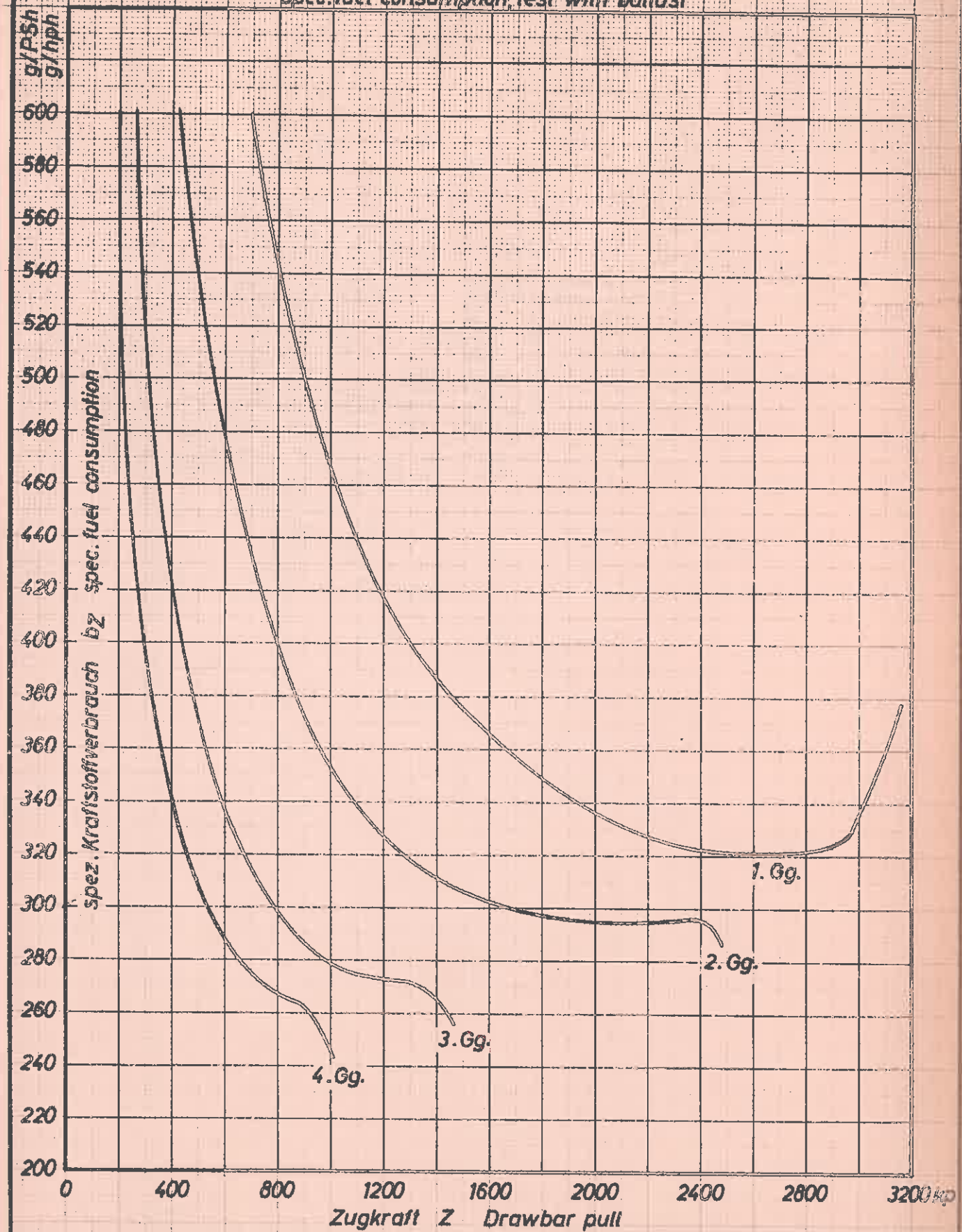
Motor Nr.: 1240 272	Motoröl: HD 20	Versuchstag: 10. 9. 1962	Versuchsltg.:
Schlepper Nr.: 2364 298	Lufttemperatur: 19 °C	Versuchs Nr.: 4009/111/62	
Kraftstoff: DK 0,825/15° C	Barometerstd.: 730 mm QS	Kurvenblatt: 7	

Schlepperprüffeld Darmstadt	Zugprüfung spez. Kraftstoffverbrauch mit Ballast	Hanomag Dieselschlepper Perfekt 300 Hanomag Dieselmotor Typ D14CR

