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

O.E.C.D. No. 667



Agricultural Tractor EICHER 3256 A
trade name: EICHER 4048 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: March till November 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: 10th March 1980 O.E.C.D. No. 667

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 3256 A

Test No. 79-54

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Tractor manufacturer:	GEBRÜDER 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:	3256 A trade name 4048 A wheel tractor, unit construction, all-wheel driven
Serial no.:	147615

Engine

Make:	PERKINS ENGINES S.A.
Model:	AD 3.152
Type:	4-stroke Diesel-engine, direct injection, water-cooled
Serial no.:	CE 22706 U 560211 E
Cylinders:	3, in line, bore 91,4 mm, stroke 127 mm, displacement 2500 cm³; compression ratio 18,5 replaceable dry cylinder liners
Valves:	Overhead
Fuel system:	AC DELCO fuel feed pump CAV distributor injection pump WW 47E 900/3/2420 manufacturer's production setting 54 mm³/stroke at rated engine speed; with injection timing mechanism, injection timing $16^{o} + 10^{o}$ before TDC; CAV multihole injection nozzles BDLL 1505 6372, injection pressure 175 bar; CAV fuel filter with replaceable cartridge; capacity of fuel tank 85 l
Governor:	Mechanically acting centrifugal variable speed governor, incorporated in injection pump; governed range of engine speed 760 to 2330 rev/min, rated engine speed 2170 rev/min

Air cleaner:	MANN PICLON dry paper element filter with precleaner, with replaceable cartridge and electrically operating maintenance indicator
Exhaust silencer:	LEISTRITZ multi chamber reflexion-type silencer, 100 mm dia, 640 mm long, on the left hand side of engine cowling, mouth showing upward, mouth 2330 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 6,5 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 0,5 bar; thermostat with by-pass; fan with 4 blades, 394 mm dia, cooling water capacity 10 l
Starting system:	Electrical LUCAS screw-push starter motor M 45 G-12V, 1,8 kW; CAV flame plug in intake pipe
Electrical equipment:	12 Volt BOSCH 3-phase alternator G1 14V 28A, 1 lead-acid battery 88 Ah at 20 hours rating

Transmission

Clutch:	FICHTEL UND SACHS AG dry dual disc clutch DUT 250/250 gearbox drive pedal operated, p.t.o. drive hand lever operated; both discs 250 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-1251 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: 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 563 mm,
300 mm behind rear axle centre line,
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;
619 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;
1142 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 16,9 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	555,91	1,02
		2	379,03	1,50
		3	277,50	2,05
		4	206,74	2,75
	RGH	1	238,86	2,38
		2	162,86	3,49
		3	119,23	4,77
		4	88,83	6,40
H	RGL	1	138,98	4,09
		2	94,76	6,00
		3	69,38	8,20
		4	51,69	11,00
	RGH	1	59,71	9,52
		2	40,71	13,96
		3	29,81	19,07
		4	22,21	25,60
Reverse speeds				
L	RGL	R	408,19	1,39
	RGH	R	175,38	3,24
H	RGL	R	102,05	5,57
	RGH	R	43,85	12,97

*) calculated with the RADIUS INDEX 695 mm as per WdK 154

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Power lift

Hydraulic system:

MASSEY-FERGUSON S.A.
hydraulic power lift in unit construction;
MF axial-type pump with 30 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 205 bar;
1 single acting main cylinder with 85,6 mm bore and 120,7 mm stroke,
without overpressure relief valve;

MF gear-type pump for auxiliary hydraulic system,
38 l/min delivery at rated engine speed,
in gear box, driven by the disc of the p.t.o. clutch;
both pumps stall during manipulation of the p.t.o. clutch hand lever;
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

lift rods adjustable	from 630	to	740 mm
lifting rage above ground with			
short lift rods	from 425	to	1030 mm
long lift rods	from 125	to	835 mm

Holed bar:	Long bar, fitted on clevis of lower links; length between the joint balls 810 mm, width 80 mm, thickness 30 mm; centre hole and 2 holes on either side between the joint balls, 2 holes on either side outside of the joint balls; totally 9 holes, all holes 33 mm diameter; height above ground adjustable by power lift in the range from 200 to 1105 mm, depending on lift rods length, measured at the surface of the bar; distance of holes centre line with lower links in horizontal position: from rear axle centre 943 mm from p.t.o. shaft end 643 mm

