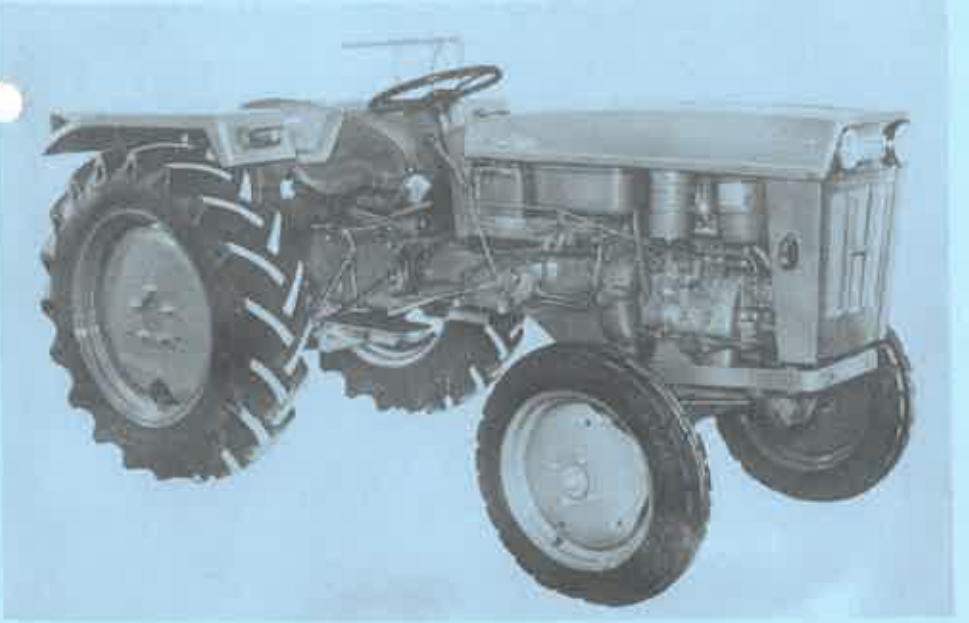
O.E.C.D. Report Nr. 342
Printed: October 1970

Report on test in accordance with
O.E.C.D. STANDARD-CODE for the Official Testing
of Agricultural Tractors



HOLDER B 25

Manufactured by GEBRÜDER HOLDER, Maschinenfabrik
7418 Metzingen/Württemberg

Date of Tests: January till Juli 1970

DEUTSCHE LANDWIRTSCHAFTS-GESELLSCHAFT e.V.
Prüfungsabteilung für Landmaschinen
6000 Frankfurt/Main 1, Zimmerweg 16

This bulletin is based on engineering tests in accordance with the O.E.C.D. STANDARD-CODE for the Official Testing of Agricultural Tractors.

It does not contain an evaluation of the performance of the tractors on practikal work.

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

Date of Approval: 6. October 1970

Serial No.: 542

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Printed in Germany

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PRÜFUNGS-ABTEILUNG
Holder B 25 (P 50)

Test No. 69-167

Tractor manufacturer: GEBRÜDER HOLDER, Maschinenfabrik
7418 Metzingen /Württ.

Submitted for test by: Manufacturer

Selected by: Manufacturer with the agreement of the DLG testing station

Place of running-in: Metzingen and Groß-Umstadt

Duration of running-in: Engine 80 hours, tractor 50 hours

SPECIFICATION OF TRACTOR

Tractor

Make: GEBRÜDER HOLDER, Maschinenfabrik, 7418 Metzingen /Württ.
Model:*) B 25 and P 50
Type: Diesel-tractor, unit construction
Serial No.: 25 10309

Engine

Make: GEBRÜDER HOLDER, Maschinenfabrik, 7418 Metzingen /Württ.
Model: HD 2
Type: Water cooled 2-stroke Diesel engine, direct injection
Serial No.: D 2 14594

Cylinders: 2 cylinders, vertical in line, bore/stroke: 84/90 mm
capacity 997 cm³, compression ratio: 17,3 : 1

Fuel system: Fuel: Commercially available diesel oil;
Bosch type PES 2 A 55 C 410/3 RS 1222 injection pump; Bosch type DL 90 S 1086 injection nozzles; injection timing 38° before TDC; fine-filter with paper cartridge; capacity of fuel tank appr. 23 l

Governor: Make: Robert Bosch GmbH, 7 Stuttgart; centrifugal variable speed type governor, type EP/RSV 600-2300/ A 9 B 236 DL; governed range of engine speed 700 rev/min to 2450 rev/min; rated engine speed

for p.t.o.-work	2300 rev/min
for field-work	2300 rev/min
for transportation-work	2300 rev/min
for belt-work	2300 rev/min

Air cleaner: Main cleaner: Make Filterwerk Mann & Hummel GmbH
714 Ludwigsburg
oil-bath type 31; oil capacity 0,6 l

Pre-cleaner: Make Filterwerk Mann & Hummel GmbH
714 Ludwigsburg
centrifugal type 48 024 77 140

*)Remarks: The type P 50 is a modified type B 25. It differs from the B 25 by the special tyres, the gear ratio of the final drives for adapting the travel speeds to these tyres, by the track and by another implement linkage.
In the report all dimensions relating to the type P 50 are set in brackets behind that figures of the type B 25.

PRÜFUNGS-ABTEILUNG Test No. 69-167
Holder B 25 (P 50)

Lubrication system: Recirculating drip feed system with oil pump; strainer in sump; oil capacity 3,5 l; recommended oil changing period 250 hours when normal branded HD-oil is used; recommended oil in winter (below 0°C) : HD SAE 10
in summer (0° - 30°C) : HD SAE 20
in tropics (more than 30°C) : HD SAE 30

Cooling system: Pressurised water cooling with thermostat for temperature control, impeller assisted and 4 blade fan 200 mm dia; cooling water capacity 6,5 l

Electrical equipment: Voltage 12 Volt, negative earth

Starting device: Bosch 12 Volt type GE 12 V 1,3 PS starter motor

Starting aid: Beru glowing plug type 175 M 10,5 V

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

Battery: Lead acid battery 12 Volt 56 Ah

Transmission

Clutch: Make: Fichtel & Sachs AG., 872 Schweinfurt; single disc dry clutch type K 180, operated by foot pedal

Gearbox: Make: GEBR. HOLDER, Maschinenfabrik 7418 Metzingen/ Württ.
3 speed selecting gear and group gear giving 6 forward speeds and 3 reverse

Rear axle and final drive: Make: GEBR. HOLDER, Maschinenfabrik 7418 Metzingen/ Württ.
bevel gear type differential gear with crown wheel and pinion; differential lock fitted, operated by hand lever

Oil capacity: Total transmission 5,6 l; oil changing period 2500 hours

Total ratios and speeds

Group gear	Gear No.	Number of engine revolutions for one revolution of the driving wheel		Theoretical travelling speed at rated engine speed of 2300 rev/min			
				km/h		m/s	
		B 25	P 50	B 25	P 50	B 25	P 50
slow (L.)	1	321,83 : 1	269,18 : 1	1,38	1,29	0,38	0,36
	2	200,53 : 1	167,72 : 1	2,22	2,08	0,62	0,58
	3	105,62 : 1	88,34 : 1	4,22	3,96	1,17	1,10
fast (S.)	1	67,61 : 1	56,55 : 1	6,59	6,18	1,83	1,71
	2	42,12 : 1	35,23 : 1	10,59	9,93	2,94	2,76
	3	22,19 : 1	18,56 : 1	20,00	18,85	5,58	5,24
reverse (R.)	1	321,83 : 1	269,18 : 1	1,38	1,29	0,38	0,36
	2	200,53 : 1	167,72 : 1	2,22	2,08	0,62	0,58
	3	105,62 : 1	88,34 : 1	4,22	3,96	1,17	1,10

PRÜFUNGS-ABTEILUNG Test No. 69-167
Holder B 25 (P 50)

Power take-off	a) Main p.t.o.; proportional engine speed p.t.o., manually engaged
Location:	At rear of tractor, in median plane, 545 mm(P 50 : 470 mm) above ground
Dimensions:	Spline shaft 34,9 x 29 x 8,7 mm = $1\frac{3}{8}$", 6 splines (acc.to DIN 9611 Form A; BS 1495; ASAE S 203.5)
Speed:	590 rev/min at 2300 rev/min rated engine speed; standard p.t.o. speed 540 rev/min at 2110 rev/min engine speed, may be set by aid of tractormeter
Direction of rotation:	Clockwise, viewed from tractor rear
	b) Front p.t.o.; proportional engine speed p.t.o., manually engaged
Location:	between the axles, 475 mm (F 50 : 407 mm) above ground, in median plane of tractor
Dimensions:	Spline shaft 34,9 x 29 x 8,7 mm = $1\frac{3}{8}$", 6 splines (acc.to DIN 9611 Form A)
Speed:	1280 rev/min at 2300 rev/min rated engine speed
Direction of rotation:	Clockwise, viewed from tractor rear
Belt pulley	(not fitted on tractor tested. Figures acc. to manufacturer's specification)
Location:	At rear of tractor; drive unit mounted on p.t.o.-shaft
Dimensions:	210 mm diameter, 120 mm width
Speed:	1480 rev/min at 2300 rev/min rated engine speed; linear belt speed 16,4 m/s (acc.to DIN 9630)
Direction of rotation:	Optionally, changed by reversing driving gear
Power lift	Make: GEBRÜDER HOLDER, Maschinenfabrik 7418 Metzingen /Württ. life hydraulic power lift with floating position; two single acting rams; Bosch type HY/ZFR 1/4 CL 101 gear type pump, directly driven by engine; maximum oil pressure 175 kp/cm²; oil capacity 2,2 liter; Bosch type HY/SEA 5/175/1 control valve
Pull attachment	
Implement linkage:	Three-point implement linkage category I (acc.to DIN 9674) controlled by power lift; lift height above ground of the hitch points of lower links from 165 mm to 790 mm (P 50 from 115 mm to 680 mm)
Drawbar:	Fixed on hydraulically controlled implement linkage; height above ground from 165 mm to 790 mm (P 50 from 115 mm to 680 mm), adjustable by power lift; centre hole and 3 holes with 80 mm distance apart either side of centre line; distance from end of p.t.o. shaft 600 mm, lower links in horizontal position

