O. E.C.D. Report No. 301

Report on test in accordance with
O.E.C.D. Test Code for Agricultural Tractors

DAIMLER - BENZ UNIMOG 403

Manufactured by: Daimler-Benz A.G., 756 Gaggenau/Baden



Date of Tests: July - September 1969

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: 16.2.1970 Serial No.: 301

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 an evaluation of the performance of the tractor on practical farm work.

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PRÜFUNGS-ABTEILUNG
D.-B. Unimog 403

Test No. 69-44

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Tractor manufacturer:	Daimler-Benz AG., 756 Gaggenau/ Baden
Submitted for test by:	Manufacturer
Selected by:	Manufacturer by agreement with DLG
Place of running-in:	Gaggenau and Groß-Umstadt
Duration of running-in:	Engine 75 hours, tractor 100 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	Daimler-Benz AG., 756 Gaggenau/ Baden
Model:	Unimog 403
Type:	Frame type with all-wheel drive and sprung chassis
Serial No.:	403.122-10-001 024

Engine

Make:	Daimler-Benz AG., 68 Mannheim
Model:	OM 314 III model 314.917
Type:	Direct injection type Diesel engine, 4-stroke, water cooled
Serial No.:	314.917-10-037-989

Cylinders: 4 cylinders, vertical in line; 97 mm bore, 128 mm stroke, piston displacement 3782 cm^3; compression ratio 17 : 1; overhead valves

Fuel system: Fuel: commercially available diesel oil;
Bosch type PES 4A 80 C 410 RS 2094 Z injection pump;
Bosch type DLLA 150 S 187 injection nozzles;
Bosch type FK/KS 22 AD 6/4 feed pump;
injection pressure 200 kp/cm^2;
injection timing 21° before TDC + 8°, automatically injection timing;
filter: strainer in tank, sediment bowl, Bosch type two-stage felt-tube filter;
capacity of fuel tank appr. 90 l, optional 120 l

Governor: Bosch type RSV 350/1300 A2B 1004 DL, mechanical centrifugal variable speed governor;
governed range of engine speed 700 rev/min to 2770 rev/min;
rated engine speed for p.t.o.-work 2550 rev/min
for field-work 2550 rev/min
for transportation-work 2550 rev/min
for belt-work 2550 rev/min

Air cleaner: Mann & Hummel, 714 Ludwigsburg, oil bath cleaner;
oil capacity appr. 2 l;
optional: air intake chimney and cyclonic precleaner

Lubrication system: Forced feed from gear type pump; combined strainer filter in full flow; filter cartridge in by-pass; oil capacity maximal 9 l;
oil-change period using branded HD oil 200 hours;
recommended oil in winter HD SAE 10
in summer HD SAE 30
in tropics HD SAE 40

Cooling system: Pressurised water cooling 0,4 kp/cm², impeller assisted and fan with 11 blades 430 mm dia; by-pass thermostat for temperature control; temperature gauge; cooling water capacity appr. 18 l

Electrical equipment: 12 Volt, negative earth

Starting device: Bosch type KG 12 V 4 PS screw-push starter motor

Starting aid: Start pilot device for very low temperatures

Generator: Bosch type K 1 14 V 35 A 20 generator

Battery: Lead acid battery 12 Volt 110 Ah

Transmission

Clutch: Fichtel & Sachs AG., 872 Schweinfurt, type G 280 KR; dry single disc type clutch or
Lamellen- und Kupplungsbau GmbH, 785 Bühl/ Baden, dual dry disc clutch type DT 280/280 N, foot pedal operated and assisted by hydraulic cylinder

Gearbox: Make: Daimler-Benz AG., 756 Gaggenau/ Baden; fully synchronmesh selecting gear; 6 forward speeds, 2 reverse;
optional: reduction gear with 6 intermediate speeds, 4 creeping speeds, 4 crawling speeds and 6 reverse; front-wheel drive disengageable during travelling

Front axle, rear axle and final drive: Make: Daimler-Benz AG., 756 Gaggenau/ Baden; portal construction with spur gear final drive; bevel gear type differential; differential lock fitted in front- and rear axle, pneumatically operated by hand lever

Oil capacity: Selecting gear with reduction gear 8 l, axle drive 2 l, final drive 0,3 l each;
recommended oil-change period 400 hours

Total ratios and speeds with selecting gear

Gear No.	Number of engine revolutions for one revolution of the driving wheel	Theoretical travelling speed for rated speed of engine and tyres 12,5-20 km/h	m/s
	forward		
1.	94,84 : 1	4,86	1,35
2.	52,39 : 1	8,81	2,45
3.	29,40 : 1	15,70	4,36
4.	16,24 : 1	28,42	7,90
5.	10,75 : 1	42,92	11,93
6.	6,53 : 1	70,70	19,62
	reverse		
1.	75,88 : 1	6,08	1,69
2.	41,91 : 1	11,01	3,06

Additional speeds with reduction gear fitted (optional)

Gear No.	Number of engine revolutions for one revolution of the driving wheels	Theoretical travelling speed for rated speed of engine and tyres 12,5-20 km/h	m/s
	Intermediante speeds		
	forward		
1.	119,60 : 1	3,86	1,07
2.	66,07 : 1	6,98	1,94
3.	37,07 : 1	12,45	3,46
4.	20,48 : 1	22,53	6,25
5.	13,56 : 1	34,04	9,47
6.	8,23 : 1	56,06	15,58
	reverse		
1.	95,68 : 1	4,82	1,34
2.	52,85 : 1	8,73	2,42
	Creeping speeds		
	forward		
1.	442,64 : 1	1,04	0,29
2.	244,52 : 1	1,89	0,52
3.	137,20 : 1	3,36	0,93
4.	75,79 : 1	6,09	1,69
	reverse		
1.	354,12 : 1	1,30	0,36
2.	195,59 : 1	2,36	0,66
	Crawling speeds		
	forward		
1.	4066,62 : 1	0,113	0,031
2.	2246,42 : 1	0,206	0,057
3.	1260,48 : 1	0,366	0,102
4.	696,29 : 1	0,663	0,184
	reverse		
1.	3253,35 : 1	0,142	0,039
2.	1796,97 : 1	0,257	0,071

PRÜFUNGS-ABTEILUNG
D.-B. Unimog 403

Test No. 69-44

Power take-off

a) Main p.t.o.: Power take-off (optional: live power take-off)

Location: At rear of tractor, 880 mm above ground, 175 mm to the left of centre line of tractor; optional: additional offset transmission box with location of p.t.o. 695 mm above ground and 10 mm to the left of median plane

Dimensions: Spline shaft A 36 x 44 x 11 mm = $1\frac{3}{4}$", 6 splines; optional spline shaft 29 x 34,9 x 8,7 mm = $1\frac{3}{8}$", 6 splines (acc.to DIN 9611 Form A; B.S.1495;ASAE S 203.5)

Speed: (changeable) 550 rev/min at rated engine speed (acc.to DIN 9611); 1004 rev/min at rated engine speed (acc.to B.S. 1495; ASAE S 204.4)

Direction of rotation: Clockwise, viewed from tractor rear

b) Front p.t.o.: Drive, dimensions and speeds same as stated for main p.t.o. under a)

Location: At front of tractor, 920 mm above ground, 213 mm to the left of tractor centre line

Direction of rotation: Anticlockwise, viewed from tractor front

Power lift

Make Westinghouse GmbH., 3 Hannover
live hydraulic system with dual acting ram; directly from engine by vee-belt driven gear type pump; two dual control valves for lifting-, neutral-, pressing- and floating position; hydraulic quickcouplings at the front as well as at the rear of the tractor. A third additional coupling at the rear may serve for the control of the lifting cylinder of the auxiliary three-way tipping platform or to the remote control of free cylinders on implements. Maximum oil pressure 150 kp/cm^2; oil capacity appr. 18 l; maximum oil flow 40 l/min (manufacturers specification)

Pull attachment

Implement: At rear: Three-point linkage category II (acc.to DIN 9674, ASAE S 217.5), hydraulically controlled by power lift. Lifting height above ground from 270 mm to 1100 mm changed by fixing lifting rods in different holes of lower links,changing length of the rods.
For mounting implements at front, in the middle as well as at the rear of the tractor fittings are available for mounting implements of the UNIMOG-implement line on the frame of the tractor, on the chassis as well as on auxiliary platform.