Pull attachment

Trailer hitch:	CRAMER height above ground adjustable by shifting to 765 mm and 874 mm, hitch hole 33 mm diameter; distance of hitch hole centre to rear axle centre 490 mm; permissible vertical load 1000 kg
Towing hitch:	707 mm above ground

Steering

ZAHNRADFABRIK FRIEDRICHSHAFEN AG
hydrostatic steering model 8450 with own oil circuit;
PLESSEY gear type pump with 6 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 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 3 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 10,5-20 MPT 6 ply diagonal type tyre casing;
maximum permissible load per tyre 1750 kg at 2,5 bar inflation pressure and 30 km/h;
track width adjustable to 1420 or 1580 mm by turning wheels

rims W 9 x 20

Driving wheels:	At front and at rear, specification of driving front wheels see at steered wheels; driving rear wheels: 2 pneumatics 16,9 R 30 6 ply, radial type tyre casing; maximum permissible load per tyre 1900 kg at 1,3 bar inflation pressure and 30 km/h; track width adjustable from 1430 to 2130 mm in steps of 100 mm each by turning wheels and offset lug type rims; rims W 14L x 30
Wheel base:	2195 mm
Safety frame	Own make OECD tested approval no. CSD 0016/3
Seat	GRAMMER DS 85 H4 upholstered seat with back rest; adjustable spring with shock absorber; height of driver's platform above ground 780 mm; height of unloaded seat above platform adjustable to 3 positions: 470, 500 and 530 mm; for and aft adjustable about 150 mm
Number of grease points	21

Track setting during tests

front axle	1420 mm
rear axle	1430 mm

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Dimensions

Total length:	3665 mm	without ballast
	3665 mm	with ballast
Total width:	1840 mm	without ballast
	1840 mm	with ballast
Total height:	2340 mm	to top of safety frame
Ground clearance:	335 mm	below front axle differential

Weights

Ready for use as tested, with safety frame

		without driver	with driver
Without ballast:	front	1105 kg	1120 kg
	rear	1755 kg	1825 kg
	total	2860 kg	2945 kg
Front ballast:	5 front weights 40 kg each		200 kg
Rear ballast:	water in the tyres		365 kg
With ballast:	front	1325 kg	1340 kg
	rear	2100 kg	2170 kg
	total	3425 kg	3510 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	1035	788
Side lights	70 x 20	1410	225
Rear lights	30 x 65	1418	270
Reflectors			
1st pair	130 x 40	1190	270
2nd pair	60 ø	625	510

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
7,50-20 6 ply 10,5 -18 MPT 6 ply 10,5/80-18 6 ply	14,9-28 6 ply	3500	1900	3000
7,50-20 6 ply 10,5 -20 MPT 6 ply	14,9-30 6 ply	3500	1900	3000
10,5 -20 MPT 6 ply	16,9-30 6 ply	3500	1900	3000
7,50-20 6 ply 10,5 -18 MPT 6 ply 10,5/80-18 6 ply	12,4-32 6 ply	3500	1900	2890
7,50-20 6 ply 10,5 -18 MPT 6 ply 10,5/80-18 6 ply	9,5-36 6 ply	3500	1900	2410
10,5 -20 MPT 6 ply	12,4-36 6 ply	3500	1900	3000

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FUELS AND LUBRICANTS USED IN TESTS

Fuel:	ARAL Diesel-fuel DIN 51601	
	specific gravity at 15°C	
	at engine tests	0,826 kg/l
	at p.t.o. tests	0,831 kg/l
	at drawbar tests	0,828 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: 18th 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						
31.9	2170	619	10.50	8.73	274	3.03
At standard p.t.o. speed						
30.2	1893	540	9.63	8.00	265	3.14
At the speed recommended for drawbar work						
31.9	2170	619	10.50	8.73	274	3.03
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						
27.8	2231	636	9.28	7.71	277	3.00
(ii) unloaded						
-	2333	665	3.04	2.52	-	-
(iii) 50% of the load defined in (i)						
14.2	2267	647	5.92	4.92	348	2.39
(iv) maximum power						
31.9	2170	619	10.50	8.73	274	3.03
(v) 25% of the load defined in (i)						
7.2	2301	656	4.43	3.68	512	1.62
(vi) 75% of the load defined in (i)						
21.1	2250	642	7.58	6.30	299	2.78

