Report on test in accordance with O.E.C.D. STANDARD CODE

O.E.C.D. No. **649**



Agricultural Tractor EICHER 3022 A
trade name: EICHER 3105 A

Manufacturer
Gebr. Eicher, Traktoren- und Landmaschinenwerke GmbH
D-8380 Landau a. d. Isar

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This bulletin is based on engineering tests in accordance with the O.E.C.D. STANDARD CODE for the Official Testing of Agricultural Tractor Performance. It does not contain an evaluation of the tractor performance on practical work.

Duration of tests: February till August 1979

DLG-Testing-Station for Agricultural Machinery, Max-Eyth-Weg 1,
D-6114 Groß Umstadt

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

Date of Approval: 7th December 1979 O.E.C.D. No. 649

In this report all performance characteristics are given corresponding to the International System of Units.

The reference to the former used Technical System of Units is given by the following relations:

Forces	1 daN = 10 N	= 1,02 kp	or 1 kp	= 0,981 daN
Powers	1 kW	= 1,36 PS	or 1 PS	= 0,736 kW
Pressures	1 bar	= 1,02 kp/cm^2	or 1 kp/cm^2	= 0,981 bar
	1000 mbar = 750,1 mm Hg			

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PRÜFUNGS-ABTEILUNG
EICHER 3022 A

Test No. 78-344

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Tractor manufacturer:	GEBR.EICHER GMBH D-8380 Landau
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Landau
Duration of running-in:	Engine and tractor appr. 70 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	EICHER
Model:	3022 A, trade name 3105 A
Type:	Wheel tractor, unit construction, all-wheel driven
Serial No:	142224

Engine

Make:	EICHER
Model:	EDK-6
Type:	4-stroke Diesel-engine, direct injection, air-cooled
Serial No:	110422
Cylinders:	6, in line, bore 100 mm, stroke 125 mm, displacement 5890 cm , compression ratio 20; replaceable ribbed cylinder liners
Valves:	Overhead, self-adjusting hydraulic tappets
Fuel system:	BOSCH fuel feed pump FP/KS 22 AD 6/4; BOSCH in line injection pump: PES 6A 80D 320 RS 1280 manufacturer's production setting 55,5 mm^3/stroke at rated engine speed; injection timing 32° before TDC; BOSCH pintle-type nozzles DNO SD 137, injection pressure 145 bar; CAV two-stage fuel filter with replaceable cartridges; capacity of fuel tank 248 l
Governor:	BOSCH centrifugal variable speed governor: RSV-300-1150 AOB 2001 DR, governed range of speed 600 to 2420 rev/min, rated engine speed 2300 rev/min

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Air cleaner:	MANN PICLON dry paper element filter with precleaner, with replaceable cartridge and electrically operating maintenance-indicator
Exhaust silencer:	LANGE single chamber reflexion-absorption-type silencer, 108 mm dia, 650 mm long, on the left hand side of engine cowling, mouth showing upward, mouth 2650 mm above ground
Lubrication system:	Forced feed from gear pump; strainer in sump; MANN oil filter in full flow with replaceable cartridge and by-pass valve; cartridge change at all oil changes; oil capacity 19 l; recommended oil quality MIL-L-2104 C; recommended oil viscosities: winter SAE 10W summer SAE 20W/20 tropics SAE 30 or multigrade oil SAE 15W/40 oil change interval 200 hours, with oil cooler
Cooling system:	Air cooling 1 radial blower per cylinder and oil cooler with common driving shaft, V-belt driven
Starting system:	Electrical BOSCH screw-push starter motor ID 12V 3kW; additional fuel injection in all intake pipes with hand pump
Electrical equipment:	12 Volt negative earth; BOSCH 3-phase alternator G1 14V 28A; 1 lead acid battery 143 Ah at 20 hours rating

Transmission

Clutch:	FICHTEL UND SACHS dry single disc type clutch 330 K, disc diameter 330 mm, pedal operated, for travel drive only
Gear box:	ZAHNRADFABRIK PASSAU GMBH T 3319; speed change gear with 6 speeds, 1st and 2nd gear collar shifted, 3rd to 6th gear synchronized; synchromesh group gear with 2 forward groups and 1 reverse group; the 6th gear of speed change gear is locked if the reverse group is shifted; optionally creep group for the 1st and 2nd gear of speed change gear (fitted on tractor tested) or a super creep group instead of the creep group available; creep speeds and super creep speeds shall not be used for drawbar work; totally 16 forward and 7 reverse speeds at tractor tested
Rear axle and final drives:	Bevel gear drive with crown wheel and pinion; bevel gear type differential with lock, pedal operated, self disengaging; planetary final drives
Driven front axle:	ZAHNRADFABRIK FRIEDRICHSHAFEN AG APL-1551, driven by universal joint shaft, situated on the left hand side of gear box; under load engageable and disengageable by a wet multi disc type clutch, handlever operated; bevel gear drive with crown wheel and pinion; bevel gear type self locking differential LOC-O-MATIC; planetary final drives

Oil capacity:	Transmission in common with rear axle drive and hydraulic		42 l
	rear axle final drives	each	8 l
	front axle differential		6 l
	front axle final drives	each	1 l

Oil changing interval: 1000 hours

Recommended oil qualities:
Final drives
Transmission oil SAE 90
MIL-L-2105 B

front axle differential:
Hypoid oil SAE 90
FORD specif. M2C-104 A

other gears:
Engine oil SAE 20W/20
MIL-L-2104 B or C

Total ratios and speeds see page 8

Power-take-off

Independent p.t.o.,
at rear of tractor;
driven by a dry multi disc clutch,
operated by hand lever on the left side
below the steering wheel,
height above ground 695 mm in tractor's median plane; 330 mm behind rear axle centre line;
35 mm dia, 6 splines DIN 9611 and
ISO 500 type 1;
2 speeds are preselectable by hand lever:

