O.E.C.D. No.: 496
Printed: December 1975

Report on test in accordance with
O.E.C.D. STANDARD CODE for the Official Testing
of Agricultural Tractors



DEUTZ-AGRICULTURAL TRACTOR INTRAC 2003 A

(All-wheel-drive)

Manufactured by: KLÖCKNER-HUMBOLDT-DEUTZ AG
D-5000 Köln-Deutz

Date of Tests: December 1974 till May 1975

DLG Testing Station for Agricultural Machinery
D-6114 Groß-Umstadt

DEUTSCHE LANDWIRTSCHAFTS-GESELLSCHAFT e.V.
Prüfungsabteilung für Landmaschinen
D-6000 Frankfurt/Main 1, Zimmerweg 16

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

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

Date of Approval: 1st December 1975

Serial No.: 496

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

The relation with the former used Technical System of Units is given by the following formulas:

Forces:	1 N = 0,102 kp	or 1 kp	= 9,81 N
Powers:	1 kW = 1,36 PS	or 1 PS	= 0,736 kW
Pressures:	1 bar = 1,02 kp/cm²	or 1 kp/cm²	= 0,981 bar
	1000 mbar = 750,1 mm Hg		

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Printed in Germany

PRÜFUNGS-ABTEILUNG
Deutz INTRAC 2003 A

Test No. 74-190

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Test No. 74-190

Tractor manufacturer:	KLÖCKNER-HUMBOLDT-DEUTZ AG D-5000 Köln
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Köln and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 50 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	KLÖCKNER-HUMBOLDT-DEUTZ AG
Model:	INTRAC 2003 A
Type:	four wheel agricultural tractor, all wheel driven, half-frame construction
Serial No.:	7577/0065

Engine

Make:	KLÖCKNER-HUMBOLDT-DEUTZ AG
Model:	F4L 912
Type:	4-stroke DIESEL engine with direct injection; air cooled
Serial No.:	5370960
Cylinders:	4 in line oblique; bore 100 mm, stroke 120 mm; displacement 3768 cm³; compression ratio 17 : 1; replaceable ribbed single cylinders; overhead valves
Fuel system:	PIERBURG-fuel feed pump PE 15252; BOSCH in line injection pump: PES 4 A 80 D 410/3 RS 1183; manufacturer's production setting 45 mm³ per stroke at rated engine speed and full load; injection timing 28° before TDC; BOSCH multihole injection nozzles DLLA 149 S 394; injection pressure 175 bar; MANN fuel filter with replaceable cartridge; capacity of fuel tank appr. 85 l
Governor:	BOSCH centrifugal variable speed governor: EP/RSV 325-1150 A 8 B 657 DL; governed range of engine speed: 700 to 2425 rev/min; rated engine speed 2300 rev/min

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Air cleaner:	Own make; DEUTZ-SICCOPUR dry paper element filter with precleaner, replaceable element and electrical maintenance indicator in the driver's cab
Exhaust silencer:	HEINRICH GILLET KG; expansion type silencer with 7 chambers; 230 x 120 mm oval, 430 mm long; on the left hand side before the rear wheel; mouth showing rearward under 45°
Lubrication system:	Forced feed from gear type pump; strainer in sump; MANN oil filter in full flow with by-pass valve; replaceable cartridge; oil capacity 11 l; oil changing period 100 till 120 hours or 200 till 240 hours according to oil quality; recommended oil viscosity: winter SAE 10W summer SAE 20W/20 tropics SAE 30
Cooling system:	Air cooling; V-belt driven axial blower
Starting system:	Electrical; BOSCH starter motor DD (R) 12V 2,9 kW; BOSCH flame type plug in intake pipe: B 12 V H 7632
Electrical equipment:	12 Volt, negative earth; BOSCH threephase alternator G1 R2 14V 26A 22; 1 lead acid battery 110 Ah 20 hours rating

Transmission

Clutch:	LAMELLEN UND KUPPLUNGSBAU GMBH; independent dry dual disc type clutch: DT 280/280 G; driving part operated by pedal; rear p.t.o. part operated by hand lever;
Gear box:	Own make; TW 50.3; synchronized speed change gear with 4 forward speeds