Trailer hitch: At rear of tractor; height above ground 650 mm and 775 mm (P 50 : 610 mm and 685 mm), changed by reversing the hitch; distance from rear axle 270 mm

Towing hitch: At front of tractor; height above ground 560 mm (P 50 : 510 mm)

Steering device: Make: Zahnradfabrik Friedrichshafen A.G.
799 Friedrichshafen
ZF-Gemmersteering type 7316

Brakes

Parking brake: Internal shoe type brake mechanically acting on brake drums of differential shafts; operated by hand lever with ratchet

Foot brake: Internal shoe type brake mechanically acting on brake drums on differential shafts; operated by foot pedal

Steering brake: Operated by the single parts of the foot brake pedal; for normal use both parts are coupled by a latch

Wheels (Type B 25)

Steering wheels: Two at front; tyres 4,50-16 AS Front 4 ply pneumatics (acc.to DIN 7808); maximum permissible weight on each tyre 345 kp at 3,0 kp/cm², 431 kp when transporting mounted implements; rim 3,50 D x 16; track 1010 - 1240 - 1470 - 1210 - 1440 - 1670 mm changed by extending front axle and reversing wheels

Driving wheels: Two at rear; tyres 9,5/9-24 AS 4 ply pneumatics (acc.to DIN 7807); maximum permissible weight on each tyre 710 kp at 1,3 kp/cm², 817 kp when transporting mounted implements; rim W8 x 24; track 1010 mm and 1250 mm changed by reversing wheels and by using extending hubs 1500 mm (1250 mm and 1500 mm acc.to DIN 9621)

Wheel base: 1560 mm

Wheels (Type P 50)

Steering wheels: Two at front; tyres 6-12 AS 2 ply pneumatics (acc.to DIN 7814) (special lawn tread); maximum permissible weight on each tyre 350 kp at 2,50 kp/cm²; rim 5 JA x 12; track 840 mm and 1010 mm changed by extending front axle

Driving wheels: Two at rear; tyres 7,50-18 AS 4 ply pneumatics (acc.to DIN 7814) (special lawn tread); maximum permissible weight on each tyre 600 kp at 1,5 kp/cm²; rim 5,50 F x 18; track 780 mm and 1020 mm, changed by reversing wheels

Wheel base: 1530 mm

PRÜFUNGS-ABTEILUNG Test No. 69-167
Holder B 25 (F 50)

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

		without driver		with driver	
		B 25	P 50	B 25	P 50
Weight of tractor without ballast:	Front axle load:	422 kp	406 kp	434 kp	413 kp
	Rear axle load:	548 kp	444 kp	612 kp	512 kp
	Total:	970 kp	850 kp	1046 kp	925 kp
Ballast front:	No ballast				
Ballast rear:	1 weight per tyre each 50 kp			total	100 kp
	Water in tyres			B 25	144 kp
				P 50	73 kp

		without driver		with driver	
		B 25	P 50	B 25	P 50
Weight of tractor with ballast:	Front axle load:	422 kp	403 kp	434 kp	418 kp
	Rear axle load:	792 kp	620 kp	856 kp	680 kp
	Total:	1214 kp	1023 kp	1290 kp	1098 kp

Seat Make: GEBR.HOLDER, Maschinenfabrik, 7418 Metzingen/Württ. upholstered pan seat, parallelogram linkage with torsional spring suspension, hydraulic shock absorber; height above ground 870 mm (P 50 : 759 mm); distance of back rest from drawbar 650 mm, in median plane

Number of grease points (whole tractor) : 9

Overall dimensions		B 25	P 50
Overall length:	with three-point linkage	2835 mm	2790 mm
Overall height:	to top of exhaust pipe	1600 mm	1650 mm
Overall width:	with ballast weights	1310 mm	1020 mm
	at track of rear wheels	1010 mm	780 mm
Maximum ground clearance:	in median plane of tractor	370 mm	264 mm
	on the left of median plane	370 mm	300 mm

Lighting equipment 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	
	B 25	P 50	B 25	P 50	B 25	P 50
Head lights	1035	1020	85 Ø	85 Ø	470	485
Side lights	1010	740	35 x 45	75 Ø	195	223
Rear lights	1010	900	75 Ø	75 Ø	180	70
Reflectors	1010	900	75 Ø	75 Ø	260	150

PRÜFUNGS-ABTEILUNG
Holder B 25 (P 50)

Test No. 69-167

FUELS AND LUBRICANTS USED IN TESTS

Laboratory tests

Fuel:	Aral Diesel oil, specific gravity at 15°C: 0,828 kp/l (commercially available quality acc.to DIN 51 601)
Engine oil:	Aral HD SAE 20
Transmission oil:	SAE 80

Track tests

Fuel:	Aral Diesel oil, specific gravity at 15°C: 0,828 kp/l (commercially available quality acc.to DIN 51 601)
Engine oil:	Aral HD SAE 20
Transmission oil:	SAE 80

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 5./6.2.1970, Groß-Umstadt

Type of dynamometer: Schenck hydraulic dynamometer U1-40

Maximum power

Horsepower (metric) hp	Speed engine rev/min	Speed p.t.o. riv/min	Fuel consumption total l/h	Fuel consumption specific g/hph	hph/l
At maximum power 2-hour test					
19,7	2275	583	5,03	209	3,92
At standard p.t.o.-speed (540 rev/min)					
18,1	2110	540	5,01	227	3,61
At the speed recommended by the manufacturer for drawbar work					
19,1	2300	590	4,86	208	3,93

Fuel consumption at part loads

(i) 85% of torque at maximum power					
17,2	2319	595	4,45	213	3,85
(ii) unloaded					
-	2430	623	1,30	-	-
(iii) 50% of the load defined in (i)					
8,8	2371	607	2,63	244	3,35
(iv) maximum power					
19,7	2275	583	5,03	209	3,92
(v) 25% of the load defined in (i)					
4,5	2400	616	1,91	351	2,33
(vi) 75% of the load defined in (i)					
13,1	2355	604	3,44	215	3,81