540 rev/min p.t.o.
586 rev/min at rated engine speed,
standard p.t.o. speed 540 rev/min at
2118 rev/min engine speed

1000 rev/min p.t.o.
1022 rev/min at rated engine speed,
standard p.t.o. speed 1000 rev/min at
2250 rev/min engine speed

p.t.o. speeds may be set by aid of tractormeter
direction of rotation clockwise, viewed
from tractor rear

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Total ratios and speeds (tyres 18,4 R 38)

Group		Gear	Total ratio engine : driving wheels	Nominal travelling speed *) at rated engine speed km/h
Forward speeds				
Creep group	slow L	1	704,93	1,00
		2	449,74	1,58
	fast S	1	550,49	1,29
		2	351,24	2,03
slow L		1	287,14	2,48
		2	183,20	3,88
		3	118,12	6,02
		4	76,62	9,28
		5	48,04	14,80
		6	28,99	24,53
fast S		1	224,24	3,17
		2	143,07	4,97
		3	92,25	7,71
		4	59,83	11,88
		5	37,52	18,95
		6	22,64	31,41
Reverse speeds				
Creep group	R	1	524,27	1,35
		2	334,49	2,12
reverse R		1	213,55	3,32
		2	136,25	5,22
		3	87,85	8,09
		4	56,98	12,47
		5	53,73	19,88

*) calculated with INDEX RADIUS 820 mm as per WdK 154

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Power lift

Hydraulic system:

ZAHNRADFABRIK PASSAU GMBH
KR 25
hydraulic power lift in unit construction;
BOSCH gear pump HY/ZFS 11/10 with 44 l/min delivery at rated engine speed;
driven by the forward end of the p.t.o. shaft, in front of the p.t.o. clutch;
BOSCH control valve for lifting, lowering, draft control, position control and floating position;
lower link sensing;
maximum oil pressure 175 bar;
1 single acting main cylinder with 120 mm bore and 126 mm stroke,
without overpressure relief valve in main cylinder;
1 external additional cylinder of own make with 50 mm bore and 150 mm stroke;
up to 3 single or double acting additional control valves with oil tappings available;
oil capacity 42 l in common with gear box;
max. 10 l may be taken off trough oil tappings when tractor is travelling,
12 l when tractor is working stationary

Implement linkage:

Three point linkage category II DIN 9674,
category III optinally;
WALTERSCHEID quick coupler;
2 holes in the lower links for fitting the lift rods:
hole 1 in 580 mm
hole 2 in 625 mm distance of pivot point of lower links;
lift rods adjustable from 620 to 730 mm;
lifting range above ground when using hole no. 1:
with short lift rods from 290 to 870 mm
with long lift rods from 85 to 700 mm

hole no. 2:
with short lift rods from 365 to 905 mm
with long lift rods from 155 to 735 mm

Holed bar:	Short bar, fitted on clevis of lower links; length between the joint balls 820 mm, width 80 mm, thickness 30 mm; centre hole and 4 holes in 80 mm distance each on either side; all holes 33 mm diameter; height above ground adjustable by power lift in the range from 100 to 920 mm, depending on lift rods length, measured at the surface of the bar; in any height above ground hydraulically lockable; distance of holes centre line with lower links in horizontal position: from rear axle centre 1110 mm from p.t.o. shaft end 780 mm

Pull attachment

Swinging drawbar	Height above ground 430 or 580 mm, adjustable by turning drawbar; hitch hole 33 mm diameter; distance of hitch hole centre: from rear axle centre 735, 785 or 835 mm from p.t.o. shaft end 405, 455 or 505 mm adjustable by shifting drawbar in longitudinal direction; pivot points 120, 170 and 220 mm behind rear axle centre; drawbar lateral swingable about 140 mm to either side
Trailer hitch:	Own make height above ground adjustable by shifting and turning in 7 steps from 665 to 1005 mm; hitch hole 33 mm diameter; distance of hitch hole centre to rear axle centre 592 mm; permissible vertical load 1070 kg
Towing hitch:	745 mm above ground

Steering

ZAHNRADFABRIK FRIEDRICHSHAFEN AG
hydrostatic steering, model 8440
with own oil circuit;
BOSCH gear pump with 11 cm³/rev delivery,
driven by the forward end of the p.t.o. shaft,
in front of the p.t.o. clutch;
oil capacity 5 l;
ATF-transmission oil type A;
oil changing interval 2000 hours;
1 double acting ram with 45 mm bore
and 200 mm stroke,
directly acting on the front axle

Brakes

Parking brake: Mechanically acting shoe type brake
with 2 brake drums 250 mm diameter
on the differential half shafts;
operated by hand lever with ratchet

Service brake: KNOTT
hydraulically acting shoe type brake with
2 brake drums with 250 mm diameter
on the differential half shafts;
pedal operated

Steering brake: 2 additional hand levers on the left hand
side of driver's seat, acting on the
brake drums of the service brake

Wheels

Steered wheels: 2 pneumatics in front 12,4-28 8 ply,
diagonal type tyre casing;
maximum permissible load per tyre 1510 kg
at 2,3 bar inflation pressure and 30 km/h;
track widths 1720 and 1820 mm,
adjustable by turning wheels;

rims W 11 x 28

Driving wheels:	At front and at rear; specification of driving front wheels see at steered wheels; driving rear wheels: 2 pneumatics 18,4 R 38 8 ply, radial type tyre casing; maximum permissible load per tyre 2715 kg at 1,4 bar inflation pressure and 30 km/h; track widths 1720 and 1830 mm, adjustable by turning wheels; rims W 16L x 38
Wheel base:	2730 mm
Cab	Own make safety cab O.E.C.D.-tested approval no. CS 1219 a; antivibration mounts; all windows tiltable; inside of cab covered with noise damping materials; doors on both sides of the cab; each entry with 2 steps; heating by radial blower of oil cooler; optionally additional Diesel-fuel heating available
Seat	BOSTROM upholstered seat with back rest; adjustable spring with shock absorber; height of driver's platform above ground 1160 mm; height of unloaded seat above platform adjustable in 6 steps from 420 to 480 mm; for and aft adjustable about 150 mm

