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

O.E.C.D. No. 663



Agricultural Tractor EICHER 3556 A
trade name: EICHER 4072 A

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

Deutsche Landwirtschafts-Gesellschaft e.V.
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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 October 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: 6th March 1980 O.E.C.D. No. 663

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 3556 A

Test No. 79-8

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Test No. 79-8

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 50 hours, tractor appr. 30 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	EICHER
Model:	3556 A trade name 4072 A wheel tractor, unit construction, all-wheel driven
Serial no:	146644

Engine

Make:	PERKINS ENGINES S.A.
Model:	A 4.248
Type:	4-stroke Diesel-engine, direct injection, water-cooled
Serial no:	LF 22478 U 528 066 E
Cylinders:	4, in line, bore 101 mm, stroke 127 mm, displacement 4070 cm^3; compression ratio 16; replaceable dry cylinder liners
Valves:	Overhead
Fuel system:	AC DELCO fuel feed pump CAV distributor injection pump XS 60 E 800/8/2380 manufacturer's production setting 60 mm^3/stroke at rated engine speed; injection timing 24° before TDC; CAV multihole injection nozzles BDLL 150 S, injection pressure 170 bar; CAV two-stage fuel filter with replaceable cartridges; capacity of fuel tank 110 l
Governor:	Mechanically acting centrifugal variable speed governor, incorporated in injection pump; governed range of engine speed 800 to 2300 rev/min, rated engine speed 2150 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:	LEISTRITZ single chamber reflexion-absorption-type silencer, 110 mm dia, 640 mm long, on the right hand side of engine cowling, mouth showing upward, mouth 2540 mm above ground
Lubrication system:	Forced feed from gear pump; strainer in sump; PERKINS oil filter in full flow with replaceable cartridge and by-pass valve; cartridge change at all oil changes; oil capacity 8,3 l; recommended oil quality MIL-L-2104 B; recommended oil viscosities: winter SAE 10W summer SAE 20W/20 tropics SAE 30 oil change interval 150 hours
Cooling system:	Pressurized water cooling system with pump; overpressure set to 0,6 bar; thermostat with by-pass; fan with 4 blades, 412 mm dia, cooling water capacity 14,2 l
Starting system:	Electrical LUCAS screw-push starter motor M50G-12V, 3 kW; CAV flame plug in intake pipe
Electrical equipment:	12 Volt BOSCH 3-phase alternator G 1 14V 28A, 1 lead-acid battery 110 Ah at 20 hours rating

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Transmission

Clutch:	LAMELLEN- UND KUPPLUNGSBAU GMBH dry dual disc clutch DT 280/280 G; gearbox drive pedal operated, p.t.o. drive hand lever operated; both discs 280 mm dia
Gear box:	Own make speed change gear with 4 forward speeds and 1 reverse speed, reverse and 1st gear collar shifted, 2nd gear sliding gear shifted, 3rd and 4th gear synchronized; group gear with 2 groups L and H, L-group collar shifted, H-group sliding gear shifted; additional reduction gear with 2 groups RGL and RGH, collar shifted; totally 16 forward speeds and 4 reverse speeds
Rear axle and final drives:	MASSEY-FERGUSON S.A. bevel gear drive with crown wheel and pinion; bevel gear differential with lock, pedal operated, self disengaging; planetary final drives
Driven front axle:	ZAHNRADFABRIK FRIEDRICHSHAFEN AG APL-1351 driven by universal joint shaft, situated on the left hand side of the gear box; under load engageable and disengageable by a wet multi disc type clutch, hand lever operated; bevel gear drive with crown wheel and pinion; bevel gear type differential without lock; planetary final drives

Oil capacity:	Gear box in common with rear axle drive and hydraulic system		47 l
	rear axle final drives	each	2 l
	front axle differential		4,5 l
	front axle final drives	each	0,5 l
Oil changing interval:	Front axle differential		900 hours
	other gears		600 hours

Recommended oil qualities:
Front axle differential and all final drives: Transmission oil SAE 90 MIL-L-2105 B

gear box: Compulsorily multi-purpose transmission oil SAE 20W/30 acc. to MF specif. M 1139

Total ratios and speeds see page 8

Power take-off

Independent p.t.o.,
at rear of tractor,
driven through the second disc of the dual disc clutch;
height above ground 587 mm,
in tractor's median plane;
2 interchangeable p.t.o. shafts for 540 rev/min and 1000 rev/min p.t.o. speeds;
by interchanging p.t.o.-stub-shafts correct speed ratio is selected:

540 rev/min p.t.o.
35 mm dia, 6 splines, DIN 9611 and ISO 500 type 1;
613 rev/min at rated engine speed,
standard p.t.o. speed 540 rev/min at 1893 rev/min engine speed

1000 rev/min p.t.o.
35 mm dia, 21 splines, DIN 9611 and ISO 500 type 2;
1132 rev/min at rated engine speed,
standard p.t.o. speed 1000 rev/min at 1900 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 30)

Group	Reduction gear	Gear	Total ratio engine : driving wheels	Nominal travelling speed *) at rated engine speed km/h
Forward speeds				
L	RGL	1	615,21	0,95
		2	410,14	1,42
		3	300,28	1,94
		4	223,71	2,61
	RGH	1	264,34	2,21
		2	176,22	3,31
		3	129,02	4,52
		4	96,12	6,07
H	RGL	1	150,38	3,88
		2	100,26	5,82
		3	73,40	7,95
		4	54,69	10,67
	RGH	1	64,62	9,03
		2	43,08	13,55
		3	31,54	18,50
		4	23,50	24,84
Reverse speeds				
L	RGL	R	410,14	1,42
	RGH	R	176,22	3,31
H	RGL	R	100,26	5,82
	RGH	R	43,08	13,55