No load maximum engine speed: 2430 rev/min

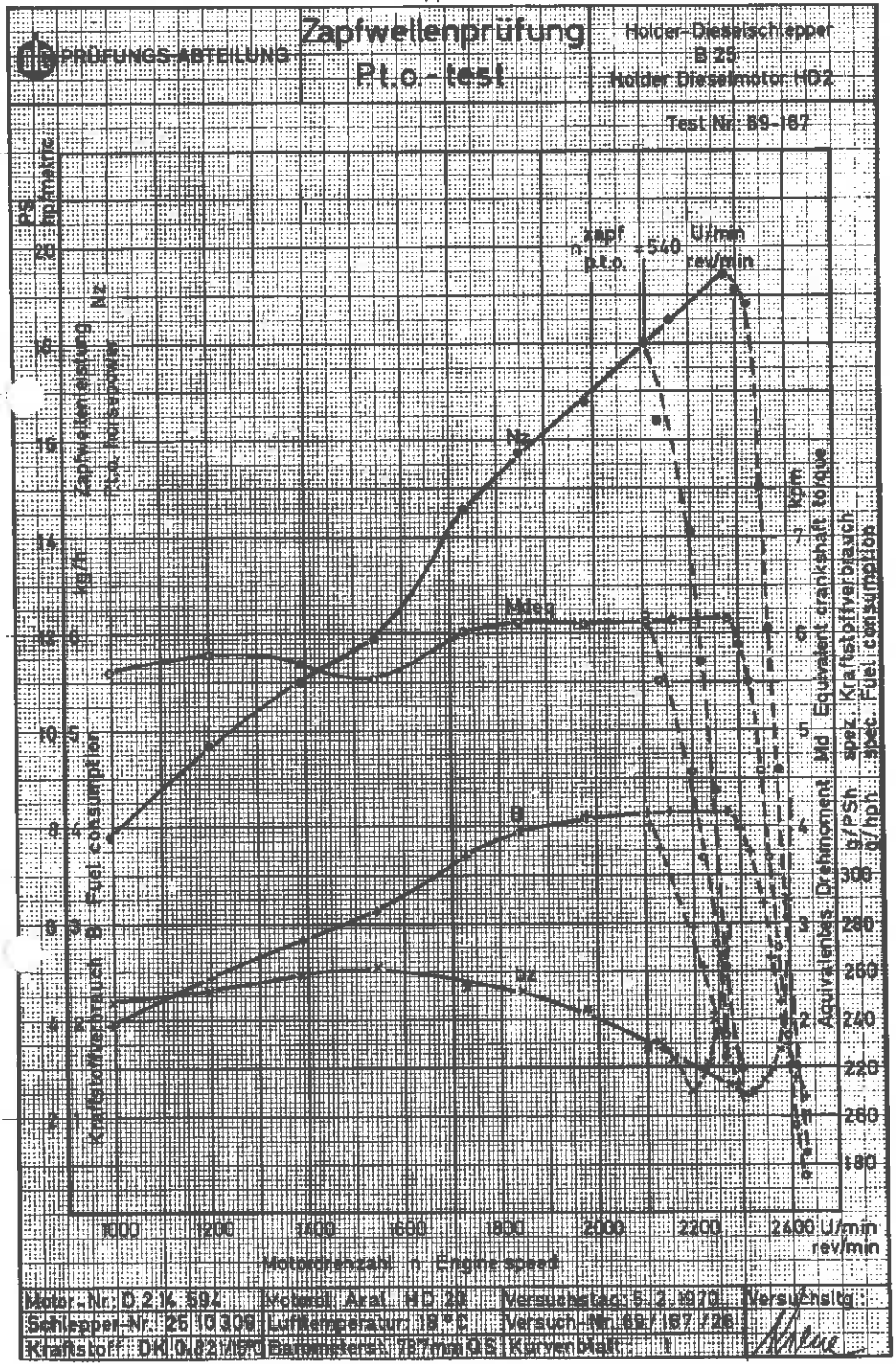
Torque*) at maximum power: 6,2 kpm

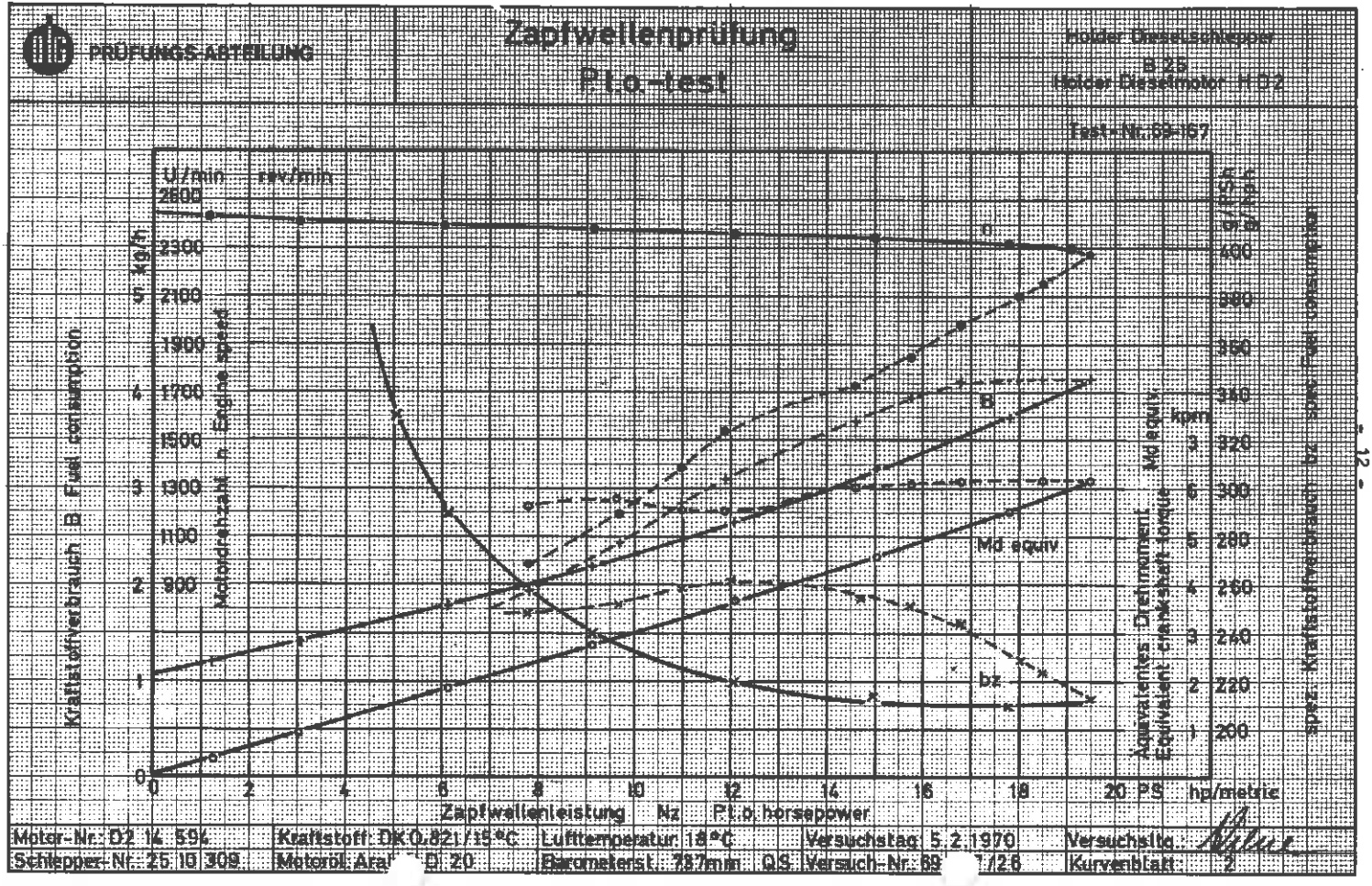
Maximum torque*) 6,2 kpm at 1840 rev/min of the engine

Mean atmospheric conditions: temperature: 18°C
pressure: 738 mm Hg
relative humidity: 60%

Maximum temperatures: coolant: 85°C
engine oil: not recorded
Fuel: 17°C

*) The torque reported is the equivalent crankshaft torque


Zapfwellenprüfung
P.t.o.-test
PRÜFUNGS-ABTEILUNG
Holder-Dieselschlepper
B 25
Holder Dieselmotor HD2
Test Nr: 69-167
PS mechanic
Zapfwellenleistung Nz
P.t.o. horsepower
kg/h
Fuel consumption
Kraftstoffverbrauch B
n zapf p.t.o. 540 U/min rev/min
Nz
Mdz
B
bz
Nom
Mid
Equivalent crankshaft torque
Kraftstoffverbrauch
spez. Fuel consumption
g/PSh
g/hph
Aquivalentes Drehmoment
1000
1200
1400
1600
1800
2000
2200
2400 U/min
rev/min
Motordrehzahl n Engine speed
Motor-Nr: D 2 14 594
Motoröl: Aral HD 20
Versuchsstelle: 5.2.1970
Versuchsltg.
Schlepper-Nr: 25 10 309
Lufttemperatur: 18 °C
Versuch-Nr: 69/167 F26
Kraftstoff: DK 0,82 g/cm³
Barometerst: 737mm QS
Kurvenblatt


PRÜFUNGS-ABTEILUNG
Zapfwellenprüfung
P.t.o.-test
Holder Dieselschlepper
B 25
Holder Dieselmotor H D 2
Test-Nr. 69-167
U/min rev/min
2600
2300
2100
1900
1700
1500
1300
1100
900
kg/h
Kraftstoffverbrauch B Fuel consumption
Motordrehzahl n Engine speed
g/PS/h
400
380
360
340
320
300
280
260
240
220
200
spez. Kraftstoffverbrauch bz spec. fuel consumption
Md equiv
kpm
Äquivalentes Drehmoment
Equivalent crankshaft torque
0 2 4 6 8 10 12 14 16 18 20 PS hp/metric
Zapfwellenleistung Nz P.t.o. horsepower
Motor-Nr. D2 14 594
Schlepper-Nr. 25 10 309
Kraftstoff DK 0,821/15 °C
Motoröl Aral D 20
Lufttemperatur 18 °C
Barometerst. 737mm QS
Versuchstag 5.2.1970
Versuch-Nr. 69 1/26
Versuchsltg.
Kurvenblatt 2

(2) DRAWBAR PERFORMANCE (Type B 25 with tyres 9,5/9-24 AS)

Date of tests: 11.6.- 22.6.1970

Type of track: Concrete

Height of drawbar above ground: 450 mm

Gear No. and Group	Horse-power (metric) hp	Drawbar pull kp	Engine speed rev/min	Slip of wheels %	Specific work hph/l	Specific fuel consumpt. g/hph	Temperatures			Atmospheric conditions		
							Fuel °C	Coolant °C	Engine oil °C	Temperature °C	Relative humidity %	Pressure mm Hg
(i) MAXIMUM POWER with ballast												
1.L.	5,3	1200	2380	12,2	2,20	372	24	80	45	29	60	748
2.L.	8,5	1200	2365	12,1	2,82	294	24	80	45	30	42	748
3.L.	15,4	1190	2270	11,5	3,02	271	26	80	45	26	57	748
1.S.	16,5	780	2270	7,7	3,24	252	26	80	45	29	54	748
2.S.	16,6	470	2275	4,3	3,30	248	29	80	45	29	54	748
3.S.	15,8	225	2280	1,2	3,11	264	22	80	45	23	58	748
(ii) FIVE-HOUR-TEST AT 75% OF PULL AT MAXIMUM POWER IN 1th GEAR OF S.GROUP												
1.S.	12,9	580	2330	5,4	3,25	252	26	80	45	30	45	748
(iii) FIVE-HOUR-TEST AT PULL CORRESPONDING TO 15% WHEEL SLIP IN TEST (i)												
2.L.	8,5	1200	2365	12,1	2,82	294	24	80	45	30	42	748
(v) MAXIMUM POWER without ballast												
2.L.	8,2	1200	2355	15,2	2,64	309	27	80	45	31	40	751
3.L.	15,0	1200	2275	15,1	2,99	275	22	80	45	23	52	751
1.S.	16,4	780	2275	8,9	3,28	250	27	80	45	30	45	751
2.S.	16,7	475	2275	5,6	3,36	244	24	80	45	28	65	751
3.S.	15,4	225	2275	3,1	3,06	268	24	80	45	26	52	751

Engine oil consumption during ten hours duration of tests (ii) and (iii) : 47 g/h

(2) DRAWBAR PERFORMANCE (Type P 50 with tyres 7,50-18 AS)