Drawbar: Fixed on implement linkage, hydraulically controlled by power lift; height above ground adjustable from 270 mm to 1100 mm; distance to rear axle 1090 mm when lower links in horizontal position; central hole and 4 holes with 80 mm distance each apart either side of centre line (acc. to DIN 9676); distance of central hole to the end of the p.t.o. 575 mm, with special displacement gearbox 495 mm.
Riged fixed drawbar (acc. to DIN 9670) available

Trailer hitch:	Make: Rockinger type 227 C 110 A (or Ringfeder type UNIMOG C); at rear of tractor; height above ground to the middle of the claw 885 mm (platform not loaded); distance from centre of rear axle to the rear edge of claw 580 mm
Towing hitch:	At front of tractor; height above ground to the middle of the claw 840 mm
Steering device	Make: Zahnradfabrik Friedrichshafen A.G. 799 Friedrichshafen ball-nut hydrostatic steering model 8058 with separate ZF-Eaton oil-pump, oil flow 9 l/min at 130 kp/cm²; oil capacity 0,9 l; steering operated by hand wheel (manufacturers rating). Optional: Recirculating ball type steering gear type L 3,5 K make Daimler-Benz A.G., 4 Düsseldorf, when tractor is fitted with tyres 10,5-20 8 ply
Brakes	
Parking brake:	Mechanically acting on rear wheels, operated by hand pull-lever
Foot brake:	Hydraulically acting on all wheels as Simplex internal shoe type brake, as one- or two-cycle type, as wanted; operated by foot pedal
Trailer braking:	Acting either as an one-cycle type and/or an two-cycle type, as wanted
Wheels	
Steering wheels:	Two at front (also acting as driving wheels), tyres 12,5-20 extra Special 10 ply, maximum permissible weight on each tyre 1850 kp at 3,0 kp/cm²; track 1616 mm; rims 11 x 20
Driving wheels:	Four, two at front and two at rear, tyres 12,5-20 extra Special 10 ply; maximum permissible weight on each tyre 1850 kp at 3,0 kp/cm² ; track 1616 mm; other see above; rims 11 x 20
Wheel base:	2380 mm

Weights

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

		without driver	with driver
Weight of tractor without ballast:	Front axle load:	2042 kp	2104 kp
	Rear axle load:	1400 kp	1416 kp
	Total:	3442 kp	3520 kp

Ballast on auxiliary platform: 2085 kp

		without driver	with driver
Weight of tractor with ballast:	Front axle load:	3507 kp	3563 kp
	Rear axle load:	2022 kp	2042 kp
	Total	5529 kp	5605 kp

Permissible axle loads and permissible total weights

Tyres Inflation pressure kp/cm²	10,5-20 8 ply 3,0	12,5-20 10 ply 2,5	14,5-20 10 ply 2,0
Permissible front axle load kp	3100	3500	3500
Permissible rear axle load kp	3100	3500	3500
Permissible total weight kp	5600	5600	5600

Permissible loads with heavy mounted implements and a travelling speed not faster than 20 km/h, with hydro steering, using the all wheel drive

Tyres Inflation pressure kp/cm²	10,5-20 8 ply 3,0	12,5-20 10 ply 2,5
Permissible front axle load kp	3800	4300
Permissible rear axle load kp	3800	4300
Permissible total weight kp	7000	7000

For Unimog equipped with rotary snow plough there apply special permissible weights

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Seat — Two sprung seats with cushion and upholstered back rest height above ground 1380 mm; height and inclination of the seats as well as of its back rests adjustable; seats in longitudinal direction adjustable.
Location to tractor's centre line:
400 mm to the left from driver's seat
400 mm to the right from attendant's seat

Number of the grease points (whole tractor) : 13

Overall dimensions

Overall length:	4050 mm without three-point linkage
Overall width:	2000 mm at 1616 mm track
Overall height:	2330 mm with folding top, auxiliary platform with no load
Maximum ground clearance:	440 mm, at 435 mm apart centre line

Lighting equipment (with main head lights) — Electric 12 Volt, acc.to StVZO (German Govt. regulation)

	Height above ground of centre mm	Dimensions of area mm	Distance from outside edge of tractor to centre mm
Head lights	1085	170 Ø	400
Side lights	1420	20 x 30	110
Rear lights	1060	80 x 165	220
Reflectors	700	75 Ø	230

FUELS AND LUBRICANTS USED IN TESTS

Laboratory tests

Fuel:	Aral Diesel oil, specific gravity at 15°C : 0,827 kg/l (commercially available quality acc.to DIN 51 601)
Engine oil:	Aral HD 30
Transmission oil:	SAE 80

Track tests

Fuel:	Aral diesel oil, specific gravity at 15°C : 0,827 kg/l (commercially available quality acc.to DIN 51 601)
Engine oil:	Aral HD 30
Transmission oil:	SAE 80

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COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 15.7.1969, Gross-Umstadt

Type of dynamometer: Schenck hydraulic dynamometer U1-40

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-hour test					
63,3	2550	552	15,1	200	4,19
At standard p.t.o.speed (540 rev/min)					
62,8	2495	540	15,0	198	4,19
At the speed recommended by the manufacturer for drawbar work					
63,3	2550	552	15,1	200	4,19
Fuel consumption at part loads					
(i) 85 % of torque at maximum power					
54,2	2580	557	13,5	206	4,01
(ii) unloaded					
-	2720	588	4,2	-	-
(iii) 50 % of the load defined in (i)					
27,4	2602	565	8,9	270	3,08
(iv) maximum power					
63,3	2550	552	15,1	200	4,19
(v) 25 % of the load defined in (i)					
14,1	2665	575	6,9	406	2,04
(vi) 75 % of the load defined in (i)					
41,0	2600	561	11,4	229	3,59

No load maximum engine speed: 2720 rev/min

Torque*) at maximum power: 17,7 kpm

Maximum torque*) 21,3 kpm at 1452 rev/min of the engine

Mean atmospheric conditions: temperature: 23°C
pressure: 757 mm Hg
relative humidity: 75 %

Maximum temperatures: coolant: 80°C
engine oil: 76°C
fuel: 27°C

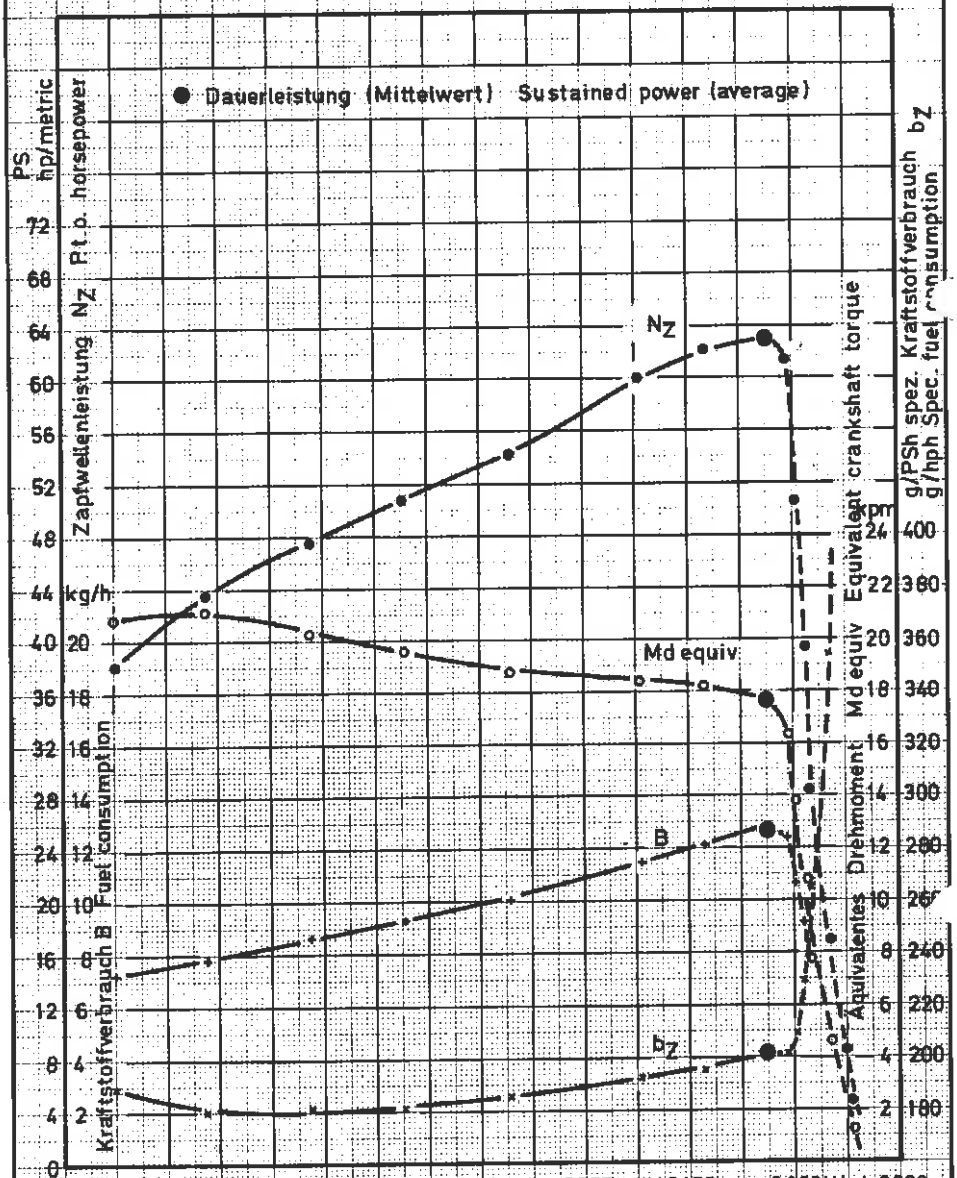
*)The torque reported is the equivalent crankshaft torque

