O.E.C.D. Report No. 294

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

Agricultural Tractor D 538

Manufactured by: Hermann Lanz, Schlepperfabrik
7960 Aulendorf



Date of Tests: February - July 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: 23.12.1969 Serial No.: 294

DEUTSCHE LANDWIRTSCHAFTS-GESELLSCHAFT e.V.
Prüfungsabteilung für Landmaschinen
6 Frankfurt am Main, Zimmerweg 16

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 Test No. 69-25
Lanz D 538

Tractor manufacturer: Hermann Lanz, Schlepperfabrik, 7960 Aulendorf
Submitted for test by: Manufacturer
Selected by: Manufacturer by agreement with DLG
Place of running-in: Aulendorf and Gross-Umstadt
Duration of running-in: Engine 100 hours, tractor 60 hours

SPECIFICATION OF TRACTOR

Tractor

Make: Hermann Lanz, Schlepperfabrik, 7960 Aulendorf
Model: D 538
Type: Wheel type tractor, unit construction
Serial No.: 538 408

Engine

Make: Motorenwerke Mannheim A.G., 68 Mannheim
Model: D 208-3
Type: Water cooled 4 stroke Diesel engine
Serial No.: 208.3.07622

Cylinders: 3 cylinders, vertical in line; bore 95 mm, stroke 105 mm, capacity 2232 cm^3; compression ratio 17,5 : 1; overhead valves; wet cylinders liners

Fuel system: Fuel: Commercially available diesel oil; Bosch type PES 3 A C 320/3 RS 1216 injection pump; Bosch type DLL 150 S 393 injection nozzles; injection pressure 180 + 5 kp/cm^2; injection timing 21° - 23° before TDC; fuel feed pump Solex type 15072; Bosch dual filter type 0450 117 007; pre-cleaner with felt tube filter element, main cleaner with wound filter element; Capacity of fuel tank appr. 35 l

Governor: Make: Robert Bosch GmbH, 7 Stuttgart; centrifugal variable speed type governor, type EP/RSV; governed range of engine speed 700 rev/min to 2300 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: Make: Mann & Hummel GmbH, 714 Ludwigsburg;
oil bath type filter, type 31028; oil capacity 0,75 l

Lubrication system: Forced feed from gear type pump; strainer in sump; Mann & Hummel Multifilter type 67 402 92 188 H 7.20/0 with replaceable filter element in full flow; oil capacity 7 l; recommended oil change period 120 l; recommended oil in winter HD SAE 10
in summer HD SAE 20

Cooling system: Presurised water cooling, impeller assisted and fan with 4 blades 400 mm dia, radiator, bypass thermostate for temperature control; cooling water capacity 9 l

Electrical equipment Voltage 12 Volt, negative earth

Starting device: Bosch type JD 12 v 1,8 PS starter motor

Starting aid: Beru type 129 MJ 3,5 V glowing plugs

Generator: Bosch type LJ/GEH 90/12/1800 FR 11

Battery: Lead acid battery 12 V 88 Ah

Transmission

Clutch: Fichtel & Sachs AG., 872 Schweinfurt; dry disc dual clutch type DO 250/225 K, foot pedal operated

Gearbox: Make: Hermann Lanz, Schlepperfabrik, 7960 Aulendorf, type D 534; selecting gear with 5 forward speeds and 1 reverse and group gear with 2 speeds giving 10 forward speeds and 2 reverse

Rear axle and final drive: Make: Hermann Lanz, Schlepperfabrik, 7960 Aulendorf bevel gear type differential gear with crown wheel and pinion; differential lock fitted, operated by foot pedal

Oil capacity: 34 l; recommended oil change period 2000 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
Forward				
Field (L)	1	494,5 : 1	1,07	0,30
	2	216,3 : 1	2,45	0,68
	3	110,8 : 1	4,78	1,33
	4	48,2 : 1	10,97	3,05
	5	36,8 : 1	14,39	4,00
Road (S)	1	309,7 : 1	1,71	0,47
	2	135,8 : 1	3,90	1,08
	3	69,4 : 1	7,63	2,12
	4	30,2 : 1	17,51	4,86
	5	23,0 : 1	23,00	6,38
Reverse				
Field	1	90,0 : 1	5,87	1,63
Road	2	56,4 : 1	9,38	2,61

PRÜFUNGS-ABTEILUNG Test No. 69-25

Lanz D 538

Power take-off	Life power take-off, manually engaged
Location:	555 mm above ground, 10 mm to the left of median plane
Dimensions:	Spline shaft 29 x 34,9 x 8,7 mm ≈ $1^3/8$", 6 splines (acc.to DIN 9611,Form A; BS 1495; ASAE S 203.5)
Speed:	600 rev/min and 1000 rev/min at 2300 rev/min rated engine speed; standard p.t.o.-speed 540 rev/min at 2068 rev/min engine speed; standard p.t.o.-speed 1000 rev/min at 2000 rev/min engine speed, may be set by aid of tractormeter
Direction of rotation:	Clockwise viewed from tractor rear
Belt pulley	(Not fitted on tractor tested; figures acc.to manufacturers specification)
Location:	At rear of tractor; driving device attached to p.t.o.
Dimensions:	235 mm diameter, 130 mm width
Speed:	1535 rev/min at 2300 rev/min rated engine speed; linear belt speed 18,9 m/s (acc.to DIN 9630)
Direction of rotation:	Clockwise viewed from right hand side of tractor; manually engaged by p.t.o. engaging lever
Power lift	Make: Robert Bosch GmbH.,7 Stuttgart and Zahnradfabrik Passau, 839 Passau-Grubweg; unit construction with draft control and position control; single acting ram; Bosch type HY/ZFR 1/8 CL 102 gear type oil pump, directly driven from engine; Bosch type HY/SR 10 H 1/1 50 (4/2) control valve; maximum oil pressure 150 kp/cm²; oil capacity 8 l; additional control valve for cutter bar lift and front end loader
Pull attachment	
Implement linkage:	Three-point implement linkage category I (acc.to DIN 9674), controlled by power lift; hitch points also usuable for implements category II; lift height above ground from 0 mm to 910 mm
Drawbar:	Fixed on hydraulically controlled implement linkage; height above ground adjustable from 0 mm to 910 mm by power lift; height above ground may be rigid fixed by hinging lift rods in brackets, height above ground adjustable from 95 mm to 430 mm (acc.to DIN 9670); centre hole + 3 holes with 80 mm distance each + 1 hole with 270 mm distance + 1 hole with 115 mm distance apart either side of centre hole (acc.to DIN 9676); distance of centre hole to the end of p.t.o. at horizontal position of lower links 500 mm

Trailer hitch: At rear of tractor; height above ground 725 mm and 785 mm, changed by reversing hitch; distance from rear axle 450 mm