Number of grease points 23

Track setting during tests

front axle	1820 mm
rear axle	1830 mm

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Dimensions

Total lenght:	4570 mm	without ballast
	4835 mm	with ballast
Total width:	2310 mm	with and without ballast
Total height:	2720 mm	to top of cab
Ground clearance:	445 mm	below swinging drawbar

Weights

Ready for use as tested, with cab

		without driver	with driver
Without ballast:	front	1850 kg	1860 kg
	rear	3240 kg	3320 kg
	total	5090 kg	5180 kg
Front ballast:	1 front weight		40 kg
	8 front weights	28 kg each	224 kg
	1 weight per wheel	64 kg each	128 kg
	water in the tyres		218 kg
Rear ballast	water in the tyres		760 kg
With ballast	front	2560 kg	2570 kg
	rear	3900 kg	3980 kg
	total	6460 kg	6550 kg

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Lighting equipment Electrical 12 Volt
as per German legislation

	Dimensions mm	Height above ground of centre mm	Distance from outside edge of tractor to centre mm
Head lights	145 x 90	1075	1003
Side lights	70 x 20	1735	145
Rear lights	30 x 65	1460	185
Reflectors			
1st pair	130 x 40	1355	185
2nd pair	60 ø	695	675

Permissible total weights and axle loads
for all available wheel equipment

Wheel equipment front	Wheel equipment rear	Permissible total weights kg	Permissible axle load front kg	Permissible axle load rear kg
11,2-24	16,9-34 18,4 30	6500	2450	4500
12,4-24	18,4-34	6500	2400	4500
11,2-28	16,9-38	6500	2600	4500
14,9-24 11,2-28 12,4-28	18,4-38			
11,2-28	9,5-48	6500	2600	4040
9,5-30		6110	2070	4040
11,2-28	11,2-48	6500	2600	4480
9,5-30		6500	2070	4480

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FUELS AND LUBRICANTS USED IN TESTS

Fuel:	ARAL Diesel-fuel DIN 51 601
	specific gravity at 15°C
	at engine tests 0,826 kg/l
	at p.t.o. tests 0,826 kg/l
	at drawbar tests 0,840 kg/l
Engine:	ESSO engine oil ESSOLUBE XD-3 SAE 20W/20
Transmission, rear axle and hydraulic:	ESSO engine oil ESSOLUBE HDX SAE 20W/20
Front axle differential:	ESSO hypoid transmission oil LSA 90
Final drives:	ESSO hypoid transmission oil SAE 90

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COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE (1000 rev/min)

Date of tests: 30th March 1979
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
At 2-hour test						
74.4	2300	1022	23.06	19.05	256	3.23
At standard p.t.o. speed						
74.4	2250	1000	22.77	18.81	253	3.27
At the speed recommended for drawbar work						
74.4	2300	1022	23.06	19.05	256	3.23
Part loads, the governor hand lever in the position corresponding to the maximum power at full load						
(i) 85% of the torque at maximum power at 2-hour test						
63.8	2316	1030	19.50	16.11	253	3.27
(ii) unloaded						
-	2417	1074	5.85	4.84	-	-
(iii) 50% of the load defined in (i)						
32.1	2336	1038	12.20	10.08	314	2.63
(iv) maximum power						
74.4	2300	1022	23.06	19.05	256	3.23
(v) 25% of the load defined in (i)						
16.3	2368	1052	9.07	7.49	461	1.79
(vi) 75% of the load defined in (i)						
48.1	2332	1036	15.86	13.10	272	3.03

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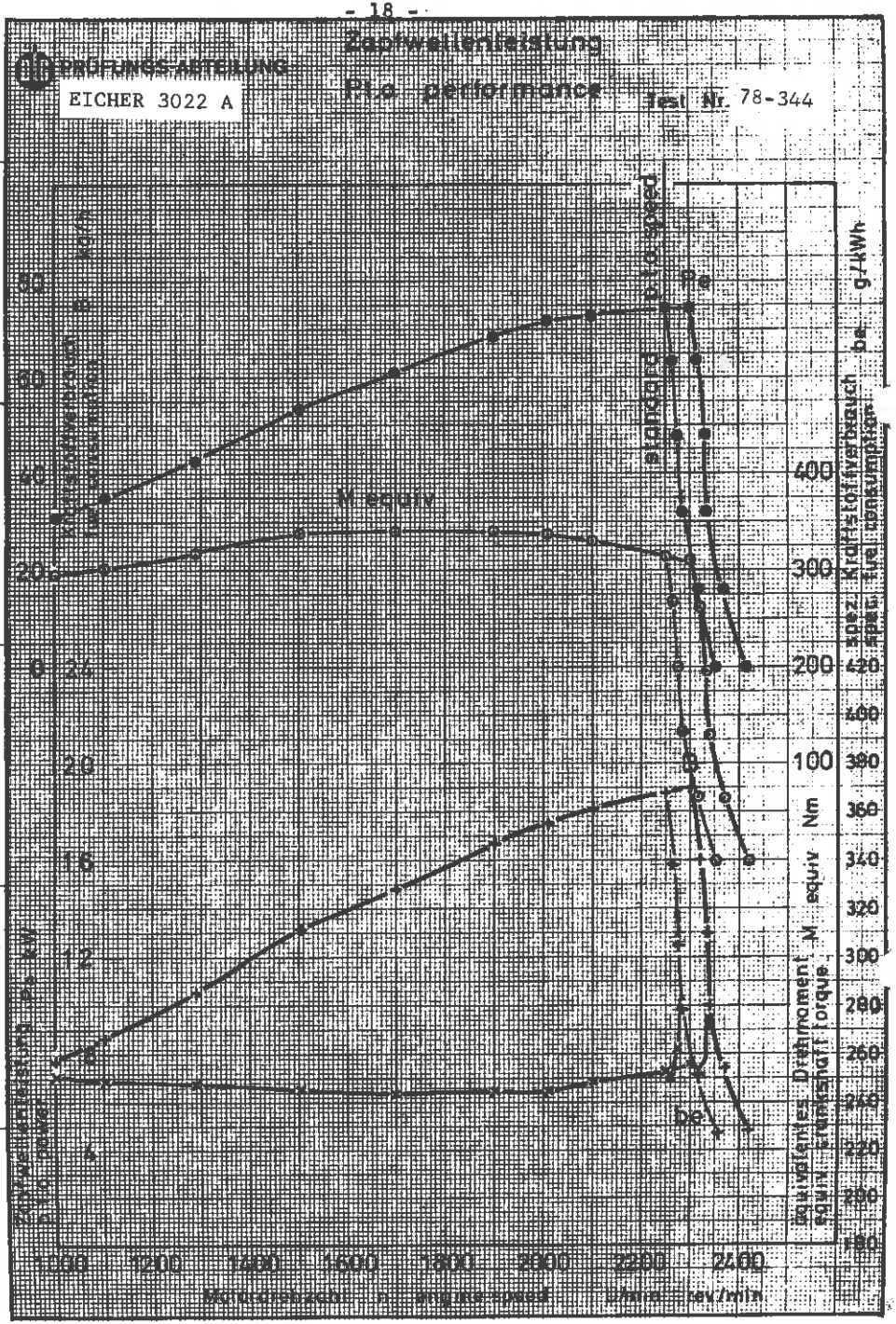
Test No. 78-344

