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

O.E.C.D. No. **661**



Agricultural Tractor EICHER 3656 A
trade name: EICHER 3085 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 September 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. 661

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 3656 A

Test No. 79-10

TABLE OF CONTENTS

	Page
Specification of tractor	4 to 14
Fuel and lubricants used in tests	15
COMPULSORY TESTS	
(1) Main power take-off performance	16 to 19
(2) Drawbar performance on a concrete track	20 and 21
(3) Turning space and turning circle	22
(4) Location of centre of gravity	22
(5) Braking performance	23
(6) Ambient noise, emitted by the tractor	24
(7) Noise at the driver's ear level	24
(8) Power lift and hydraulic pump performance	25 to 29
OPTIONAL TESTS	
(9) Engine performance	30 to 33

PRÜFUNGS-ABTEILUNG
EICHER 3656 A

Test No. 79-10

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. 35 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	EICHER
Model:	3656 A trade name 3085 A
Type:	Wheel tractor, unit construction, all-wheel driven
Serial No:	146 645

Engine

Make:	EICHER
Model:	E D K 4 - 12
Type:	4-stroke Diesel-engine, direct injection, air-cooled, turbo supercharged
Serial No:	129883
Cylinders:	4, in line, bore 100 mm, stroke 125 mm, displacement 3927 cm^3, compression ratio 18; 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 4 A 80 D 420 RS 1277, manufacturer's production setting 70 mm^3/stroke at rated engine speed; injection timing 30,5° before TDC; BOSCH pintle-type nozzles DNO SD 137, injection pressure 148 bar; CAV two-stage fuel filter with replaceable cartridges; capacity of fuel tank 150 l
Governor:	BOSCH centrifugal variable speed governor: RSV 300-1050 A 1 B 2052 DR, governed range of speed 650 to 2225 rev/min, rated engine speed 2100 rev/min

Charger:	KÜHNLE, KOPP UND KAUSCH exhaust driven supercharger K 26-2470 V 6.11 supercharge pressure max. 700 mbar, without air intercooler
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 2590 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 12 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 JD 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:	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-1321 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	1,7 l
	front axle differential		4,5 l
	front axle final drives	each	1 l
Oil changing interval	Front axle differential		1000 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 637 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; 599 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; 1105 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

PRÜFUNGS-ABTEILUNG
EICHER 3656 A

Test No. 79-10

Total ratios and speeds (tyres 18,4 R 34)

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	0,99
		2	410,14	1,49
		3	300,28	2,03
		4	223,71	2,72
	RGH	1	264,34	2,31
		2	176,22	3,46
		3	129,02	4,72
		4	96,12	6,34
H	RGL	1	150,38	4,05
		2	100,26	6,08
		3	73,40	8,30
		4	54,69	11,15
	RGH	1	64,62	9,43
		2	43,08	14,15
		3	31,54	19,33
		4	23,50	25,94
Reverse speeds				
L	RGL	R	410,14	1,49
	RGH	R	176,22	3,46
H	RGL	R	100,26	6,08
	RGH	R	43,08	14,15

*) calculated with the INDEX RADIUS 770 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 230 bar;
1 single acting main cylinder with 85,6 mm bore and 120,7 mm stroke,
without overpressure relief valve;
2 external additional MF cylinders 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 630 to 740 mm ;
lifting range above ground when using
hole no. 1:
with short lift rods from 453 to 952 mm
with long lift rods from 163 to 778 mm
hole no. 2:
with short lift rods from 552 to 998 mm
with long lift rods from 272 to 831 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 172 to 1007 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 380 or 465 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 825 to 1020 mm; hitch hole 33 mm diameter; distance of hitch hole centre to rear axle centre 550 mm; permissible vertical load 1000 kg
Towing hitch:	695 mm above ground

PRÜFUNGS-ABTEILUNG
EICHER 3656 A

Test No. 79-10

Steering	ZAHNRADFABRIK FRIEDRICHSHAFEN AG hydrostatic steering model 8450 with own oil circuit; PLESSEY gear type pump with 8 cm^3/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 45 mm bore and 200 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 12,4 R 24 6ply radial type tyre casing; maximum permissible load per tyre 1200 kg at 1,7 bar inflation pressure and 30 km/h; track widths adjustable from 1580 to 1980 mm in steps of 100 mm each by turning wheels and offset lug type rims; rims W 10 x 24

Driving wheels:	At front and at rear, specification of driving front wheels see at steered wheels; driving rear wheels: 2 pneumatics 18,4 R 34 6 ply, radial type tyre casing; maximum permissible load per tyre 2250 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 14 L x 34
Wheel base:	2520 mm
Cab	Own make safety cab, OECD-tested, approval no. CSD 0129/1; 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	GRAMMER DS 20 4 H upholstered seat with back rest; adjustable spring with shock absorber; height of driver's platform above ground 1040 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:	4140 mm	without ballast
	4470 mm	with ballast
Total width:	1980 mm	without ballast
	2180 mm	with ballast
Total height:	2590 mm	to mouth of exhaust silencer
Ground clearance	393 mm	below swinging drawbar