Towing hitch: At front of tractor; height above ground 560 mm

Steering device

Make: Zahnradfabrik Friedrichshafen AG.
799 Friedrichshafen
type: ZF-Gemmersteering, model 7328

Brakes

Parking brake: Mechanically operated external band type brake, acting on a drum on a transmission shaft, by a ratchet hand lever

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

Steering brake: Brake device and single foot pedals of foot brake; single pedals latched together for normal use

Wheels

Steering wheels: Two at front, 6,00-16 AS Front 4 ply pneumatics (acc.to DIN 7808); maximum permissible weight on each tyre 560 kp at 2,5 kp/cm² inflation pressure, 700 kp when transporting mounted implements; rim 4,00 E x 16; track width 1300 mm and 1430 mm changed by reversing wheels

Driving wheels: Two at rear, 13,6/12-28 AS 6 ply pneumatic (acc.to DIN 7807); maximum permissible weight on each tyre 1360 kp at 1,4 kp/cm² inflation pressure, 1665 kp when transporting mounted implements; rim W 12 x 28; track width 1250 mm and 1400 mm, changed by reversing wheels

Wheel base: 2030 mm

PRÜFUNGS-ABTEILUNG
Lanz D 538

Test No. 69-25

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

		without driver	with driver
Weight of tractor without ballast:	Front axle load:	643 kp	648 kp
	Rear axle load:	1237 kp	1302 kp
	Total:	1880 kp	1950 kp

Ballast front:
1 weight fixed on front axle = 64 kp
2 wheel weights, 67 kp each = 134 kp

Ballast rear:
6 weights per wheel, 68,5 kp each = 822 kp
water in tyres = 250 kp

		without driver	with driver
Weight of tractor with ballast	Front axle load:	855 kp	860 kp
	Rear axle load:	2295 kp	2360 kp
	Total	3150 kp	3220 kp

Seat Make: F. Brendel, 6791 Saalstadt, type SPU/V/169, upholstered mold seat and back rest, adjustable spring and shock absorber; hight above ground 1160 mm to 1175 mm acc. to spring setting; distance from rear axle 770 mm to 790 mm adjustable; in median plane of tractor

Number of grease points (whole tractor): 23

Overall dimensions

Overall length: 3250 mm with three-point linkage
Overall width: 1570 mm at 1250 mm track, without ballast weights
Overall height 1650 mm to top of back rest of attendants seat
Maximum ground clearance:
360 mm in median plane of tractor
350 mm apart median plane of tractor

Lighting equipment Electric 12 Volt, acc.to StVZO (German Government regulation)

	Height above ground of centre mm	Dimensions of area mm	Distance from outside edge of tractor to centre mm
Head lights	900	130 Ø	435
Side lights	1150	40 x 50	140
Rear lights	1240	65 x 90	220
Reflectors	980	70 Ø	220

PRÜFUNGS-ABTEILUNG
Lanz D 538

Test No. 69-25

FUELS AND LUBRICANTS USED IN TESTS

Laboratory tests

Fuel:	Aral Diesel oil, specific gravity at 15°C: 0,828 kg/l (commercially available quality acc. to DIN 51 601)
Engine oil:	ARAL HD 20 SAE
Transmission oil:	Gasolin V 90

Track tests

Fuel:	Aral Diesel oil, specific gravity at 15°C: 0,828 kg/l (commercially available quality acc. to DIN 51 601)
Engine oil:	Aral HD 20 SAE
Transmission oil:	Gasolin V 90

PRÜFUNGS-ABTEILUNG
Lanz D 538

Test No. 69-25

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 9.4.1969, 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-hours test					
37,2	2300	600	8,87	197	4,20
At standard p.t.o.speed (540 rev/min)					
35,0	2070	540	8,17	193	4,29
At the speed recommended by the manufacturer for drawbar work					
37,2	2300	600	8,87	197	4,20

Fuel consumption at part loads

(i) 85% of torque at maximum power					
32,0	2335	609	7,53	195	4,25
(ii) unloaded					
-	2435	635	2,29	-	-
(iii) 50% of the load defined in (i)					
16,3	2372	619	4,66	236	3,49
(iv) maximum power					
37,2	2300	600	8,87	197	4,20
(v) 25% of the load defined in (i)					
8,3	2400	627	3,46	349	2,39
(vi) 75% of the load defined in (i)					
24,4	2360	616	6,11	207	3,98