Power kW	Speed engine rev/min	Speed p.t.o. rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load						
(i) 85% of the torque at maximum power at 2-hour test						
63.6	2262	1005	19.22	15.87	250	3.31
(ii) unloaded						
-	2352	1046	5.89	4.86	-	-
(iii) 50% of the load defined in (i)						
32.1	2282	1014	12.03	9.93	310	2.67
(iv) maximum power						
74.4	2250	1000	22.77	18.81	253	3.27
(v) 25% of the load defined in (i)						
16.3	2314	1029	8.66	7.15	440	1.88
(vi) 75% of the load defined in (i)						
47.9	2272	1010	15.24	12.59	263	3.14

Standard specific fuel consumption (g/kWh): 253/314/250/310

No load maximum engine speed: 2417 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 309 Nm
Maximum equivalent crankshaft torque: 343 Nm at 1901 rev/min of the engine

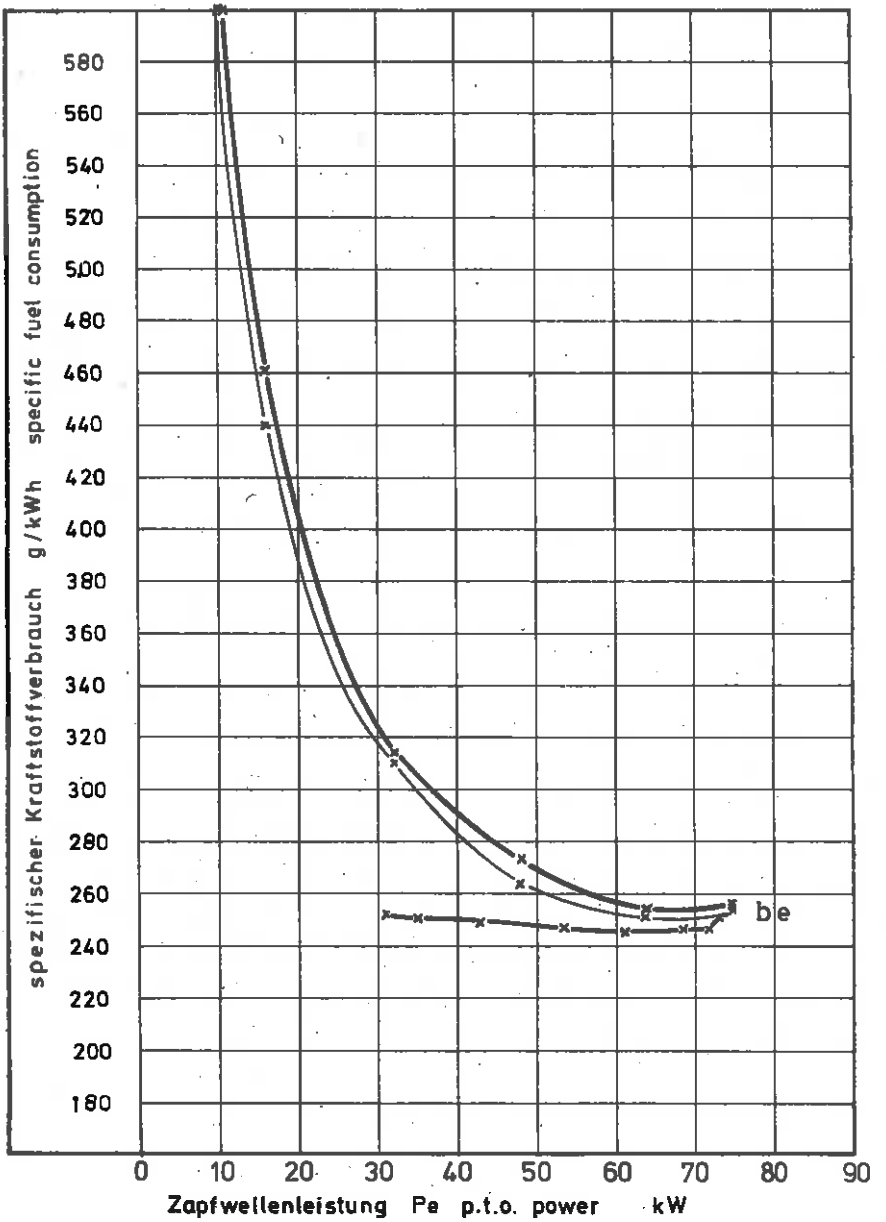
Mean atmospheric conditions:	temperature	20 °C
	pressure	990 mbar
	relative humidity	48 %
Maximum temperatures:	coolant	-
	engine oil	90 °C
	fuel	20 °C
	engine air intake	24 °C