*) calculated with the RADIUS INDEX 720 mm as per WdK 154

Power lift

Hydraulic system:

MASSEY-FERGUSON S.A.
hydraulic power lift in unit construction;
MF piston pump with 29 l/min delivery
at rated engine speed,
in gear box, driven by the disc of the p.t.o. clutch; *)
MF control valve for lifting, lowering, draft control, position control and floating position;
top link sensing;
maximum oil pressure 210 bar;
1 single acting main cylinder with 85,6 mm bore and 120,7 mm stroke,
without overpressure relief valve;
1 external additional MF cylinder with
25 mm bore and 302 mm stroke

MF gear-type pump for auxiliary hydraulic system,
36 l/min delivery at rated engine speed,
in gear box, driven by the disc of the p.t.o. clutch; *)
up to 3 single or double acting additional control valves with oil tappings available

Oil capacity 47 l in common with gear box;
max. 13 l may be taken off through oil tappings when tractor is travelling, 15 l when tractor is working stationary

Implement linkage:

Three point linkage category II DIN 9674,
WALTERSCHEID quick coupler;
2 holes in the lower links for fitting the lift rods:
hole 1 in 560 mm
hole 2 in 610 mm distance of pivot point of lower links;
lift rods adjustable from 660 to 740 mm;
lifting range above ground when using hole no. 1:
with short lift rods from 308 to 885 mm
with long lift rods from 80 to 708 mm

hole no. 2:
with short lift rods from 405 to 895 mm
with long lift rods from 196 to 760 mm

*) both pumps stall during manipulation of p.t.o. clutch hand lever

Holed bar:	Short bar, fitted on clevis of lower links; length between the joint balls 830 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 95 to 910 mm, depending on lift rods length and fixing on the lower links, measured at the surface of the bar; distance of holes centre line with lower links in horizontal position: from rear axle centre 998 mm from p.t.o. shaft end 698 mm

Pull attachment

Swinging drawbar	Height above ground 330 or 415 mm, adjustable by turning drawbar; hitch hole 33 mm diameter; distance of hitch hole centre from rear axle centre 700 mm from p.t.o. shaft end 400 mm pivot point 145 mm behind rear axle centre; drawbar lateral swingable about 280 mm to either side
Trailer hitch:	CRAMER height above ground adjustable by shifting and turning in 4 steps from 775 to 970 mm; hitch hole 33 mm diameter; distance of hitch hole centre to rear axle centre 550 mm; permissible vertical load 1000 kg
Towing hitch:	690 mm above ground

Steering

ZAHNRADFABRIK FRIEDRICHSHAFEN AG
hydrostatic steering model 8450 with own oil circuit;
PLESSEY gear type pump with 6 cm³/rev delivery,
directly driven by engine;
oil capacity 5 l,
transmission oil ATF type A;
oil changing once a year;
1 double acting ram with 57 mm bore and 150 mm stroke
acting directly on front axle

Brakes

Parking brake: Mechanically acting on the discs of the service brake;
operated by hand lever with ratchet

Service brake: GIRLING
hydraulically acting wet disc brake with 5 lining discs on each differential half shaft,
disc diameter 222 mm,
pedal operated

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

Wheels

Steered wheels: 2 pneumatics in front 11,2-24 6 ply diagonal type tyre casing;
maximum permissible load per tyre 1045 kg at 1,8 bar inflation pressure and 30 km/h;
track widths adjustable from 1480 to 1980 mm in steps of 100 mm each by turning wheels and offset lug type rims;

rims W 9 x 24

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Driving wheels:	At front and at rear, specification of driving front wheels see at steered wheels; driving rear wheels: 2 pneumatics 18,4 R 30 6 ply, radial type tyre casing; maximum permissible load per tyre 2120 kg at 1,1 bar inflation pressure and 30 km/h; track widths adjustable from 1530 to 2230 mm in steps of 100 mm each by turning wheels and offset lug type rims; rims W 14L x 30
Wheel base:	2400 mm
Cab	Own make safety cab, OECD-tested, approval no. CSD 0129/3; 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; hot water heating and ventilation system
Seat	GRAMMER DS 20 4 H upholstered seat with back rest; adjustable spring with shock absorber; height of driver's platform above ground 1010 mm; height of unloaded seat above platform adjustable in 3 steps from 420 to 480 mm; for and aft adjustable about 150 mm

Number of grease points 21

Track setting during tests

front axle	1580 mm
rear axle	1530 mm

Dimensions

Total Length:	4005 mm	without ballast
	4335 mm	with ballast
Total width:	2015 mm	without ballast
	2180 mm	with ballast
Total height:	2540 mm	to mouth of exhaust silencer
Ground clearance:	340 mm	below swinging drawbar

Weights — Ready for use as tested, with cab

			without driver	with driver
Without ballast:	front		1515 kg	1530 kg
	rear		2325 kg	2390 kg
	total		3840 kg	3920 kg
Front ballast	1 front weight			37 kg
	8 front weights	28 kg each		224 kg
	water in the tyres			139 kg
Rear ballast:	1 weight per wheel	180 kg each		360 kg
	water in the tyres			660 kg
With ballast:	front		2015 kg	2030 kg
	rear		3245 kg	3310 kg
	total		5260 kg	5340 kg