Drawbar - test

spec. fuel consumption test with ballast

Test Nr: 4009



Motor Nr.: 1240 272	Motoröl: HD 20	Versuchstag: 10.9.1962	Versuchsltg.:
Schlepper Nr.: 2364 298	Lufttemperatur: 19° C	Versuchs Nr.: 4009/111/62	
Kraftstoff: DK 0,825 /15° C	Barometerstd.: 730 mm QS	Kurvenblatt: 8	

Schlepperprüffeld Darmstadt

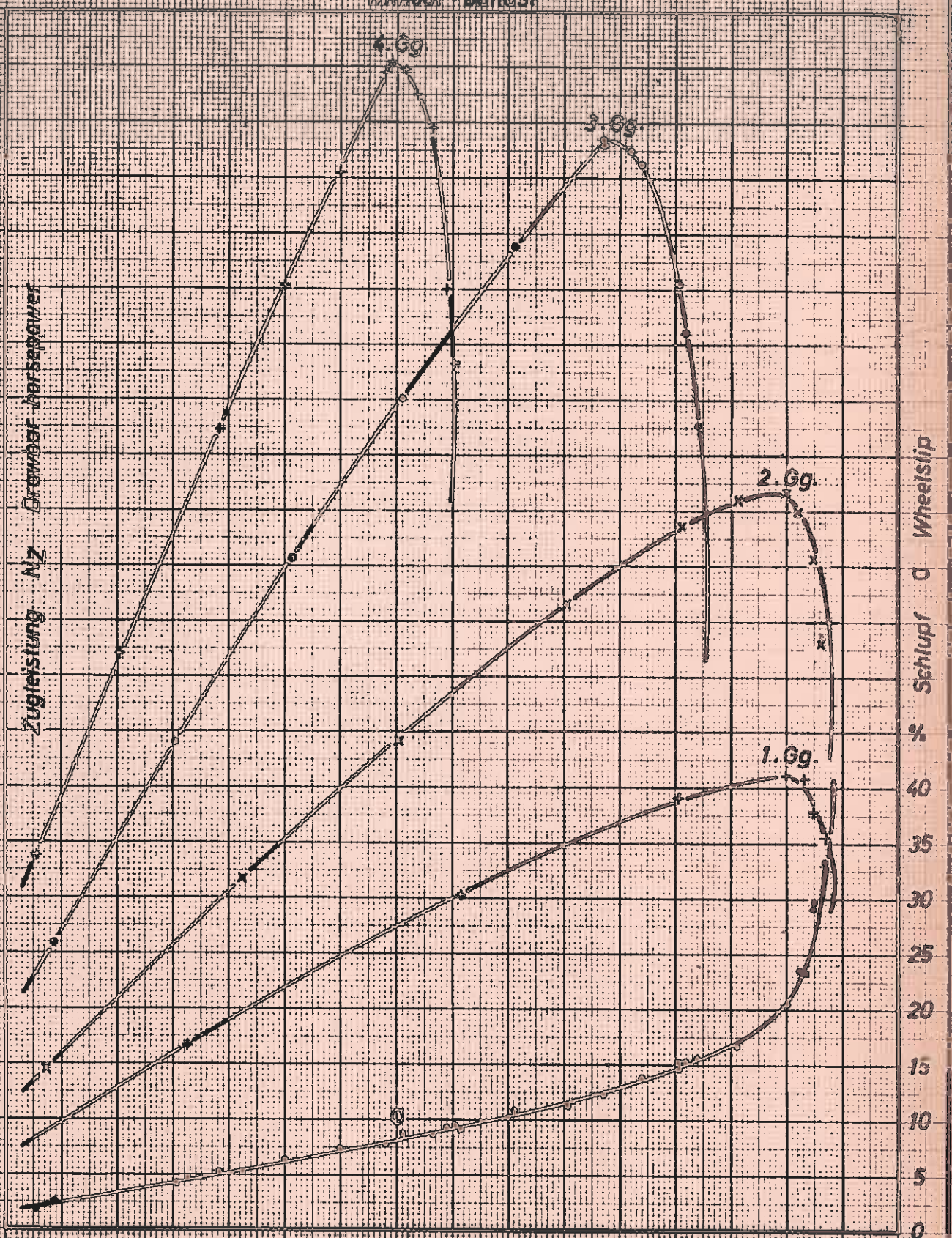
Zugprüfung
ohne Ballast

Hanomag Dieselschlepper
Perfekt 300
Hanomag Dieselmotor Typ D 14 CR

Drawbar - test
without ballast

Test Nr. 4009

PS hydrometric



Motor Nr.: 1240 272	Motoröl: HD 20	Versuchstag: 3. 9. 1962	Versuchsltg.:
Schlepper Nr.: 2364 298	Lufttemperatur: 19 °C	Versuchs Nr.: 4009/05/62	
Kraftstoff: DK 0,825/15 °C	Barometerstd.: 721,0 QS	Kurvenblatt: 3	