No load maximum engine speed: 2435 rev/min

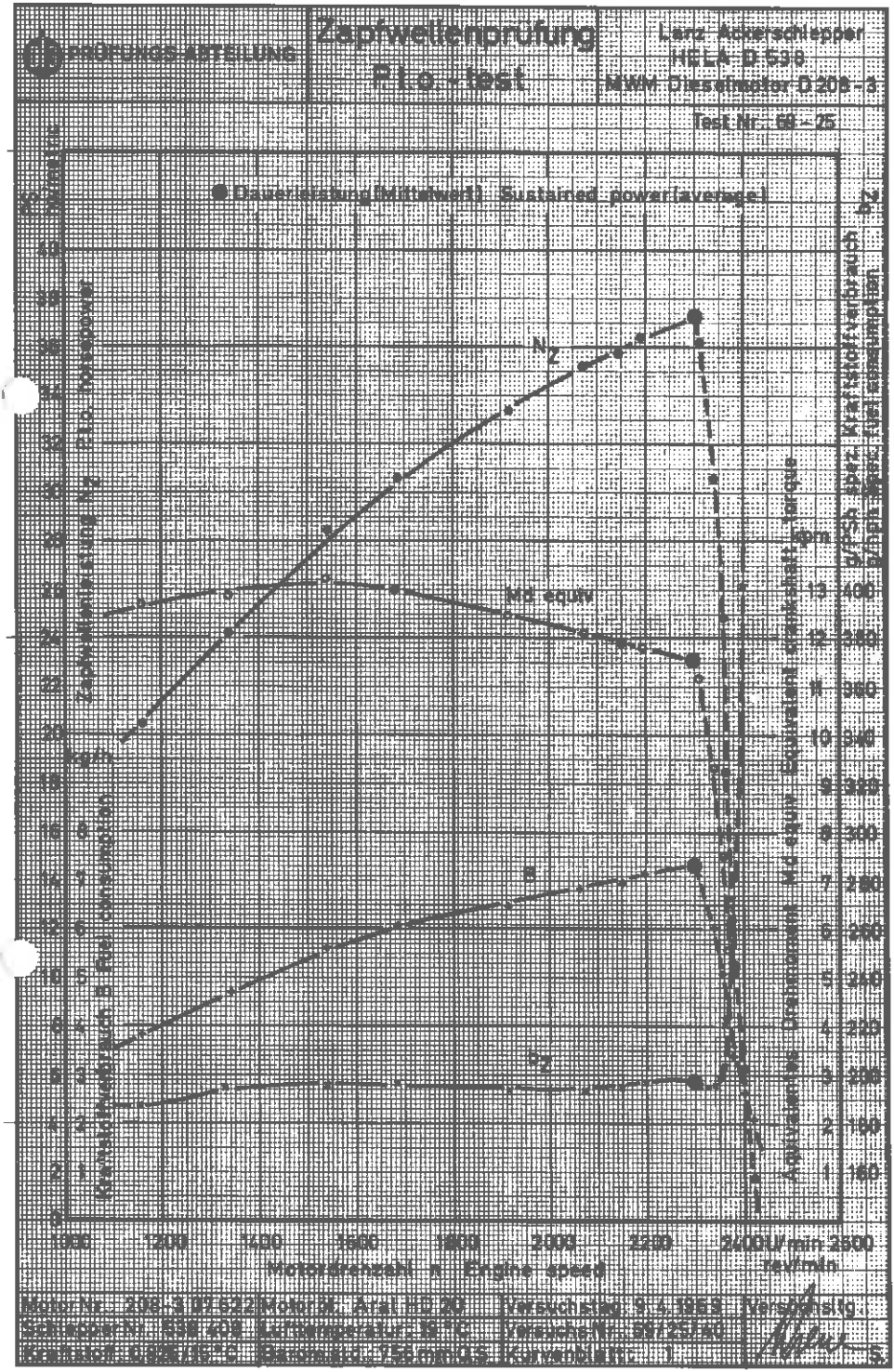
Torque*) at maximum power: 11,6 kpm

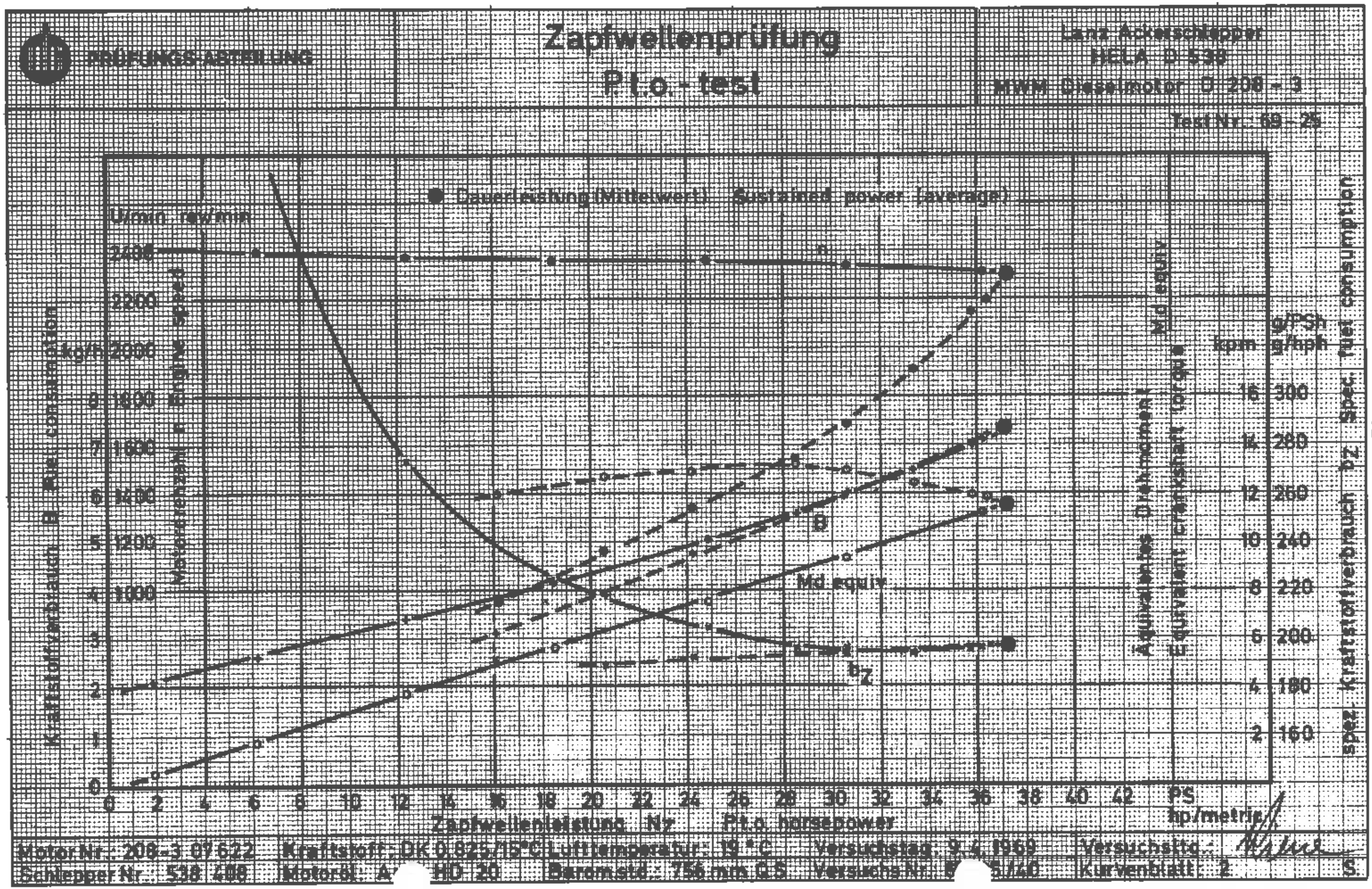
Maximum torque*) 13,0 kpm at 1530 rev/min of the engine

Mean atmospheric conditions: temperature: 20°C
pressure: 756 mm Hg
relative humidity: 50%

Maximum temperatures: coolant: 85°C
engine oil: 86°C
fuel: 22°C

(*) The torque reported is the equivalent crankshaft torque)


Prüfwesen-Abteilung
Zapfwellenprüfung
P.t.o.-test
Lanz Ackerschlepper
HELA D 5306
MWM Dieselmotor D 208 - 3
Test Nr.: 68 – 25
Dauerleistung (Mittelwert) Sustained power (average)
N
Nz
Mdz equiv
Mz
nz
Zapfwellendrehmoment
Zapfwellendrehzahl
Motordrehzahl n Engine speed
rpm
U/min
rev/min
Motor Nr.: 208.3 07522
Motor Nr.: Aral No 20
Vaevchsl.: 9.4.1968
Versuchsl(g:
Schlepper Nr.: 838 208
Kühlwassertemperatur: 85°C
Vaevche Nr.: 68/25 (K)
Kraftstoff: DIN 51601
Barometer: 755 mm Q.S.
Kurvenblatt: 1