Weights

Ready for use as tested, with cab

		without driver	with driver
Without ballast:	front	1700 kg	1710 kg
	rear	2440 kg	2515 kg
	total	4140 kg	4225 kg
Front ballast:	1 front weight		37 kg
	8 front weights 28 kg each		224 kg
	water in the tyres		209 kg
Rear ballast:	1 weight per wheel 180 kg each		360 kg
	water in the tyres		715 kg
With ballast:	front	2245 kg	2260 kg
	rear	3440 kg	3510 kg
	total	5685 kg	5770 kg

PRÜFUNGS-ABTEILUNG
EICHER 3656 A

Test No. 79-10

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	995	827
Side lights	70 x 20	1665	170
Rear lights	30 x 65	1528	245
Reflectors			
1st pair	130 x 40	1300	250
2nd pair	60 Ø	650	470

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
9,5-24 8ply 14,5-20MPT 10ply	13,6-36 6ply	5800	2370	3450
9,5-24 8ply 11,2-24 8ply 14,5-20MPT 10ply	13,6-38 6ply	5900	2370	3550
11,2-24 8ply 14,5-20MPT 10ply	16,9-34 6ply	6000	2400	4300
12,4-24 6ply 13,6-24 8ply	16,9-38 8ply	6000	2400	4800
9,5-28 6ply	16,9-38 8ply	6000	2150	4800
9,5-24 8ply 14,5-20MPT 10ply	18,4-30 6ply	6000	2370	4500
11,2-24 8ply 12,4-24 6ply	18,4-34 6ply	6000	2400	4800

PRÜFUNGS-ABTEILUNG
EICHER 3656 A

Test No. 79-10

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	0,828 kg/l
	at drawbar tests	0,820 kg/l
Engine:	ESSO ESSOLUBE XD3	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	

PRÜFUNGS-ABTEILUNG

EICHER 3656 A

Test No. 79-10

COMPULSORY TESTS

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

Date of tests: 24th April 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						
57.5	2100	599	17.63	14.59	254	3.26
At standard p.t.o. speed						
54.6	1893	540	16.45	13.61	249	3.32
At the speed recommended for drawbar work						
57.5	2100	599	17.63	14.59	254	3.26
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						
49.6	2130	608	15.38	12.73	257	3.22
(ii) unloaded						
-	2225	635	4.22	3.49	-	-
(iii) 50% of the load defined in (i)						
25.4	2180	622	9.76	8.08	318	2.60
(iv) maximum power						
57.5	2100	599	17.63	14.59	254	3.26
(v) 25% of the load defined in (i)						
12.8	2205	629	6.95	5.75	449	1.84
(vi) 75% of the load defined in (i)						
37.7	2158	615	12.68	10.49	279	2.97