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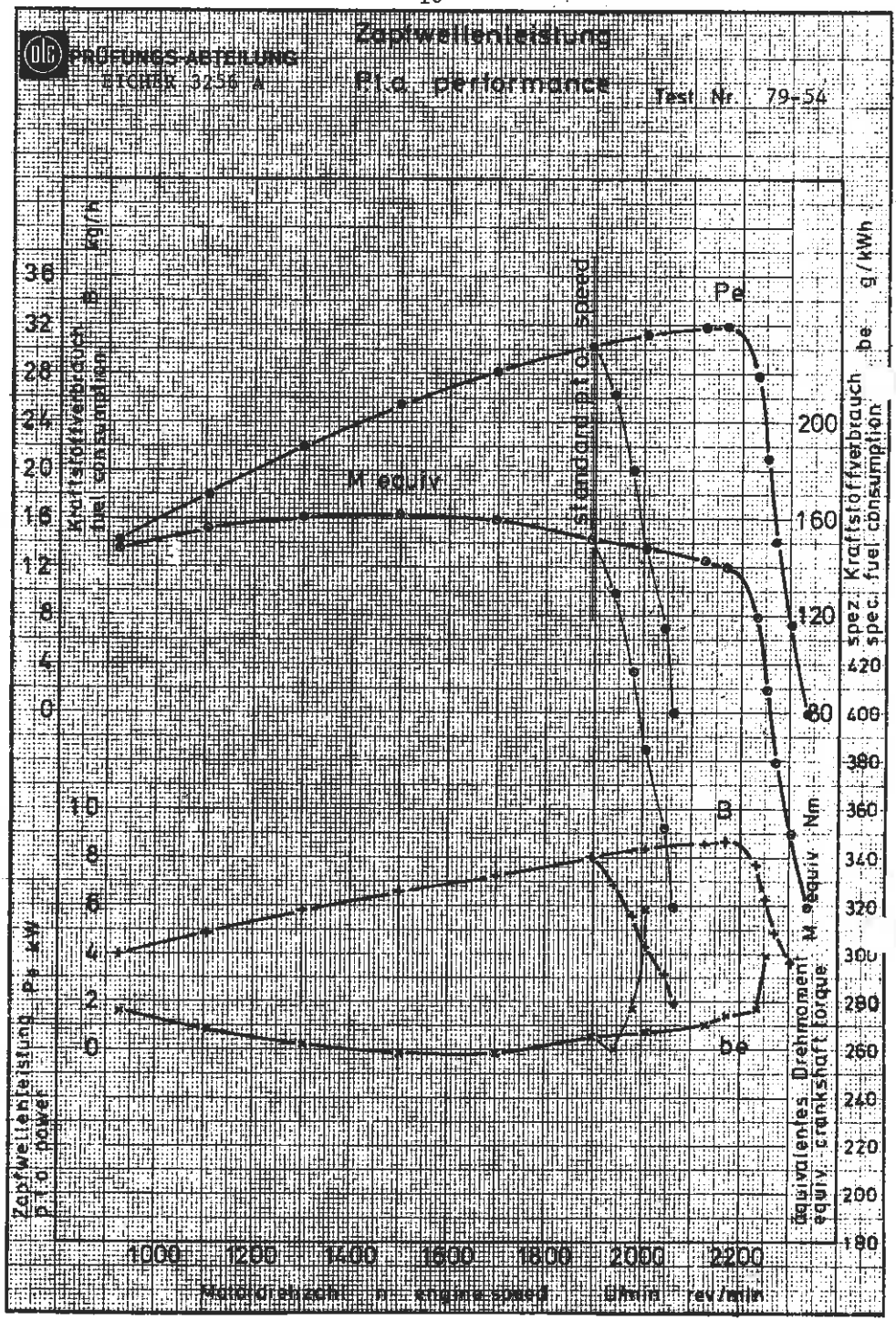
Test No. 79-54

