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

GUTBROD KLEINTRACTOR SUPERIOR 10 50 D

Manufactured by: Gutbrod-Werke G.m.b.H.
6601 Bübingen/Saar



Date of Tests: January - March 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: 14.5.1969 Serial No.: 271

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 Test No. 68 - 159
Gutbrod Superior 10 50 D

Tractor manufacturer:	Gutbrod-Werke G.m.b.H., 6601 Bübingen/Saar
Submitted for test by:	Manufacturer
Selected by:	Manufacturer by agreement with DLG-Prüfstelle Gross-Umstadt
Place of running-in:	Bübingen, Lampertheim and Gross-Umstadt
Duration of running-in:	Engine appr. 100 hours, tractor appr. 50 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	Gutbrod-Werke G.m.b.H., 6601 Bübingen/Saar
Model:	Kleintraktor Superior 10 50 D
Type:	Dieseltractor
Serial No.:	832 523

Engine

Make:	Farymann Diesel, Farny und Weidmann, 684 Lampertheim
Model:	LBA t
Type:	Dieselengine, air cooling, 4 stroke cycle
Serial No.:	22 LBA 2405
Cylinders:	1 cylinder, horizontal; 95 mm bore, 82 mm stroke, capacity 581 cm³; compression ratio 20 : 1; overhead valves
Fuel system:	Fuel: Commercially available diesel oil; Bosch type PFR 1 K 70 V 8515 injection pump; Bosch type DLLA 100 S. 271 injection nozzles; 175 kp/cm² injection pressure; injection timing 82 mm before T.D.C. (measured on the out side diameter of the flywheel); paper cartridge fuel filter; capacity of fuel tank 10 l
Governor:	Make: Fr. Heinzmann, 7321 Albershausen/ Württ. mechanical centrifugal variable speed type gorvernor; governed range of engine speed 935 rev/min to 3080 rev/min; rated engine speed for p.t.o.-work 3000 rev/min for field-work 3000 rev/min for transportation-work 3000 rev/min for belt-work 3000 rev/min
Air cleaner:	Make: Torna-Technik F. Drechsel, 7471 Eich/Stuttgart type OL 16o-7 oil bath filter; oil capacity 0,35 l

PRÜFUNGS-ABTEILUNG
Gutbrod Superior 10 50 D

Test No. 68 - 159

Lubrication system: Splash lubrication type; no filter fitted
recommended oil changing period 5o-6o hours
recommended oil in winter HD SAE 1oW or SAE 1oW/3o
in summer HD SAE 2o or SAE 1oW/3o
in tropics HD SAE 3o

Cooling system: Air cooling from flywheel blow

Electrical equipment: Voltage 12 Volt, negative earth

Starting device: Bosch type EB 12 V 1,3 PS AL 5o/7 W 37 starter motor

Generator: Bosch type EH 14 V 11 A 19 generator

Battery: Lead acid type 12 V 36 Ah

Transmission

Clutch: Make: Fichtel und Sachs A.G., 872 Schweinfurt; type K 14o/E, dry single plate clutch; operated by foot pedal

Gearbox: Make: Gutbrod-Werke G.m.b.H., 66o1 Bübingen /Saar; sliding gear type selecting gear; 4 forward speeds and 1 reverse

Rear axle and final drive: Make: Gutbrod-Werke G.m.b.H., 66o1 Bübingen /Saar; bevel gear type differential gear with worm gear drive; differential lock fitted, operated by hand lever

Oil capacity: 3 l; recommended oil changing period 2oo hr

Total ratios and speeds:

Gear No.	Number of engine revolutions for one revolution of the driving wheel	Theoretical travelling speed at rated engine speed of 3ooo rev/min	
		km/h	m/s
1.	192,o : 1	1,84	o,5o
2.	94,o : 1	3,75	1,o4
3.	51,5 : 1	6,87	1,9o
4.	23,7 : 1	14,88	4,13
R	1o2,2 : 1	3,48	o,96

PRÜFUNGS-ABTEILUNG
Gutbrod Superior 10 50 D

Test No. 68 - 159

Power take-off

(1) Main p.t.o. as normal p.t.o., manually engaged

Location: At rear of tractor, in median plane, 4oo mm above ground

Dimensions: Spline shaft 23,5 x 28,5 x 7 mm = 1 3/8", 6 splines

Speed: 1ooo rev/min at 3ooo rev/min rated engine speed

Direction of rotation: Clockwise, viewed from tractor rear

(2) Ground speed p.t.o.; location and dimensions as with main p.t.o.; gear ratio from driving wheel: p.t.o. = 1 : 2o; travelling distance for 1 rev. of p.t.o. = o,1o m; direction of rotation: anti-clockwise in forward gears, clockwise in reverse gear

(3) Front p.t.o. as life p.t.o. (optionally) not fitted on tractor tested

Power lift

Make: Robert Bosch G.m.b.H., 7 Stuttgart;

Bosch type HY/CEA 1/25/14o/3; single acting ram; Bosch type HY/ZBR/3L1o1 gear type pump, directly driven from engine; maximum oil pressure 12o kp/cm².; oil capacity 2,5 l; Bosch type HY/S1o o641 control valve

Pull attachment

Implement linkage: Make: Gutbrod-Werke G.m.b.H., 66o1 Bübingen /Saar;

controlled by powerlift by links and chains

Trailer hitch: At rear of tractor: height above ground 525 mm; distance from centre of rear axle 225 mm

Towing hitch: (Optionally) at front of tractor: height above ground 4oo mm; (not fitted on tractor tested)

Steering device: Make: Gutbrod-Werke G.m.b.H., 66o1 Bübingen /Saar; spur gear steering, operated by handwheel

Brakes

Parking brake: Disc brake, mechanically acting on transmission

Foot brake: External band brake, mechanically acting on rear wheels, operated by foot pedal

Steering brake: Operated by the single parts of the divided foot pedal of foot brake; both parts must be connected by the pivotally attached foot plate of the pedal

Wheels

Steering wheels: Two at front. Tyres 4,oo - 1o AM 2 ply pneumatic; maximum permissible weight on each tyre 21o kp at 2,o kp/cm² ; track by steps of 4o mm from 6oo mm to 72o mm adjustable by extending front axle

Driving wheels: Two at rear. Tyres 6,5o-15 2 ply pneumatic; maximum permissible weight on each tyre 25o kp at 1,2 kp/cm² ; track steplessly adjustable from 59o mm to 755 mm by shifting the hub on the rear axle shaft; rim 5K x 15