PRÜFUNGS-ABTEILUNG
Zapfwellenprüfung
P.t.o. - test
Lanz Ackerschlepper
HELA D 538
MWM Dieselmotor D 208 - 3
Test Nr. 69 - 25
Dauerleistung (Mittelwert) Sustained power (average)
U/min rev/min
Motordrehzahl n Engine speed
Kraftstoffverbrauch B Fuel consumption
kg/h
Äquivalentes Drehmoment
Equivalent crankshaft torque
Md equiv
kpm
g/PSh
g/hph
spez. Kraftstoffverbrauch bz Spec. fuel consumption
B
bz
Zapfwellenleistung Nz P.t.o. horsepower
PS
hp/metric
Motor Nr.: 208-3 07622
Kraftstoff: DK 0,825/15°C
Lufttemperatur: 19 °C
Versuchstag: 9.4.1959
Versuchsstd.:
Schlepper Nr.: 538 408
Motoröl: A HD 20
Baromstd.: 756 mm Q.S.
Versuchs Nr.:
Kurvenblatt: 2

(2) DRAWBAR PERFORMANCE

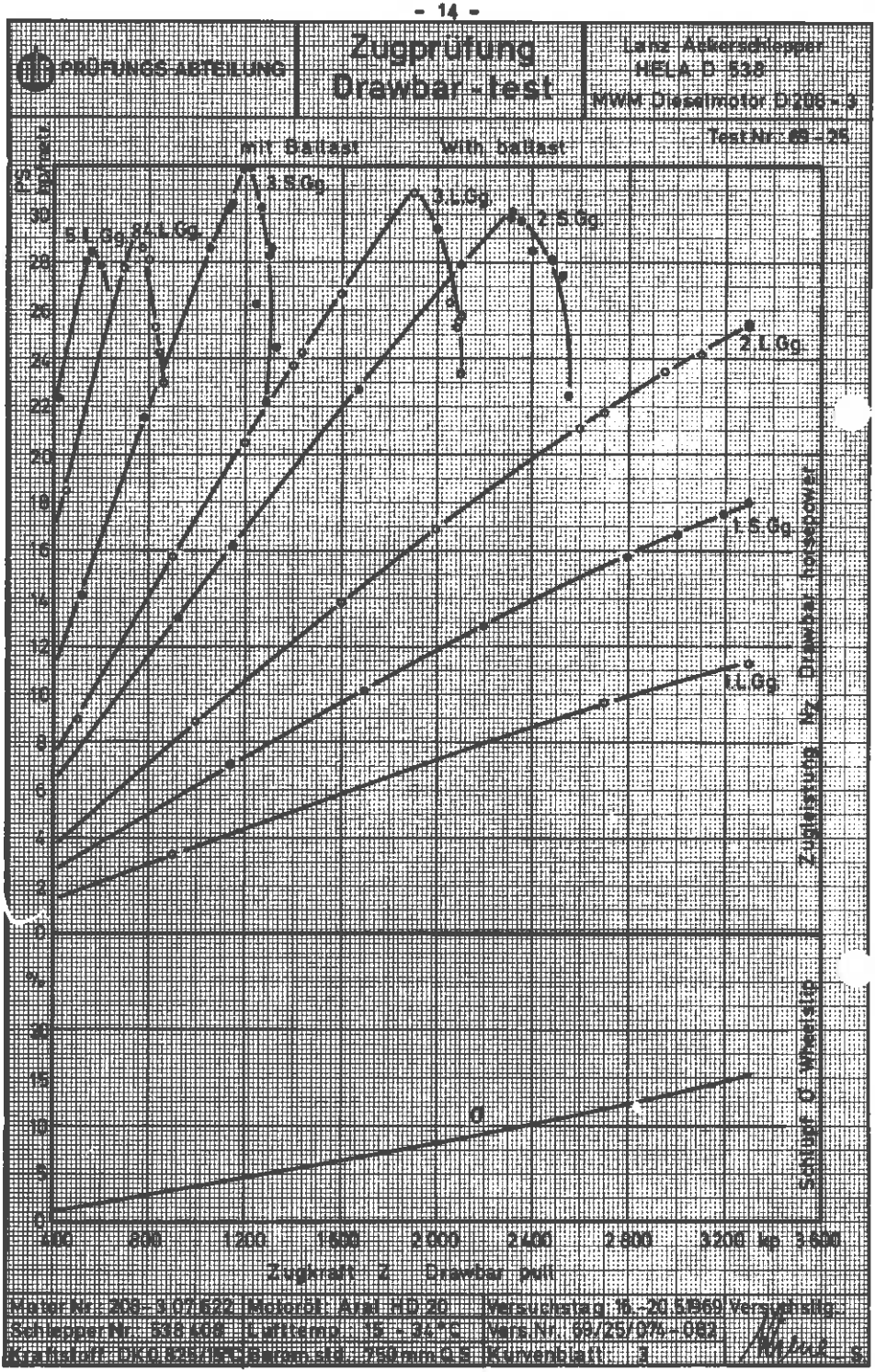
Date of tests: 14.-20.5.
Type of track: Concrete
Height of drawbar above ground: 420 mm