PRÜFUNGS-ABTEILUNG

Zapfwellenleistung
P.t.o.-test

D.B. Unimog 403
D.B. Dieselmotor
OM Baumuster 314.917

Test Nr.: 69-44



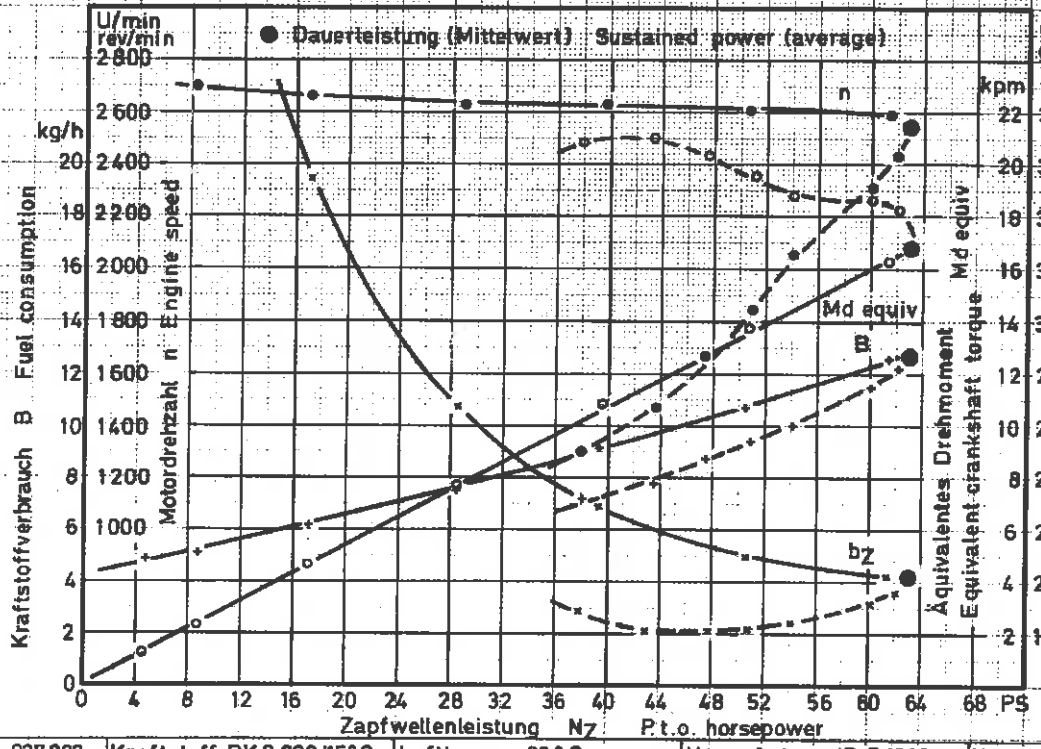
Mot.Nr. 314-917-10-037989	Motoröl: Aral HD 30	Versuchstag: 15.7.1969	Versuchsltg.:
Schl.Nr. 10-001 024	Lufttemp.: 27° C	Versuchs Nr.: 69/44 / 184	
Kraftstoff: DK 0,827/15° C	Barom.std.: 753 mm QS	Kurvenblatt: 1	

PRÜFUNGS-ABTEILUNG

Zapfwellenleistung
P.t.o. - test

D.B. Unimog 403
D.B. Dieselmotor
OM Baumuster 314.917

Test Nr. 69-44



Mot. Nr.: 314-917-10-037989	Kraftstoff: DK 0,828/15° C	Lufttemp.: 23° C	Versuchstag: 15. 7. 1969	Versuchsltg.:	
Schl. Nr.: 10-001 024	Motoröl: Aral HD 30	Barom. std.: 757 mm QS	Versuchs Nr.: 69/44/184	Kurvenblatt: 2	5.

(2) DRAWBAR PERFORMANCE (with all-wheel drive)

Date of tests: 5.9. - 18.9.1969

Type of track: Concrete

Height of drawbar above ground: 870 mm

Tyres of driving-wheels: 12,5-20 e.Sp. 10 ply front and rear

With ballast

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.S.	2,5	5800	2700	12,6	0,43	1920	22	80	80	24	77	750
2.S.	4,0	5800	2690	12,5	0,65	1275	22	80	80	24	77	750
3.S.	7,2	5800	2680	12,5	1,10	750	21	80	80	24	84	750
4.S.	12,9	5800	2640	12,4	1,65	502	20	80	80	20	89	750
1.K.	20,3	5820	2620	12,5	2,30	358	20	80	80	20	89	750
2.K.	36,4	5810	2600	12,2	3,00	277	17	80	80	19	93	750
3.K.	53,1	4620	2555	7,9	3,52	234	26	80	80	27	73	750
1.Z.	53,6	4035	2555	6,1	3,54	233	24	80	80	24	70	751
1.N.	56,4	3275	2555	4,6	3,70	224	23	80	80	23	75	751
4.K.	56,4	2595	2545	3,4	3,74	222	20	80	80	17	84	751
2.Z.	55,5	2210	2550	2,8	3,63	227	28	80	80	28	68	751
2.N.	55,6	1745	2550	2,4	3,65	226	25	80	80	26	64	752
3.Z.	56,4	1240	2555	1,5	3,69	224	20	80	80	20	90	751
3.N.	55,2	960	2555	1,2	3,62	228	22	80	80	22	77	751
4.Z.	53,0	642	2545	0,6	3,45	238	24	80	80	23	72	751
(ii) FIVE-HOUR TEST AT 75 % OF PULL AT MAXIMUM POWER IN 2nd Z.GEAR												
2.Z.	42,7	1660	2585	1,9	3,47	239	-	80	80	-	-	-
(iii) FIVE-HOUR TEST AT PULL CORRESPONDING TO 15 % WHEEL SLIP IN TEST (i)												
2.K.	36,4	5800	2600	12,2	3,00	277	-	80	80	-	-	-

Engine oil consumption during ten hours duration of tests (ii) and (iii): 39 g/h

(2) DRAWBAR PERFORMANCE (with all-wheel drive)

Date of tests: 23.7. - 28.7.1969

Type of track: Concrete

Height of drawbar above ground: 890 mm

Tyres of driving-wheels: 12,5-20 e.Sp. 10 ply front and rear

Without ballast

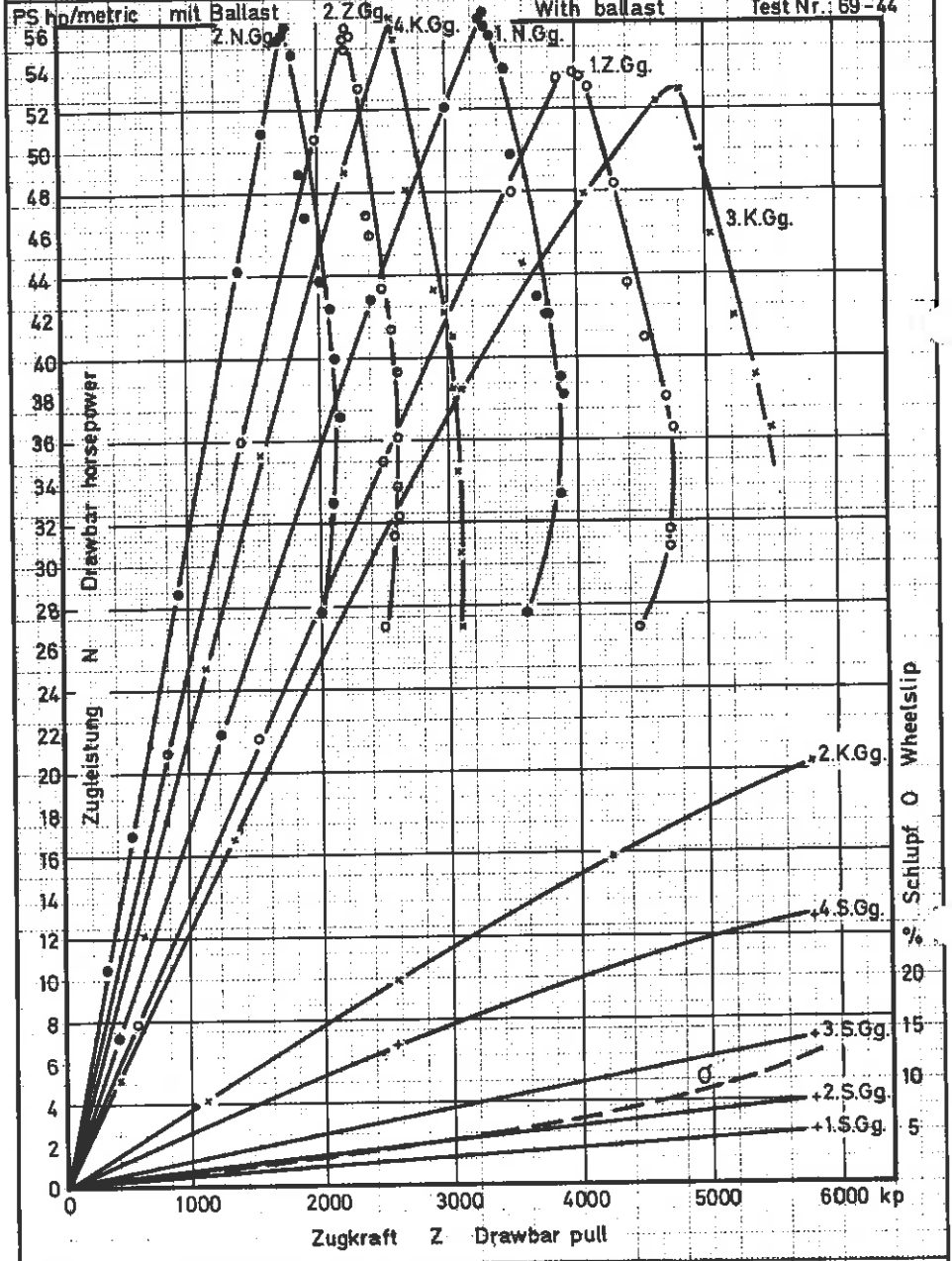
Gear No. and Group	Horse-power (metric) hp	Drawbar pull kp	Engine speed rev/min	Slip of wheels %	Specific work hph/l	Specific fuel consumpt. g/hph	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure mm Hg
(v) MAXIMUM POWER												
2.K.	25,8	4195	2600	15,2	2,55	320	30	80	80	32	74	753
3.K.	45,2	4200	2575	15,4	3,15	260	28	80	80	29	85	753
1.Z.	50,7	3980	2555	12,1	3,29	249	25	80	80	28	76	753
1.N.	53,5	3180	2550	7,9	3,51	234	24	80	80	27	82	751
4.K.	54,9	2550	2550	5,5	3,56	229	22	80	80	21	93	751
2.Z.	55,4	2220	2545	4,6	3,58	228	20	80	80	20	96	750
2.N.	55,2	1720	2550	3,1	3,59	228	26	80	80	28	75	750
3.Z.	55,5	1211	2545	1,9	3,61	227	26	80	80	26	77	750
3.N.	55,5	957	2545	1,6	3,61	227	27	80	80	28	75	750
4.Z.	52,4	628	2545	1,1	3,42	239	27	80	80	30	57	750

PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar - test

D.B. Unimog 403
D.B. Dieselmotor
OM Baumuster 314.917

PS hp/metric mit Ballast With ballast Test Nr.: 69-44



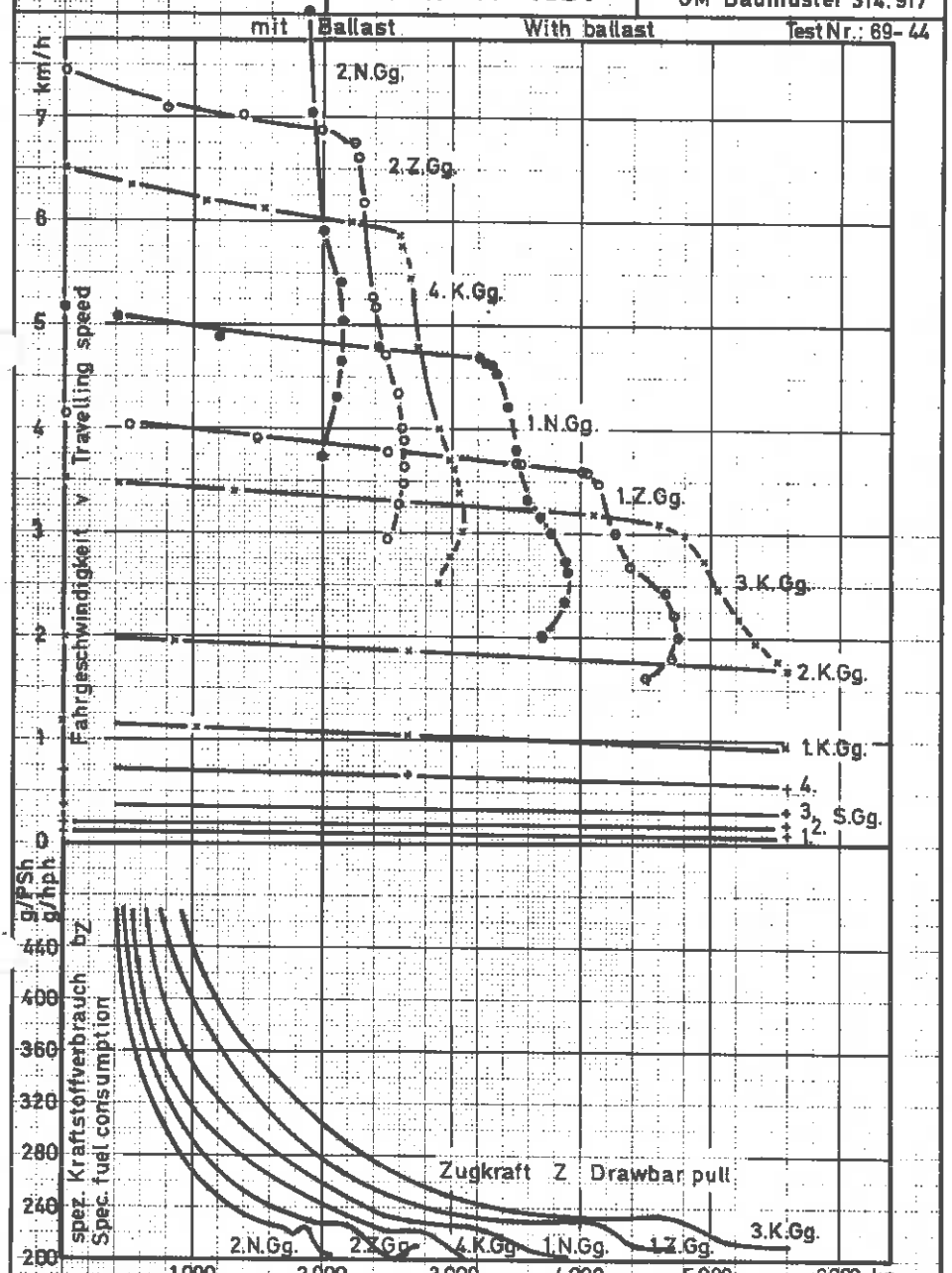
Mot Nr.: 314-917-10-037 989	Motoröl: Aral HD 30	Versuchstag: 8. 9. 1969	Versuchsltg.:
Schlepper Nr.: 10-001 024	Lufttemp.: 21-23 ° C	Versuchs Nr.: 164 - 186	
Kraftstoff: DK 0,832/15°C	Barom.std.: 751 mm QS	Kurvenblatt: 3	S.

PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar-test

D. B. Unimog 403
D. B. Dieselmotor
OM Baumuster 314.917

mit Ballast — With ballast — Test Nr.: 69-44

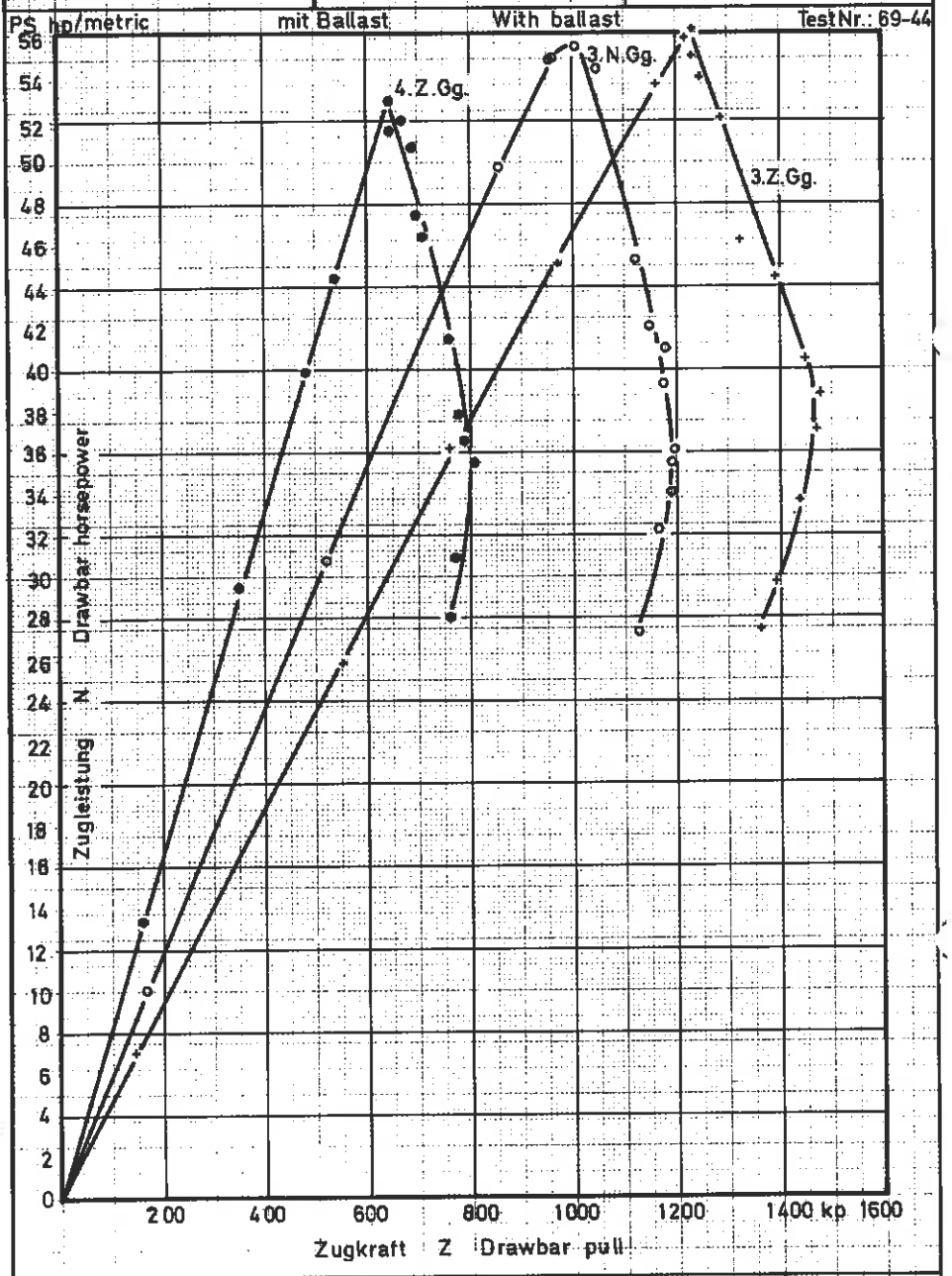


Mot.Nr.: 314-917-10-037969	Motoröl: Aral HD 30	Versuchstag: 8.9.1969	Versuchsltg.:
Schlepper Nr.: 10-001024	Lufttemp.: 21-23 ° C	Versuchs Nr.: 164-166	
Kraftstoff: DK 0,832/15°C	Barom.std.: 751 mm QS	Kurvenblatt: 4	S.

PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar - test

D. B. Unimog 403
D. B. Dieselmotor
OM Baumuster 314.917



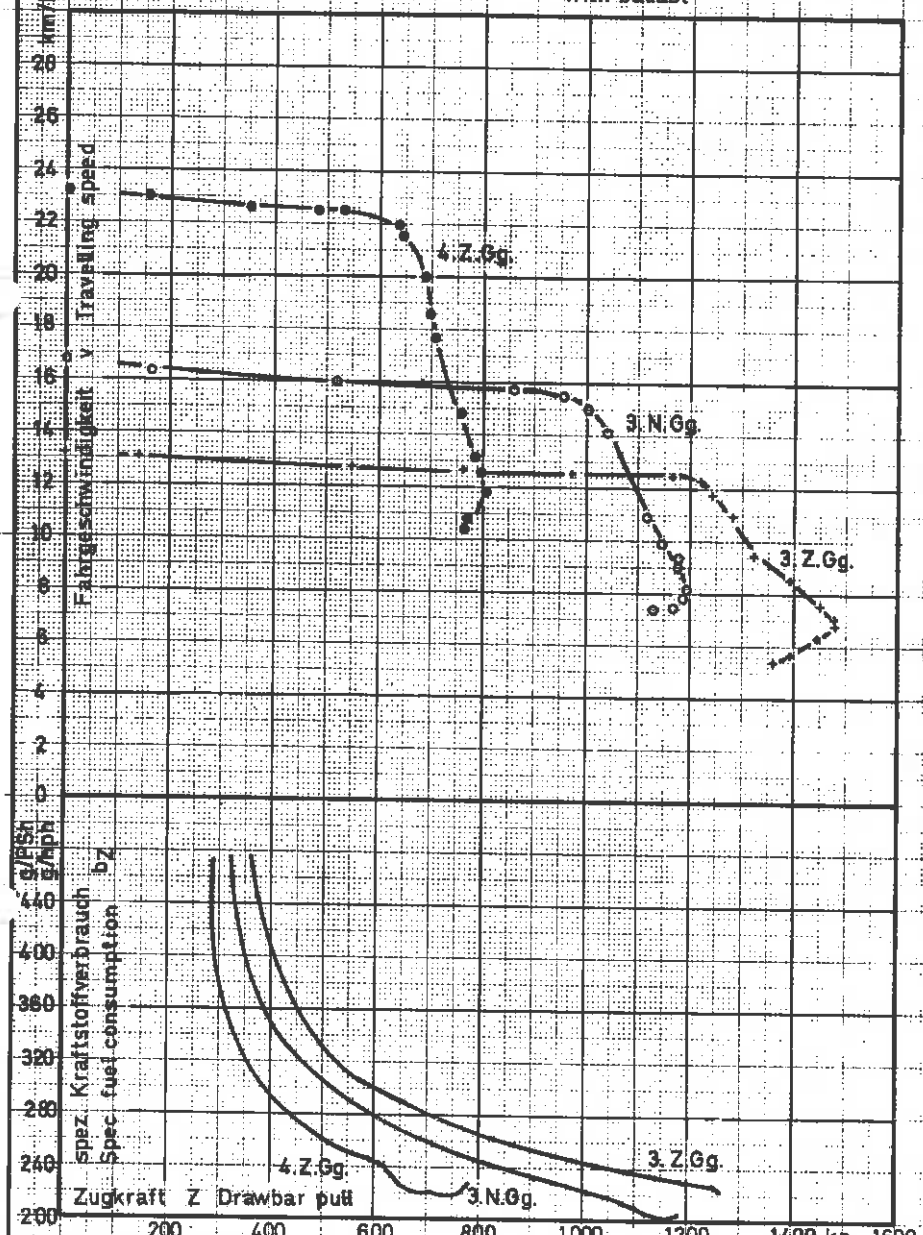
Mot Nr.: 314-917-10-037989	Motoröl: Aral HD 30	Versuchstag: 8.9.1969	Versuchsltg.:
Schlepper Nr.: 10-001024	Lufttemp.: 21-23 ° C	Versuchs Nr.: 164 - 166	S.
Kraftstoff: DK 0,832/15°C	Barom.std.: 751 mm QS	Kurvenblatt: 5	

PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar-test

D. B. Unimog 403
D. B. Dieselmotor
O. M. 314 III

mit Ballast — With ballast — Test Nr.: 69 - 44



Mot.Nr.: 314-917-10-037989	Motoröl: Aral HD 30	Versuchstag: 8.9.1969	Versuchsltg.:
Schlepper Nr.: 10-001024	Luftemp.: 21 - 23 °C	Versuchs Nr.: 164 - 186	
Kraftstoff: DK 0,832/15°C	Barom.std.: 751 mm QS	Kurvenblatt: 6	S.

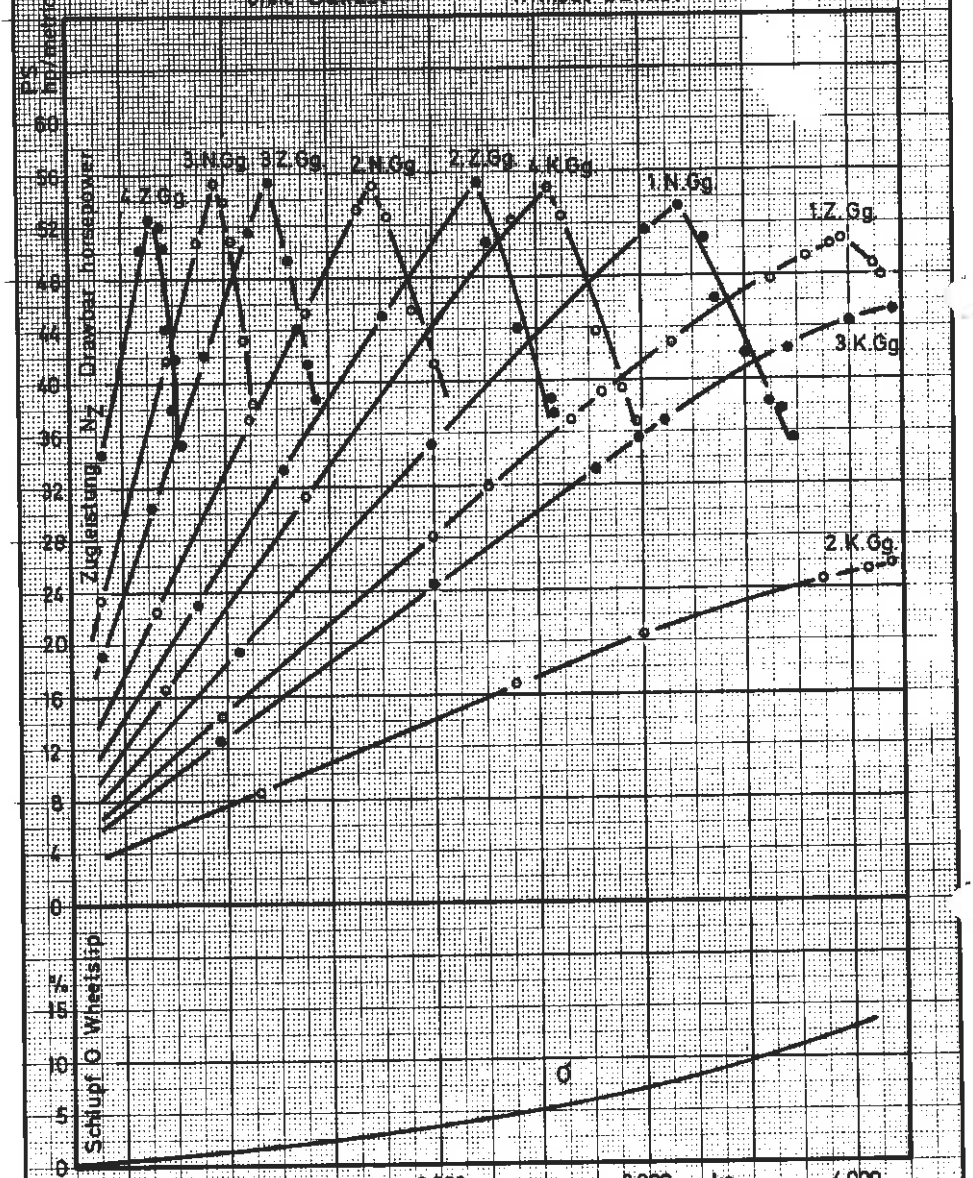
PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar - test

D. B. Unimog 403
D. B. Dieselmotor
OM Baumuster 314.917

Test Nr.: 69 - 44

ohne Ballast — Without ballast



Mot.Nr.: 314-917-10-037989	Motoröl: Aral HD 30	Versuchstag: 23./28.7.1969	Versuchsltg.:
SchlepperNr.: 10-001 024	Lufttemp.: 24 - 28 °C	Versuchs Nr.: 135 - 139	S.
Kraftstoff: DK 0,831/15°C	Barom. std.: 750 mm QS	Kurvenblatt: 7	

PRÜFUNGS-ABTEILUNG
D.-B. Unimog 403

Test No. 69-44

(3 and 4) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 12,5-20 e.Sp. 1o ply, without ballast
rear: 12,5-20 e.Sp. 10 ply, without ballast

Track of wheels front: 1616 mm
rear: 1616 mm

	With rear-wheel drive		With all-wheel drive	
	left hand m	right hand m	left hand m	right hand m
Radius of turning space	5,45	5,30	5,69	5,51
Radius of turning circle	4,98	4,83	5,22	5,04

(5) LOCATION OF CENTRE OF GRAVITY

	Without ballast mm
Height above ground	870
Distance forward from the vertical plane containing the axis of the rear wheels	1445
Distance from the median plane of tractor	0

PRÜFUNGS-ABTEILUNG
D.-B. Unimog 403

Test No. 69-44

(6) BRAKE TESTS

A) FOOT BRAKE

Date of tests: 29.7.1969

Type of track: Concrete

Type of decelerometer: Moto Meter Bremsverzögerungs- und Pedalkraftschreiber, Moto Meter Hermann Schlaich 7 Stuttgart N

Travelling speed of tractor: 28 km/h in 4th N.Gear

With cold brakes

		Tractor without ballast	Tractor with ballast
Maximum deceleration	m/s^2	7,9	8,4
Stopping distance	m	6,4	6,2
Force on pedal	kp	27	65

Brake fade characteristics, hot tests, tractor without ballast

Deceleration: hot/cold: 94 %
Stopping distance: cold/hot: 94 %
Force on pedal: cold/hot: 108 %

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 rearwwheels of tractor occured, when the tractor has been towed.