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						
26.3	1941	554	8.24	6.85	260	3.19
(ii) unloaded						
-	2061	588	2.38	1.98	-	-
(iii) 50% of the load defined in (i)						
13.6	2003	571	5.21	4.33	319	2.61
(iv) maximum power						
30.2	1893	540	9.63	8.00	265	3.14
(v) 25% of the load defined in (i)						
6.9	2042	583	3.80	3.15	456	1.82
(vi) 75% of the load defined in (i)						
20.1	1979	564	6.69	5.56	277	3.00

Standard specific fuel consumption (g/kWh): 277/348/260/319

No load maximum engine speed: 2333 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 140 Nm
Maximum equivalent crankshaft torque: 162 Nm at 1498 rev/min of the engine

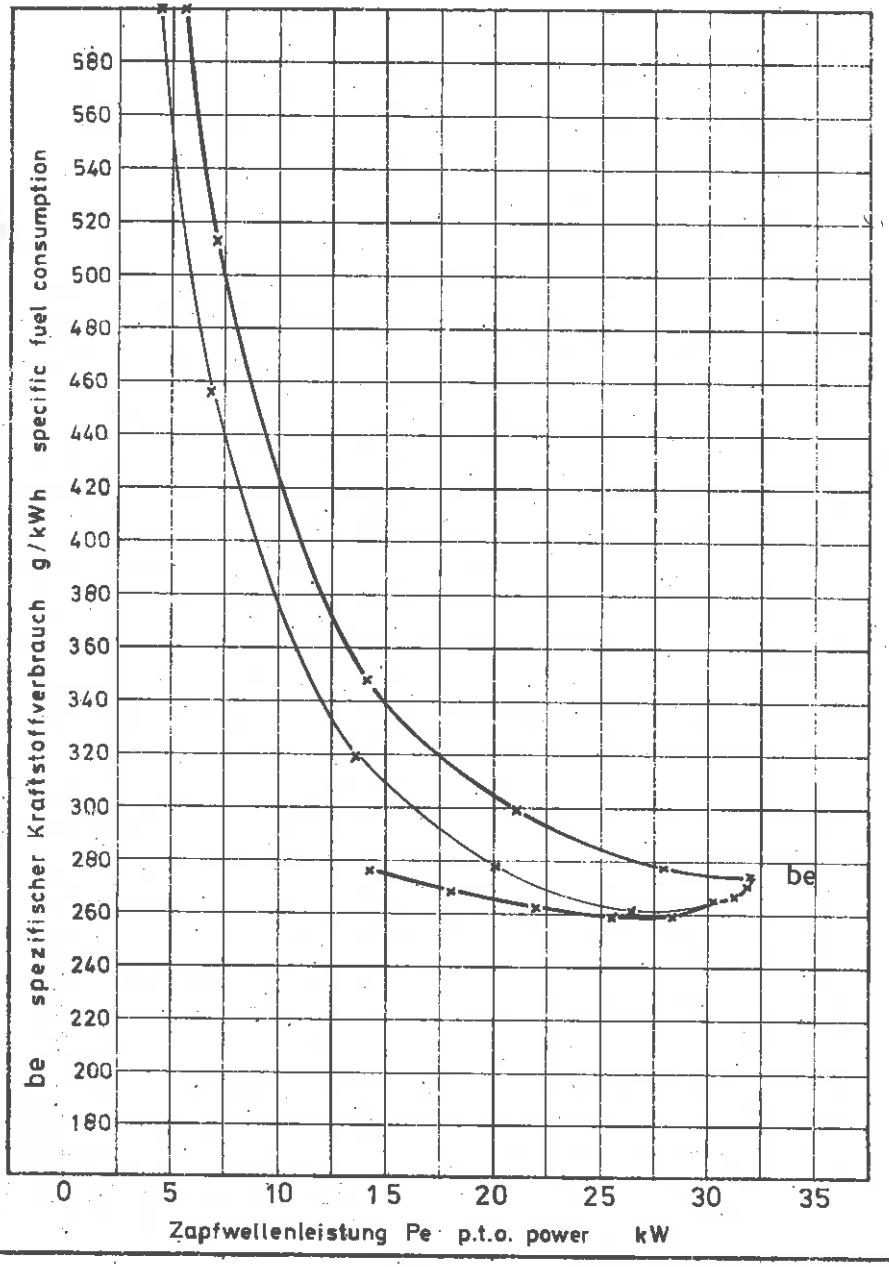
Mean atmospheric conditions:	temperature	22 °C
	pressure	1007 mbar
	relative humidity	55 %
Maximum temperatures:	coolant	68 °C
	engine oil	95 °C
	fuel	23 °C
	engine air intake	24 °C