Gear box: (Continuation)	Group gear; 3 forward groups and 1 reverse group; fast and slow group pin coupling shifted; creep speed and reverse group sliding gear shifted; total 12 forward and 4 reverse speeds
Rear axle and final drive:	Crown wheel and pinion; bevel gear type differential; differential lock fitted; pedal operated, self disengaging; spur gear final drive
Front axle:	S.I.G.E. Mailand (Italy); front-wheel drive at the left hand side of the gear box with universal joint shaft; under load engageable and disengageable by hand lever; overload protection fitted; bevel gear type differential without locking
Oil capacity and viscosity:	Speed change gear, group gear and rear axle with final drive total 19,5 l SAE 90 front-axle differential 1,6 l SAE 90 front-wheel drive 1,3 l SAE 90
Oil changing period:	1200 hours

Power take off

Main p.t.o.:	At rear of tractor in median plane; driven through the hand lever operated clutch disc; 580 mm above ground; 29 x 34,9 x 8,7 mm = 1 3/8" 6 splines; (DIN 9611 Form 1; BS 1495; ASAE S. 203.7); 2 speeds are preselectable: 540 rev/min: 598 rev/min at rated engine speed; standard p.t.o. speed 540 rev/min at 2077 rev/min engine speed 1000 rev/min: 993 rev/min at rated engine speed; the deviation from the exact standard speed 1000 rev/min is within the tolerance acc. DIN 9611

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Total ratios and speeds

Group	Gear No.	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed at rated engine speed *)	
			km/h	m/s
creep-group	1	1302,05	0,44	0,12
	2	818,90	0,69	0,19
	3	560,77	1,01	0,28
	4	332,84	1,71	0,47
slow-group	1	264,61	2,15	0,60
	2	166,42	3,42	0,95
	3	113,96	5,00	1,39
	4	67,64	8,41	2,33
fast-group	1	88,93	6,39	1,78
	2	55,93	10,17	2,82
	3	38,30	14,84	4,12
	4	22,73	25,01	6,95
reverse-group	1	233,84	2,43	0,68
	2	147,07	3,87	1,07
	3	100,71	5,65	1,57
	4	59,78	9,51	2,64

*) calculated with the rolling circumference 4120 mm acc. to W.d.K. 154

Power take off (Continuation)

Secondary p.t.o.: At front of tractor in median plane; driven by the front end of crankshaft through a hand lever operated single disc type clutch make FICHTEL UND SACHS M 228 under load engageable and disengageable; 670 mm above ground; dimensions as main p.t.o.; 1057 rev/min at rated engine speed; standard p.t.o.-speed 1000 rev/min at 2176 rev/min engine speed

Direction of rotation of main p.t.o. and secondary p.t.o. clockwise, viewed from tractor rear; p.t.o.-speeds may be set by tractormeter

Belt pulley	(Optional; not fitted on tractor tested); at rear of tractor; driving device attached to p.t.o.; engaged by p.t.o.-hand lever; to be operated only with 540 rev/min p.t.o.; 1255 rev/min at rated engine speed; linear belt speed 21,02 m/s; standard belt speed at 2287 rev/min engine speed; direction of rotation anticlockwise, viewed from the right hand side of tractor
Power lift	
In the rear:	Own make; K 45; DEUTZ-TRANSFERMATIC-System; hydraulic power lift, unit construction; draught control, position control, floating position; single acting ram, bore 80 mm, stroke 152 mm; overpressure relief valve for ram adjusted at 210 + 30 bar; BOSCH gear pump HY/ZFS 1/16 CL (112/1); directly driven by engine; DEUTZ control valve; maximum oil pressure 175 bar
At front:	Own make; disintegrated construction; fed to the hydraulic system of the rear power lift; 2 single acting rams; bore 45 mm; stroke 210 mm; DEUTZ control valve, single acting
Container lifting up device:	Own make; (optional, not fitted); disintegrated construction; in the middle of the tractor; below the platform; fed to the hydraulic system of the rear power lift; 1 double acting ram; bore 55 mm; piston-rod 32 mm diameter, stroke 128 mm; DEUTZ control valve double acting