Zapfwellenleistung
PTO performance
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kW
PS
M equiv
Nm
Motordrehzahl n engine speed U/min rev/min
Zapfwellenleistung PTO power
Zapfwellendrehzahl PTO speed
Äquivalentes Drehmoment M equiv
equiv. torque
spez. Kraftstoffverbrauch be
spec. fuel consumption
g/kWh
1000
1200
1400
1600
1800
2000
2200
2400

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Zapfwellenleistung
P.t.o. performance

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(2) DRAWBAR PERFORMANCE

Date of tests: 23rd July till 3rd August 1979
Type of track: Concrete

Gear No. and Group	Driving speed km/h	Power kW	Drawbar pull daN	Engine speed rev/min	Slip of wheels %
(i) MAXIMUM POWER with ballast height of drawbar above ground 390 mm					
1 L	2,21	39,4	6426	2378	15,0
1 S	2,81	50,4	6460	2368	15,1
2 L	3,35	59,3	6373	2301	14,6
2 S	4,57	64,3	5064	2298	8,9
3 L	5,67	65,7	4173	2303	6,9
3 S	7,39	65,0	3168	2302	4,9
4 L	9,00	64,3	2572	2303	3,8
4 S	11,61	63,9	1980	2300	3,0
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 3rd L gear					
3 L	5,98	52,0	3130	2373	4,8
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)					
1 S	2,82	50,6	6460	2349	-
(iv) MAXIMUM POWER without ballast height of drawbar above ground 390 mm					
1 S	2,81	41,5	5321	2380	15,0
2 L	3,44	51,0	5338	2372	15,0
2 S	4,35	61,2	5063	2303	13,5
3 L	5,53	64,2	4178	2300	8,8
3 S	7,28	64,5	3190	2300	6,3
4 L	8,88	64,1	2600	2301	5,0
4 S	11,53	63,1	1970	2301	3,7

Total oil consumption during ten hours duration of tests (ii) and (iii) 118 g/h

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Tyres size front: 12,4 - 28 8 ply
rear: 18,4 R 38 8 ply

Tread bar height at the beginning of drawbar tests 94% of the value when new at front, 95% of the value when new at rear

Specific energy kWh/l	Specific fuel consumpt. g/kWh	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 1,8 bar at front, 1,1 bar at rear							
2,41	345	24	-	81	22	78	1005
2,51	330	24	-	82	23	76	1005
2,55	325	24	-	85	24	73	1005
2,75	301	25	-	86	24	70	1005
2,79	297	25	-	83	25	70	1005
2,77	299	25	-	84	25	68	1005
2,74	302	26	-	83	26	61	1005
2,72	304	26	-	85	26	58	1005
2,72	304	25	-	94	25	70	997
-	-	27	-	97	26	61	993
tyre inflation pressure 1,0 bar at front, 1,1 bar at rear							
2,37	350	24	-	82	22	61	1003
2,53	330	23	-	80	22	67	1003
2,60	319	24	-	86	22	61	1003
2,75	301	25	-	85	24	61	1003
2,75	301	25	-	85	24	63	1003
2,74	302	25	-	87	24	63	1003
2,70	307	25	-	85	24	60	1002

Test (iii) was carried out with additional ballast, the figures not quoted are therefore irrelevant

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 12,4-28 8 ply
rear: 18,4R38 8 ply

Track of wheels front: 1820 mm
rear: 1830 mm

Front axle drive disengaged

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	5,27	5,14	6,33	6,06
Radius of turning circle	4,96	4,87	6,02	5,79

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	980 mm
Distance forward from rear axle centre	983 mm
Distance from tractor's median plane	4 mm to the left

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(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 25th and 26th July 1979
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 6550 kg

Front axle drive disengaged

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s^2	3,9	4,0
Stopping distance	m	7,2	6,6
Force on pedal	daN	44	33
Force on pedal to achieve a deceleration of 2,5 m/s^2	daN	32	17

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	100	103
Stopping distance	cold/hot	%	97	100
Force on pedal	cold/hot	%	126	122

B) PARKING BRAKE

Tractor facing up 16% slope
Pull on hand brake 38 daN, tractor does not roll

Tractor facing down 16% slope
Pull on hand brake 39 daN, tractor does not roll

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(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 25th July 1979
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Results of test

Gear: 6 th S
Travelling speed before acceleration: 25,2 km/h
Sound level: 88 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 25th July 1979
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

The tractor was fitted with EICHER safety cab

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed nominal km/h	Travelling speed effective km/h	Sound level dB(A)
1 L	5309	2,48	2,20	88,5
1 S	5356	3,17	2,72	89
2 L	5338	3,88	3,32	90
2 S	4713	4,97	4,58	90,5
3 L	4074	6,02	5,64	92
3 S *)	3061	7,71	7,49	92
4 L	2507	9,28	9,11	91
4 S	1925	11,88	11,76	91,5
5 L	1528	14,80	14,75	91,5
6 S	light load	31,41	33,61	89

*) the 3rd S gear corresponds to the travelling speed nearest to 7,5 km/h

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(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