Wheel base: 125o mm

PRÜFUNGS-ABTEILUNG

Gutbrod Superior 10 50 D

Test No. 68 - 159

Weights

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

		without driver	with driver
Weight of tractor without ballast:	Front axle load	22o kp	23o kp
	Rear axle load:	212 kp	277 kp
	Total:	432 kp	5o7 kp
Ballast front:	Nil		
Ballast rear:	1 weight per wheel 34,5 kp each = 69 kp and water in tyres = 41 kp		
Weight of tractor with ballast:	Front axle load:	221 kp	232 kp
	Rear axle load:	321 kp	385 kp
	Total:	542 kp	617 kp

Seat

Make: Gutbrod-Werke G.m.b.H., 66o1 Bübingen /Saar; upholstered mold seat; not sprung; in median plane of tractor, 71o mm above ground

Number of grease points (whole tractor): 3

Overall dimensions

Overall length:	2ooo mm; 23oo mm with implement linkage
Overall width:	92o mm at 755 mm track, without ballast weights
Overall height:	1o55 mm to top of steering wheel
Maximum ground clearance:	2o5 mm above centre line of tractor 23o mm at 225 mm apart of median plane

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

	Height above ground of centre mm	Dimensions of area mm	Distance from outside edge of tractor to centre mm
Head lights	865	85 ø	34o
Rear lights	77o	7o ø	25o
Reflectors	685	5o ø	28o

FUELS AND LUBRICANTS USED IN TESTS

Laboratory tests

Fuel:	Aral Diesel oil, specific gravity at 15°C : o,829 kg/l (commercially available quality acc. to DIN 51 6o1)
Engine oil:	Shell Rotella HD 2o
Transmission oil:	SAE 9o

Track tests

Fuel:	Aral Diesel oil, specific gravity at 15°C : o,829 kg/l (commercially available quality acc. to DIN 51 6o1)
Engine oil:	Shell Rotella HD 2o
Transmission oil:	SAE 9o

PRÜFUNGS-ABTEILUNG
Gutbrod Superior 10 50 D

Test No. 68 - 159

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 3.1.1969, Groß-Umstadt

Type of dynamometer: Schenck hydraulic dynamometer U1-20

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					
9,6	3000	1000	2,97	256	3,23
At standard p.t.o. speed (1000 rev/min)					
9,6	3000	1000	2,97	256	3,23
At the speed recommended by the manufacturer for drawbar work					
9,6	3000	1000	2,97	256	3,23

Fuel consumption at part loads

(i) 85% of torque at maximum power					
8,22	3030	1010	2,56	258	3,21
(ii) unloaded					
-	3100	1031	1,32	-	-
(iii) 50% of the load defined in (i)					
4,09	3067	1021	1,73	351	2,36
(iv) maximum power					
9,6	3000	1000	2,97	256	3,23
(v) 25% of the load defined in (i)					
2,06	3090	1030	1,42	567	1,45
(vi) 75% of the load defined in (i)					
6,21	3060	1020	2,14	286	2,90