A 4 210 x 297 mm

Schlepperprüffeld Darmstadt

Zugprüfung

spez. Kraftstoffverbrauch ohne Ballast

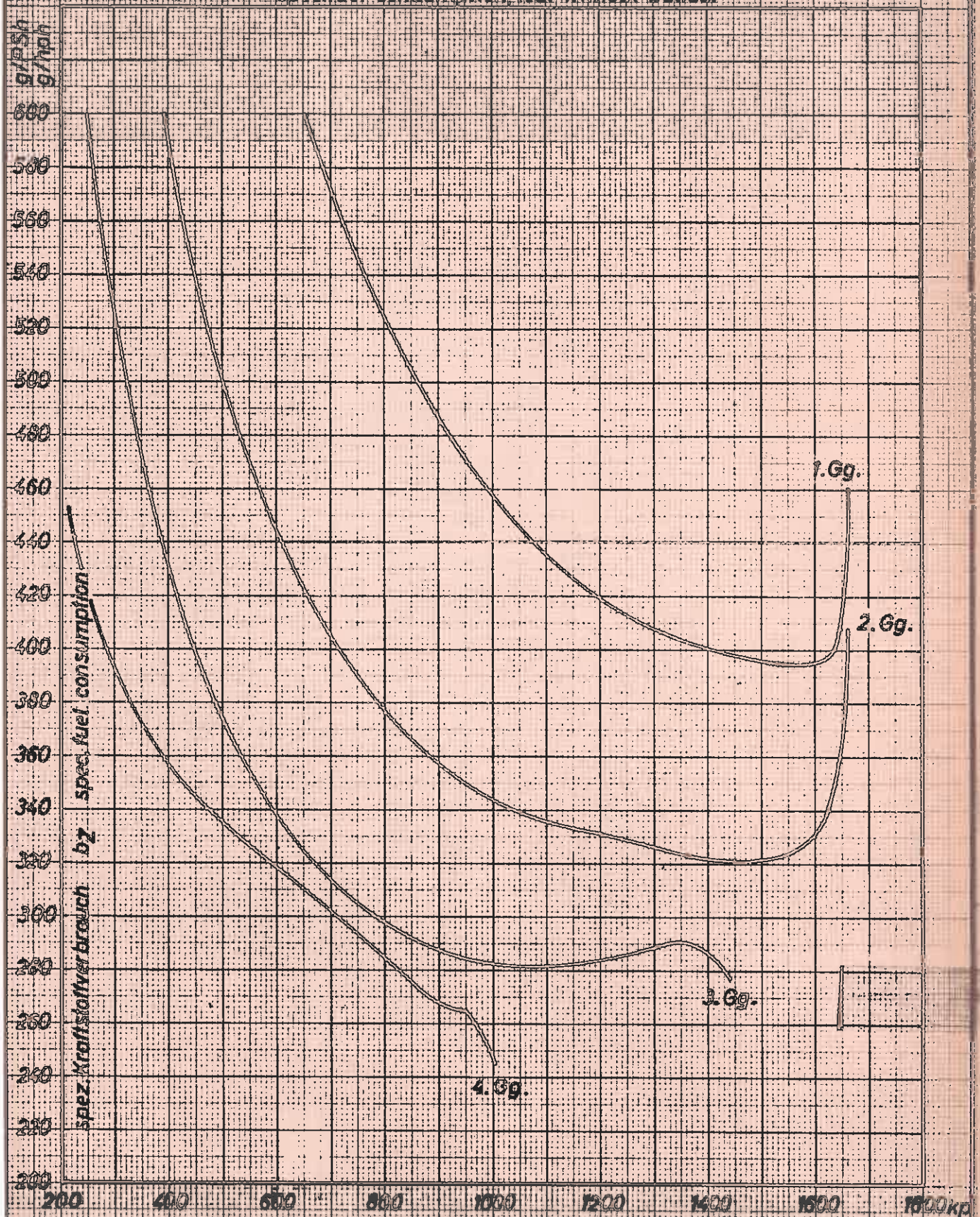
Hanomag Dieselschlepper Perfekt 300

Hanomag Dieselmotor Typ D14CR

Drawbar-test

spec. fuel consumption test without ballast

Test Nr: 4009



Motor Nr.: 1240 272	Motoröl: HD 20	Versuchstag: 3. 9. 1962	Versuchsllo.:
Schlepper Nr.: 2564 256	Lufttemperatur: 19 °C	Versuchs Nr.: 4009/08/62	
Kraftstoff: DIN 0,825/15 °C	Barometerstd.: 742 mm QS	Kurvenblatt: 10	

A4 210 x 297 mm