PRÜFUNGS-ABTEILUNG
ETC/BSK 3256 A
Zapfwellenleistung
P.t.o. performance
Test Nr. 79-54
Kraftstoffverbrauch g/h
fuel consumption
Pe
M equiv
standard p.t.o. speed
be
Zapfwellenleistung Pe kW
p.t.o. power
Äquivalentes Drehmoment M equiv Nm
equiv. 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

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Zapfwellenleistung
P.t.o. performance

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(2) DRAWBAR PERFORMANCE

Date of tests: 29th October till 2nd November 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 460 mm					
1L RGL	0,92	9,1	3546	2283	15,0
2L RGL	1,34	13,2	3545	2266	14,9
3L RGL	1,82	18,0	3548	2247	15,0
1L RGH	2,10	20,6	3529	2238	15,1
4L RGL	2,38	23,7	3576	2221	15,1
2L RGH	3,17	26,9	3053	2168	9,0
1H RGL	3,82	27,2	2561	2173	6,7
3L RGH	4,52	27,3	2171	2170	5,5
2H RGL	5,77	27,3	1704	2171	4,1
4L RGH	6,16	27,5	1607	2171	3,7
3H RGL	7,96	26,9	1217	2168	2,8
1H RGH	9,31	27,4	1061	2173	2,3
4H RGL	10,81	25,6	851	2171	1,8
2H RGH	13,75	25,7	673	2171	1,5
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 2nd H RGL gear					
2H RGL	6,04	21,4	1278	2246	3,0
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)					
4L RGL	2,42	24,1	3580	-	-
(iv) MAXIMUM POWER without ballast height of drawbar above ground 465 mm					
1L RGH	2,10	18,0	3097	2242	15,1
4L RGL	2,42	20,8	3098	2233	15,0
2L RGH	3,03	25,5	3030	2171	13,8
1H RGL	3,73	26,5	2558	2170	9,5
3L RGH	4,44	27,0	2192	2168	7,3
2H RGL	5,71	27,6	1737	2171	5,4
4L RGH	6,13	26,7	1569	2172	4,8
3H RGL	7,91	27,0	1230	2169	3,7
1H RGH	9,24	27,3	1063	2173	3,2
4H RGL	10,74	26,0	871	2172	2,6
2H RGH	13,71	26,1	684	2172	2,0

Total oil consumption during ten hours duration of tests (ii) and (iii) 30 g/h

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Tyres size front: 10,5-20 MPT 6 ply
rear: 16,9 R 30 6 ply

Tread bar height at the beginning of drawbar tests in % of the value when new 93% at front, 95% 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 1,5 bar at front, 0,8 bar at rear							
1,69	489	14	63	84	9	92	999
2,02	411	14	62	85	9	96	999
2,20	378	14	65	84	7	98	999
2,32	357	15	64	85	7	93	998
2,30	361	14	64	84	7	97	999
2,54	327	14	65	85	11	95	999
2,58	321	14	65	85	11	89	999
2,59	320	14	66	86	11	99	999
2,61	317	14	66	87	11	91	999
2,60	318	15	67	84	12	89	999
2,55	325	15	66	85	12	92	999
2,59	320	15	65	86	12	89	998
2,44	338	15	65	84	12	89	998
2,43	341	15	65	86	12	90	998
2,48	334	16	66	100	13	84	988
-	-	15	65	101	11	88	988
tyre inflation pressure 1,5 bar at front, 0,8 bar at rear							
2,24	370	15	64	85	10	94	989
2,25	367	15	64	85	10	93	989
2,43	341	15	65	86	10	96	989
2,52	329	15	65	88	11	96	989
2,58	321	15	65	87	11	94	989
2,60	319	15	66	86	11	95	989
2,54	326	15	65	83	11	94	989
2,56	324	15	66	84	11	92	989
2,57	322	15	66	85	10	96	989
2,45	338	15	65	88	9	96	989
2,45	338	15	64	86	10	95	989