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Lighting equipment Electrical 12 Volt
as per German legislation

	Dimensions mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Head lights	145 x 90	985	842
Side lights	70 x 20	1605	190
Rear lights	30 x 65	1450	250
Reflectors			
1st pair	130 x 40	1210	250
2nd pair	60 ø	675	455

Permissible total weights and axle loads for all available wheel equipment

Wheel equipment front	Wheel equipment rear	Permissible total weight kg	Permissible axle load front kg	Permissible axle load rear kg
12,5-20 MPT 8 ply	14,9-30 6 ply	5280	2200	3550
8,3-24 6 ply	14,9-30 6 ply	5280	1730	3550
12,5-20 MPT 8 ply 9,5-24 8 ply	16,9-30 6 ply	5500	2200	4000
14,5-20 MPT 10 ply 9,5-24 8 ply 11,2-24 6 ply	18,4-30 6 ply	5500	2200	4000
11,2-24 6 ply	16,9-34 6 ply	5500	2200	4000
12,5-20 MPT 8 ply	12,4-36 6 ply	4810	2200	3080
8,3-24 6 ply	12,4-36 6 ply	4810	1730	3080
14,5-20 MPT 10 ply 9,5-24 8 ply	13,6-36 6 ply	5500	2200	3450
11,2-24 6 ply	13,6-38 6 ply	5500	2200	3550

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FUELS AND LUBRICANTS USED IN TESTS

Fuel:	ARAL Diesel-fuel DIN 51601	
	specific gravity at 15°C:	
	at engine tests	0,829 kg/l
	at p.t.o. tests	0,831 kg/l
	at drawbar tests	0,834 kg/l
Engine:	ESSO ESSOLUBE HDX	SAE 20W/20
Transmission, rear axle and hydraulic:	ESSO multi purpose oil	20W/30
Front axle differential, front and rear axle final drives:	ESSO transmission oil	SAE 90
Steering:	OEST ATF oil type A	

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COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE (540 rev/min)

Date of tests: 12th June 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						
49.2	2150	613	15.58	12.95	263	3.16
At standard p.t.o. speed						
46.7	1893	540	14.19	11.80	253	3.29
At the speed recommended for drawbar work						
49.2	2150	613	15.58	12.95	263	3.16
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						
42.9	2208	630	13.73	11.41	266	3.13
(ii) unloaded						
-	2290	653	4.17	3.46	-	-
(iii) 50% of the load defined in (i)						
21.9	2250	642	8.56	7.12	326	2.55
(iv) maximum power						
49.2	2150	613	15.58	12.95	263	3.16
(v) 25% of the load defined in (i)						
11.0	2266	646	6.32	5.25	476	1.74
(vi) 75% of the load defined in (i)						
32.4	2225	635	10.93	9.08	280	2.97

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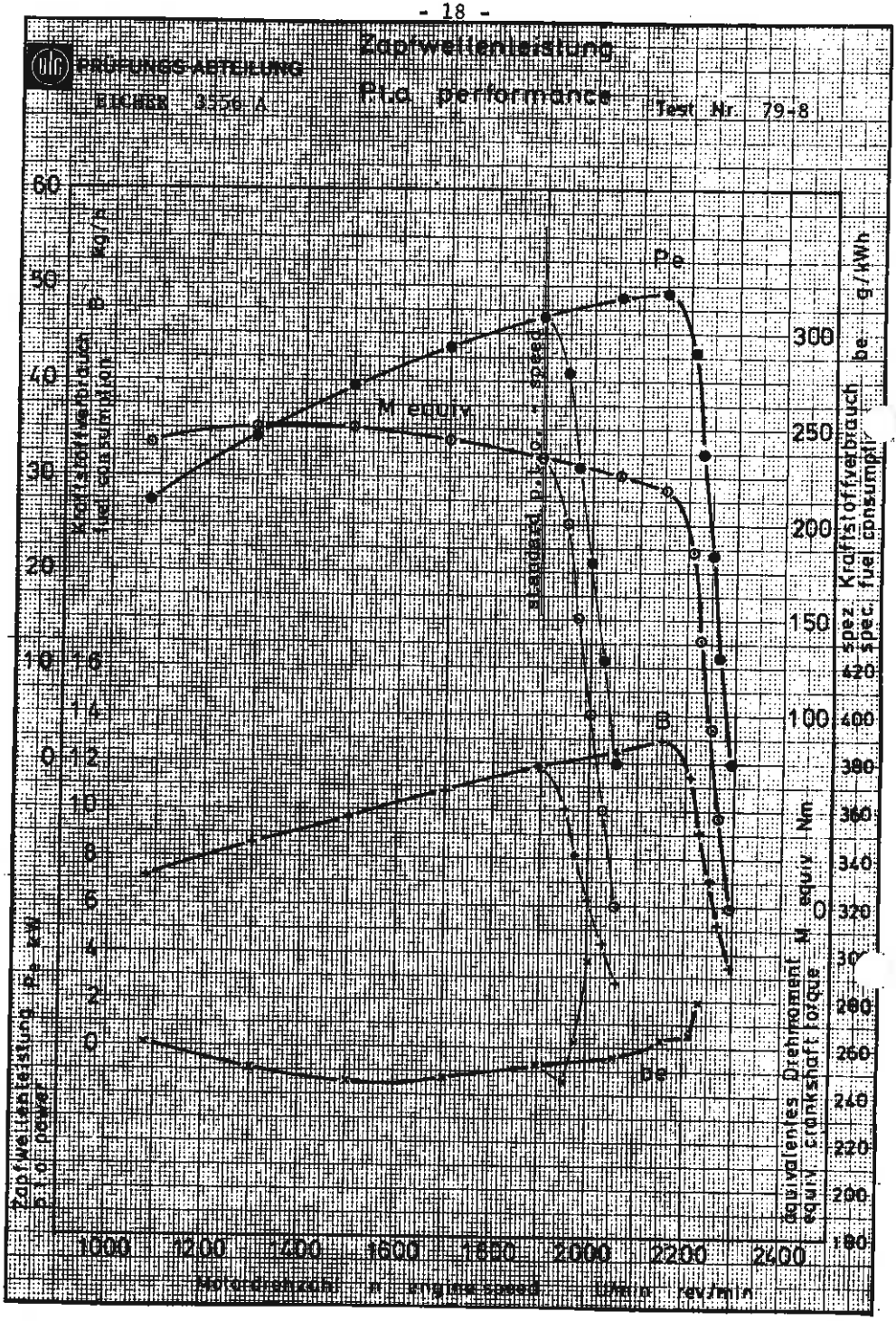
Test No. 79-8