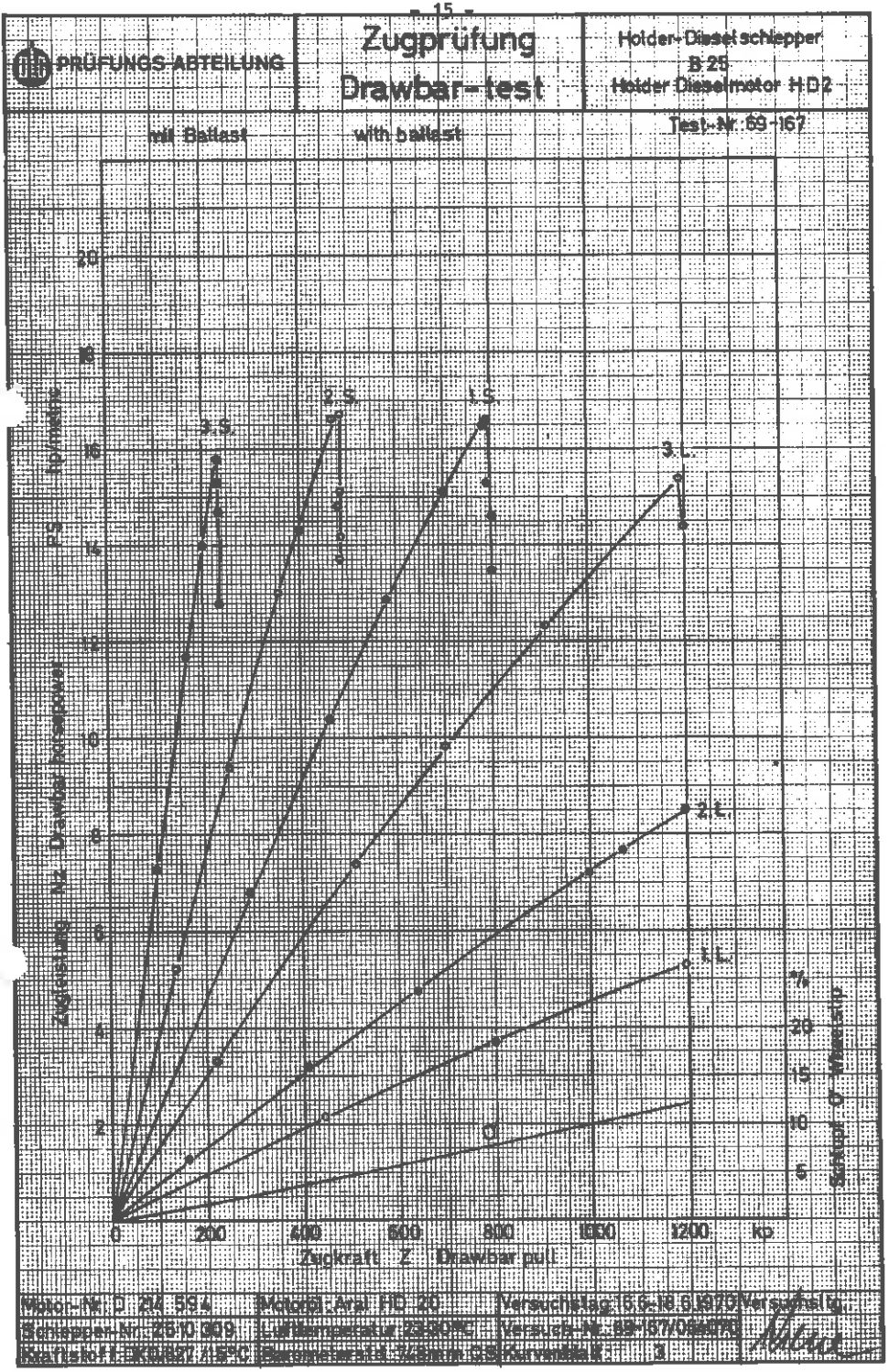
Date of tests: 29.6. - 14.7.1970

Type of track: Concrete

Height of drawbar above ground: 450 mm

Gear No. and Group	Horse power (metric) hp	Drawbar pull kp	Engine speed rev/min	Slip of wheels %	Specific work hph/l	Specific fuel consumpt. g/hph	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure mm Hg
(i) MAXIMUM POWER with ballast												
1.L	4,7	1125	2385	11,6	2,18	376	28	80	45	28	48	755
2.L	7,6	1136	2370	11,8	2,72	301	25	80	45	26	60	755
3.L	14,0	1142	2295	12,1	3,09	265	24	80	45	24	64	755
1.S	17,1	855	2275	8,2	3,36	244	20	80	40	17	72	747
2.S	17,4	529	2275	5,0	3,43	240	17	80	40	15	78	747
3.S	16,0	248	2275	2,8	3,16	261	20	80	42	20	68	746
(ii) FIVE-HOUR-TEST AT 75% OF PULL AT MAXIMUM POWER IN 1th GEAR OF S.GROUP												
1.S	13,1	641	2312	7,2	3,08	266	26	80	45	26	46	755
(iii) FIVE-HOUR-TEST AT PULL CORRESPONDING TO 15% WHEEL SLIP IN TEST (i)												
3.L	14,0	1140	2295	12,1	3,09	265	25	80	45	25	40	755
(v) MAXIMUM POWER without ballast												
2.L	6,9	1070	2360	15,4	2,66	310	19	80	43	18	70	747
3.L	13,0	1075	2320	15,1	3,06	268	22	80	45	20	60	750
1.S	16,5	845	2277	10,4	3,26	252	22	80	45	21	69	750
2.S	16,9	515	2277	6,1	3,48	236	26	80	45	30	50	755
3.S	17,4	270	2275	2,9	3,48	236	21	80	45	21	60	750

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

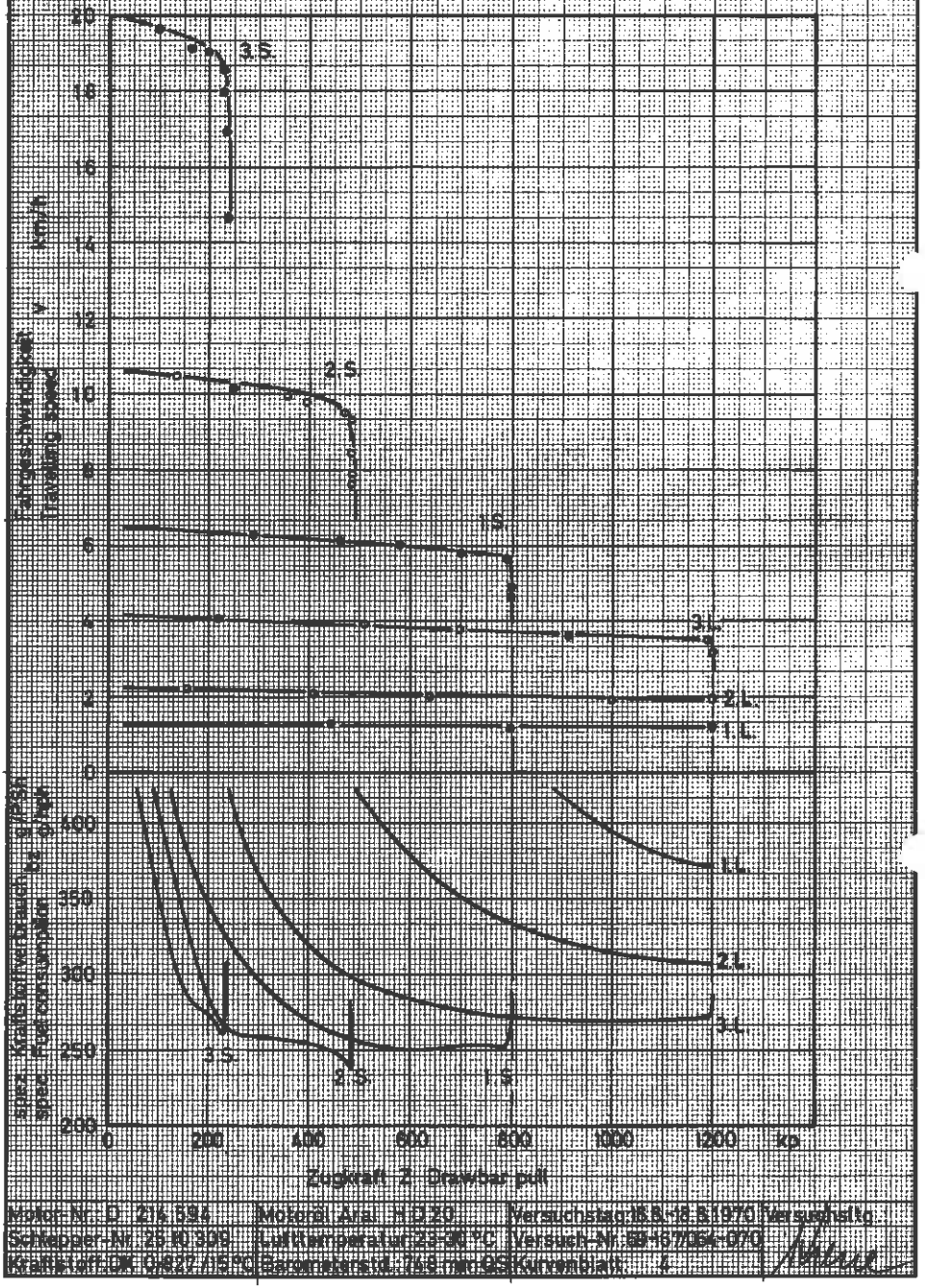

PRÜFUNGS-ABTEILUNG
Zugprüfung
Drawbar-test
Holder-Dieselschlepper B 25
Holder Dieselmotor HD 2
mit Ballast
with ballast
Test-Nr. 69-167
3. S.
2. S.
1. S.
3. L.
2. L.
1. L.
0
Drehzahl
Drawbar pull
Zugkraft Z
Schlupf in %
200
400
600
800
1000
1200
kp
Motor-Nr. D 214 594
Schlepper-Nr. 2510 309
Kraftstoff: Kühler 15°C
Motor: Aral HD 20
Luftlemperatur 23/30°C
Barometerstand 738mm QS
Versuchstag 15.6.-18.6.1970
Versuchs-Nr. 69-167/0
Kurvenblatt 3