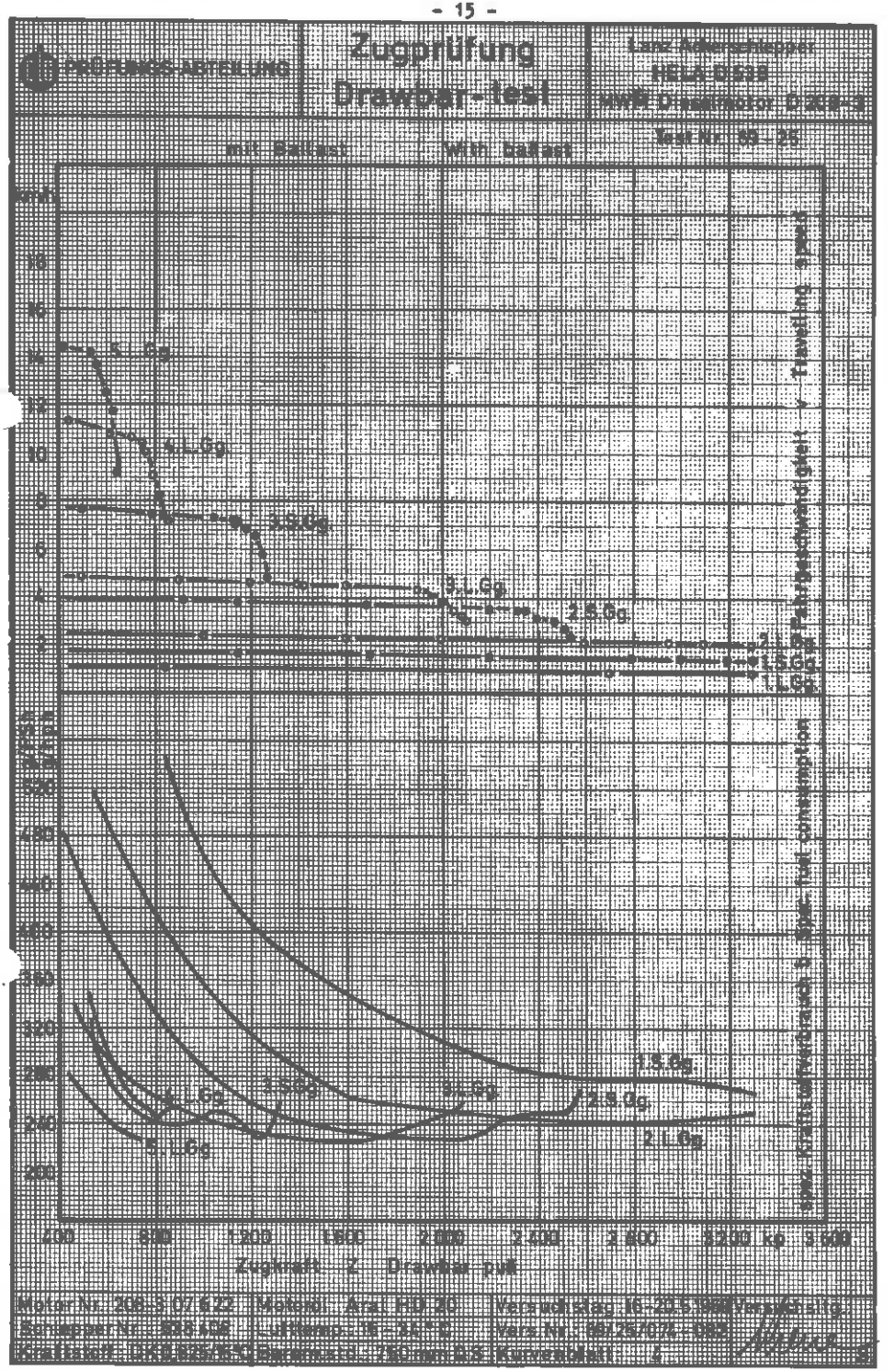
With ballast

Gear No. and Group	Horse-power (metric) hp	Drawbar pull kp	Engine speed rev/min	Slip of wheels %	Specific work hp/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.L.	11,3	3300	2380	15,3	2,52	330	10	85	80	10	73	750
2.L.	25,4	3300	2325	15,3	3,25	255	10	85	80	11	69	748
3.L.	30,9	1900	2300	7,9	4,09	244	16	85	85	16	91	749
4.L.	29,5	750	2300	3,0	3,96	253	27	85	90	29	67	750
5.L.	28,1	540	2300	2,0	3,86	259	26	85	90	27	66	750
1.S.	18,0	3300	2345	15,2	3,07	271	10	85	80	10	79	750
2.S.	30,2	2320	2295	9,7	3,36	246	16	85	80	16	80	750
3.S.	32,0	1190	2300	4,9	3,51	237	16	85	80	16	60	750
(ii) FIVE-HOUR-TEST AT 75% OF PULL AT MAXIMUM POWER IN 3th GEAR OF SLOW GROUP												
3.L.	24,2	1425	2340	5,6	3,65	227	16	80	80	15	91	748
(iii) FIVE-HOUR-TEST AT PULL CORRESPONDING TO 15% WHEEL SLIP IN TEST (i)*)												
1.S.	-	3300	-	-	-	-	-	-	-	-	-	-
Without ballast												
(v) MAXIMUM POWER												
2.L.	16,4	2080	2360	15,3	2,87	289	10	80	75	8	76	750
3.L.	29,4	1900	2300	13,1	3,29	254	8	80	80	9	82	750
4.L.	30,5	790	2300	5,3	3,41	245	6	80	80	5	80	750
5.L.	29,9	580	2300	3,6	3,33	250	7	80	80	8	70	750
2.S.	25,8	2080	2320	15,3	3,27	255	8	80	80	7	68	750
3.S.	31,4	1190	2300	7,1	3,51	237	10	85	85	10	65	750

Engine oil consumption during ten hours duration of tests (ii) and (iii) : 38 g/h

*)Test (iii) was carried out with additional ballast and the results for power, slip and fuel have no practical significance


PRÜFUNGS-ABTEILUNG
Zugprüfung
Drawbar-Test
Lanz Aulendorf
HELA D 538
MWM Dieselmotor D 208-3
Test Nr. 68-25
mit Ballast
with ballast
3.S.Gg.
3.L.Gg.
2.S.Gg.
2.L.Gg.
1.S.Gg.
1.L.Gg.
Zugkraft Z
Drawbar pull
Schlupf
Wheelslip
Leistung
Power
Drehzahl
Speed
Verbrauch
Consumption
Meter Nr. 208-3.07.622
Motoröl: Aral HD 20
Versuchstag 16.-20.5.1960
Schlepper Nr. 538.608
Lufttemp. 15 - 24 °C
Mess Nr. 59/25/0%-082
Kraftstoff DKO 625/1960
Barom. std. 750 mm QS
Kurvenblatt 3


Zugprüfung
Drawbar-test
mit Sattel
with saddle
Kraft
Zugkraft Z Drawbar pull
Steigung
Geschwindigkeit v travelling speed
Kraftstoffverbrauch b fuel consumption
15.6g
3.5Gg
3L6g
2.8.0g
2 L 0g

PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar-test

Lanz Ackerschlepper
HELA D 538
MWM Dieselmotor D 208-3

Test Nr. 69-25

ohne Ballast without ballast

5 L.Gg. 4 L.Gg. 3 S.Gg. 3 L.Gg. 2 S.Gg. 2 L.Gg.

Zugleistung Nz Drawbar horsepower

Schlupf Wheelslip

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905 910 915 920 925 930 935 940 945 950 955 960 965 970 975 980 985 990 995 1000 1005 1010 1015 1020 1025 1030 1035 1040 1045 1050 1055 1060 1065 1070 1075 1080 1085 1090 1095 1100 1105 1110 1115 1120 1125 1130 1135 1140 1145 1150 1155 1160 1165 1170 1175 1180 1185 1190 1195 1200 1205 1210 1215 1220 1225 1230 1235 1240 1245 1250 1255 1260 1265 1270 1275 1280 1285 1290 1295 1300 1305 1310 1315 1320 1325 1330 1335 1340 1345 1350 1355 1360 1365 1370 1375 1380 1385 1390 1395 1400 1405 1410 1415 1420 1425 1430 1435 1440 1445 1450 1455 1460 1465 1470 1475 1480 1485 1490 1495 1500 1505 1510 1515 1520 1525 1530 1535 1540 1545 1550 1555 1560 1565 1570 1575 1580 1585 1590 1595 1600 1605 1610 1615 1620 1625 1630 1635 1640 1645 1650 1655 1660 1665 1670 1675 1680 1685 1690 1695 1700 1705 1710 1715 1720 1725 1730 1735 1740 1745 1750 1755 1760 1765 1770 1775 1780 1785 1790 1795 1800 1805 1810 1815 1820 1825 1830 1835 1840 1845 1850 1855 1860 1865 1870 1875 1880 1885 1890 1895 1900 1905 1910 1915 1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045 2050 2055 2060 2065 2070 2075 2080 2085 2090 2095 2100 2105 2110 2115 2120 2125 2130 2135 2140 2145 2150 2155 2160 2165 2170 2175 2180 2185 2190 2195 2200 2205 2210 2215 2220 2225 2230 2235 2240 2245 2250 2255 2260 2265 2270 2275 2280 2285 2290 2295 2300 2305 2310 2315 2320 2325 2330 2335 2340 2345 2350 2355 2360 2365 2370 2375 2380 2385 2390 2395 2400 2405 2410 2415 2420 2425 2430 2435 2440 2445 2450 2455 2460 2465 2470 2475 2480 2485 2490 2495 2500 2505 2510 2515 2520 2525 2530 2535 2540 2545 2550 2555 2560 2565 2570 2575 2580 2585 2590 2595 2600 2605 2610 2615 2620 2625 2630 2635 2640 2645 2650 2655 2660 2665 2670 2675 2680 2685 2690 2695 2700 2705 2710 2715 2720 2725 2730 2735 2740 2745 2750 2755 2760 2765 2770 2775 2780 2785 2790 2795 2800 kp

Zugkraft Z Drawbar pull

Motor Nr. 208-3 07 622	Motoröl: Aral HD 20	Versuchstag: 18.4.1969	Versuchsltg.
Schlepper Nr. 538 408	Lufttemperatur: 8°C	Versuchs.Nr.: 69/25/46/52	
Kraftstoff: DK0,825/15°C	Barometerst.: 750mm Q.S.	Kurvenblatt: 5	S.

(3 and 4) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 6,00-16 AS Front, 4 ply, without ballast

rear: 13,6/11-28 AS, 6 ply, without ballast

Track of wheels front: 1300 mm

rear: 1250 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	3,50	3,50	3,90	3,90
Radius of turning circle	3,35	3,40	3,80	3,80

(5) LOCATION OF CENTRE OF GRAVITY

	Without ballast mm
Height above ground	716
Distance forward from the vertical plane containing the axis of the rear wheels	670
Distance from the median plane of the tractor	0

(6) BRAKE TESTS

A) FOOT BRAKE

Date of test: 21.4.1969 and 13.5.1969

Type of track: concrete

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

Travelling speed of tractor: 23,0 km/h

With cold brakes

		Tractor without ballast	Tractor with ballast
Maximum Deceleration	m/s^2	4,4	5,3
Stopping distance	m	7,0	6,4
Force on pedal	kp	25	34

Brake fade characteristics, hot tests, tractor without ballast

Deceleration:	hot/cold	105%
Stopping distance:	cold/hot	97%
Force on pedal:	cold/hot	93%

B) PARKING BRAKE

Force applied on the brake lever, cold brake 62 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: 9.4.1969
Type of track: concrete
Type of sound level meter: EZGN, Rohde & Schwarz, 8 München

Results of test

Speed: 5.S.
Travelling speed before acceleration: 17,5 km/h
Sound level: 81 dBA

(8) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of test: 20.5.1969
Type of track: concrete
Type of sound level meter: EZGN, Rohde & Schwarz, 8 München
Type of ovtavfilter: PBO, Rohde & Schwarz, 8 München

No cab fitted on tractor.

Results of tests

Gear	Travelling speed *) nominal km/h	real km/h	Sone
3.S.	7,63	7,35	76

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

(9) TEST OF POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: 28.4.1969, Groß-Umstadt

Hydraulic fluid: SAE 20

POWER LIFT

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

Height above ground in down position: hitch point (mm)	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					
60	-	630	1230	150	1520
315	-	595	1205	150	1520
Measured on the test frame 610 mm to the rear of the hitch points					
60	220	630	1405	150	885
315	335	595	1170	150	885

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

Measured on the hitch points of lower links					
180	-	548	1415	150	1520
410	-	490	1630	150	1520
Measured on the test frame 610 mm to the rear of the hitch points					
180	235	548	1790	150	885
410	410	490	1340	150	885

Type of linkage lock for transport: Hydraulically by shutting off the valve for lowering delay

Opening pressure of the cylinder over pressure relief valve: 190 kp/cm² (acc.to manufacturer's specification)

PRÜFUNGS-ABTEILUNG
Lanz D 538

Test No. 69-25

OPTIONAL TESTS

(10) ENGINE TESTS

Date and location of tests: 2.4.1969, 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-hours test				
41,0	2300	9,02	182	4,53
At standard p.t.o.speed (540 rev/min)				
38,8	2070	8,57	183	4,52
At the speed recommended by the manufacturer for drawbar work				
41,0	2300	9,02	182	4,53
Fuel consumption at part loads				
(i) 85% of torque at maximum power				
35,4	2345	7,67	179	4,61
(ii) unloaded				
-	2460	2,22	-	-
(iii) 50% of the load defined in (i)				
18,0	2380	4,58	212	3,92
(iv) maximum power				
41,0	2300	9,02	182	4,53
(v) 25% of the load defined in (i)				
9,1	2415	3,32	302	2,75
(vi) 75% of the load defined in (i)				
26,8	2365	6,06	188	4,41