PRÜFUNGS-ABTEILUNG

EICHER 3656 A

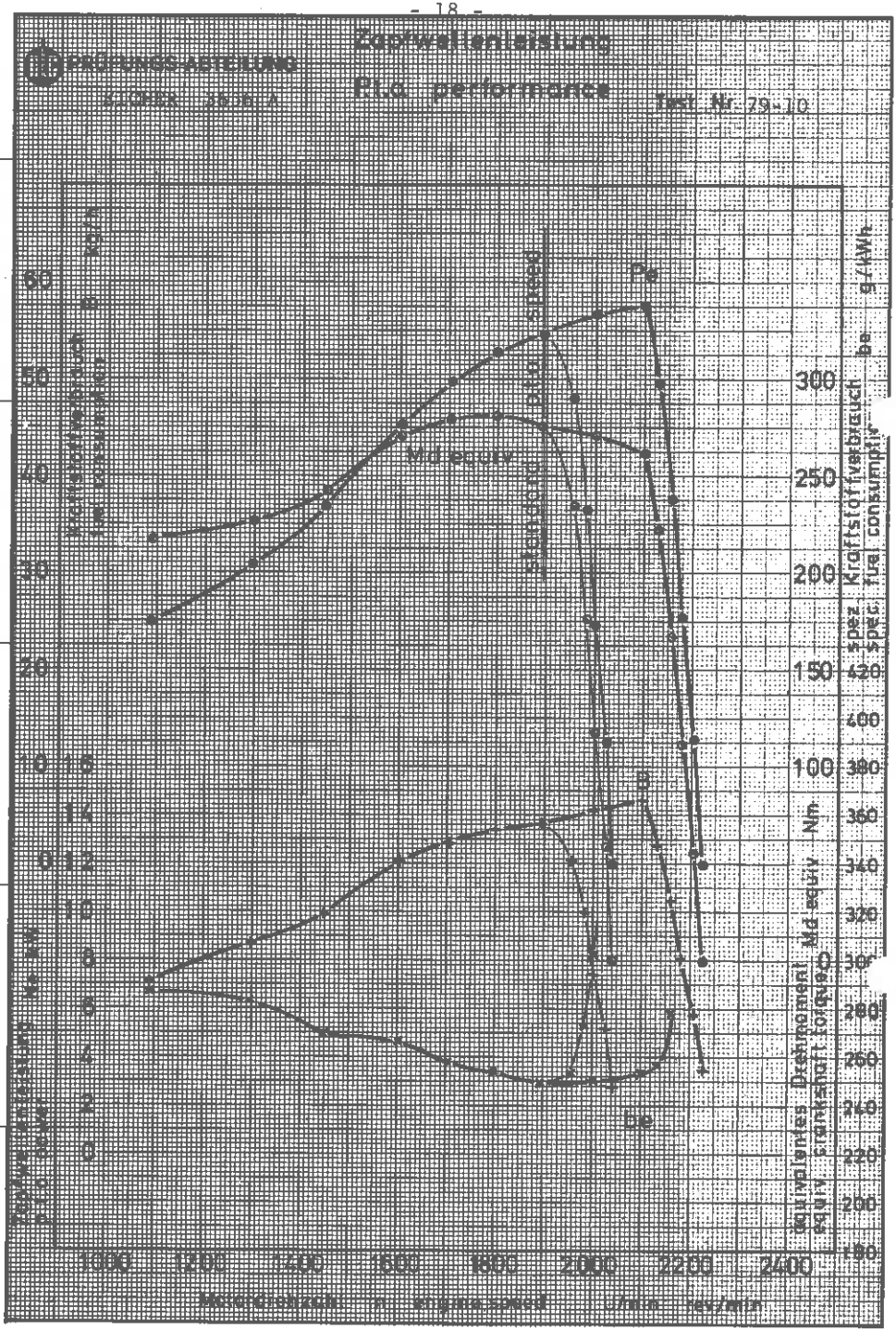
Test No. 79-10

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						
48.0	1955	558	14.68	12.15	253	3.27
(ii) unloaded						
-	2040	582	3.39	2.81	-	-
(iii) 50% of the load defined in (i)						
24.5	2000	570	8.95	7.41	302	2.74
(iv) maximum power						
54.6	1893	540	16.45	13.61	249	3.32
(v) 25% of the load defined in (i)						
12.4	2026	578	6.31	5.22	421	1.97
(vi) 75% of the load defined in (i)						
36.4	1983	566	12.02	9.95	273	3.03

Standard specific fuel consumption (g/kWh): 257/318/253/302

No load maximum engine speed: 2225 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 261 Nm
Maximum equivalent crankshaft torque: 278 Nm at 1705 rev/min of the engine

Mean atmospheric conditions:	temperature	17 °C
	pressure	977 mbar
	relative humidity	70 %
Maximum temperatures:	coolant	-
	engine oil	96 °C
	fuel	25 °C
	engine air intake	18 °C


Zapfwellenleistung
PTO performance
Test Nr. 79-10
PRÜFUNGS-ABTEILUNG
Pe
Md equiv
standard atm. speed
be
Nm
g/kWh
kW
PS
Motordrehzahl
engine speed
U/min
rev/min

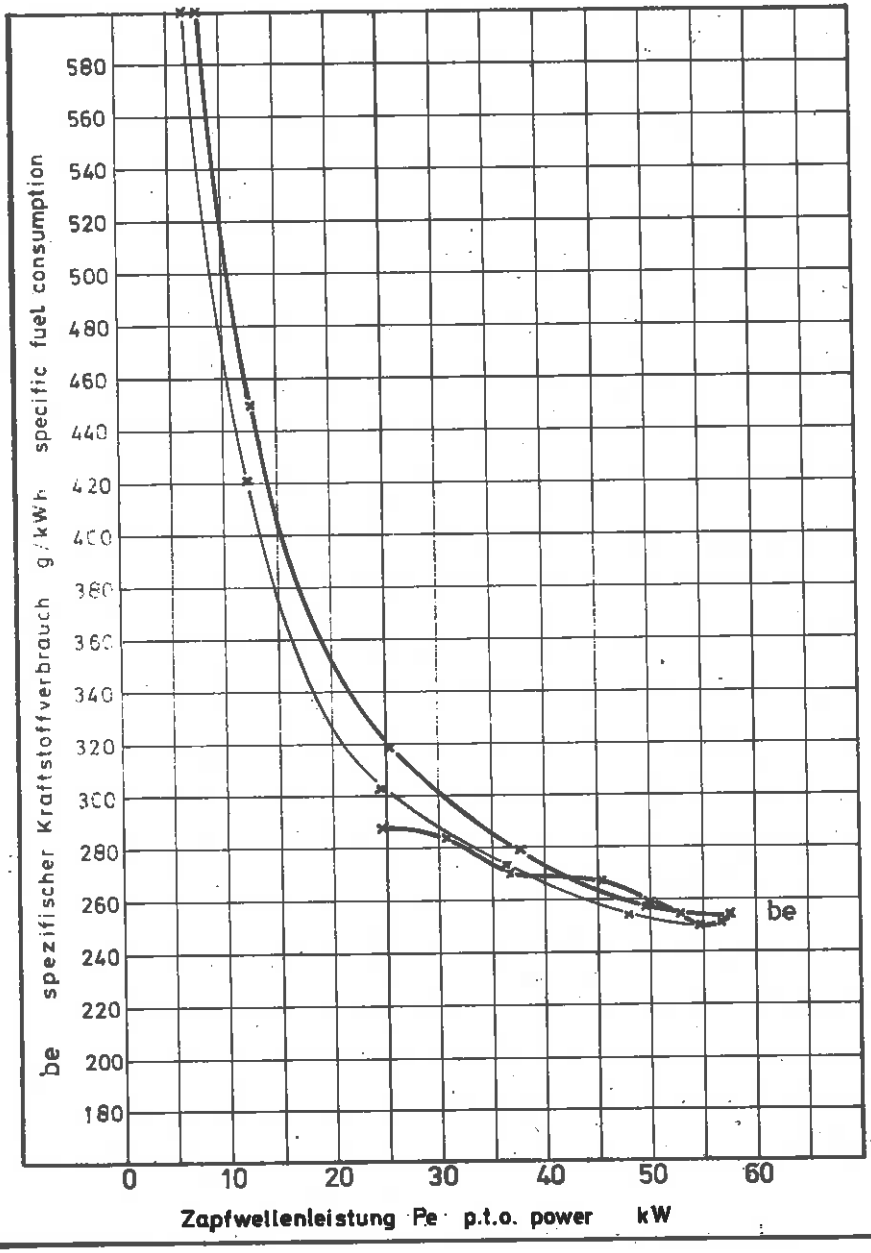
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EICHER 3656 A