PRÜFUNGS-ABTEILUNG

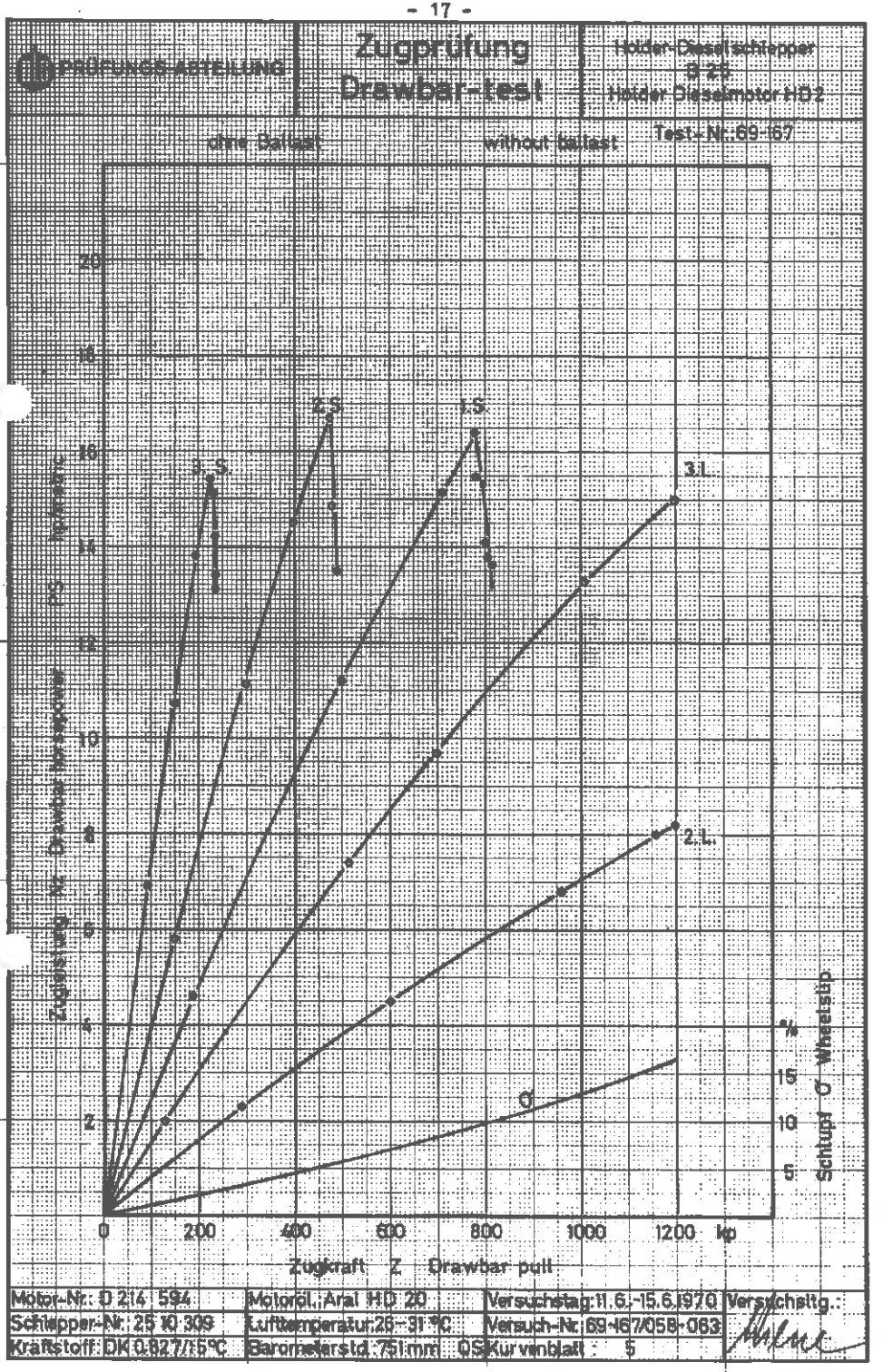
Zugprüfung
Drawbar-test

Holder-Dieselschlepper B 25
Holder Dieselmotor HD2

mit Ballast | with ballast | Test-Nr. 69-1.67



Motor-Nr. D 21k 594 | Mineral Aral HD 20 | Versuchstag 16.8.-18.8.1970 | Versuchsstg.
Schlepper-Nr. 25 R 309 | Lufttemperatur 23-30 °C | Versuch-Nr. 69-1.67/68-070
Kraftstoff DK 0427 / 1570 | Barometerstand 748 mm QS | Kurvenblatt 2

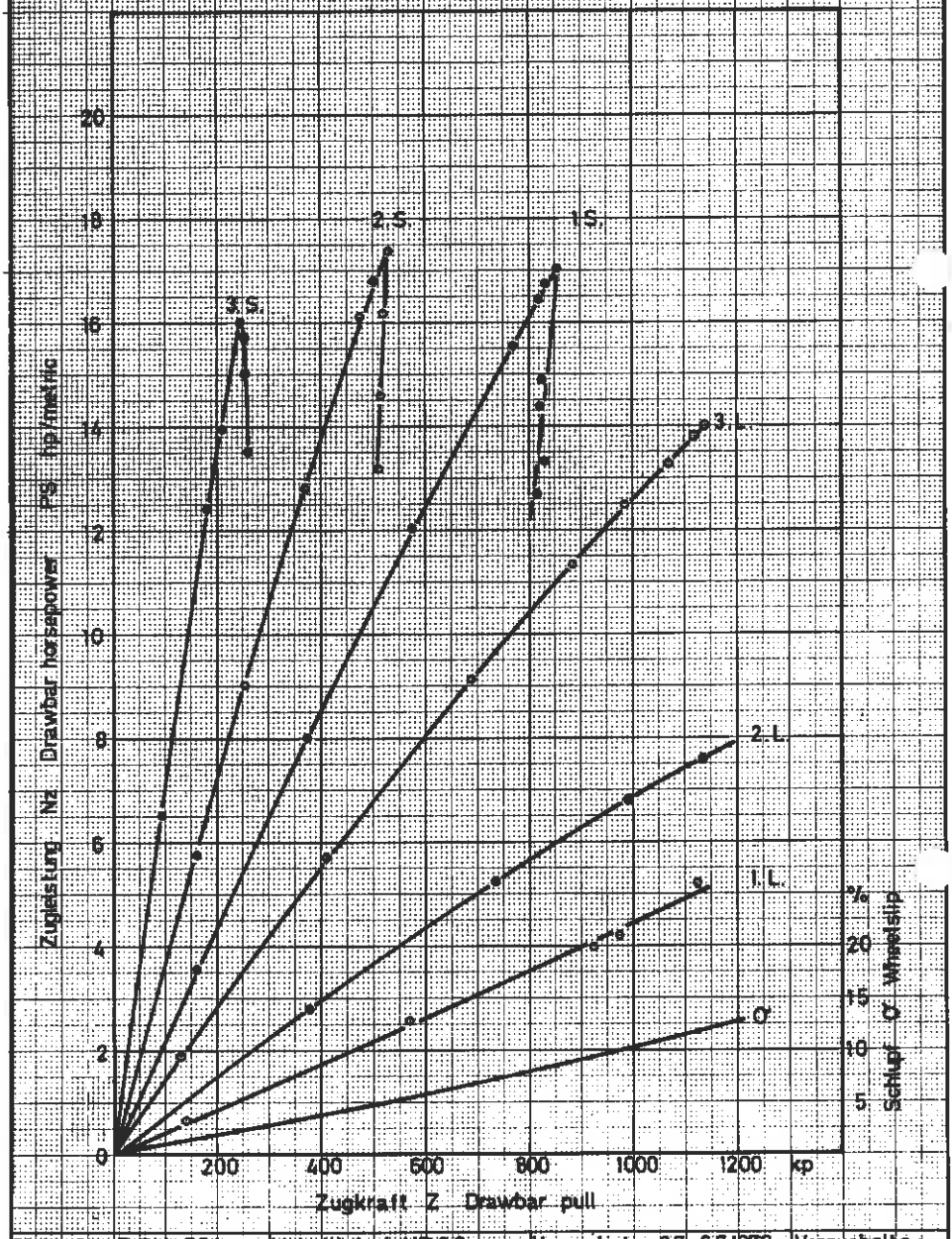

Prüfungs-Abteilung
Zugprüfung
Drawbar-test
Holder-Dieselschlepper
3 25
Holder Dieselmotor HD2
ohne Ballast
without ballast
Test-Nr.:69-167
Motorleistung
Engine power
Zugleistung
Drawbar horsepower
1.S.
2.S.
3.S.
1.L.
2.L.
G
Schlupf G Wheelslip
%
0
200
400
600
800
1000
1200
kp
Zugkraft Z Drawbar pull
Motor-Nr.: D 214 594
Motoröl: Aral HD 20
Versuchstag: 11.6.-15.6.1970
Versuchstg.:
Schlepper-Nr.: 25 10 309
Lufttemperatur: 26-31 °C
Versuch-Nr.: 69-167/058-063
Kraftstoff: DK 0,827/15°C
Barometerstd.: 751 mm QS
Kurvenblatt: 5