Optimum fuel consumption: 170 g/hph at 21,0 hp and 1408 rev/min

Standard fuel consumption 1/2 (acc.to DIN 9606): 3,6/7,2 l/h

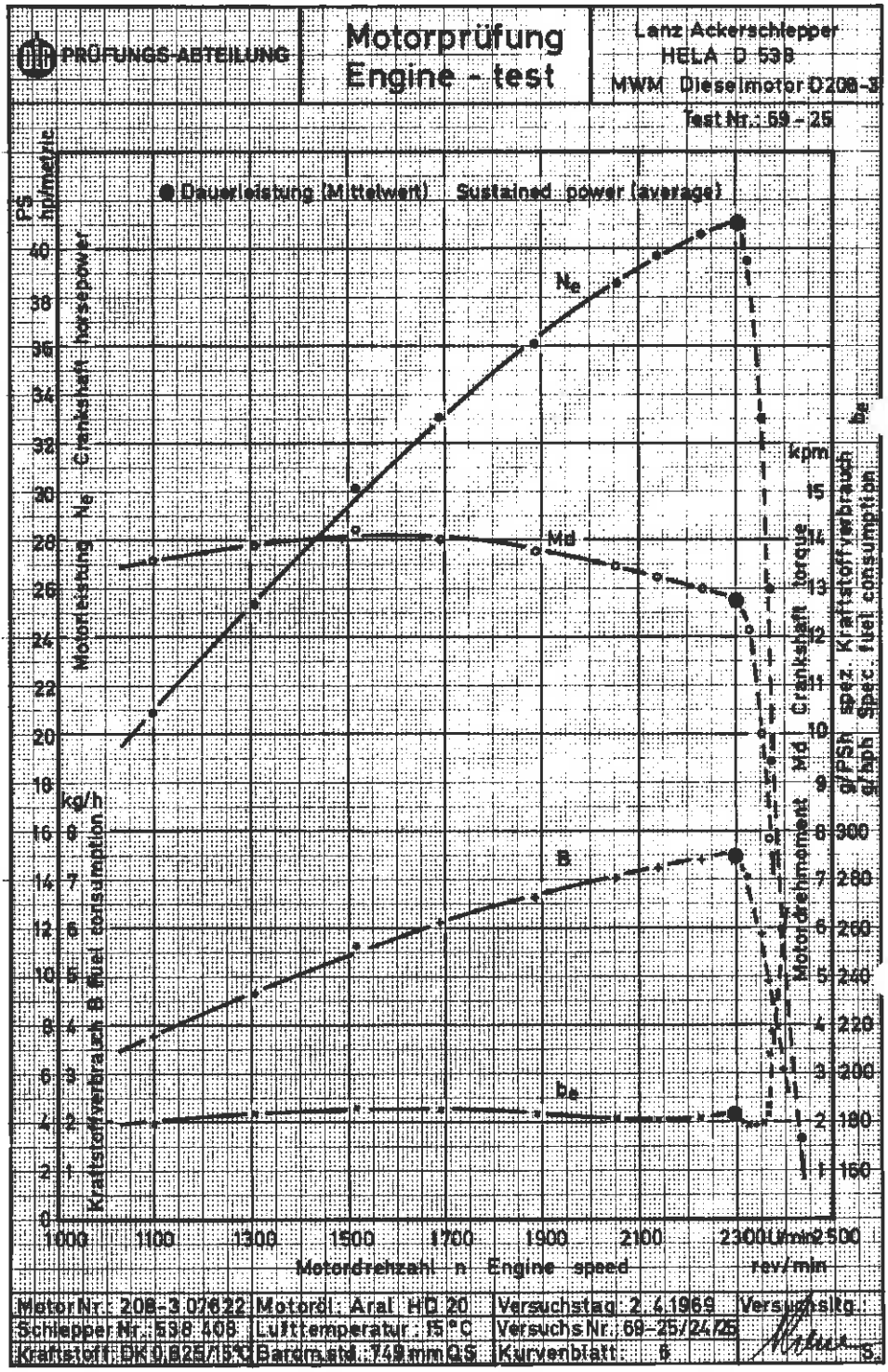
No load maximum engine speed: 2460 rev/min