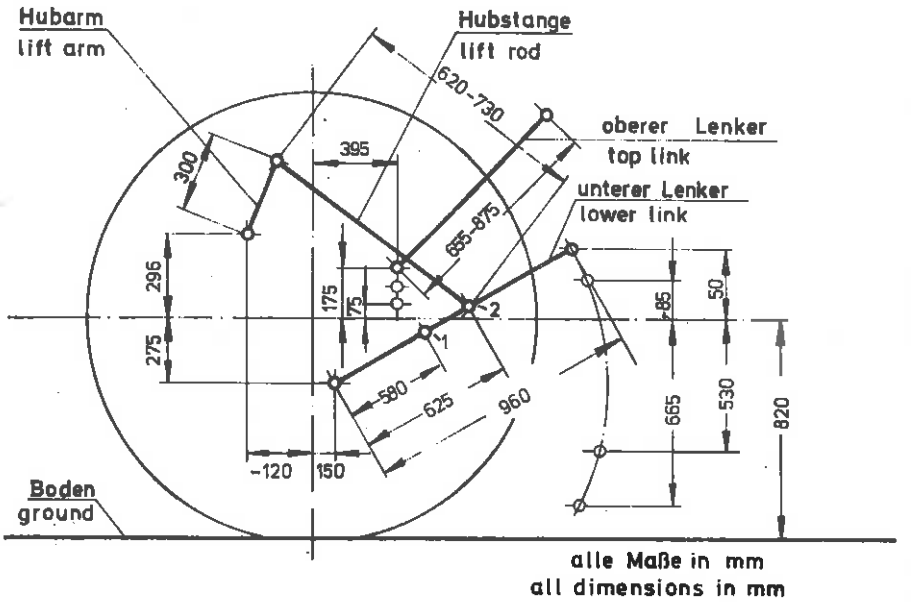
Date of tests: 5th April 1979

HYDRAULIC PUMP

(1) Opening pressure of relief valve in remote circuit	139	bar
Sustained pressure by open relief valve	174	bar
(2) Pump delivery rate at minimum pressure and rated engine speed	41,9	l/min
(3) Pump delivery rate at max. hydraulic power	41,4	l/min
corresponding delivery pressure	149	bar
power	10,3	kW

POWER LIFT

Dimensions of linkage geometry for the table on page 28



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LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-460	-400	-360	-300	-285	-200	-180	-100
at hitch points maximum mechanical advantage								
daN							3810	3790
minimum mechanical advantage								
daN	3340	3330		3310		3280		3260

Max. force exerted throughout the whole range 3360 daN

Front of tractor does not lift

at test frame maximum mechanical advantage								
daN			4120	3920		3620		3370
minimum mechanical advantage								
daN					3080	2980		2870

Max. force exerted throughout the whole range 2710 daN

Force at which front of tractor lifts if front axle is ballasted to its max. permissible load (2600)kg: 4048 daN

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0	+100	+155	+190	+200	+300	+360	+400	+435
lift rods 620 mm long, hole no. 2								
3730	3640			3560	3440	3360		
lift rods 730 mm long, hole no. 1								
3190	3140	3080						
lift rods 730 mm long, hole no. 2, high top link pivot point								
3130	2910		2710					
lift rods 620 mm long, hole no. 1, lower top link pivot point								
2730	2580			2410	2270		2130	2080

All values of forces for pressure 149 bar at max. hydraulic power see page 25; calculated from measurements at max. oil pressure 174 bar

LINKAGE GEOMETRY when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	960 mm	960 mm
Lift arms	300 mm	300 mm
Lift rods	730 mm	620 mm
Top link	720 mm	724 mm
Distance of lift rod connection point from pivot point of lower link	625 mm	580 mm
The following dimensions are given relative to rear axle centre line	820 mm above ground	
Lower link pivot point	150 mm behind, 275 mm below	150 mm behind, 275 mm below
Top link pivot point	395 mm behind, 175 mm above	395 mm behind, 75 mm above
Lift arm pivot point	120 mm behind, 296 mm above	120 mm behind, 296 mm above
Maximum and minimum height of lower link hitch points	85 mm below 665 mm below	50 mm above, 530 mm below
Height of lower link hitch points above ground when locked in highest transport position	735 mm	870 mm