PRÜFUNGS-ABTEILUNG

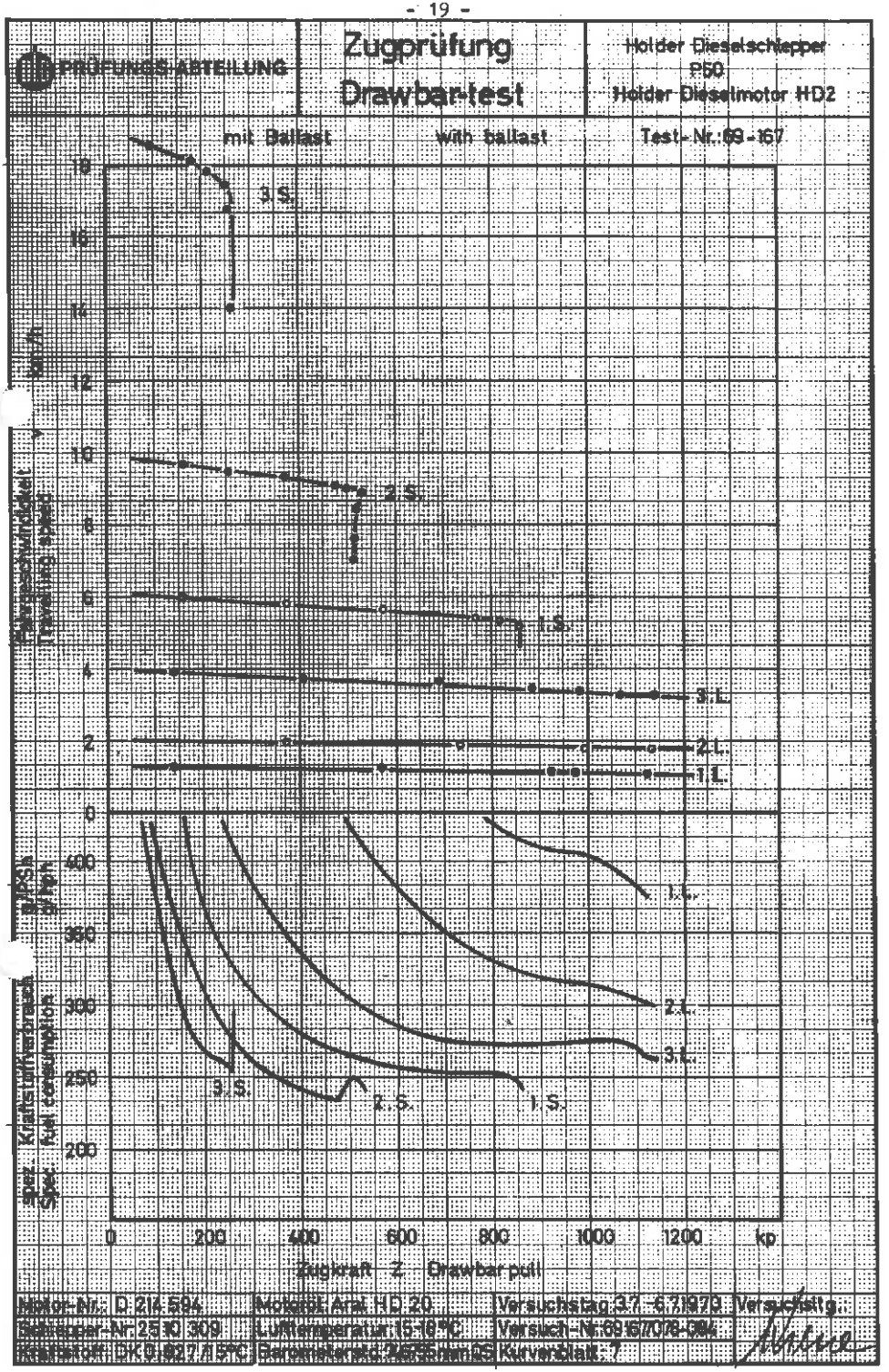
Zugprüfung
Drawbar-test

Holder Dieselschlepper P 50
Holder Dieselmotor HD2

mit Ballast — with ballast — Test-Nr.: 69-167



Motor-Nr.: D 214 594	Motoröl: Aral HD 20	Versuchstag: 3.7.-6.7.1970	Versuchsltg.:
Schlepper-Nr.: 25 10 309	Lufttemperatur: 15 - 18 °C	Versuch-Nr.: 69-167/078084	
Kraftstoff: DIN 0627/15°C	Barometerstd.: 736-755 mm QS	Kurvenblatt: 6	

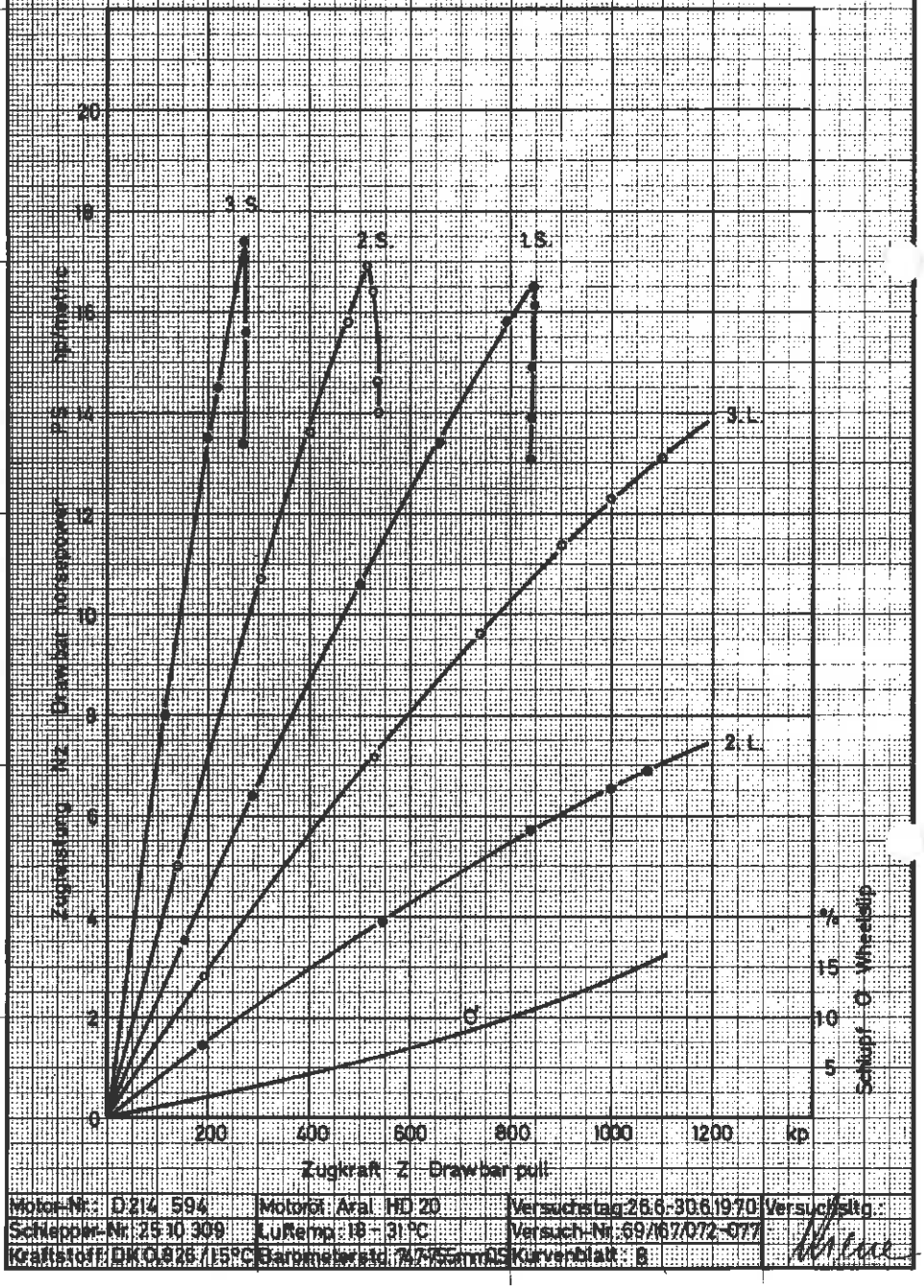

PRÜFUNGS-ABTEILUNG
Zugprüfung
Drawbar-test
Holder Dieselschlepper P50
Holder Dieselmotor HD2
mit Ballast
with ballast
Test-Nr.: 69-167
3. S.
2. S.
1. S.
3. L.
2. L.
1. L.
Fahrgeschwindigkeit
Travelling speed
km/h
spez. Kraftstoffverbrauch
Specific fuel consumption
g/PSh
0
2
4
6
8
10
12
14
16
18
200
250
300
350
400
0
200
400
600
800
1000
1200
kp
Zugkraft Z Drawbar pull
Motor-Nr.: D 214 594
Schlepper-Nr.: 25 30 309
Kraftstoff: DIN 51 627 / 15°C
Motortyp: Anz. HD 20
Lufttemperatur: 15-16°C
Barometerstand: 745 mm HG
Versuchstag: 3.7.-6.7.1979
Versuch-Nr.: 69 167/078-084
Kurvenblatt: 7
Versuchsltg.:

PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar-test

Holder Dieselschlepper
P 50
Holder Dieselmotor HD2

ohne Ballast — without ballast — Test-Nr. 69-167



Motor-Nr.: D 214 594 — Motoröl: Aral HD 20 — Versuchstag: 26.6.-30.6.1970 — Versuchsltg.:
Schlepper-Nr.: 25 10 309 — Lufttemp.: 18 - 31 °C — Versuch-Nr.: 69/167/072-077
Kraftstoff: DKO 826/15PC — Barometerstd.: 720-725 mm QS — Kurvenblatt: 8

PRÜFUNGS-ABTEILUNG
Holder B 25 (P 50)