Zapfwellenleistung

P.t.o. performance

Test Nr. 79-10



PRÜFUNGS-ABTEILUNG
EICHER 3656 A

(2) DRAWBAR PERFORMANCE

Date of tests: 11th till 20th September 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 heigth of drawbar above ground 425 mm					
1 L RGL	0,89	13,8	5556	2187	15,0
2 L RGL	1,34	20,7	5561	2177	15,1
3 L RGL	1,81	27,8	5540	2151	15,0
1 L RGH	2,05	31,7	5565	2149	15,1
4 L RGL	2,41	36,9	5525	2136	15,1
2 L RGH	3,00	46,2	5546	2108	15,1
1 H RGL	3,66	48,5	4772	2102	11,3
3 L RGH	4,36	49,2	4066	2101	9,1
2 H RGL	5,77	50,0	3121	2104	6,5
4 L RGH	6,02	49,6	2964	2098	6,3
3 H RGL	8,01	48,8	2192	2096	4,5
1 H RGH	9,16	49,4	1942	2099	4,0
4 H RGL	10,95	47,1	1550	2101	3,1
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 2 nd H RGL gear					
2 H RGL	5,97	38,8	2341	2137	4,8
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)					
2 L RGH	2,96	45,8	5565	-	-
(iv) MAXIMUM POWER without ballast height of drawbar above ground 360 mm					
2 L RGH	3,04	36,9	4365	2139	15,0
1 H RGL	3,55	43,2	4379	2129	15,0
3 L RGH	4,17	46,8	4037	2101	13,2
2 H RGL	5,62	48,0	3077	2100	8,9
4 L RGH	5,89	48,4	2959	2102	8,4
3 H RGL	7,95	48,3	2185	2101	5,5
1 H RGH	9,08	48,8	1934	2099	4,8
4 H RGL	10,82	47,4	1577	2098	3,9

Total oil consumption during ten hours duration of tests (ii) and (iii) 87 g/h

PRÜFUNGS-ABTEILUNG

Test No. 79-10

Tyres size front: 12,4 R 24 6ply
rear: 18,4 R 34 6ply

Tread bar height at the beginning of drawbar tests 86% of the value when new at front, 94% 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 1,6 bar at front, 1,1 bar at rear							
1,73	474	18	-	76	15	80	1002
2,06	397	18	-	75	15	77	1002
2,35	347	23	-	80	23	65	999
2,50	326	23	-	79	23	68	999
2,49	327	22	-	79	20	76	998
2,62	311	22	-	79	20	65	998
2,73	299	20	-	79	18	69	1001
2,77	295	20	-	78	18	69	1001
2,81	291	20	-	78	18	70	1002
2,79	293	21	-	79	20	62	1001
2,74	298	22	-	77	21	60	1001
2,78	293	22	-	79	21	59	1001
2,66	307	22	-	80	21	61	1001
2,64	309	22	-	90	22	89	996
-	-	25	-	100	23	66	1002
tyre inflation pressure 1,0 bar at front, 1,1 bar at rear							
2,48	329	24	-	82	20	92	1004
2,55	320	24	-	82	20	92	1004
2,63	310	24	-	78	20	90	1004
2,70	302	24	-	77	21	86	1004
2,73	299	24	-	83	21	79	1004
2,71	300	24	-	78	22	80	1005
2,75	296	25	-	75	24	74	1005
2,67	305	25	-	75	21	70	1005