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: 10,5-20 MPT 6 ply
rear: 16,9 R 30 6 ply

Track of wheels front: 1420 mm
rear: 1430 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	4,22	4,16	4,81	4,65
Radius of turning circle	4,02	3,95	4,61	4,44

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	809 mm
Distance forward from rear axle centre	832 mm
Distance from tractor's median plane	5 mm to the left

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(5) BRAKING PERFORMANCE

A) SERVICE BRAKE

Date of tests: 30th October 1979
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 3510 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	3,9
Stopping distance	m	7,4	7,4
Force on pedal	daN	46	39
Force on pedal to achieve a deceleration of 2,5 m/s^2	daN	26	27

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	100	102
Stopping distance	cold/hot	%	100	103
Force on pedal	cold/hot	%	94	103

B) PARKING BRAKE

Tractor facing up 16% slope
Pull on hand brake 22 daN, tractor does not roll

Tractor facing down 16% slope
Pull on hand brake 22 daN, tractor does not roll

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 30th 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: 19,8 km/h
Sound level: 88,5 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 26th October 1979
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

The tractor was fitted with EICHER safety frame

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)
1L RGL	2977	1,02	0,91	94,0
2L RGL	2955	1,50	1,34	95,0
3L RGL	2913	2,05	1,84	95,5
1L RGH	2948	2,38	2,07	97,0
4L RGL	2954	2,75	2,43	96,5
2L RGH	2960	3,49	2,96	98,5
1H RGL	2551	4,09	3,73	99,5
3L RGH	2159	4,77	4,47	99,0
2H RGL	1702	6,00	5,74	99,0
4L RGH	1578	6,40	6,12	99,0
3H RGL *)	1183	8,20	7,94	99,5
1H RGH	1026	9,52	9,26	99,5
4H RGL	848	11,00	10,72	99,0
2H RGH	669	13,96	13,76	99,0
3H RGH	446	19,07	18,85	99,5
4H RGH	light load	25,60	26,34	95,5

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

(8) HYDRAULIC PUMP PERFORMANCE AND POWER LIFT

Date of tests: 11th and 17th October 1979

HYDRAULIC PUMP

Power lift circuit

(1) Opening pressure of relief valve in power lift circuit	175 bar
Sustained pressure by open relief valve	205 bar
(2) Pump delivery rate at minimum pressure and rated engine speed	29,8 l/min
(3) Pump delivery rate at max. hydraulic power	28,3 l/min
corresponding delivery pressure	175 bar
power	8,2 kW

Auxiliary hydraulic circuit

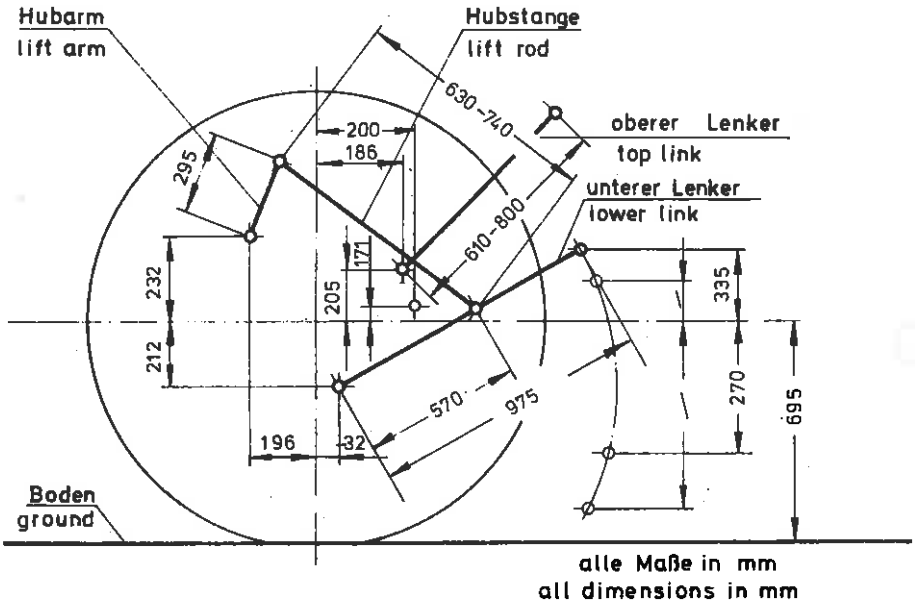
(1) Opening pressure of relief valve in remote circuit	157 bar
Sustained pressure by open relief valve	179 bar
(2) Pump delivery rate at minimum pressure and rated engine speed	38,0 l/min
(3) Pump delivery rate at max. hydraulic power	37,3 l/min
corresponding delivery pressure	157 bar
power	9,7 kW