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Power lift (Continuation)

Oil tappings:

a) At front:
Up to 3 single acting DEUTZ control valves with 1 oil tapping each or
up to 3 double acting DEUTZ control valves with 2 oil tappings each

b) In the rear:
Up to 3 single acting DEUTZ control valves with 1 oil tapping each or
1 single acting DEUTZ control valve with 1 oil tapping and up to 2 double acting DEUTZ control valves with 2 oil tappings each

c) Between the limiting cases a) and b) all combinations are available

Hydraulic oil tank incorporated in the lift unit with 15 l capacity, additional tank with further 15 l capacity available (not fitted); total 30 l hydraulic oil capacity possible; 7 l (with additional tank 21 l) may be taken off through oil tappings; recommended oil: engine oil, viscosities as for engine see page 5
oil changing period 600 hours

Implement linkage

In the rear:

Three point linkage DIN 9674;
the tractor is fitted with lower links with changeable ball-joints for category I or II;
lift rods length adjustable from 540 to 640 mm
lifting range above ground with
lift rods short from 305 to 885 mm
lift rods long from 60 to 710 mm

At front:

Three point linkage of own construction;
only the ball joints are according to DIN 9674 category I;
rams of front power lift are acting through a lifting appliance on lower links;
lifting rods length adjustable from 395 to 500 mm;
lifting range above ground with
lift rods short from 298 to 908 mm
lift rods long from 88 to 723 mm

(a DEUTZ-HITCH may be fitted at front and in the rear optionally, not fitted on tractor tested during power lift tests)

Holed drawbar

Fitted on clevis of lower links;
optional category I or II;

Category I :
length between universal ball joints 680 mm;
thickness of the bar 30 mm;
centre hole and 3 holes on either side in 80 mm distance each; all holes 22 mm diameter

Category II :
length between universal ball joints 830 mm;
thickness of the bar 30 mm;
centre hole and 4 holes on either side in 80 mm distance each; all holes 33 mm diameter

height above ground adjustable by power lift in the range between 80 and 905 mm, measured at the surface of the bar, depending on lift rods length;
with lift rods 580 mm long in standard height 450 mm above ground mechanically-hydraulically lockable;
with lower links in horizontal position
distance of centre hole:
from rear axle centre 908 mm
from end of p.t.o.-shaft 504 mm

Pull attachment

Trailer hitch: ROCKINGER;
227/8 110 D in connection with a support of own construction;
height above ground 760 mm;
distance of hitch hole from rear axle centre 615 mm
permissible supporting force 1000 kg

Towing hitch: At front of tractor;
height above ground 760 mm

Steering

ZAHNRADFABRIK FRIEDRICHSHAFEN AG.;
column hydrosteering gear 7409;
steering wheel operated;
acting on front wheels;
oil capacity in the steering circuit 3 l

Brakes

Parking brake: DEUTSCHE PERROT GMBH;
simplex shoe type brake acting on one external brake drum fitted on a gear shaft;
brake drum diameter 180 mm;
operated by hand lever with ratchet

Brakes (Continuation)

Foot brake at front:	GIANOTTI, San Marzanotto, Italy; duplex shoe type brakes; model LEONCINO S hydraulically acting on 2 drums with 350 mm diameter in the front wheels
in the rear:	DEUTSCHE PERROT GMBH; duo-Servo internal shoe type brake; hydraulically acting on 2 brake drums in the rear wheels; brake drum diameter 350 mm
	Foot brake at front and in the rear operated in common by foot pedal
Steering brake:	Optional, not fitted on tractor tested; operated by single parts of the divided foot brake pedal; for normal use both parts of brake pedal are locked together by safety bolt