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 standard p.t.o. speed						
40.8	1946	555	12.07	10.03	246	3.38
(ii) unloaded						
-	2055	586	3.33	2.77	-	-
(iii) 50% of the load defined in (i)						
21.0	1998	570	7.48	6.22	297	2.80
(iv) maximum power						
46.7	1893	540	14.19	11.80	253	3.29
(v) 25% of the load defined in (i)						
10.6	2027	578	5.32	4.42	416	2.00
(vi) 75% of the load defined in (i)						
31.0	1969	562	9.80	8.14	263	3.16

Standard specific fuel consumption (g/kWh): 266/326/246/297

No load maximum engine speed: 2290 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 218 Nm
Maximum equivalent crankshaft torque: 251 Nm at 1499 rev/min of the engine

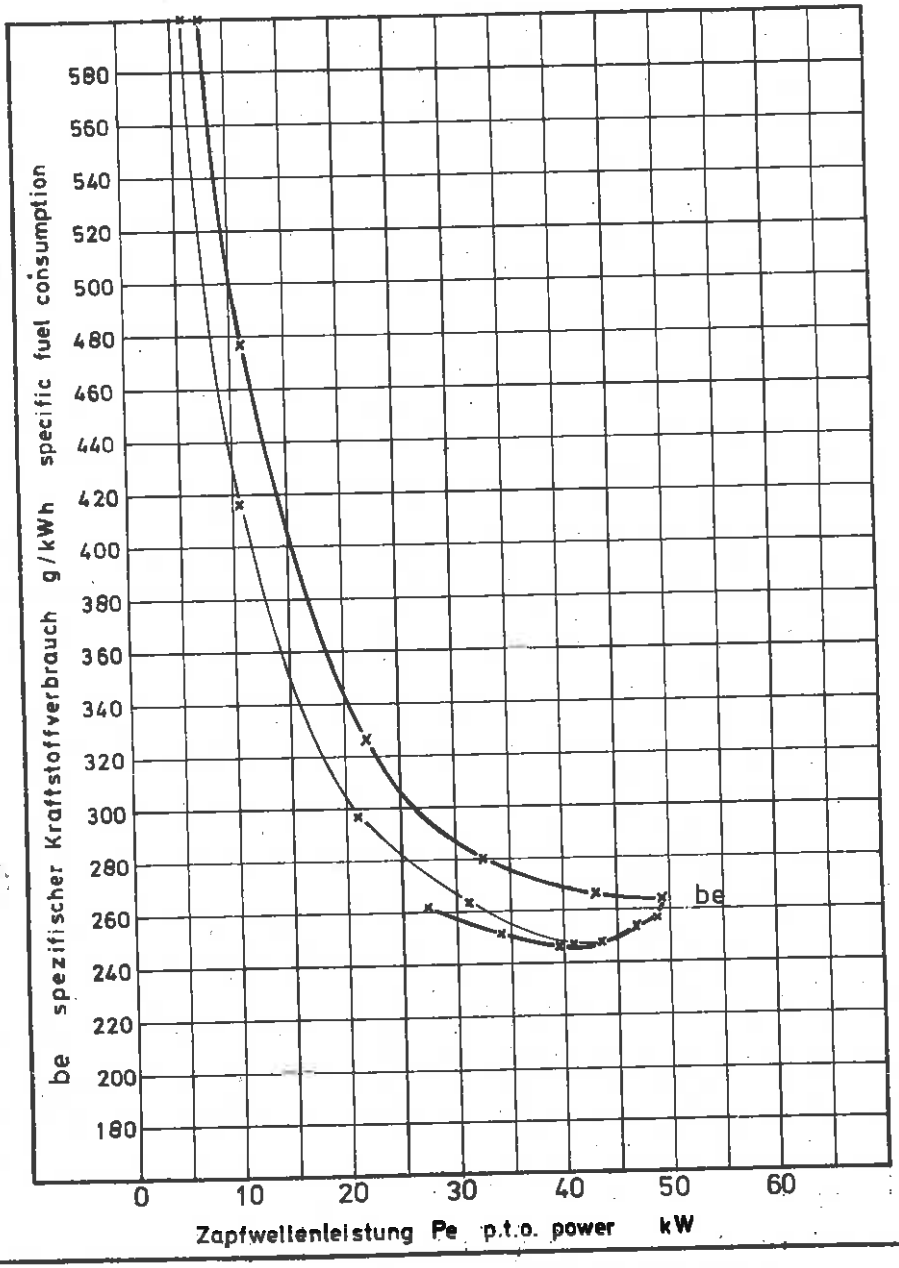
Mean atmospheric conditions:	temperature	24 °C
	pressure	1002 mbar
	relative humidity	80 %
Maximum temperatures:	coolant	88 °C
	engine oil	107 °C
	fuel	25 °C
	engine air intake	24 °C