(7) MEASUREMENT OF AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 24.7.1969
Type of track: Concrete
Type of sound level meter: Bruel & Kjaer, Typ 2203

Results of test

Speed: 4.N.
Travelling speed before acceleration: 19,0 km/h
Sound level: 86 dBA

(8) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of test: 18.9.1969
Type of track: Concrete
Type of sound level meter: EZGN, Rohde & Schwarz, 8 München
Type of octavfilter: PBO, Rohde & Schwarz, 8 München

A folding top was fitted on tractor

Results of tests

Gear	Travelling speed*) nominal km/h	real km/h	Sone
Folding top open			
2.Z.	6,98	6,90	68,0
2.Kr.	1,89	1,74	85,0
Folding top closed			
2.Z.	6,98	6,95	91,0
1.Z.	3,86	3,72	94,5

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

PRÜFUNGS-ABTEILUNG
D.-B. Unimog 403

Test No. 69-44

(9) TEST OF POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: 18.8.1969, Gross-Umstadt

Hydraulic fluid: Engine oil Aral HD 30

POWER LIFT

a) Lift rods in the foremost holes of the lower links

Height above ground in down position hitch point	test frame	Total vertical movement	Maximal force exerted through full lift range	Pressure of hydr. oil	Linkage load at which unballasted front end of tractor lifts off the ground
mm	mm	mm	kp	kp/cm²	kp
Measured on the hitch points of lower links					
268	-	560	2500	150	*)
515	-	546	2560	150	*)
Measured on the test frame 610 mm to the rear of the hitch points					
270	295	515	3200	150	2950
514	495	610	2700	150	2950

b) Lift rods in the rearemost holes of the lower links

Measured on the hitch points of lower links					
340	-	550	2600	150	*)
580	-	520	2850	150	*)
Measured on the test frame 610 mm to the rear of the hitch points					
340	335	540	2830	150	2950
580	540	610	2600	150	2950

*) greater than maximum lifting force

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

PUMP CHARACTERISTICS

(i) opening pressure of relief valve: 160 kp/cm²
sustained pressure by the open relief valve: 150 kp/cm²

Pump delivery rate at external tapping
(ii) at minimum pressure: 48,0 l/min
(iii) at maximum hydraulic power: 40,0 l/min
maximum hydraulic power: 12,0 hp (metric)
delivery pressure: 135 kp/cm²

PRÜFUNGS-ABTEILUNG
D.-B. Unimog 403

Test No. 69-44

OPTIONAL TESTS

(10) ENGINE TESTS

Date and location of tests: 3.7.1969, Gross-Umstadt

Type of dynamometer: Schenck hydraulic dynamometer U1-30

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-hour test				
66,5	2550	15,1	190	4,36
At standard p.t.o.speed (540 rev/min)				
65,9	2490	15,0	190	4,37
At the speed recommended by the manufacturer for drawbar work				
66,5	2550	15,2	190	4,37
Fuel consumption at part loads				
(i) 85 % of torque at maximum power				
58,0	2610	13,8	197	4,20
(ii) unloaded				
-	2790	3,1	-	-
(iii) 50 % of the load defined in (i)				
28,4	2655	8,7	254	3,27
(iv) maximum power				
66,5	2550	15,1	190	4,36
(v) 25 % of the load defined in (i)				
14,9	2705	6,5	359	2,39
(vi) 75 % of the load defined in (i)				
43,8	2635	11,6	210	3,78

Optimum fuel consumption: 167 g/hph at 40,8 hp and 1360 rev/min

Standard fuel consumption 1/2 (acc.to DIN 9606): 9,5/ 12,8 l/h

No load maximum engine speed: 2790 rev/min

Torque at maximum power: 18,7 kpm

Maximum torque: 22,4 kpm at 1500 rev/min of the engine

Mean atmospheric conditions: temperature: 26°C
pressure: 747 mm Hg
relative humidity: 55 %

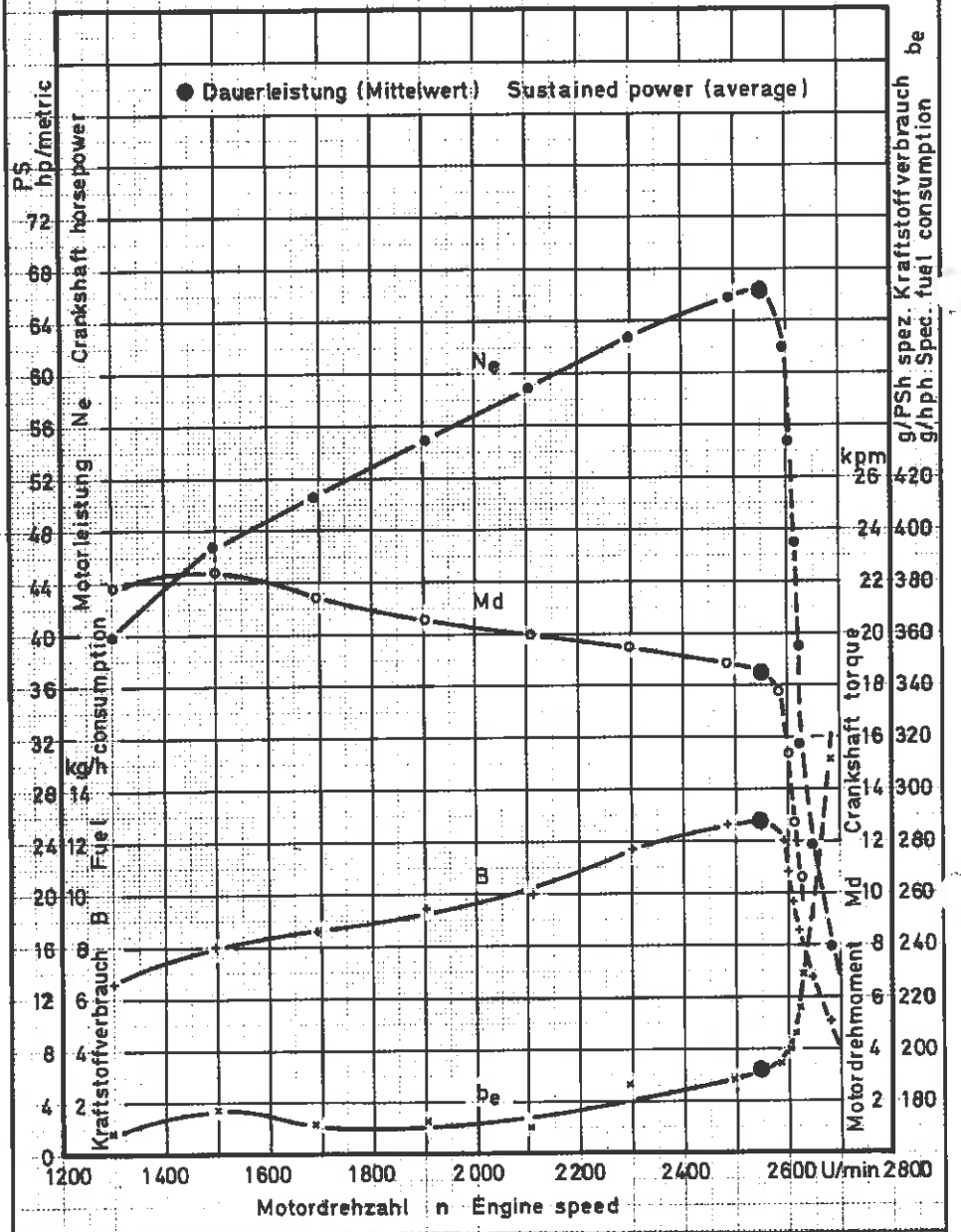
Maximum temperatures: coolant: 85°C
engine oil: 85°C
fuel: 28°C