Wheels

Steering wheels:	At front; two pneumatics 10,5-18 MPT 6 ply; maximum permissible load on each tyre 1665 kg at 2,5 bar inflation pressure; track width 1548 and 1794 mm by turning wheels; rims 9 x 18
Driving wheels:	At front and in the rear; at front see steering wheels; in the rear two pneumatics 14,9-28 AS 8 ply; maximum permissible load on each tyre 2010 kg at 1,8 bar inflation pressure; track width with centre disc type wheels; 1500 and 1648 mm; changeable by turning wheels; track width with track adjustment wheels: 1513, 1635, 1735, 1828 and 1928 mm; changeable by reversing wheels and offset lug type rims; rims W 12 x 28
Wheel base:	2200 mm

Safety cab	Own make; all-steel construction consisting of molded pieces welded and bolted together; antivibration suspended on the chassis frame; entry at the left hand side with sliding door; two mounting steps at the left hand front mudguard,480 and 820 mm above ground; sliding door open and closed lockable; sliding windows in the rear and at the right hand side open and closed lockable; round about glazed with safety glass; the roof may be opened too; the inside of the roof is covered with plastic materials for noise damping; hot air heating; BOSCH windshield wiper; two rear-view mirrors O.E.C.D.-tested; approval no.: CS 1095 from 8th August 1975
Seat	GRAMMER; DS 44/4H; upholstered mould seat with back and hinged arm rests; adjustable spring and shock absorber; height above ground 1450 mm in median position; 150 mm displaceable to and fro; 75 mm at the right hand side of tractor's median plane
Passenger's seat:	At the left hand side of driver's seat; upholstered with back rest; turn up seat; not spring suspended, damped or otherwise adjustable
Auxiliary platform	Behind the cab; between the rear mudguards; length 1250 mm width 855 mm

Number of grease points 20 (whole tractor)

Weights — Ready for use as tested

		without driver	with driver
Without ballast:	With front power lift, with front p.t.o., without DEUTZ-HITCH at front and rear, without container lifting-up device		
	front:	1600 kg	1650 kg
	rear:	1675 kg	1700 kg
	total:	3275 kg	3350 kg
Front ballast:	DEUTZ-HITCH		38 kg
	weight supporting frame		95 kg
	11 front weights 30 kg each		330 kg
Rear ballast:	iron weights on the auxiliary platform		540 kg
	water in the tyres		297 kg
With ballast:	front:	2273 kg	2322 kg
	rear:	2302 kg	2328 kg
	total:	4575 kg	4650 kg

Dimensions

Total length:	4180 mm with front and rear implement linkage 3520 mm with rear implement linkage only
Total width:	1890 mm at smallest track width 2305 mm at largest track width
Total height:	2513 mm to top of cab roof
Ground clearance:	280 mm below front axle differential 350 mm in tractor's median plane

Permissible total weights and axle loads
for all available wheel equipment

Wheel equipment front	Wheel equipment rear	Permissible total weight kg	Permissible front axle load kg	Permissible rear axle load kg
7.50-18 MPT 6 ply	9.5-36 10 ply	5350	2610	3240
	12.4-32 6 ply			2890
or	12.4-32 10 ply			3840
	14.9-28 6 ply			3440
10.5-18 MPT 6 ply	14.9-28 8 ply			3840
	16.9-26 6 ply			3800

Lighting equipment: Electrical;
12 Volt;
acc. to German governmental regulations;
with additional main head light beam

	Dimensions of area mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Top head lights	70 x 150	2397	462
Down head lights	130 ø	1377	445
Side lights	50 x 30	1435	210
Rear lights	85 x 90	1205	270
Reflectors	75 ø	980	90

FUELS AND LUBRICANTS USED IN TESTS

Fuel: ARAL Diesel fuel (DIN 51601)
specific gravity at 15°C:

at engine tests 0,827 kg/l
at p.t.o. tests 0,828 kg/l
at drawbar tests 0,830 kg/l

Engine oil: SHELL-ROTELLA HD 20

Transmission oil

Speed change gear, group gear, rear axle and final drive, front axle and front axle differential: Transmission oil SAE 90

Power lift: Engine oil SAE 20W/20

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Test No. 74-190

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date of tests: 14th March 1975
Type of dynamometer: Schenck hydraulic dynamometer U1-40