No load maximum engine speed: 3100 rev/min

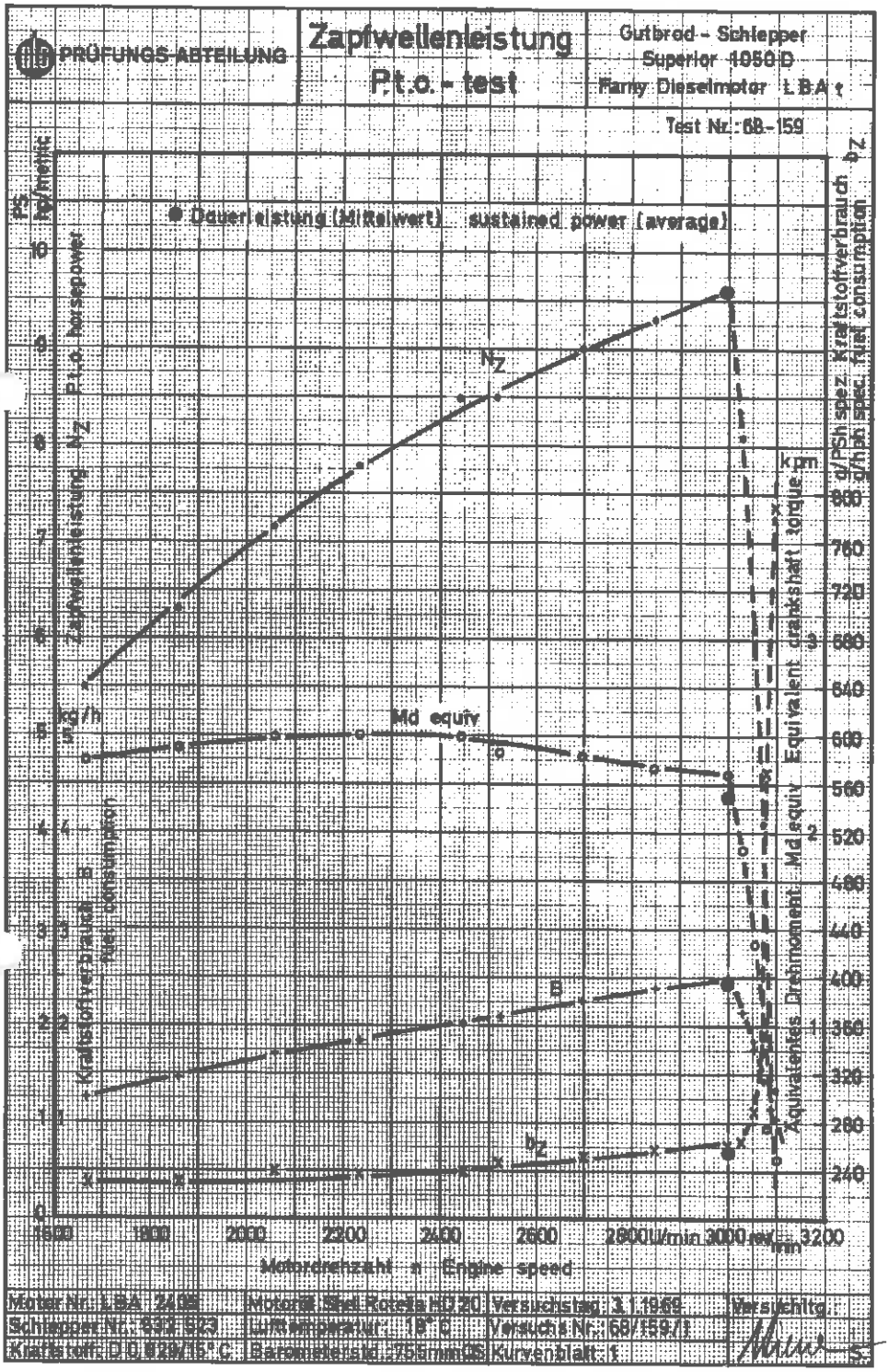
Torque *) at maximum power: 2,29 kpm

Maximum torque *) 2,51 kpm at 2415 rev/min of the engine

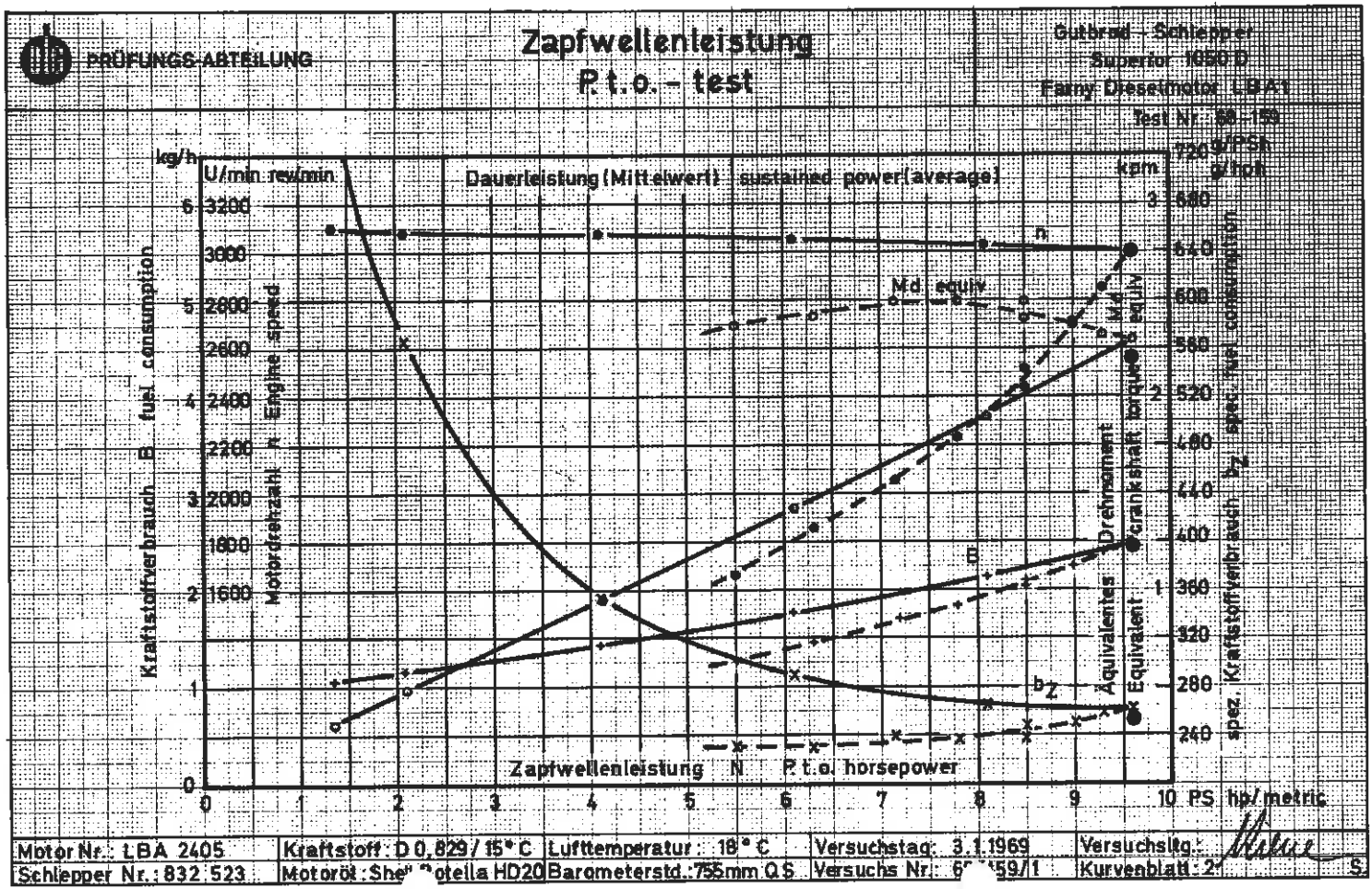
Mean Atmospheric conditions: temperature: 18°C
pressure: 755 mm Hg
relative humidity: 48%

Maximum temperatures: coolant: not recorded
engine oil: 110°C
fuel: 20°C

*) The torque reported is the equivalent crankshaft torque



Motor Nr.: LBA 2408	Motor: Sagl Koreta HD 20	Versuchstag: 3. 1.1969	Versuchsltg.:
Schlepper Nr.: 832 529	Lufttemperatur: 18° C	Versuchs Nr.: 68/159/1	
Kraftstoff: D 0 629/18° C	Barometerstand: 755 mmQS	Kurvenblatt: 1	


PRÜFUNGS-ABTEILUNG
Zapfwellenleistung
P.t.o. - test
Gutbrod - Schlepper
Superior 1050 D
Farny Dieselmotor LBA1
Test Nr. 69-159
Dauerleistung (Mittelwert) sustained power (average)
kg/h
U/min rev/min
g/PSh
g/hph
kpm
Kraftstoffverbrauch B fuel consumption
Motordrehzahl n Engine speed
Md equiv
n
B
bz
Drehmoment Md crankshaft torque
Äquivalentes Equivalent
spez. Kraftstoffverbrauch bz spec. fuel consumption
Zapfwellenleistung N P.t.o. horsepower
PS hp/metric
Motor Nr.: LBA 2405
Schlepper Nr.: 832 523
Kraftstoff: D 0,829 / 15° C
Motoröl: Shell Rotella HD20
Lufttemperatur: 18° C
Barometerstd.: 755mm QS
Versuchstag: 3.1.1969
Versuchs Nr.: 69/159/1
Versuchsltg.:
Kurvenblatt: 2
S.