PRÜFUNGS-ABTEILUNG

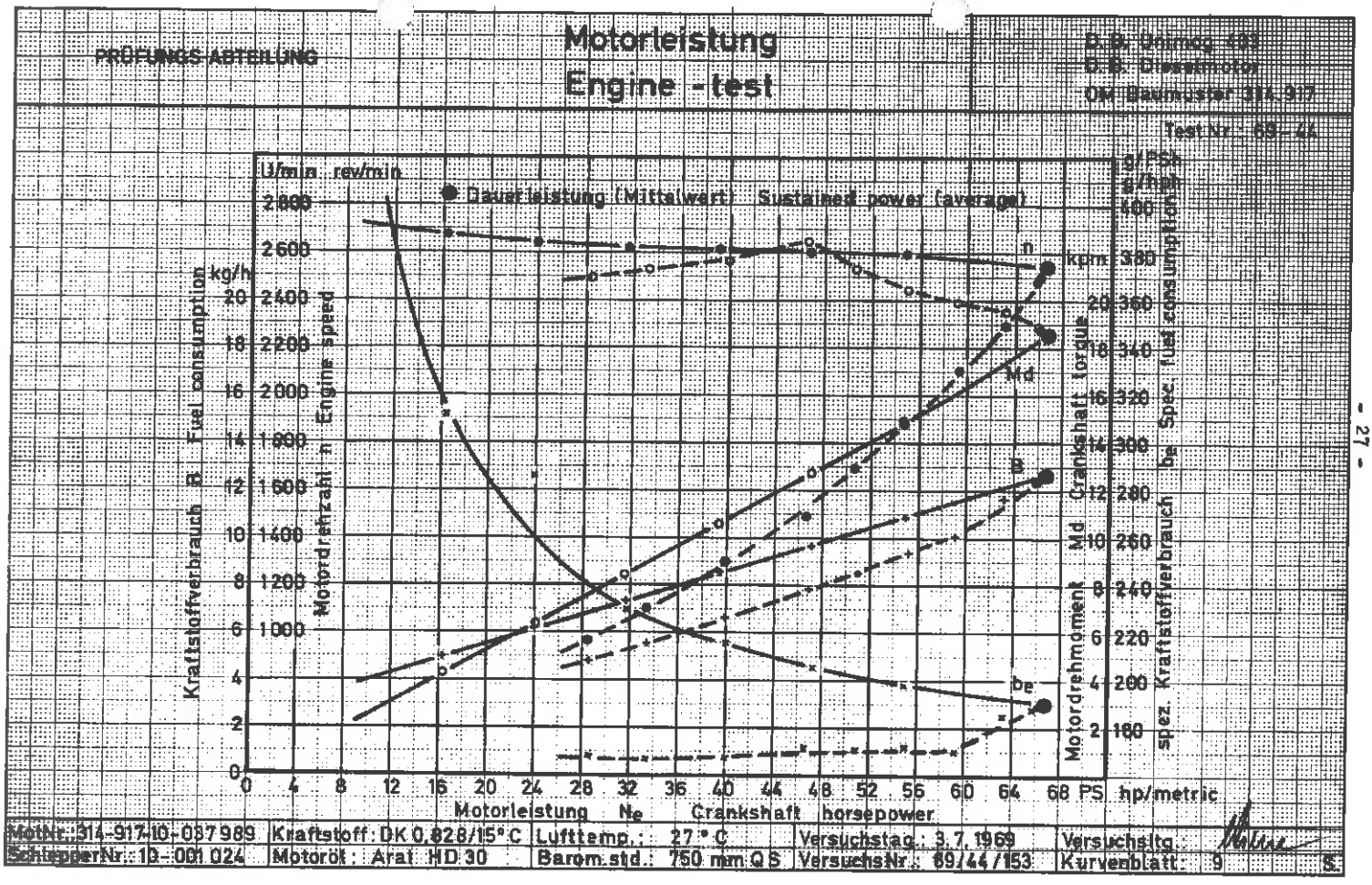
Motorleistung
Engine - test

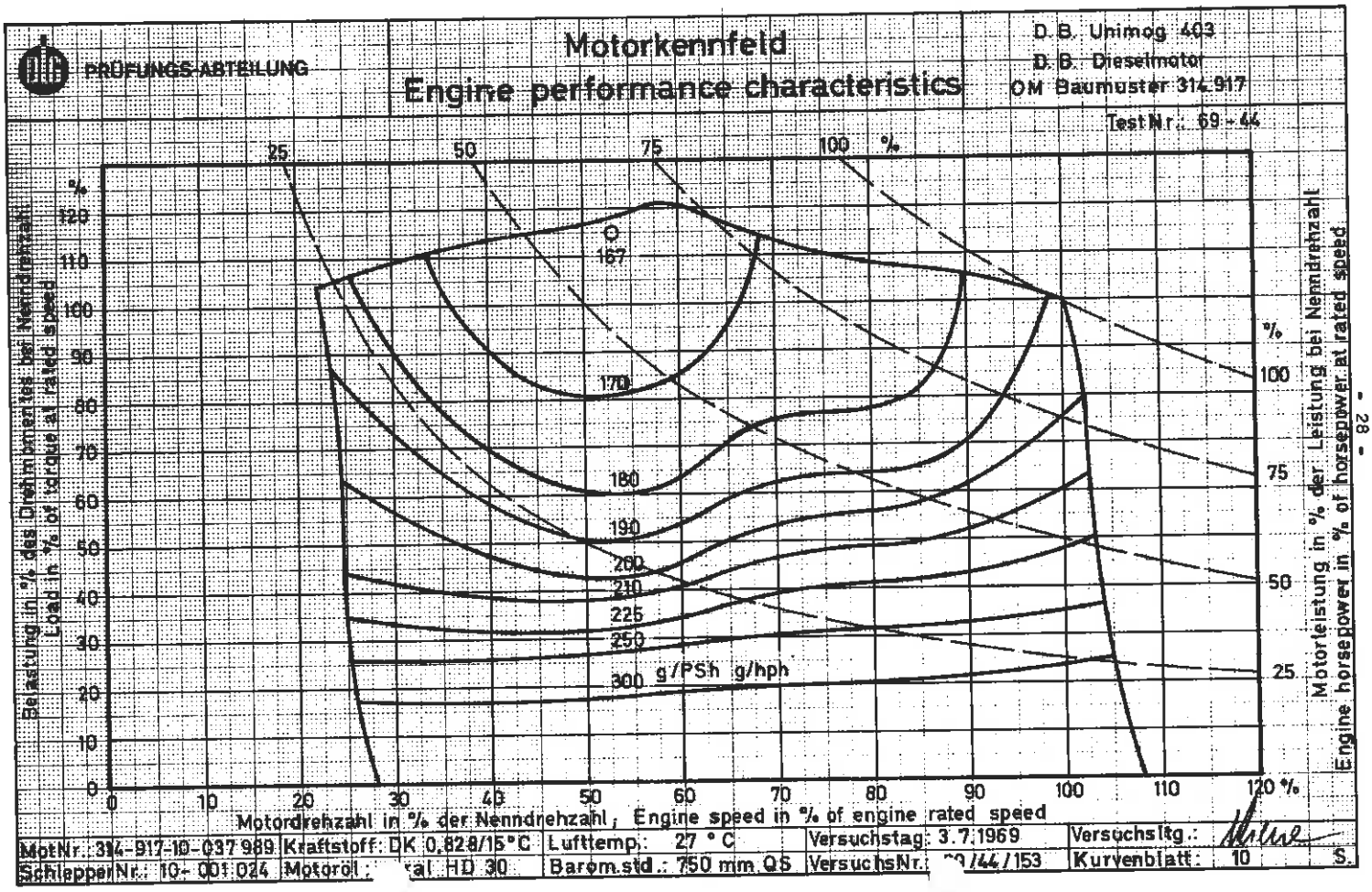
D.B. Unimog 403
D.B. Dieselmotor
OM Baumuster 314.917

Test Nr.: 69 - 44



Mot.Nr.: 314-917-10-037 989	Motoröl: Aral HD 30	Versuchstag: 3.7.1969	Versuchsltg.:
Schlepper Nr.: 10-001 024	Lufttemp.: 27 °C	Versuchs Nr.: 69/44/153	
Kraftstoff: DK 0,828/15°C	Barom.std.: 750 mm QS	Kurvenblatt: 8	S.


PRÜFUNGS-ABTEILUNG
Motorleistung
Engine - test
Test Nr.: 69 - 44
U/min rev/min
Dauerleistung (Mittelwert) Sustained power (average)
Kraftstoffverbrauch B Fuel consumption kg/h
Motordrehzahl n Engine speed
Motordrehmoment Md Crankshaft torque
spez. Kraftstoffverbrauch be Spec. fuel consumption
Motorleistung Ne Crankshaft horsepower
hp/metric
Motor: 314-917-10-037989
Schlepper Nr.: 10-001 024
Kraftstoff: DK 0,828/15° C
Motoröl: Arat HD 30
Lufttemp.: 27 ° C
Barom. std.: 750 mm QS
Versuchstag: 3.7.1969
Versuchs Nr.: 69/44/153
Versuchsltg.
Kurvenblatt: 9


PRÜFUNGS-ABTEILUNG
Motorkennfeld
Engine performance characteristics
D.B. Unimog 403
D.B. Dieselmotor
OM Baumuster 314.917
Test Nr.: 69 - 44
Belastung in % des Drehmomentes bei Nenndrehzahl
Load in % of torque at rated speed
Motordrehzahl in % der Nenndrehzahl; Engine speed in % of engine rated speed
Motorleistung in % der Leistung bei Nenndrehzahl
Engine horsepower in % of horsepower at rated speed
167
170
180
190
200
210
225
250
300 g/PSh g/hph
MotNr.: 314-917-10-037 989
Kraftstoff: DK 0,82/15°C
Lufttemp.: 27 °C
Versuchstag: 3.7.1969
Schlepper Nr.: 10-001 024
Motoröl: ...al HD 30
Barom.std.: 750 mm QS
Versuchs Nr.: ...9/44/153
Kurvenblatt: 10 S.