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

PRÜFUNGS-ABTEILUNG
EICHER 3656 A

Test No. 79-10

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 12,4 R 24 6 ply
rear: 18,4 R 34 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	4,74	4,79	5,65	5,68
Radius of turning circle	4,50	4,55	5,40	5,43

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	910 mm
Distance forward from rear axle centre	1016 mm
Distance from tractor's median plane	3 mm to the left

PRÜFUNGS-ABTEILUNG
EICHER 3656 A

Test No. 79-10

(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 13th and 14th September 1979
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 5770 kg

Front axle drive disengaged

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s^2	3,8	3,7
Stopping distance	m	8,0	8,2
Force on pedal	daN	25	17
Force on pedal to achieve a deceleration of 2,5 m/s^2	daN	12	11

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	100	100
Stopping distance	cold/hot	%	100	100
Force on pedal	cold/hot	%	114	113

B) PARKING BRAKE

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

Tractor facing down 16% slope
Pull on hand brake 14 daN, tractor does not roll

PRÜFUNGS-ABTEILUNG
EICHER 3656 A

Test No. 79-10

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 13th September 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: 20,3 km/h
Sound level: 89 dB (A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 12th September 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	4395	0,99	0,52	87,5
2 L RGL	4314	1,49	1,03	88,5
3 L RGL	4340	2,03	1,51	88
1 L RGH	4317	2,31	1,54	88,5
4 L RGL	4300	2,72	2,12	88
2 L RGH	4406	3,46	2,96	88,5
1 H RGL	4306	4,05	3,45	87
3 L RGH	3936	4,72	4,12	88
2 H RGL	3019	6,08	5,66	88
4 L RGH	2884	6,34	5,93	88,5
3 H RGL*)	2101	8,30	7,95	88
1 H RGH	1885	9,43	9,08	88
4 H RGL	1522	11,15	10,90	88,5
2 H RGH	1202	14,15	13,94	88,5
3 H RGH	804	19,33	19,23	88,5
4 H RGH	light load	25,94	27,0	88

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

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EICHER 3656 A

Test No. 79-10

(8) HYDRAULIC PUMP PERFORMANCE AND POWER LIFT

Date of tests: 30th July and 2nd August 1979

HYDRAULIC PUMP

Power lift circuit

(1) Opening pressure of relief valve in power lift circuit	184	bar
Sustained pressure by open relief valve	235	bar
(2) Pump delivery rate at minimum pressure and rated engine speed	29,6	l/min
(3) Pump delivery rate at max. hydraulic power	26,1	l/min
corresponding delivery pressure	184	bar
power	8,0	KW

Auxiliary hydraulic circuit

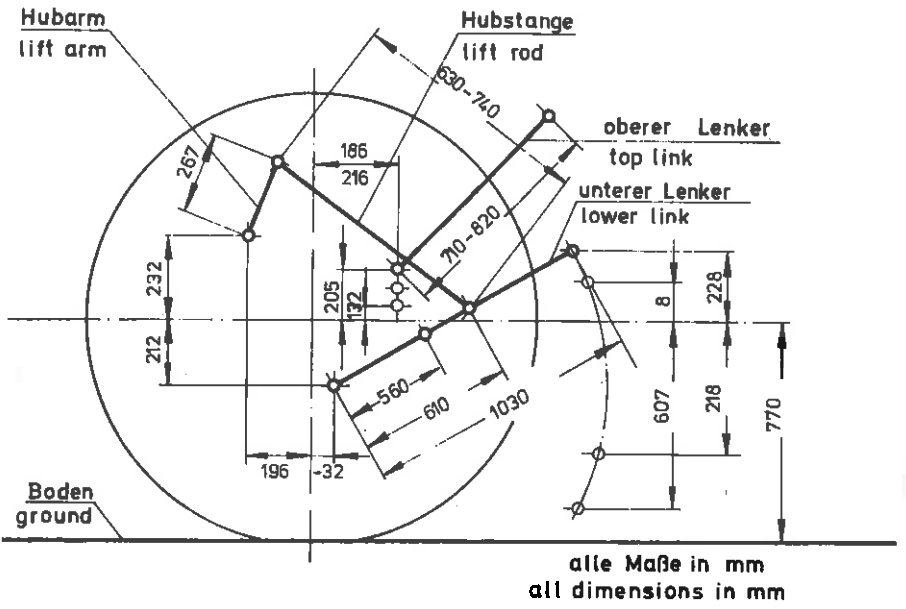
(1) Opening pressure of relief valve in remote circuit	151	bar
Sustained pressure by open relief valve	178	bar
(2) Pump delivery rate at minimum pressure and rated engine speed	36,1	l/min
(3) Pump delivery rate at max. hydraulic power	33,7	l/min
corresponding delivery pressure	155	bar
power	8,7	KW