(2) DRAWBAR PERFORMANCE

Date of tests: 2o.3. - 27.3.1969

Type of track: Concrete

Height of drawbar above ground: 515 mm

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.	2,7	445	3o5o	12,2	-	-	-	not.rec.	7o	4	75	748
2.	5,5	445	3o35	12,o	1,85	448	1o	not.rec.	7o	7	69	752
3.	7,2	295	3o1o	7,9	2,o5	4o7	1o	not.rec.	75	8	68	752
4.	7,3	14o	299o	2,8	2,11	396	1o	not.rec.	8o	3	75	748
(ii) FIVE-HOUR-TEST AT 75% OF PULL AT MAXIMUM POWER IN 3th GEAR *)												
3.	5,5	225	3o4o	6,5	1,93	43o	13	not.rec.	8o	1o	8o	751
(iii) FIVE-HOUR-TEST AT PULL CORRESPONDING TO 15% WHEEL SLIP IN TEST (i)												
2.	-	445	-	-	-	-	12	not.rec.	75	7	95	749
Without ballast												
(v) MAXIMUM POWER												
1.	2,7	445	3o5o	15,3	-	-	-	not.rec.	75	3	95	751
2.	5,4	445	3o3o	15,1	-	-	-	not.rec.	75	2	98	751
3.	6,8	295	2995	9,8	-	-	-	not.rec.	8o	2	98	751
4.	7,2	135	3ooo	4,6	-	-	-	not.rec.	8o	3	83	751

Engine oil consumption during ten hours duration of tests (ii) and (iii): 12 g/h

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

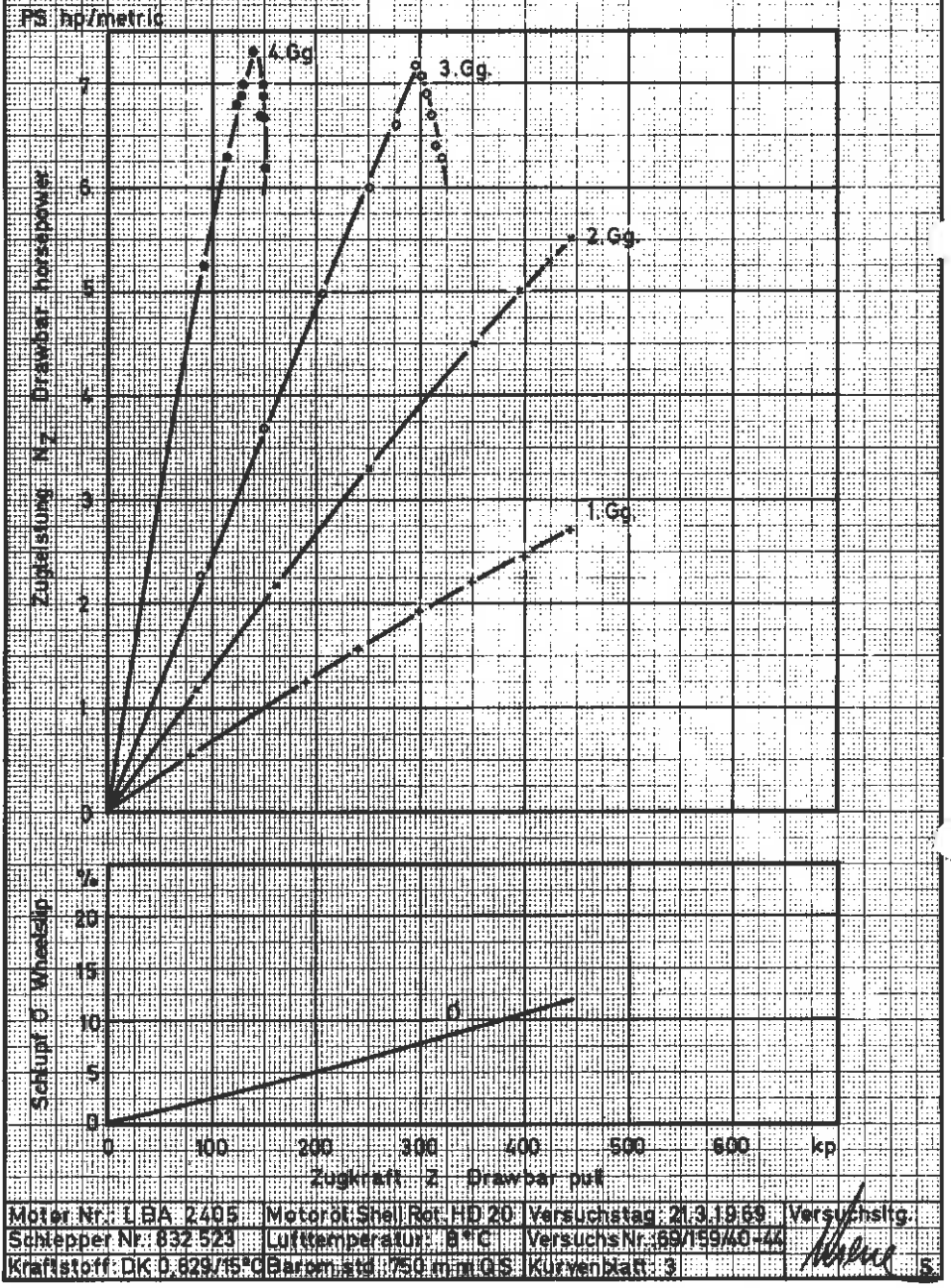
PRÜFUNGS ABTEILUNG

Zugprüfung
Drawbar-test

Gutbrod-Schlepper
Superior 1050 D
Farny Dieselmotor LBAt

Test Nr.: 68-159

mit Ballast with ballast



Motor Nr.: LBA 2405	Motoröl: Shell Rot. HD 20	Versuchstag: 21.3.1969	Versuchsltg.
Schlepper Nr.: 832 523	Lufttemperatur: 8 °C	Versuchs Nr.: 69/159/40-46	
Kraftstoff: DK 0,829/15°C	Barom. std. 750 m m QS	Kurvenblatt: 3	