Zapfwellenleistung
PTO performance
PRÜFUNGS-ABTEILUNG
Test Nr. 79-8
Pe
M equiv
B
Be
Zapfwellenleistung Pe kW
PTO power
Kraftstoffverbrauch B kg/h
fuel consumption
spez. Kraftstoffverbrauch be g/kWh
spec. fuel consumption
äquivalentes Drehmoment M equiv Nm
equiv. crankshaft torque
Motordrehzahl n engine speed U/min rev/min

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Zapfwellenleistung
P.t.o. performance

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(2) DRAWBAR PERFORMANCE

Date of tests: 1st till 8th October 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 360 mm					
1 L RGL	0,85	11,9	5062	2237	15,0
2 L RGL	1,27	18,0	5112	2224	15,0
3 L RGL	1,73	24,4	5093	2211	15,0
1 L RGH	1,95	27,4	5069	2202	15,0
4 L RGL	2,27	31,9	5053	2175	15,0
2 L RGH	2,88	38,9	4868	2150	13,8
1 H RGL	3,50	40,0	4117	2151	10,8
3 L RGH	4,15	41,6	3606	2149	9,1
2 H RGL	5,50	42,1	2753	2152	6,9
4 L RGH	5,74	40,9	2565	2148	6,3
3 H RGL	7,64	41,0	1933	2150	4,6
1 H RGH	8,71	41,2	1701	2151	4,1
4 H RGL	10,37	39,1	1357	2148	3,2
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 4th L RGH gear					
4 L RGH	5,95	31,8	1924	2191	4,7
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)					
4 L RGL	2,27	32,2	5112	-	-
(iv) MAXIMUM POWER without ballast height of drawbar above ground 380 mm					
2 L RGH	2,89	31,6	3931	2188	15,1
1 H RGL	3,37	37,0	3951	2170	14,9
3 L RGH	3,93	40,2	3681	2148	13,8
2 H RGL	5,31	41,1	2785	2151	9,7
4 L RGH	5,55	42,2	2736	2150	9,5
3 H RGL	7,48	41,7	2008	2148	6,6
1 H RGH	8,57	42,8	1798	2147	5,9
4 H RGL	10,25	41,3	1449	2148	4,8

Total oil consumption during ten hours duration of tests (ii) and (iii) 71 g/h

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Tyres size front: 11,2-24 6 ply
rear: 18,4 R 30 6 ply

Tread bar height at the beginning of drawbar tests 94% of the value when new at front, 89% 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 Tempe-rature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 1,8 bar at front, 1,1 bar at rear							
1,63	508	20	86	87	23	69	994
2,03	409	20	86	88	20	69	994
2,26	368	18	86	88	18	72	994
2,38	351	18	86	85	18	84	994
2,39	346	24	86	89	25	65	992
2,49	332	24	86	87	25	64	992
2,58	321	25	86	89	25	66	991
2,67	311	19	86	89	18	63	1000
2,70	308	19	86	90	18	62	1000
2,61	318	19	86	87	18	63	1000
2,62	317	19	86	89	18	64	1000
2,64	315	19	86	88	18	66	1000
2,50	331	25	86	90	26	63	991
2,56	325	23	86	99	24	74	1003
-	-	23	86	102	23	73	991
tyre inflation pressure 1,1 bar at front, 1,1 bar at rear							
2,52	331	16	86	85	10	95	1004
2,53	329	17	86	85	11	89	1005
2,59	322	16	86	88	15	82	1003
2,62	318	17	86	89	18	74	1003
2,69	310	16	86	85	11	88	1004
2,67	312	18	86	88	18	62	1003
2,73	305	18	86	88	18	63	1003
2,65	312	25	86	90	23	61	1003

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

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(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 11,2-24 6 ply
rear: 18,4 R 30 6 ply

Track of wheels front: 1580 mm
rear: 1530 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	4,39	4,38	5,18	5,15
Radius of turning circle	4,19	4,17	4,99	4,94

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	925 mm
Distance forward from rear axle centre	943 mm
Distance from tractor's median plane	4 mm to the left

(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 2nd and 3rd October, 1979
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 5340 kg

Front axle drive disengaged

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s²	3,9	3,9
Stopping distance	m	7,2	7,0
Force on pedal	daN	30	23
Force on pedal to achieve a deceleration of 2,5 m/s²	daN	20	15