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EICHER 3656 A

Test No. 79-10

POWER LIFT

Dimensions of linkage geometry for the table on page 27



alle Maße in mm
all dimensions in mm

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	630 mm	740 mm
Top link	815 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 770 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	228 mm above, 218 mm below	8 mm above, 607 mm below
Height of lower link hitch points above ground when locked in highest transport position	998 mm	778 mm

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EICHER 3656 A

LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-440	-400	-395	-300	-200	-100	- 8	- 6	0
at hitch points maximum mechanical advantage									
daN								3830	3830
minimum mechanical advantage									
daN			2560	2600	2640	2670			2680

Max. force exerted throughout the whole range 3140 daN

Front of tractor does not lift

at test frame maximum mechanical advantage									
daN							3300		3290
minimum mechanical advantage									
daN	2450	2450		2430	2370	2310			2230

Max. force exerted throughout the whole range 2340 daN

Front of tractor does not lift if front axle is ballasted to its max. permissible load (2400 kg)

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Test No. 79-10

+100	+200	+220	+265	+300	+400	+440	+500	+510
lift rods 630 mm long, hole no. 2								
3580	3450			3330	3210	3140		
lift rods 740 mm long, hole no. 1								
2680	2580	2560						

lift rods 630 mm long, hole no. 2, upper top link pivot point

3170	3000			2790	2610		2360	2340
lift rods 740 mm long, hole no. 1, lower top link pivot point								
2150	2040		1960					

All values of forces for presssure 184 bar at max. hydraulic power, see page 25; calculated from measurements at max. oil pressure 235 bar

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EICHER 3656 A

Test No. 79-10

OPTIONAL TESTS

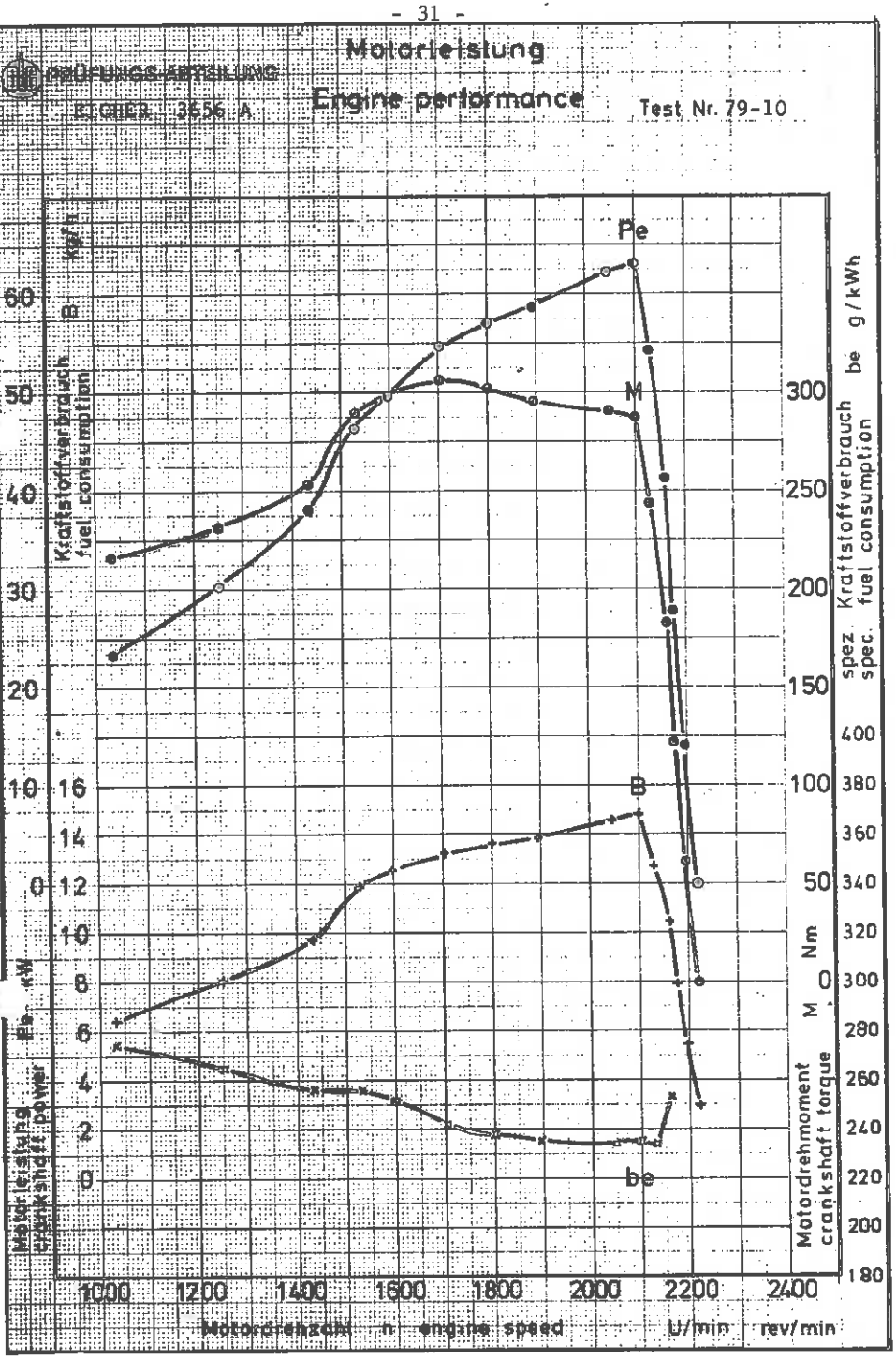
(9) ENGINE PERFORMANCE

Date of tests: 5th and 6th February 1979
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