5

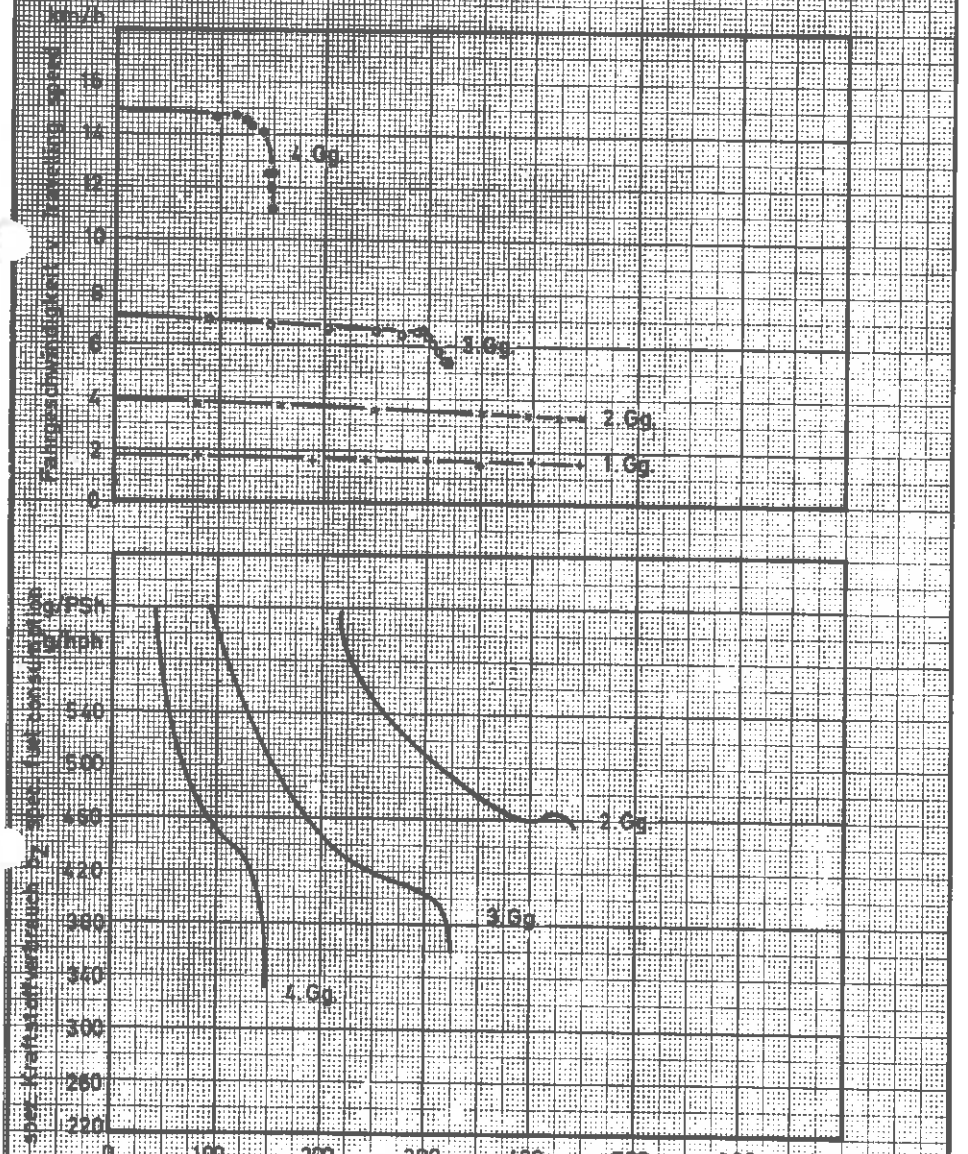
PRÜFUNGSABTEILUNG

Zugprüfung
Drawbar-test

Gutbrod – Schlepper
Superior 1050 D
Farm Dieselmotor LBA1

Test Nr.: 68 -159

mit Ballast with ballast



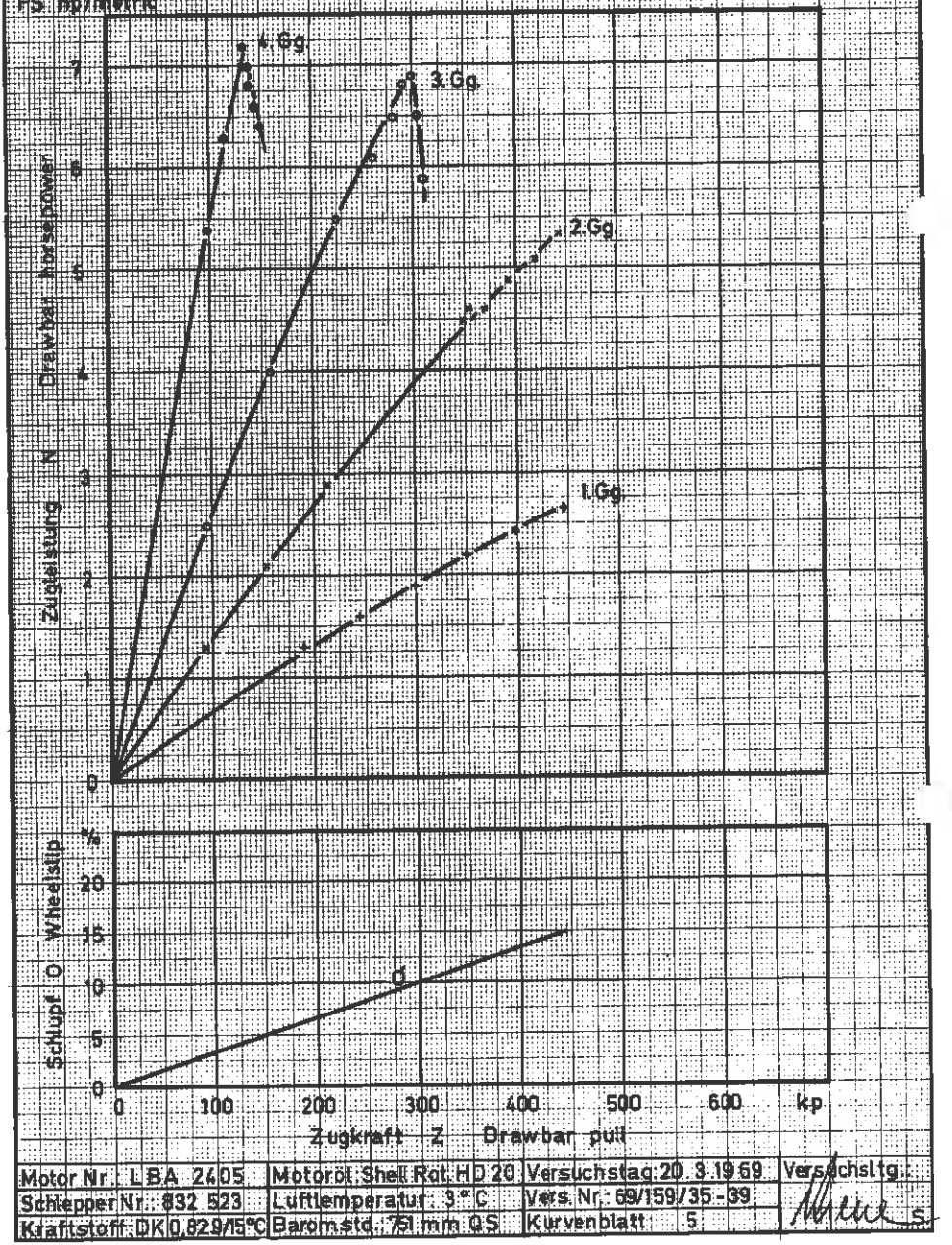
Motor Nr.: L BA 2405	Motor Öl: Shell Rot. HD 20	Versuchstag: 21.3.1969	Versuchsltg.:
Schlepper Nr.: 832 629	Lufttemperatur: 8 °C	Vers. Nr.: 69/159/40 -44	
Kraftstoff: DK 0,829/15°C	Barom.std.: 750mm Q.S.	Kurvenblatt: 4	