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	100	100
Stopping distance	cold/hot	%	100	100
Force on pedal	cold/hot	%	107	110

B) PARKING BRAKE

Tractor facing up 16% slope
Pull on hand brake 15 daN, tractor does not roll

Tractor facing down 16% slope
Pull on hand brake 15 daN, tractor does not roll

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(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 2nd October, 1979
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Results of test

Gear: 4th H RGH
Travelling speed before acceleration: 19,3 km/h
Sound level: 88;0 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 1st October, 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	Travelling speed nominal	Travelling speed effective	Sound level
	daN	km/h	km/h	dB(A)
1 L RGL	3916	0,95	0,76	89,5
2 L RGL	3876	1,42	1,11	90,5
3 L RGL	3936	1,94	1,43	90,5
1 L RGH	3934	2,21	1,81	92,0
4 L RGL	3937	2,61	2,17	91,0
2 L RGH	3910	3,31	2,72	92,0
1 H RGL	3342	3,88	3,46	92,0
3 L RGH	2849	4,52	4,21	91,5
2 H RGL	2407	5,82	5,47	92,0
4 L RGH	2247	6,07	5,76	92,5
3 H RGL *)	1683	7,95	7,70	92,5
1 H RGH	1491	9,03	8,88	92,5
4 H RGL	1235	10,67	10,43	92,5
2 H RGH	965	13,55	13,35	92,0
3 H RGH	665	18,50	18,40	93,0
4 H RGH	light load	24,84	25,71	90,0

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

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(8) HYDRAULIC PUMP PERFORMANCE AND POWER LIFT

Date of tests: 25th May and 12th August 1979

HYDRAULIC PUMP

Power lift circuit

(1) Opening pressure of relief valve in power lift circuit	181 bar
Sustained pressure by open relief valve	216 bar
(2) Pump delivery rate at minimum pressure and rated engine speed	29,4 l/min
(3) Pump delivery rate at max. hydraulic power	28,2 l/min
corresponding delivery pressure	181 bar
power	8,5 kW

Auxiliary hydraulic circuit

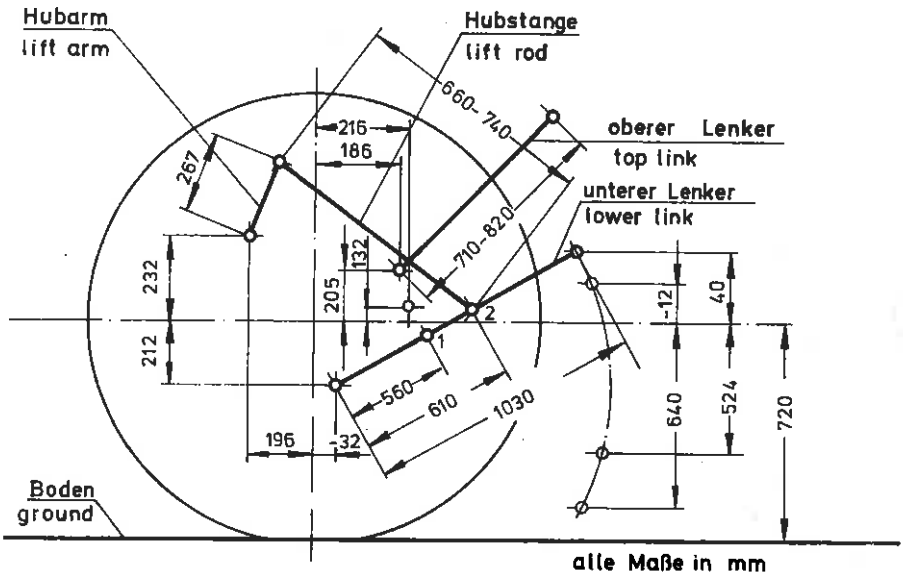
(1) Opening pressure of relief valve in remote circuit	160 bar
Sustained pressure by open relief valve	184 bar
(2) Pump delivery rate at minimum pressure and rated engine speed	36,4 l/min
(3) Pump delivery rate at max. hydraulic power	36,0 l/min
corresponding delivery pressure	167 bar
power	10,0 kW

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POWER LIFT

Dimensions of linkage geometry for the table on page 27



LINKAGE GEOMETRY when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	1030 mm	1030 mm
Lift arms	267 mm	267 mm
Lift rods	740 mm	740 mm
Top link	813 mm	780 mm
Distance of lift rod connection point from pivot point of lower link	610 mm	560 mm
The following dimensions are given relative to rear axle centre line 720 mm above ground		
Lower link pivot point	32 mm forward, 212 mm below	32 mm forward, 212 mm below
Top link pivot point	186 mm behind, 205 mm above	216 mm behind, 132 mm above
Lift arm pivot point	196 mm forward, 232 mm above	196 mm forward, 232 mm above
Maximum and minimum height of lower link hitch points	40 mm above, 524 mm below	12 mm below, 640 mm below
Height of lower link hitch points above ground when locked in highest transport position	760 mm	708 mm

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LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-461	-428	-400	-325	-300	-200	-103

at hitch points maximum mechanical advantage

daN							3150

minimum mechanical advantage

daN		2120	2170		2290	2330	

Max. force exerted throughout the whole range 2600 daN

Front of tractor does not lift, if front axle is ballasted to its max. permissible load (2200 kg)

at test frame maximum mechanical advantage

daN				2510	2510	2460	

minimum mechanical advantage

daN	2020		2000		1980	1950	

max. force exerted throughout the whole range 2000 daN

Front of tractor does not lift, if front axle is ballasted to its max. permissible load