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					
63.2	2100	17.91	14.85	235	3.53
At standard p.t.o. speed (540 rev/min)					
58.8	1893	16.68	13.82	235	3.52
At the speed recommended for drawbar work					
63.2	2100	17.91	14.85	235	3.53
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
54.3	2128	15.30	12.68	234	3.55
(ii) unloaded					
-	2219	3.57	2.96	-	-
(iii) 50% of the load defined in (i)					
27.7	2173	9.46	7.84	283	2.93
(iv) maximum power					
63.2	2100	17.91	14.85	235	3.53
(v) 25% of the load defined in (i)					
14.0	2193	6.54	5.42	388	2.14
(vi) 75% of the load defined in (i)					
41.3	2160	12.62	10.47	253	3.27

Optimum fuel consumption: 233 g/kWh at 52,2 kW and 1995 rev/min
No load maximum engine speed: 2219 rev/min
Torque at maximum power (2 hours): 287 Nm
Maximum torque: 307 Nm at 1702 rev/min of the engine

Mean atmospheric conditions:	temperature	20 °C
	pressure	976 mbar
	relative humidity	45 %
Maximum temperatures:	coolant	-
	engine oil	96 °C
	fuel	28 °C
	engine air intake	21 °C


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Motorleistung
Engine performance
Test Nr. 79-10
Pe
M
B
be
Kraftstoffverbrauch B kg/h
fuel consumption
Motorleistung Pe kW
crankshaft power
Motordrehmoment M Nm
crankshaft torque
spez. Kraftstoffverbrauch be g/kWh
spec. fuel consumption
Motordrehzahl n engine speed U/min rev/min
1000
1200
1400
1600
1800
2000
2200
2400