PRÜFUNGS-ABTEILUNG

Zugprüfung
Drawbar-test

Gutbrod-Schlepper
Superior 1050 D
Farny Dieselmotor LBAt

ohne Ballast without ballast



Motor Nr.: LBA 2405	Motoröl: Shell Rot. HD 20	Versuchstag: 20. 3. 1969	Versuchsltg.:
Schlepper Nr.: 832 523	Lufttemperatur: 3 °C	Vers. Nr.: 69/159/35-39	
Kraftstoff: DK 0,829/15°C	Barom.std.: 751 mm QS	Kurvenblatt: 5	

(3 and 4) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 4,00-10 AM, 2 ply, without ballast
rear: 6,50-15, 2 ply, without ballast

Track of wheels front: 640 mm
rear: 625 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	4,45	4,70	4,70	4,90
Radius of turning circle	4,30	4,50	4,55	4,75

(5) LOCATION OF CENTRE OF GRAVITY

	Without ballast mm
Height above ground	786
Distance forward from the vertical plane containing the axis of the rear wheels	565
Distance from the median plane of the tractor	0

(6) BRAKE TESTS

A) FOOT BRAKE

Date of test: 14.3.1969 and 21.3.1969

Type of track: concrete

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

Travelling speed of tractor: 14,88 km/h

With cold brakes

	Tractor without ballast	Tractor with ballast
Maximum deceleration m/s²	3,7	4,o
Stopping distance m	3,2	2,8
Force on pedal kp	2o	28

Brake fade characteristics, hot tests, tractor without ballast

Deceleration: hot/cold 1oo%

Stopping distance: cold/hot 1oo%

Force on pedal: cold/hot 87%

B) PARKING BRAKE

Force applied on the brake lever, cold brake 15 kp.

No rotation of the rear-wheels of tractor occured when the tractor has been towed.

(7) MEASUREMENT OF AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 28.3.1969
Type of track: concrete
Type of sound level meter: EZGN, Rohde & Schwarz, 8 München

Results of test

Speed: 4.
Travelling speed before acceleration: 11,5 km/h
Sound level: 86 dBA

(8) NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of test: 28.3.1969
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	real km/h	Sone
3.	6,87	6,42	14o
2.	3,75	3,4o	136

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

PRÜFUNGS-ABTEILUNG

Gutbrod Superior 10 50 D

Test No. 68 - 159

(9) TEST OF POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: 12.3.1969, Groß-Umstadt

Hydraulic fluid: Engine oil HD SAE 20

POWER LIFT

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 lift arm					
675	-	350	172	122	grater than maximum force

Test frame not applicable to the special design of the power lift

Type of linkage lock for transport not fitted

Opening pressure of over load relief valve: no valve fitted

OPTIONAL TESTS

(10) ENGINE TESTS

Date and location of tests: 6.12.1968, Groß-Umstadt

Type of dynamometer: Schenck hydraulic dynamometer U1-2o

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				
12,o	3ooo	3,o1	2o8	3,98
At standard p.t.o.speed (1ooo rev/min)				
12,o	3ooo	3,o1	2o8	3,98
At the speed recommended by the manufacturer for drawbar work				
12,o	3ooo	3,o1	2o8	3,98
Fuel consumption at part loads				
(i) 85% of torque at maximum power				
1o,25	3o2o	2,51	2o2	4,o8
(ii) unloaded				
-	31oo	1,37	-	-
(iii) 5o% of the load defined in (i)				
5,23	3o75	2,29	241	2,28
(iv) maximum power				
12,o	3ooo	3,o1	2o8	3,98
(v) 25% of the load defined in (i)				
2,48	3o86	1,21	4o4	2,o5
(vi) 75% of the load defined in (i)				
7,8	3o6o	1,98	21o	3,94