(12) DRAWBAR PERFORMANCE ON AGRICULTURAL SOILS

Date of tests: 5.8.1969
Location of tests: Sickenhofen near Gross-Umstadt
Description of soil: Loose humous sand, very dry, barley stubble
Shear strength of soil: not recorded
Moisture content of soil: below 10 %
Front axle load: 2985 kp
Rear axle load: 2615 kp
Drawbar height: 840 mm
Tyres: 12,50-20 10 ply E6 Conti; inflation pressure 1,5 kp/cm²

With ballast

Gear No. and Group	Horse-power (metric) hp	Drawbar pull kp	Trav. speed km/h	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
With rear-wheel drive												
1.N.	16,3	1110	3,95	18,9		not recorded		85	95	26	60	753
1.N.	16,0	1025	4,20	15,0		not recorded		85	95	26	60	753
1.N.	15,3	1150	3,60	25,8		not recorded		85	95	26	60	753
With all-wheel drive												
1.N.	35,1	2250	4,22	14,4		not recorded		85	100	26	60	753
1.N.	27,2	2450	3,0	37,0		not recorded		85	100	26	60	753

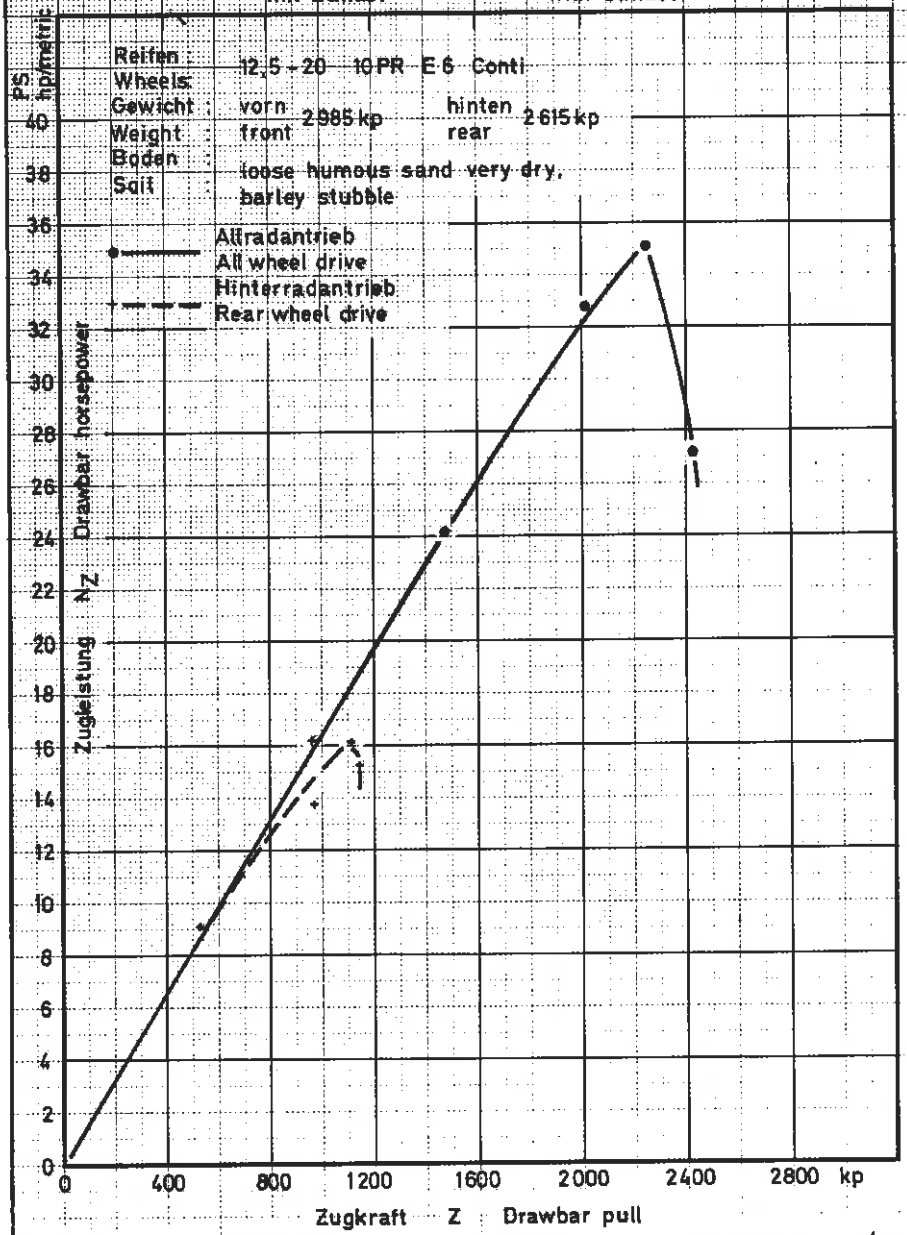
PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar-test

D.B. Unimog 403
D.B. Dieselmotor
OM Baumuster 314.917

Test Nr.: 69-44

mit Ballast — With ballast



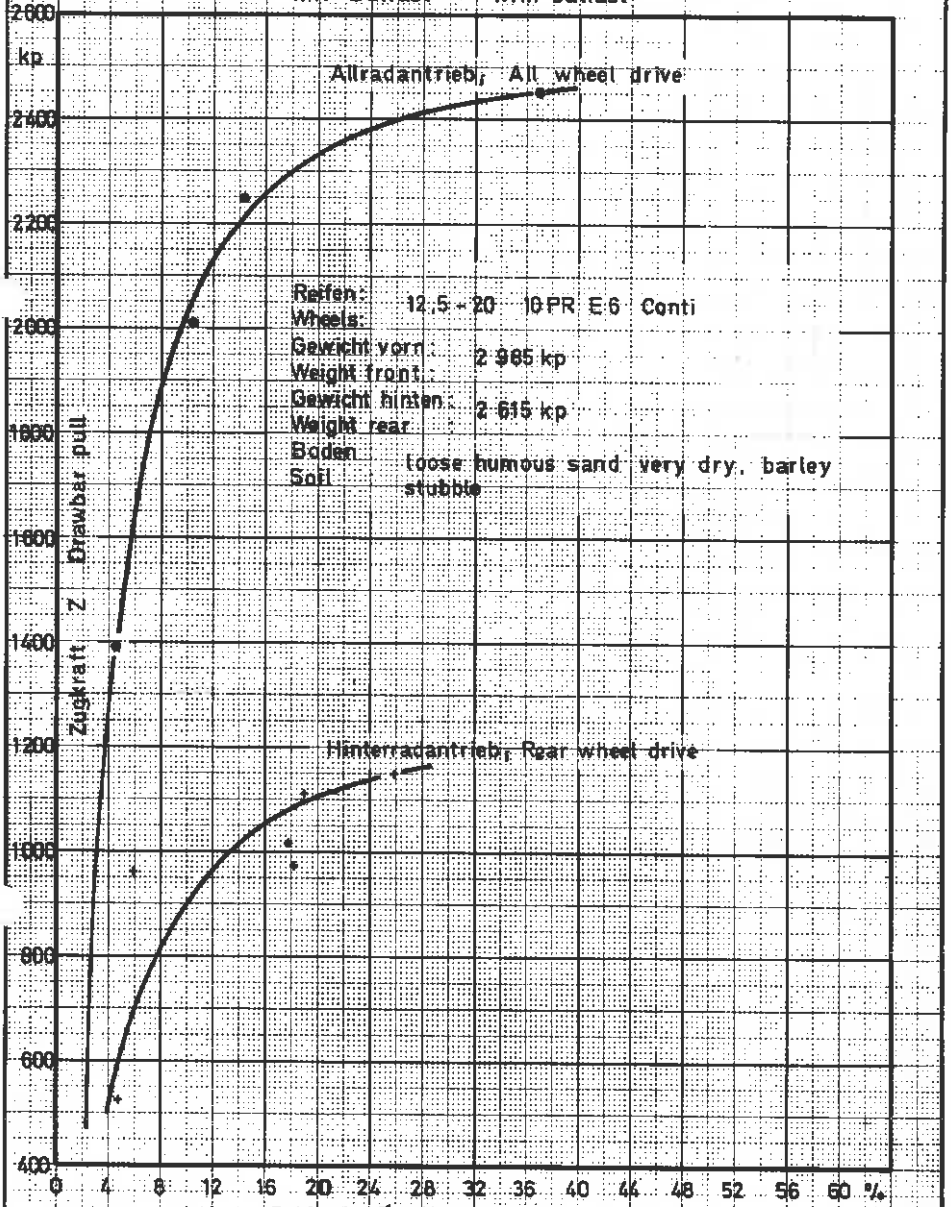
Mot.Nr.: 314-917-10-037989	Motoröl: Aral HD 30	Versuchstag: 5.8.1969	Versuchsltg.:
Schlepper Nr.: 10- 001 024	Lufttemp.: 27 ° C	Versuchs Nr.: 155/156	S.
Kraftstoff: DK 0,827/15° C	Barom.std.: 753 mm Q S	Kurvenblatt: 11	

PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar-test

D. B. Unimog 403
D. B. Dieselmotor
OM Baumuster 314.917

Test Nr.: 69 - 44



Mot. Nr.: 314-917-10-037989	Motoröl: Aral HD 30	Versuchstag: 5. 8. 1969	Versuchsltg.:
Schlepper Nr.: 10-001 024	Lufttemp.: 27 °C	Versuchs Nr.: 155/166	
Kraftstoff: DK 0,827/15° C	Barom.std.: 753 mm QS	Kurvenblatt: 12	S.

(13) PERFORMANCE IN A HOT ATMOSPHERE

Date and location of tests: 29.9.1969, Gross-Umstadt

Limiting temperatures specified by the manufacturer:

Coolant: 108°C

Engine oil: 130°C

Special equipment fitted: no special equipment

Fuel: Aral Diesel oil, density at 15°C : 0,831 kg/l
(commercially available quality acc.to.DIN 51 601)

Engine oil: Veedol HD 30

Transmission oil: SAE 80

Results of tests

Ambient temperature °C	Power at the p.t.o. (hp metric)	p.t.o. speed rev/min	Temperatures Coolant °C	Temperatures Oil °C	Atmospheric pressure mm Hg
57	52,0	547	108	120	750