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OPTIONAL TESTS

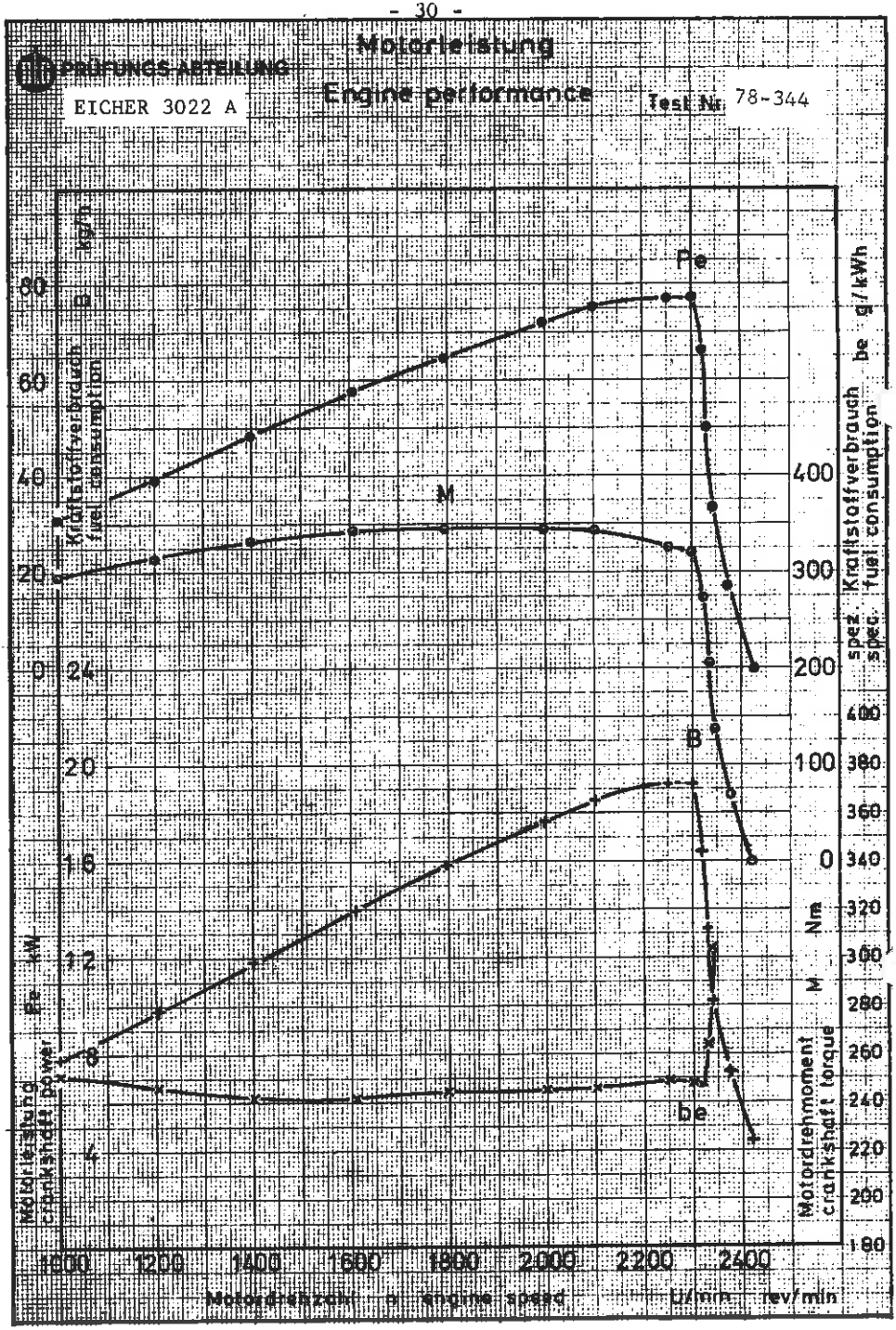
(9) ENGINE PERFORMANCE

Date of tests: 28th March 1979
Type of dynamometer: SCHENCK eddy-current dynamometer W 400

Power kW	Engine speed rev/min	Fuel consumption total l/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
77.3	2300	23.24	19.20	248	3.32
At standard p.t.o. speed (1000 rev/min)					
77.0	2250	23.21	19.17	249	3.32
At the speed recommended for drawbar work					
77.3	2300	23.24	19.20	248	3.32
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
66.2	2318	19.82	16.37	247	3.34
(ii) unloaded					
-	2422	5.36	4.43	-	-
(iii) 50% of the load defined in (i)					
33.4	2340	12.31	10.17	304	2.71
(iv) maximum power					
77.3	2300	23.24	19.20	248	3.32
(v) 25% of the load defined in (i)					
17.0	2376	8.76	7.24	427	1.94
(vi) 75% of the load defined in (i)					
49.9	2329	15.95	13.17	264	3.13

Optimum fuel consumption: 236 g/kWh at 46,1 kW and 1495 rev/min
No load maximum engine speed: 2422 rev/min
Torque at maximum power (2 hours): 321 Nm
Maximum torque: 345 Nm at 1794 rev/min of the engine

Mean atmospheric conditions:	temperature	16 °C
	pressure	970 mbar
	relative humidity	68 %
Maximum temperatures:	coolant	-
	engine oil	85 °C
	fuel	22 °C
	engine air intake	18 °C


Motorleistung
Engine performance
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Test Nr. 78-344
Kraftstoffverbrauch fuel consumption
kg/h
Pe
M
B
be
Motorleistung crankshaft power Pe kW
Motordrehmoment crankshaft torque M Nm
spez. Kraftstoffverbrauch spec. fuel consumption be g/kWh
Motordrehzahl n engine speed
U/min rev/min