Test No. 69-167

(3 and 4) TURNING SPACE AND TURNING CIRCLE

	B 25	P 50
Wheel equipment front:	4,50-16 AS Front 4 ply	6-12 AS 2 ply
rear:	9,5/9- 24 AS 4 ply	7,50-18 AS 4 ply
Track of wheels front:	1010 mm	840 mm
rear:	1010 mm	780 mm

without ballast

	with brakes				without brakes			
	left hand		right hand		left hand		right hand	
	B 25 m	P 50 m	B 25 m	P 50 m	B 25 m	P 50 m	B 25 m	P 50 m
Radius of turning space	2,43	2,34	2,43	2,34	2,66	2,57	2,66	2,57
Radius of turning circle	2,54	2,46	2,55	2,46	2,77	2,68	2,78	2,69

(5) LOCATION OF CENTRE OF GRAVITY

without ballast

	B 25 mm	P 50 mm
Height above ground	583	543
Distance forward from the vertical plane containing the axis of the rear wheels	637	680
Distance from the median plane of the tractor	0	0

(6) BRAKE TESTS

A) FOOT BRAKE

Date of test: 15.6. and 2.7.1970

Type of track: Concrete

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

Travelling speed of tractor: 20,2 km/h (P 50 : 18,5 km/h)

With cold brakes

		Without ballast		With ballast	
		B 25	P 50	B 25	P 50
Maximum deceleration	m/s^2	4,1	3,8	4,5	4,6
Stopping distance	m	4,0	3,4	3,8	3,0
Force on pedal	kp	26	19	30	21

Brake fade characteristics, hot test, tractor without ballast

		B 25	P 50
Deceleration:	hot/cold	97,5 %	108 %
Stopping distance:	cold/hot	105 %	100 %
Force on pedal:	cold/hot	108 %	119 %

B) PARKING BRAKE

Force applied on the brake lever, cold brake 40 kp (P 50 : 24 kp). No rotation of the rear-wheels of tractor occured when the tractor has been towed.

Tests with hot hand brake not applicable; drum of hand brake is not influenced by the temperature of the foot brake.

(7) MEASUREMENT OF AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 18.6. and 7.7.1970

Type of track: Concrete

Type of sound leve meter: Brüel & Kjaer type 2203

Results of test

Speed: 3.S.

Travelling speed before acceleration: 18,0 km/h

Sound level: 83 dBA exhaust pipe upwards
82 dBA exhaust pipe downwards

(8) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of test: 18.6. and 8.7.1970

Type of track: Concrete

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

Type of octavfilter: PBO, Rohde & Schwarz, 8 München

No cab fitted on tractor

Results of tests

Gear	Travelling speed nominal km/h	Travelling speed real km/h	Exhaust-pipe shows upwards Sone	Exhaust-pipe shows downwards Sone
1.S.	6,4	5,9	99	92

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

PRÜFUNGS-ABTEILUNG
Holder B 25 (P 50)

Test No. 69-167

(9) TEST OF POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: 24.7.1970, Groß-Umstadt

Hydraulic fluid: Engine oil Aral HD SAE 20

POWER LIFT

Type B 25

Height above ground in down position hitch point mm	Height above ground in down position test frame mm	Total vertical movement mm	Maximum force exerted through full lift range kp	Pressure of hydr. oil kp/cm²	Linkage load at which unballasted front end of tractor lifts off the ground kp
Measured on the hitch points of lower links					
165	-	625	453	175	910
Measured on the test frame 610 mm to the rear of the hitch points					
165	65	820	280	175	500

Type P 50

Measured on the hitch points of lower links					
90	-	625	555	178	780
Measured on the test frame 610 mm to the rear of the hitch points					
90	70	760	310	178	442

Type of linkage lock for transport: hydraulically
Opening pressure of the cylinder overpressure relief valve: no relief valve fitted

PRÜFUNGS-ABTEILUNG Test No. 69.167

Holder B 25 (P 50)

OPTIONAL TESTS

(10) ENGINE TESTS

Date and location of tests: 27./28.1.1970, Groß-Umstadt

Type of dynamometer: Schenck hydraulic dynamometer U1-20

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				
20,4	2277	5,05	202	4,03
At standard p.t.o.speed (540 rev/min)				
19,0	2107	4,73	205	3,98
At the speed recommended by the manufacturer for drawbar work				
19,8	2300	4,76	197	4,16

Fuel consumption at part loads

(i) 85% of torque at maximum power				
17,6	2301	4,34	202	4,06
(ii) unloaded				
-	2425	1,10	-	-
(iii) 50% of the load defined in (i)				
9,1	2370	2,48	225	3,65
(iv) maximum power				
20,4	2277	5,05	202	4,03
(v) 25% of the load defined in (i)				
4,6	2403	1,78	319	2,59
(vi) 75% of the load defined in (i)				
13,4	2340	3,32	203	4,03

Optimum fuel consumption: 197 g/hph at 15,7 hp and 2180 rev/min

Standard fuel consumption 1/2 (acc.to DIN 9606): 2,1/ 4,1 l/h

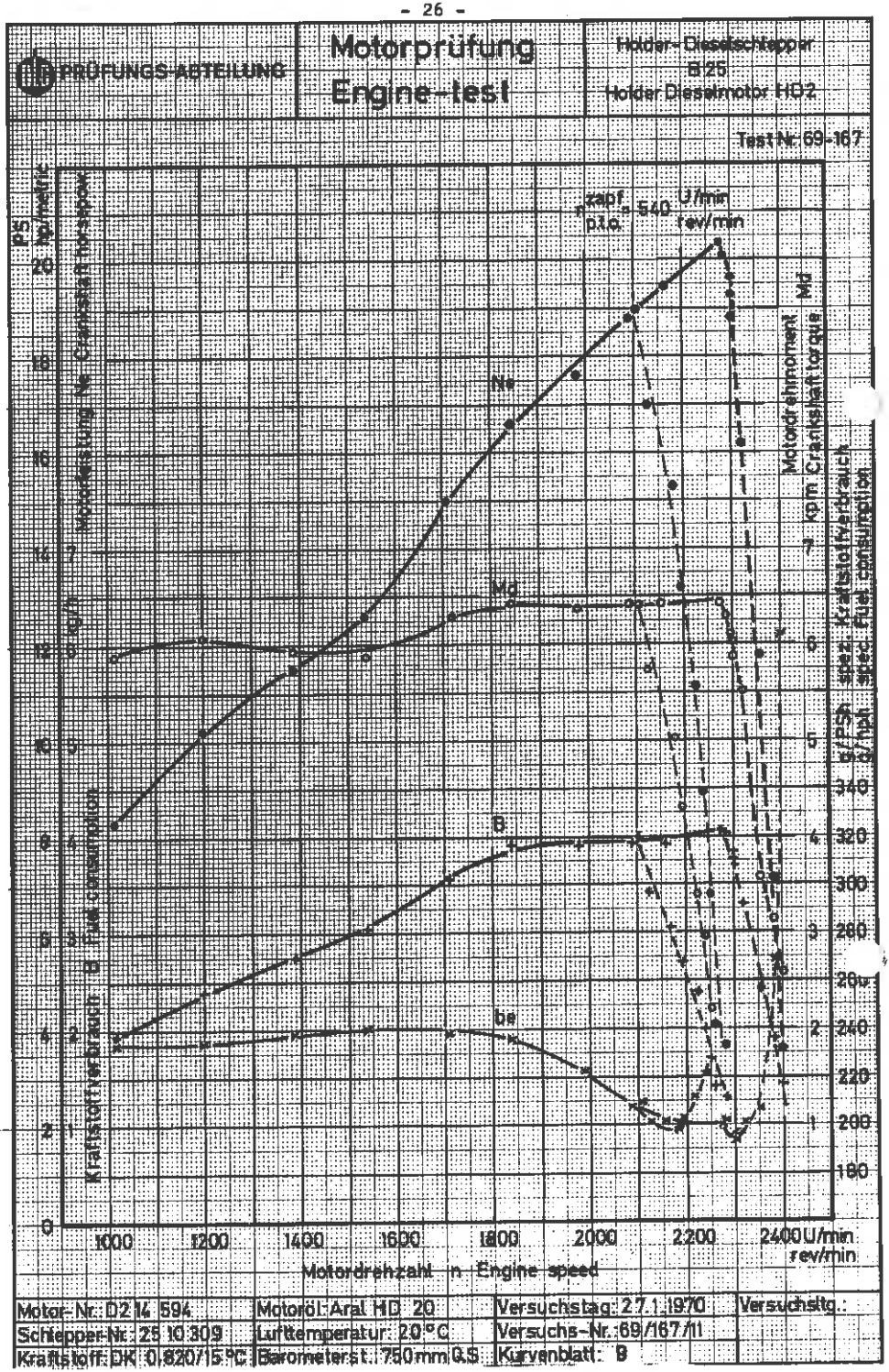
No load maximum engine speed: 2425 rev/min