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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	975 mm	975 mm
Lift arms	295 mm	295 mm
Lift rods	630 mm	630 mm
Top link	766 mm	753 mm
Distance of lift rod connection point from pivot point of lower link	570 mm	570 mm
The following dimensions are given relative to rear axle centre line 695 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	200 mm behind, 171 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	335 mm above, 270 mm below	335 mm above, 270 mm below
Height of lower link hitch points above ground when locked in highest transport position	1030 mm	1030 mm

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LIFTING FORCES

Lifting heights relative to horizontal lower links

mm	-358	-300	-200	-100	-68	-63	-58	0	+100
at hitch points maximum mechanical advantage									
daN							1750	1890	2020
minimum mechanical advantage									
daN	1470	1540	1640	1730				1790	1810

Max. force exerted throughout the whole range 1750 N

Front of tractor does not lift

at test frame maximum mechanical advantage									
daN						1800		1800	1820
minimum mechanical advantage									
daN					1720			1720	1720

Max. force exerted throughout the whole range 1420 N

Front of tractor does not lift if front axle is ballasted to its max. allowable load (1900 kg)

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+200	+300	+352	+400	+500	+547	+600	+647	+692

lift rods 630 mm long

2060	2040		2020	2040	2080			

lift rods 740 mm long

1810	1830	1890						

lift rods 630 mm long, high top link pivot point

1780	1720		1630	1530		1470	1420	

lift rods 630 mm long, low top link pivot point

1670	1610		1530	1440		1360		1300

All values of forces for pressure 175 bar at max. hydraulic power, see page 25; calculated from measurements at max. oil pressure 205 bar