Optimum fuel consumption: 176 g/hph at 8,7 hp and 218o rev/min

Standard fuel consumption 1/2 (acc.to DIN 96o6): 1,12/2,38 l/h

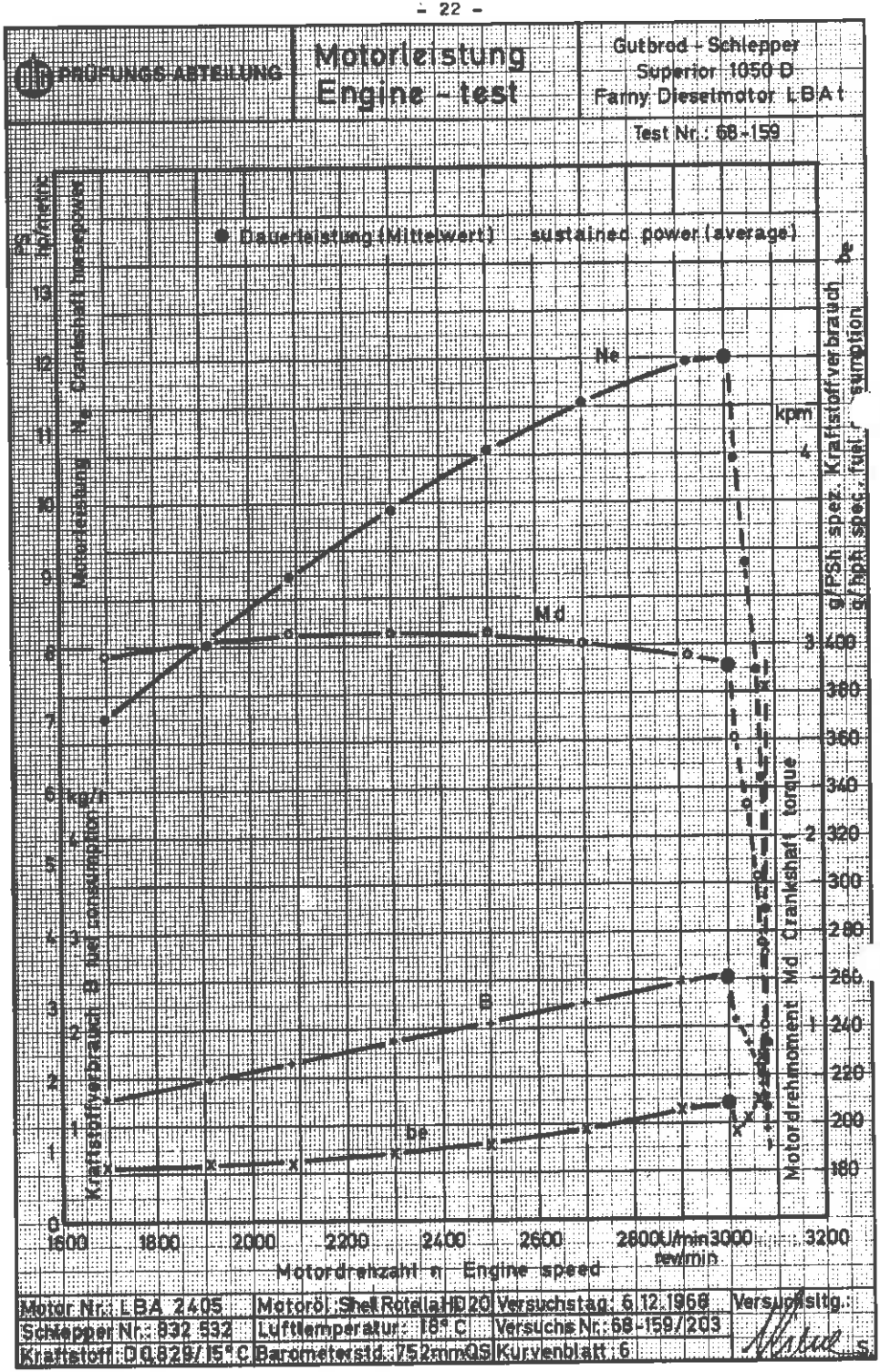
No load maximum engine speed: 31oo rev/min

Torque at maximum power: 2,87 kpm

Maximum torque: 3,o8 kpm at 25oo rev/min of the engine

Mean atmospheric conditions: temperature: 17°C
pressure: 743 mm Hg
relative humidity: 42%