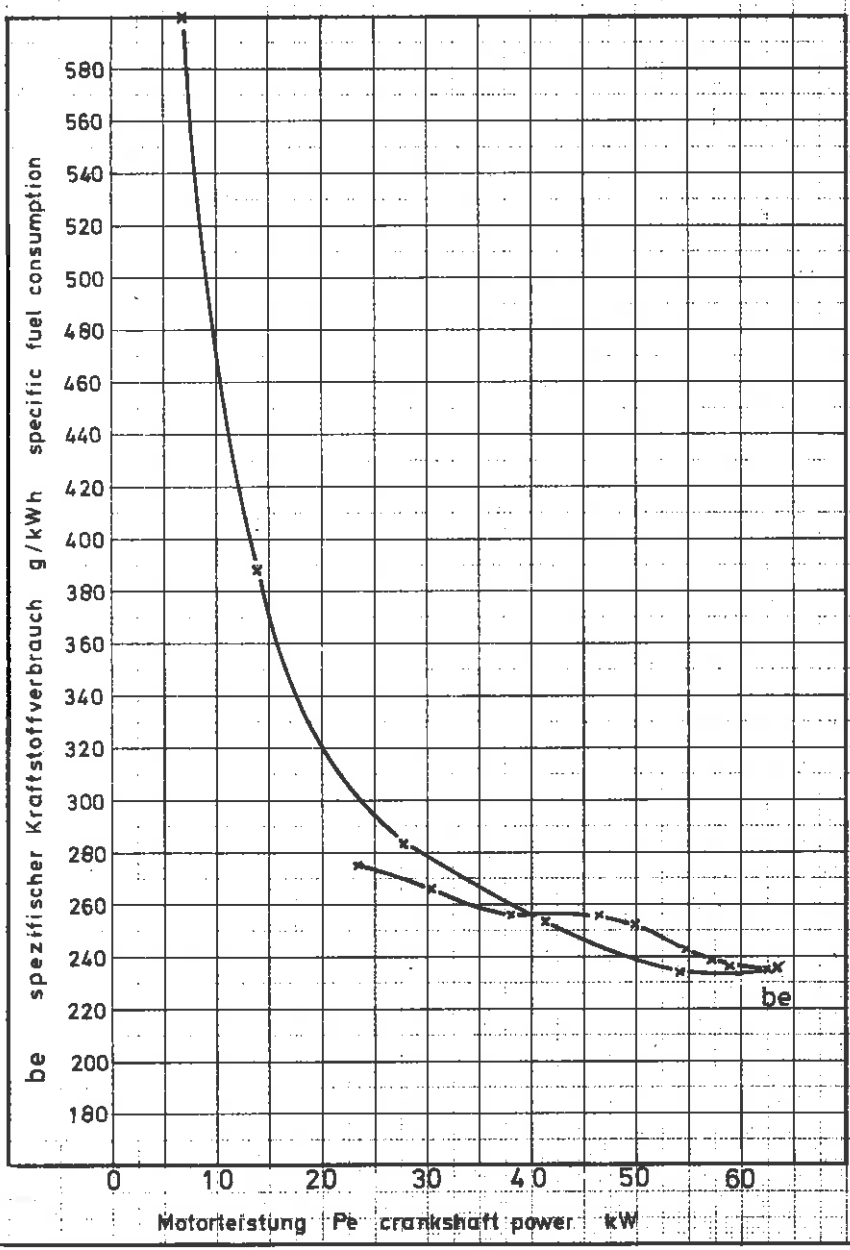
PRÜFUNGS-ABTEILUNG

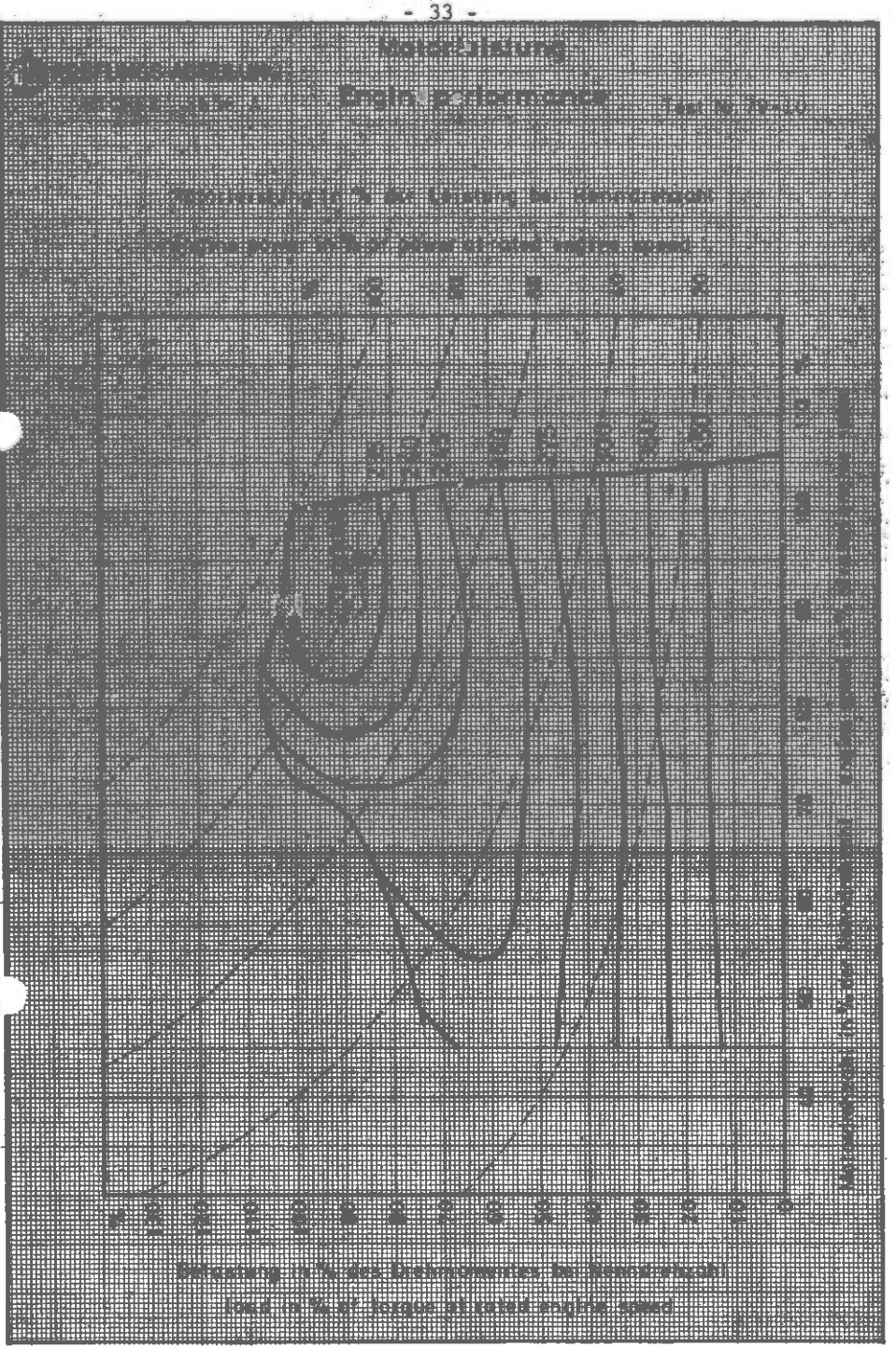
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Motorleistung

Engine performance

Test Nr. 79-10




Motor Iveco
Engine performance
Rated power 96 kW at rated engine speed
Rated speed 2500 rpm
Specific fuel consumption in g/kWh
Engine speed in % of rated engine speed
Torque in % of torque at rated engine speed

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