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-100	0	+100	+200	+242	+247	+300	+387

lift rods 660 mm long, hole no. 2

3130	3010	2890	2780			2700	2600

lift rods 740 mm long, hole no. 1

2310	2270	2250	2190				

lift rods 740 mm long, hole no.2, upper top link pivot point

2380	2300	2210	2080		2000		

lift rods 740 mm long, hole no.1, lower top link pivot point

1890	1830	1760	1690	1640			

All values of forces for pressure 181 bar at max. hydraulic power, see page 25; calculated from measurements at max. oil pressure 216 bar

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OPTIONAL TESTS

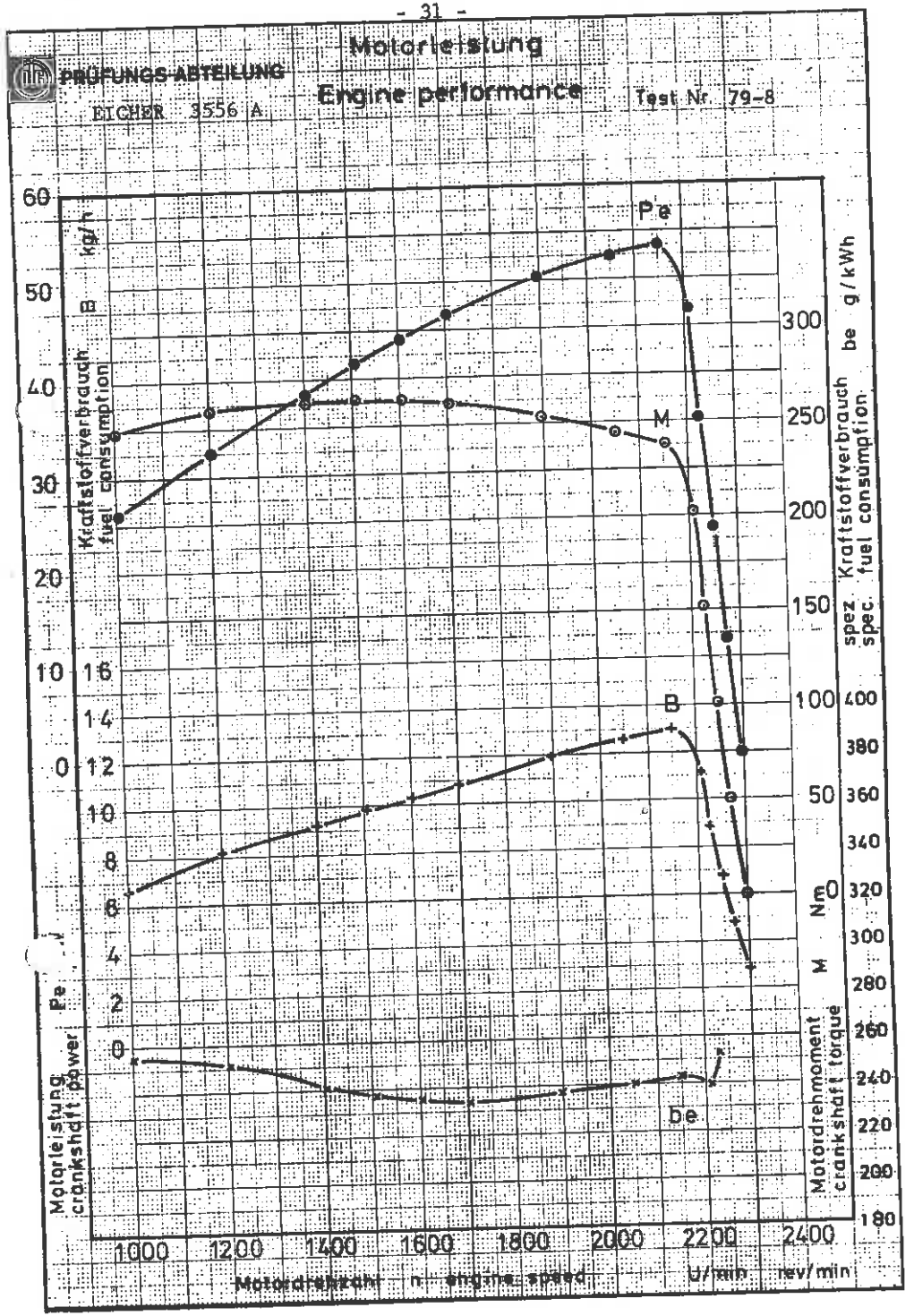
(9) ENGINE PERFORMANCE

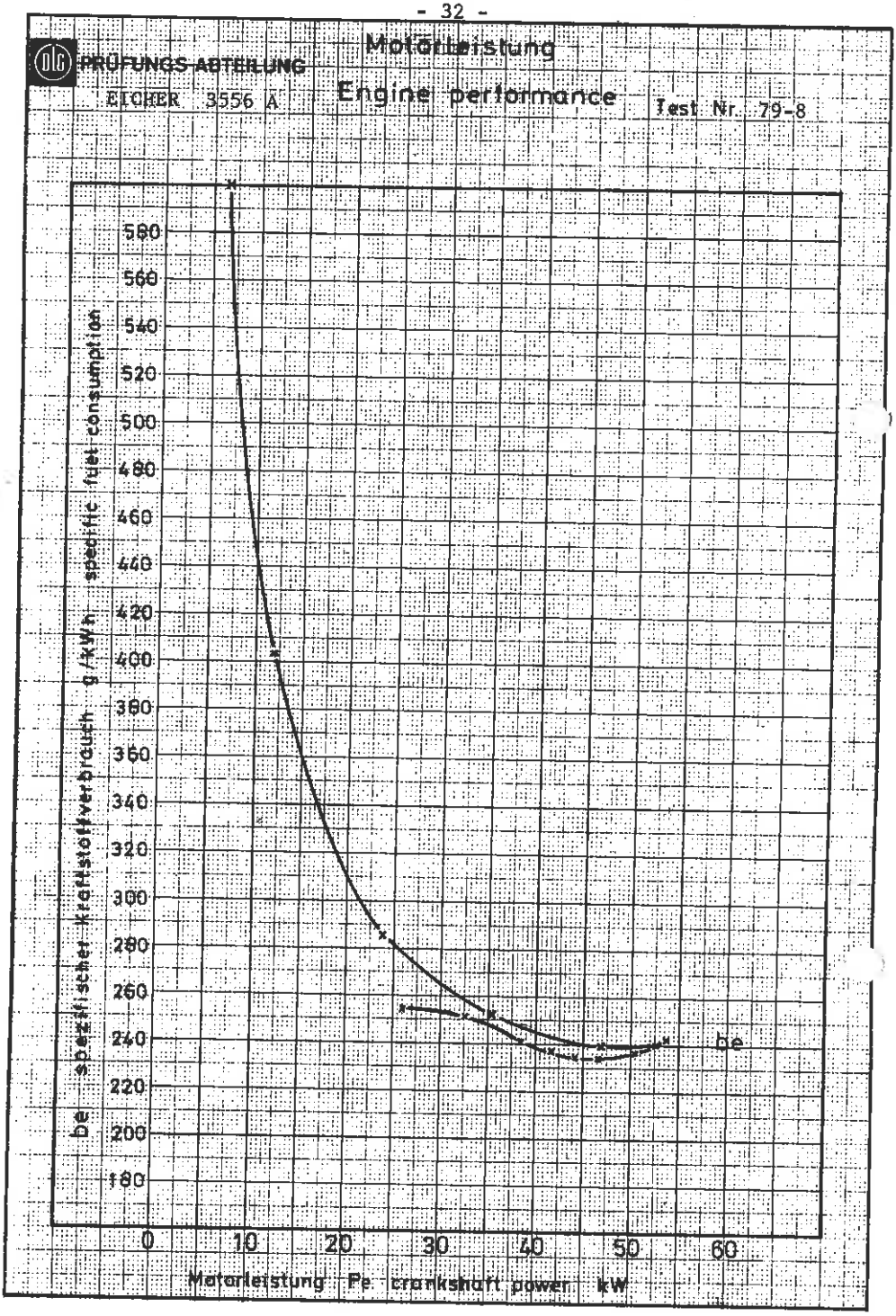
Date of tests: 14th and 15th February 1979
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

Power kW	Engine speed rev/min	Fuel consumption total 1/h	Fuel consumption total kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
At 2-hour test					
53.6	2150	15.70	13.02	243	3.41
At standard p.t.o. speed (540 rev/min)					
50.3	1893	14.36	11.90	236	3.51
At the speed recommended for drawbar work					
53.6	2150	15.70	13.02	243	3.41
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
46.8	2207	13.49	11.18	239	3.47
(ii) unloaded					
-	2297	3.52	2.91	-	-
(iii) 50% of the load defined in (i)					
23.8	2247	8.20	6.80	286	2.90
(iv) maximum power					
53.6	2150	15.70	13.02	243	3.41
(v) 25% of the load defined in (i)					
12.0	2270	5.85	4.85	403	2.06