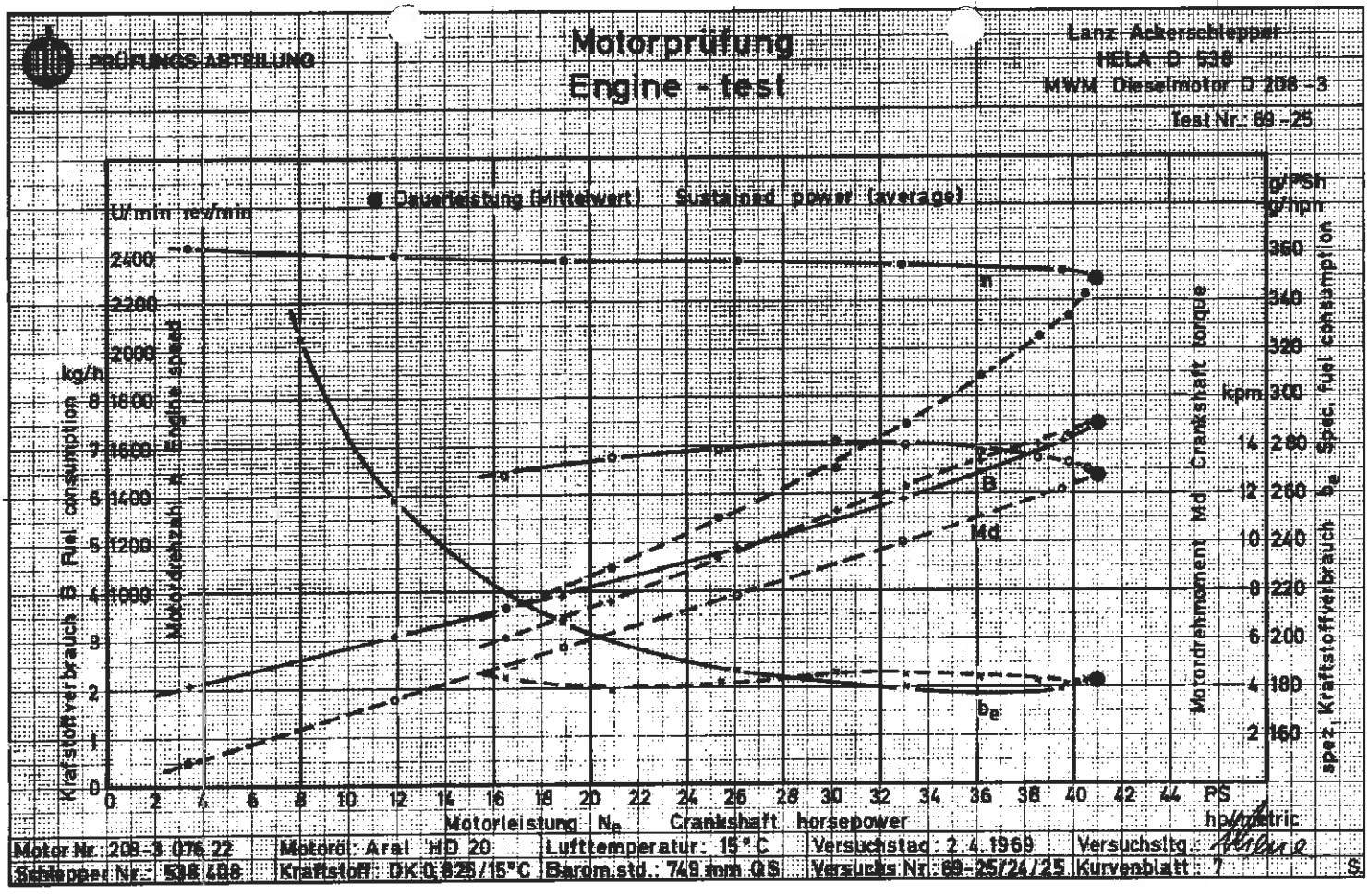
Torque at maximum power: 12,8 kpm

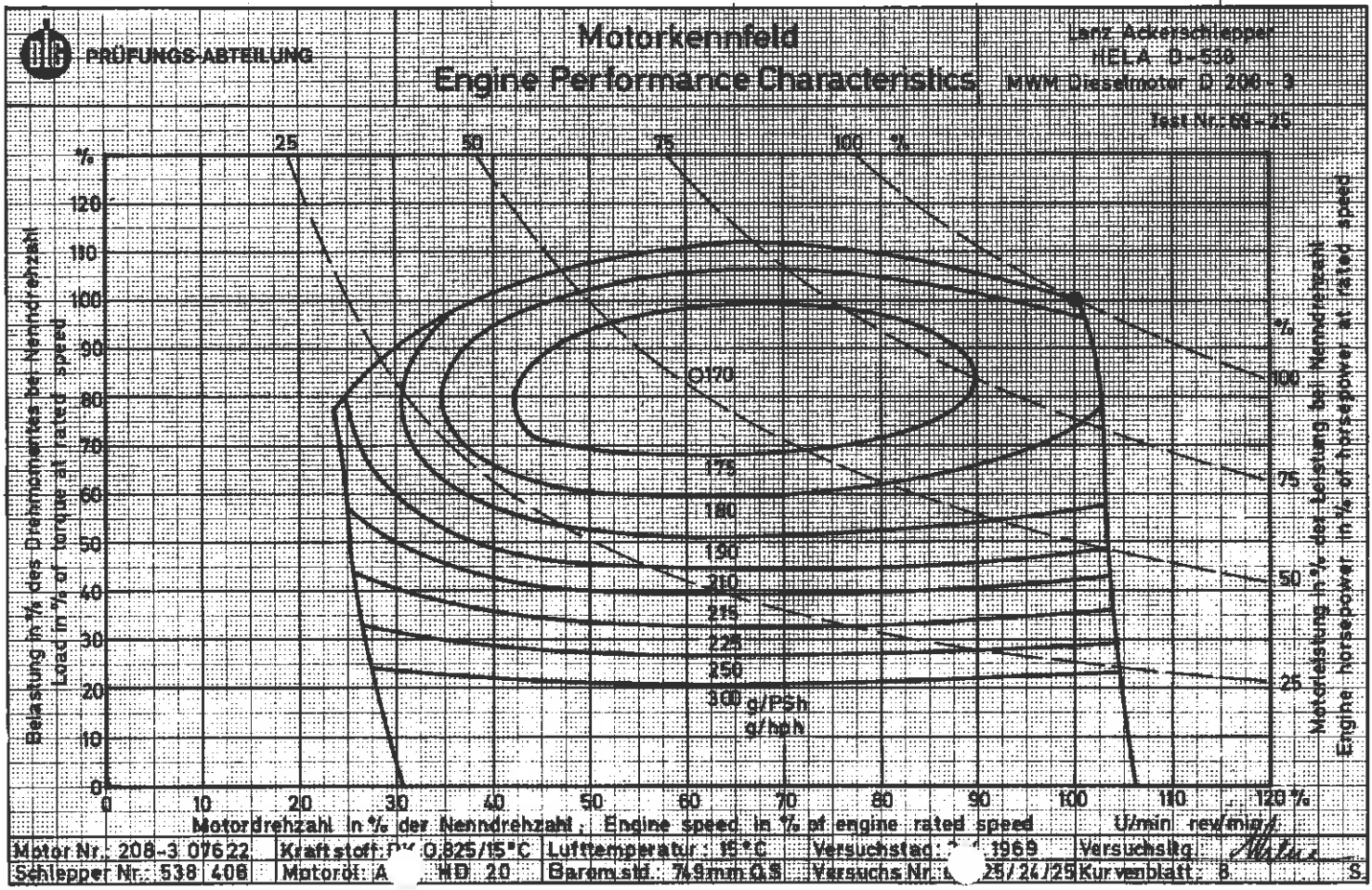
Maximum torque: 14,2 kpm at 1550 rev/min of the engine

Mean atmospheric conditions: temperature: 14°C
pressure: 750 mm Hg
relative humidity: 55%

Maximum temperatures: coolant: 82°C
engine oil: 80°C
fuel: 17°C


PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine - test
Lanz Ackerschlepper
HELA D 53B
MWM Dieselmotor D208-3
Test Nr.: 69 - 25
● Dauerleistung (Mittelwert) Sustained power (average)
PS hp metric
Motorleistung Ne Crankshaft horsepower
Ne
Md
B
be
kg/h
Kraftstoffverbrauch B fuel consumption
kpm
Md Crankshaft torque
Motordrehmoment
g/PSh g/kph
be spez. Kraftstoffverbrauch Spec. fuel consumption
1000 1100 1300 1500 1700 1900 2100 2300 Umin 2500
Motordrehzahl n Engine speed rev/min
Motor Nr.: 208-3 07622 | Motoröl: Aral HC 20 | Versuchstag: 2.4.1969 | Versuchsltg.
Schlepper Nr.: 598 408 | Lufttemperatur: 15 °C | Versuchs Nr.: 69-25/24/25
Kraftstoff: DK 0,825/15°C | Barom.std.: 749 mm QS | Kurvenblatt: 6 | S.


PRÜFFELD-ABTEILUNG
Motorprüfung
Engine - test
Lanz Ackerschlepper
HELA D 328
MWM Dieselmotor D 208-3
Test Nr.: 69-25
Dauerleistung (Mittelwert) Sustained power (average)
U/min rev/min
Motordrehzahl n Engine speed
Kraftstoffverbrauch B Fuel consumption
kg/h
Motordrehmoment Md Crankshaft torque
kpm
spez. Kraftstoffverbrauch be spec. fuel consumption
g/PSh
g/hph
Motorleistung Ne Crankshaft horsepower
PS
hp metric
Motor Nr.: 208 3 076 22
Motoröl: Aral HD 20
Lufttemperatur: 15 °C
Versuchstag: 2.4.1969
Versuchsltg.:
Schlepper Nr.: 538 488
Kraftstoff: DK 0,829/15°C
Barom.std.: 749 mm QS
Versuchs Nr.: 69-25/24/25
Kurvenblatt: 7


PRÜFUNGS-ABTEILUNG
Motorkennfeld
Engine Performance Characteristics
Lanz Ackerschlepper
HELA D-538
MWM Dieselmotor D 208-3
Test Nr: 66-25
Belastung in % des Drehmomentes bei Nenndrehzahl
Load in % of torque at rated speed
Motorleistung in % der Leistung bei Nenndrehzahl
Engine horsepower in % of horsepower at rated speed
Motordrehzahl in % der Nenndrehzahl ; Engine speed in % of engine rated speed
U/min rev/min
g/PSh
g/hph
Motor Nr.: 208-3 07622
Schlepper Nr.: 538 406
Kraftstoff: DIN 0.825/15°C
Motoröl: A HD 20
Lufttemperatur: 15 °C
Barom.std. 749mm QS
Versuchstag: 1969
Versuchs Nr.: 25/24/25
Kurvenblatt: 8
S.