Maximum temperatures: coolant: not recorded
engine oil: 11o°C
fuel: 2o°C

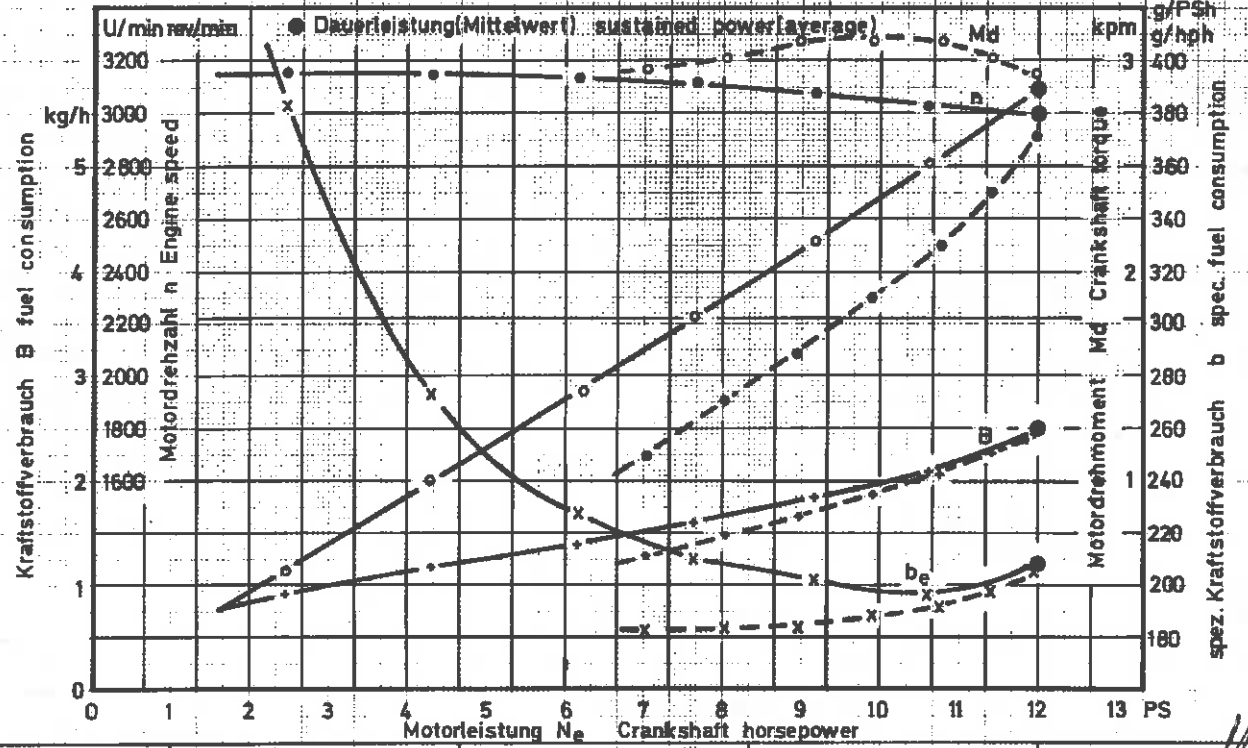

PRÜFUNGS-ABTEILUNG
Motorleistung
Engine - test
Gutbrod - Schlepper
Superior 1050 D
Fahrny Dieselmotor LBA t
Test Nr.: 68-159
● Dauerleistung (Mittelwert) sustained power (average)
Ne
Md
be
kpm
PS
kg/h
g/PSh spez. Kraftstoffverbrauch
g/bph spec. fuel consumption
Motordrehmoment Md Crankshaft torque
Kraftstoffverbrauch B Fuel consumption
Motordrehzahl n Engine speed
1600 1800 2000 2200 2400 2600 2800 U/min 3000 3200
rev/min
Motor Nr.: LBA 2405
Schlepper Nr.: 832 592
Kraftstoff: DD 829/15° C
Motoröl: Shell Rotella HD 20
Lufttemperatur: 18° C
Barometerstd.: 752 mm QS
Versuchstag: 6.12.1968
Versuchs Nr.: 68-159/203
Kurvenblatt: 6
Versuchsltg.:

PRÜFUNGS-ABTEILUNG

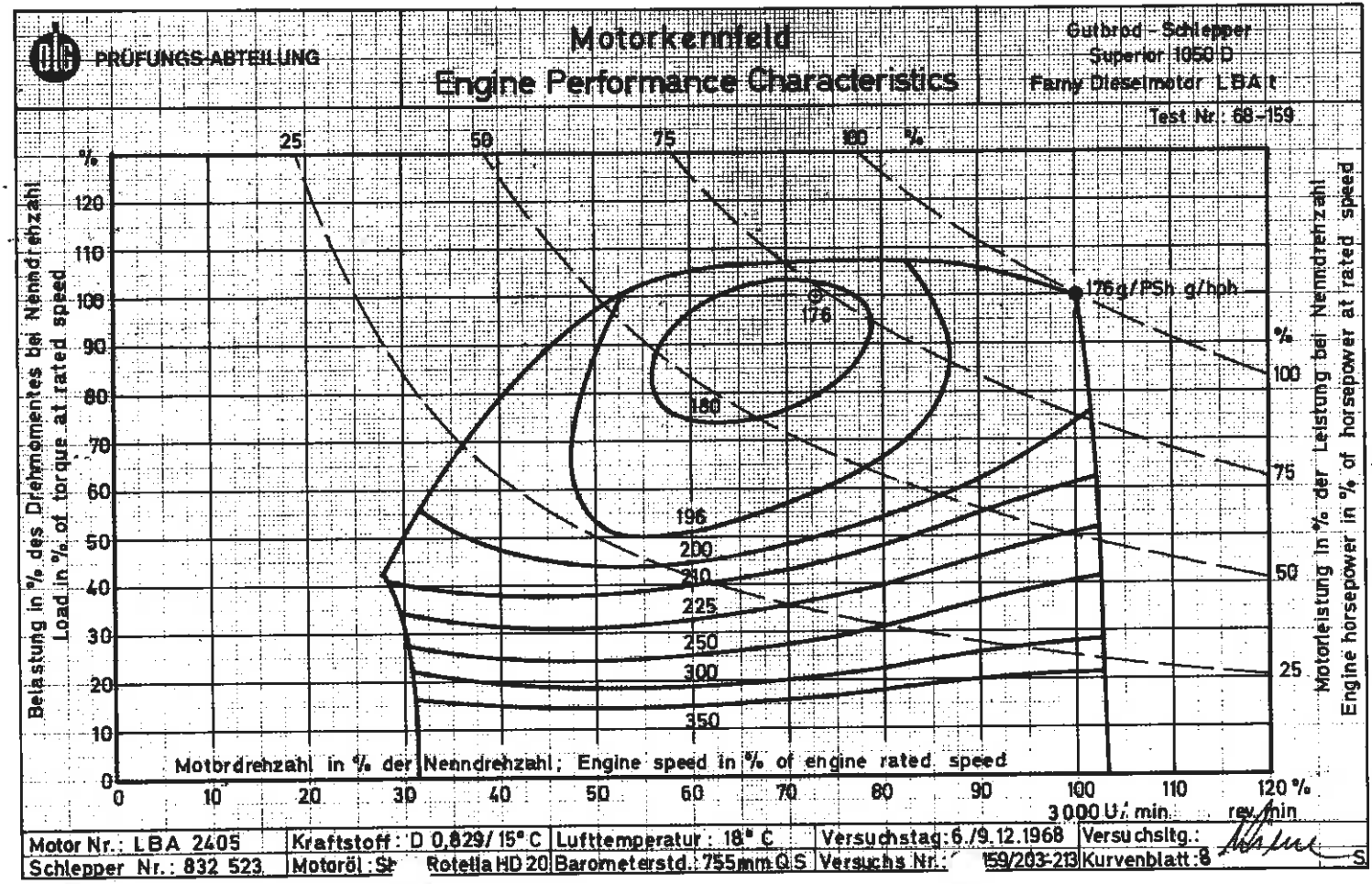
Motorleistung
Engine - test

Guttbrod - Schlepper
Superior 1050 D
Farny Dieselmotor LBA t

Test Nr.: 68-159



Motor Nr.: LBA 2405	Kraftstoff: D 0,829/15° C	Lufttemperatur: 18° C	Versuchstag: 6.12.1968	Versuchsltg.:	
Schlepper Nr.: 832 532	Motoröl: Shell Rotella HD 20	Barometerstd.: 752 mm Q.S.	Versuchs Nr.: 68-159/203	Kurvenblatt: 7	S.


PRÜFUNGS-ABTEILUNG
Motorkennfeld
Engine Performance Characteristics
Gutbrod - Schlepper
Superior 1050 D
Farny Dieselmotor LBA t
Test Nr.: 68-159
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
3 000 U/min rev/min
25
50
75
100 %
176 g/PSh g/bph
176
180
196
200
210
225
250
300
350
Motor Nr.: LBA 2405
Schlepper Nr.: 832 523
Kraftstoff: D 0,829/15° C
Motoröl: Shell Rotella HD 20
Lufttemperatur: 18° C
Barometerstd.: 755 mm QS
Versuchstag: 6./9.12.1968
Versuchs Nr.: 159/203-213
Versuchsltg.:
Kurvenblatt: 8