(vi) 75% of the load defined in (i)					
35.3	2223	10.75	8.91	252	3.29

Optimum fuel consumption: 224 g/kWh at 29,0 kW and 1399 rev/min
No load maximum engine speed: 2297 rev/min
Torque at maximum power (2 hours): 238 Nm
Maximum torque: 264 Nm at 1505 rev/min of the engine

Mean atmospheric conditions:	temperature	20 °C
	pressure	969 mbar
	relative humidity	50 %
Maximum temperatures:	coolant	86 °C
	engine oil	111 °C
	fuel	21 °C
	engine air intake	20 °C


Motorleistung
Engine performance
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Pe
M
B
be
Kraftstoffverbrauch fuel consumption kg/h
spez. Kraftstoffverbrauch spec. fuel consumption g/kWh
Motorleistung crankshaft power Pe
Motordrehmoment crankshaft torque M Nm
Motordrehzahl n engine speed U/min rev/min
1000
1200
1400
1600
1800
2000
2200
2400


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Motorleistung
Engine performance
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be spezifischer Kraftstoffverbrauch g/kWh specific fuel consumption
580
560
540
520
500
480
460
440
420
400
380
360
340
320
300
280
260
240
220
200
180
be
0
10
20
30
40
50
60
Motorleistung Pe crankshaft power kW

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Motorleistung
Engine performance

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Motorleistung in % der Leistung bei Nenndrehzahl

engine power in % of power at rated engine speed

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