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OPTIONAL TESTS

(9) ENGINE PERFORMANCE

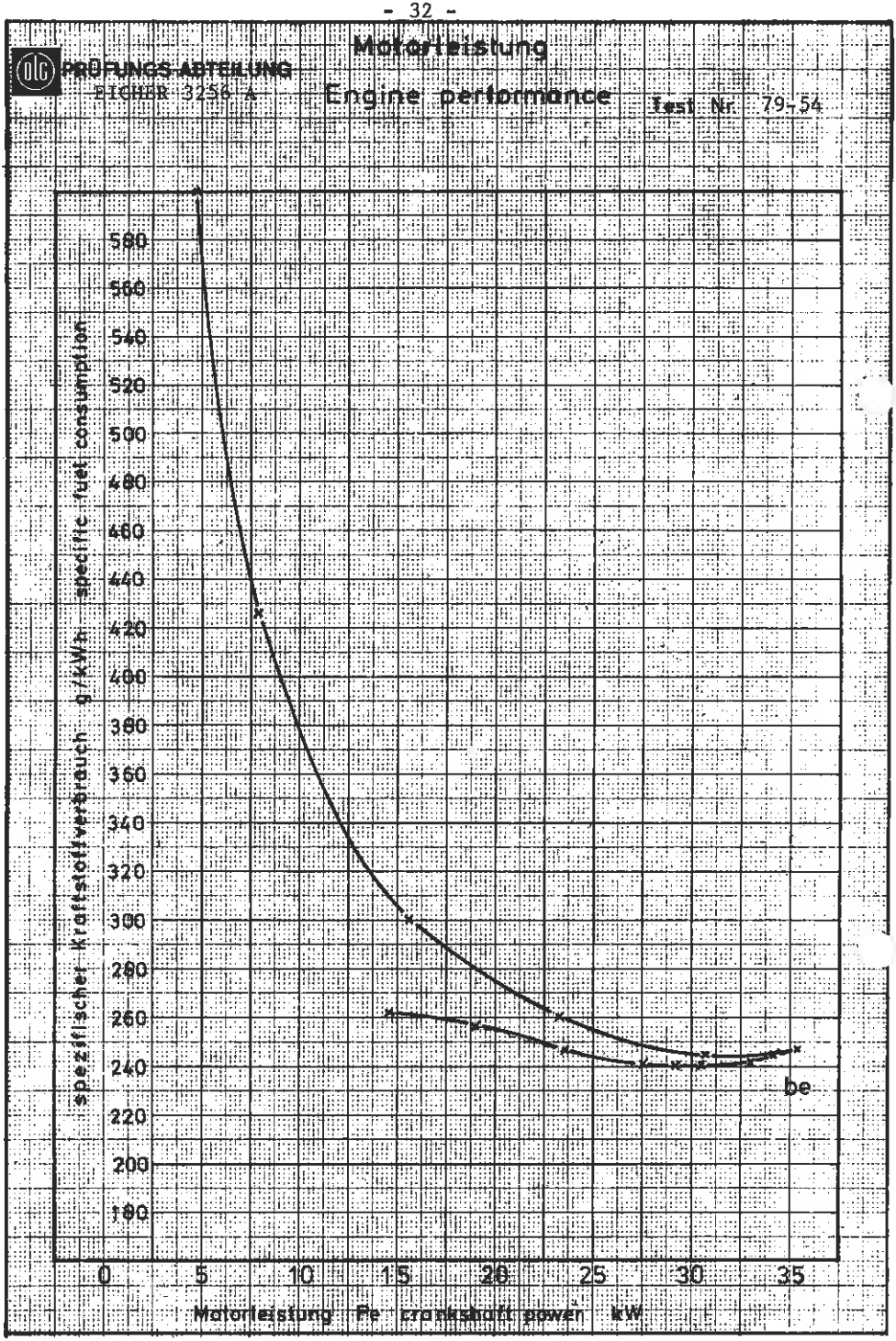
Date of tests: 22th and 23rd March 1979
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

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					
35.3	2170	10.58	8.74	248	3.33
At standard p.t.o. speed (540 rev/min)					
32.9	1893	9.63	7.96	242	3.42
At the speed recommended for drawbar work					
35.3	2170	10.58	8.74	248	3.33
Part loads					
(i) 85% of the torque at maximum power at 2-hour test					
30.6	2219	9.08	7.50	245	3.38
(ii) unloaded					
-	2329	2.61	2.16	-	-
(iii) 50% of the load defined in (i)					
15.7	2267	5.70	4.71	301	2.75
(iv) maximum power					
35.3	2170	10.58	8.74	248	3.33
(v) 25% of the load defined in (i)					
7.9	2299	4.10	3.39	426	1.94
(vi) 75% of the load defined in (i)					
23.2	2241	7.34	6.06	261	3.17

Optimum fuel consumption: 224 g/kWh at 21,8 kW and 1411 rev/min
No load maximum engine speed: 2329 rev/min
Torque at maximum power (2 hours): 155 Nm
Maximum torque: 175 Nm at 1501 rev/min of the engine

Mean atmospheric conditions:	temperature	21 °C
	pressure	992 mbar
	relative humidity	43 %
Maximum temperatures:	coolant	67 °C
	engine oil	100 °C
	fuel	22 °C
	engine air intake	23 °C

Motorleistung
Engine performance
Test Nr. 79-54
Motorleistung Pe
Kraftstoffverbrauch B
fuel consumption
Motordrehmoment M
crankshaft torque
spez. Kraftstoffverbrauch be
spec. fuel consumption
Pe
M
B
be
Nm
g/kWh
kg/h
Motordrehzahl n engine speed U/min rev/min
1000
1200
1400
1600
1800
2000
2200


Motorleistung
PRÜFUNGS ABTEILUNG
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Engine performance
Test Nr. 79-54
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
5
10
15
20
25
30
35
Motorleistung Pe crankshaft power kW

Motorleistung

Engine performance

PRÜFUNGS-ABTEILUNG
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Motorleistung in % der Leistung bei Nenndrehzahl

engine power in % of power at rated engine speed

Belastung in % des Drehmomentes bei Nenndrehzahl

load in % of torque at rated engine speed

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