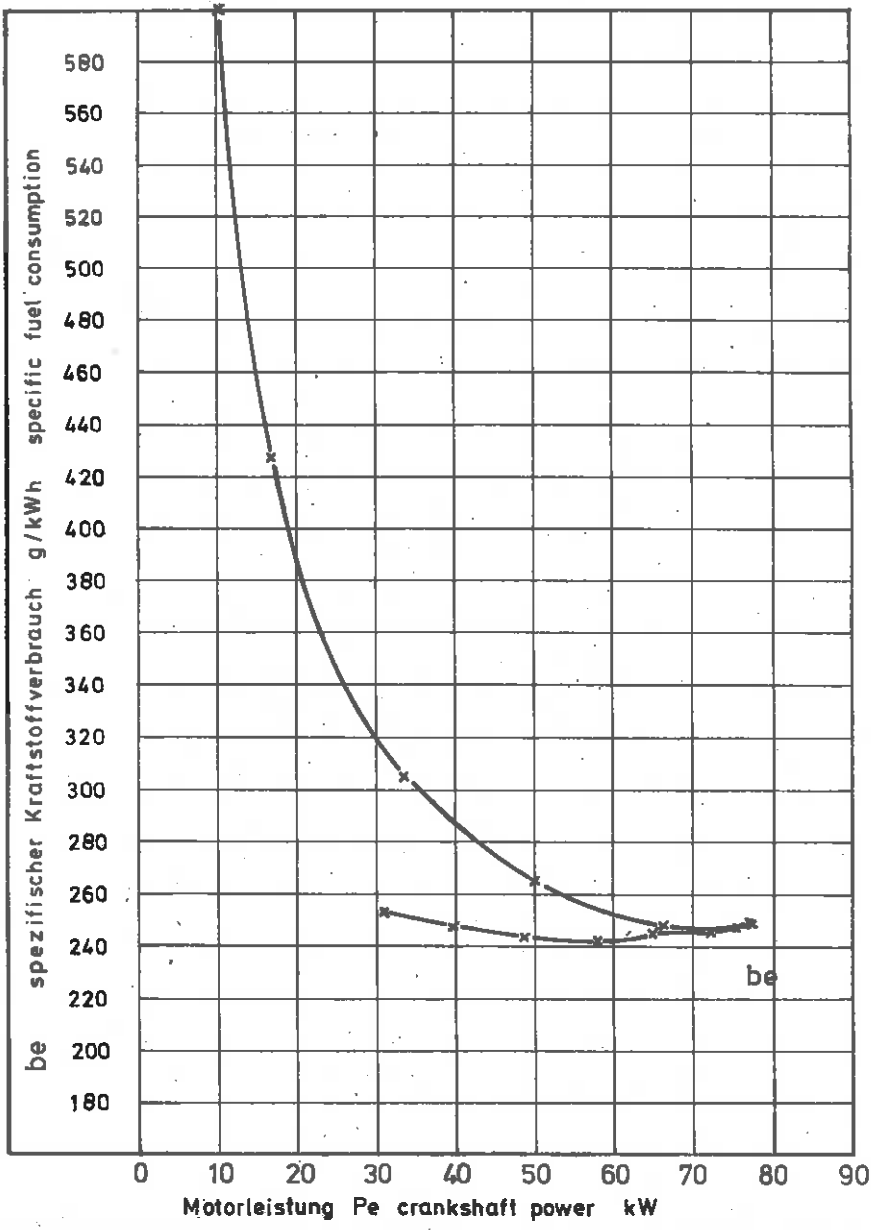
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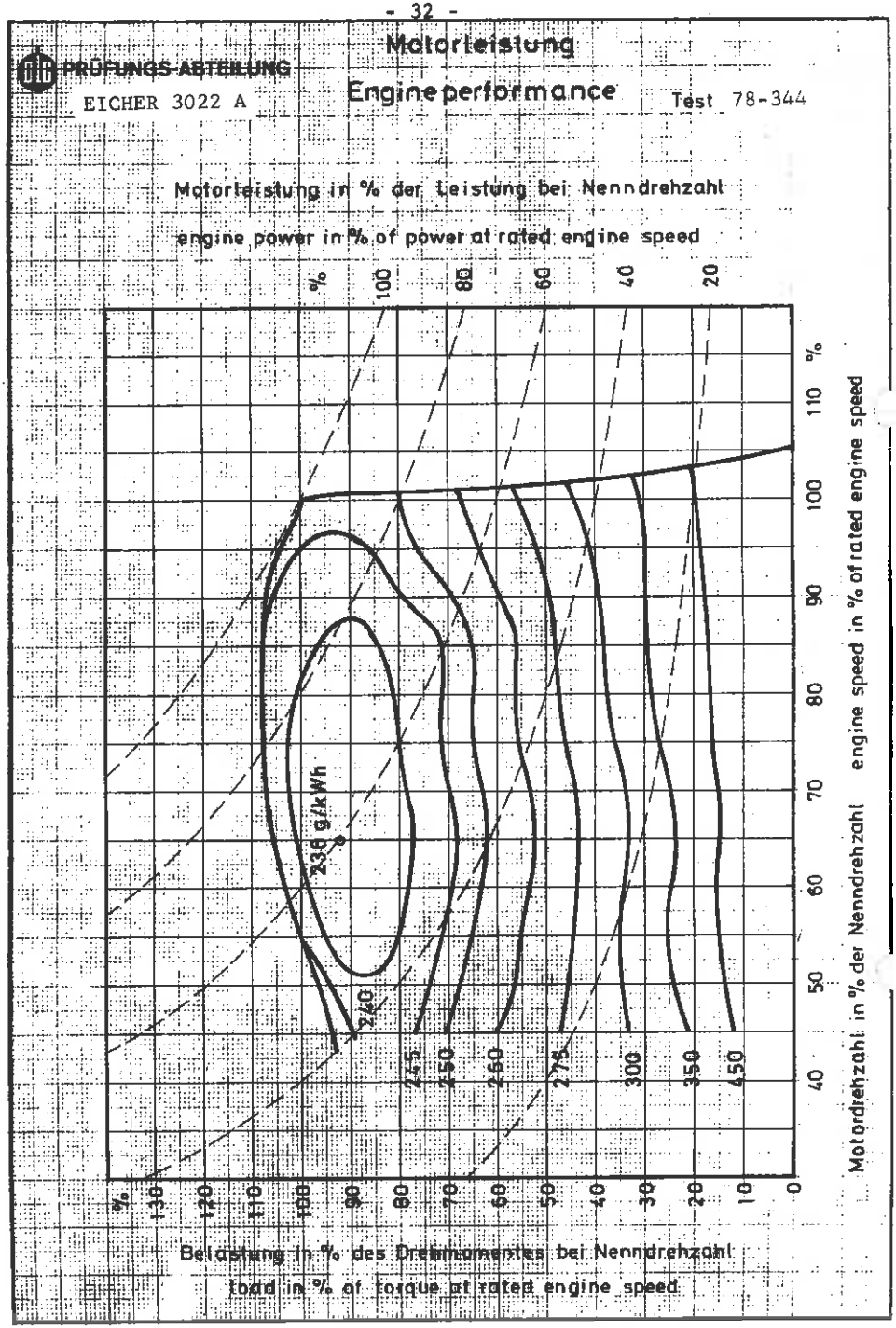
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Motorleistung

Engine performance

Test Nr. 78-344




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Motorleistung
Engine performance
Test 78-344
Motorleistung in % der Leistung bei Nenndrehzahl
engine power in % of power at rated engine speed
%
100
80
60
40
20
236 g/kWh
240
245
250
260
275
300
350
450
Motordrehzahl in % der Nenndrehzahl engine speed in % of rated engine speed
Belastung in % des Drehmomentes bei Nenndrehzahl
load in % of torque at rated engine speed

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