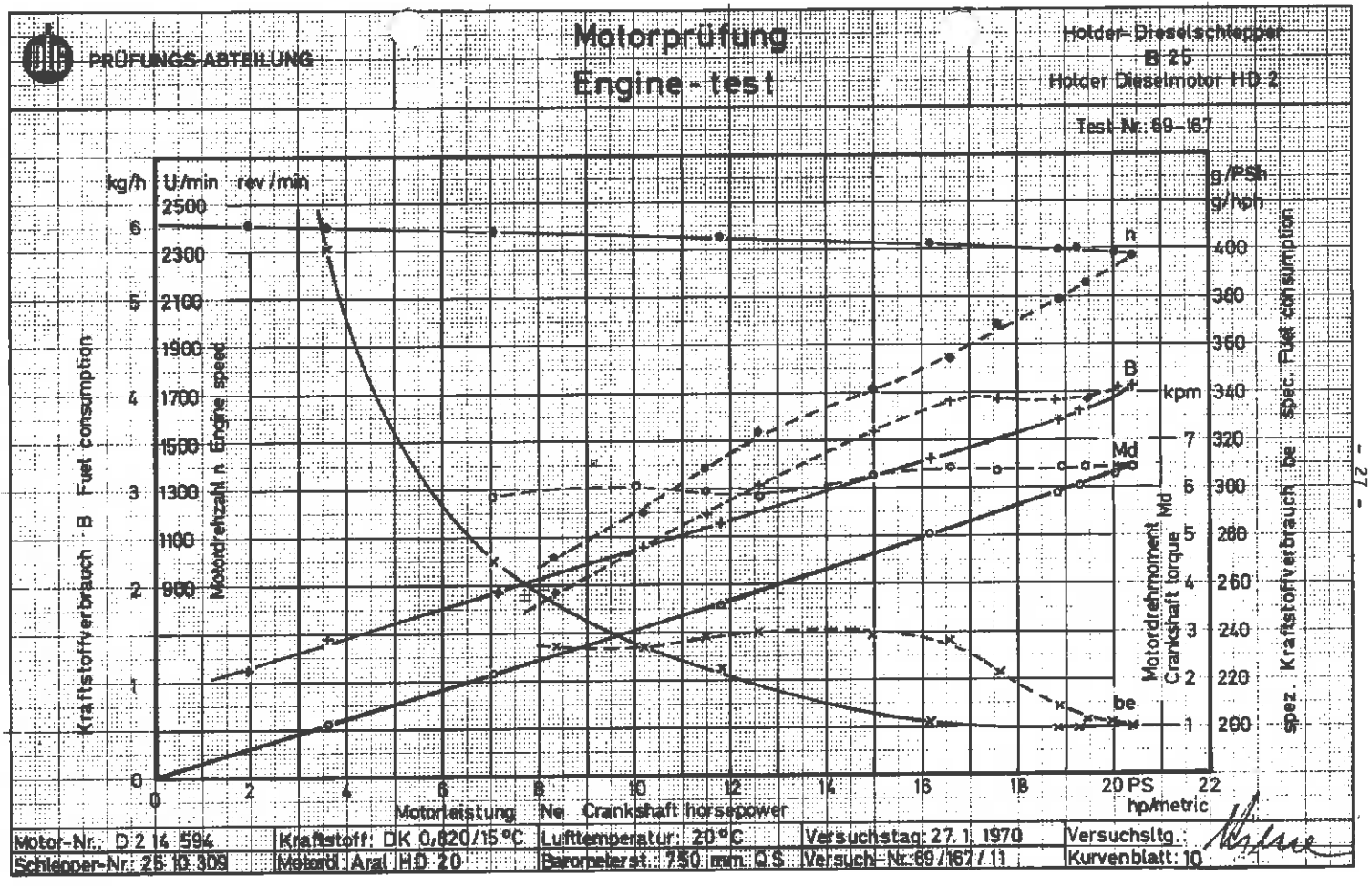
Torque at maximum power: 6,4 kpm

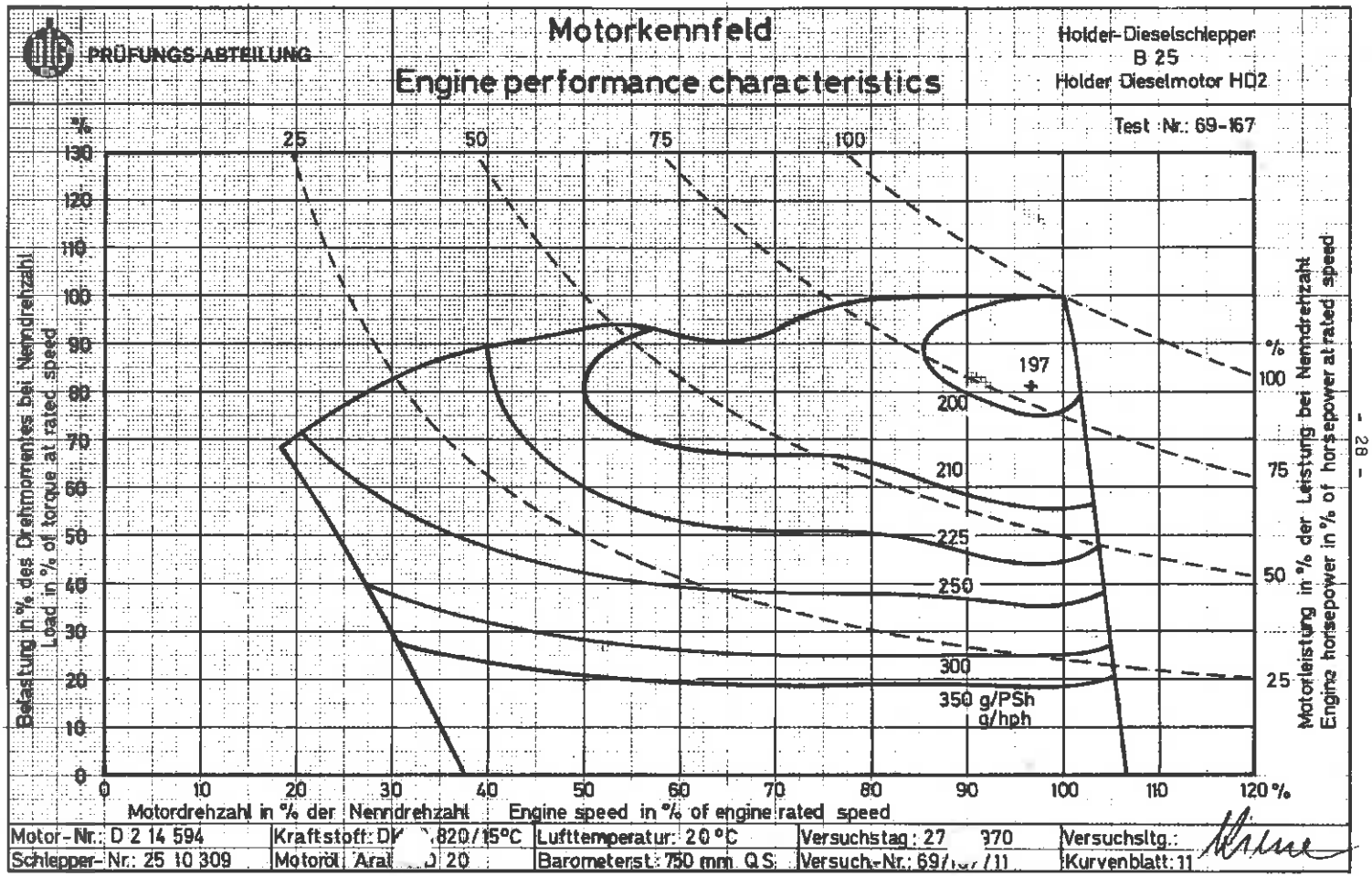
Maximum torque: 6,5 kpm at 1830 rev/min of the engine

Mean atmospheric conditions: temperature: 20°C
pressure: 755 mm Hg
relative humidity: 50%

Maximum temperatures: coolant: 80°C
engine oil: 40°C
fuel: 21°C


PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine-test
Holder-Dieselschlepper
B 25
Holder Dieselmotor HD2
Test Nr. 69-167
Nennleistung Ne Continuous output
Kraftstoffverbrauch B Fuel consumption
Motordrehmoment Md
Motor torque
kgm
Kraftstoffverbrauch
spez. Fuel consumption
g/PSh
g/kWh
Ne
Md
B
be
Motordrehzahl n Engine speed
U/min
rev/min
Motor-Nr.: D2 14 594
Motoröl: Aral HD 20
Versuchstag: 27.1.1970
Schlepper-Nr.: 25 10 309
Lufttemperatur: 20 °C
Versuchs-Nr.: 69/167/11
Kraftstoff: DK 0,820/15 °C
Barometerst.: 750 mm QS
Kurvenblatt: 9


PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine-test
Holder-Dieselschlepper
B 25
Holder Dieselmotor HD 2
Test-Nr. 69-167
kg/h
U/min
rev/min
g/PSh
g/hph
Kraftstoffverbrauch B Fuel consumption
Motordrehzahl n Engine speed
spez. Kraftstoffverbrauch be spec. Fuel consumption
Md
kpm
Motordrehmoment
Crankshaft torque
be
Motorleistung Ne Crankshaft horsepower
PS
hp/metric
Motor-Nr.: D 2 14 594
Kraftstoff: DK 0,820/15 °C
Lufttemperatur: 20 °C
Versuchstag: 27. 1. 1970
Versuchsltg.:
Schlepper-Nr.: 25 10 309
Motoröl: Aral HD 20
Barometerst.: 750 mm QS
Versuch-Nr. 69/167/11
Kurvenblatt: 10


PRÜFUNGS-ABTEILUNG
Motorkennfeld
Engine performance characteristics
Holder-Dieselschlepper
B 25
Holder Dieselmotor HD2
Test Nr.: 69-167
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
197
200
210
225
250
300
350 g/PSh
g/hph
Motor-Nr.: D 2 14 594
Schlepper-Nr.: 25 10 309
Kraftstoff: DI
Motoröl: Aral
Lufttemperatur: 20 °C
Barometerst.: 750 mm Q.S.
Versuchstag: 27
Versuch-Nr.: 69/
Versuchsltg.:
Kurvenblatt: 11

PRÜFUNGS-ABTEILUNG
Holder B 25 (P 50)

Test No. 69-167

(15) REPAIRS AND ADJUSTMENTS

None

REMARKS

The difference of 25 rev/min in the governor's setting from the rated engine speed 2300 rev/min is 1,1 %; it is within the tolerance admitted by the manufacturer.