Maximum power

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
At maximum power 2-hour test						
42,9	2300	598	12,44	10,30	240	3,45
At standard p.t.o. speed (540 rev/min)						
41,1	2077	540	11,52	9,54	232	3,57
At the speed recommended for drawbar work						
42,9	2300	598	12,44	10,30	240	3,45

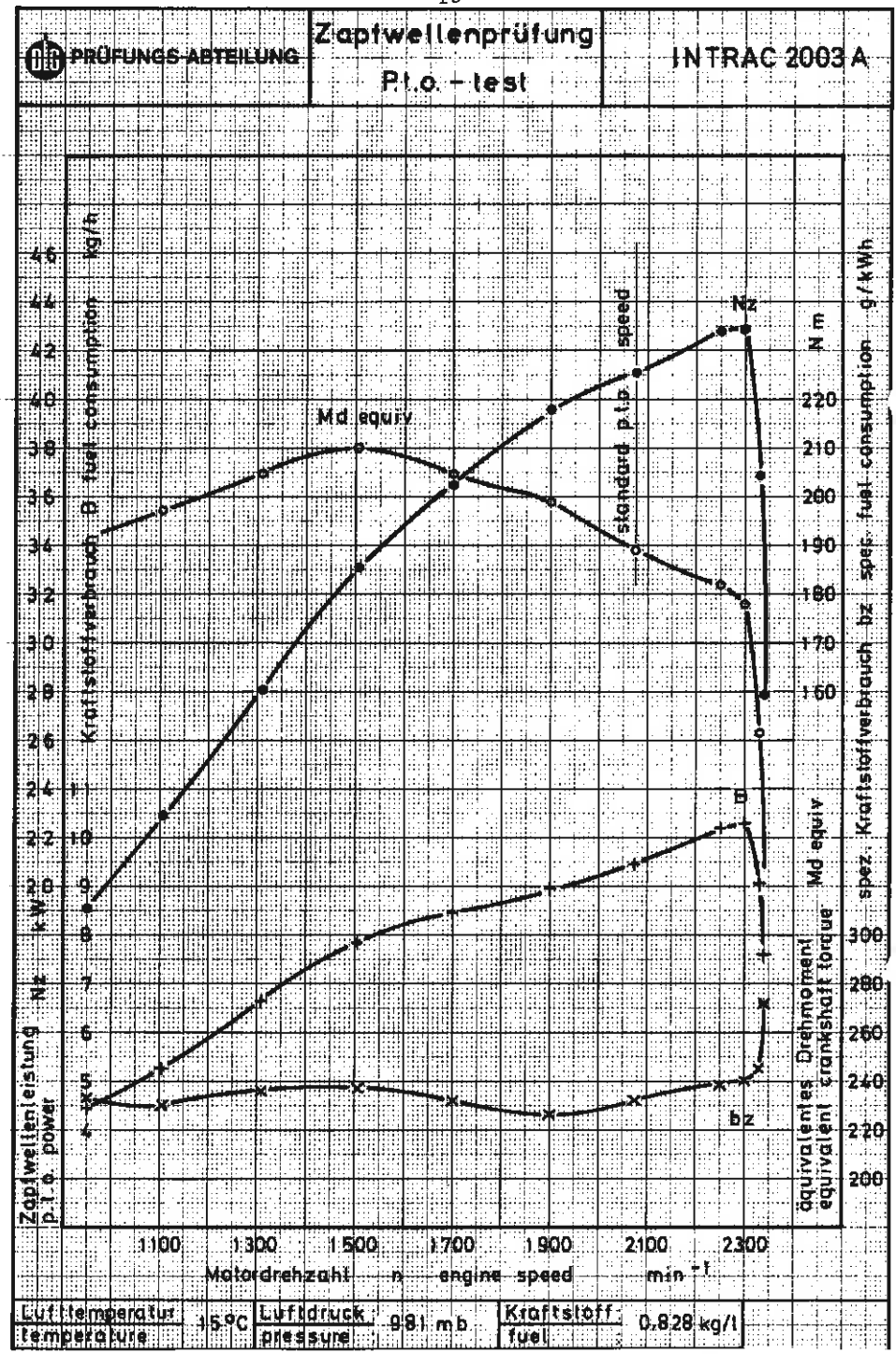
Part loads

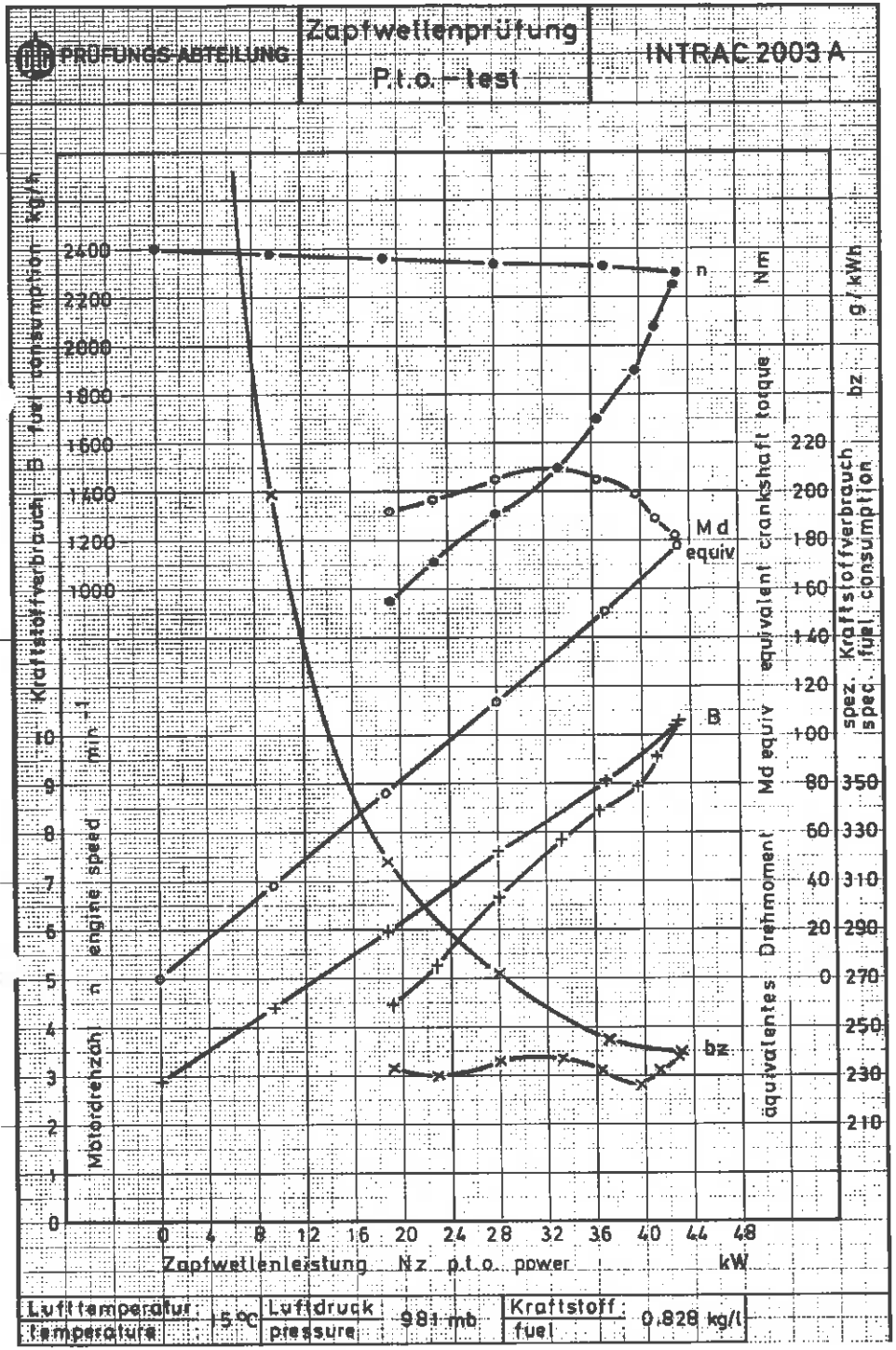
(i) 85% of the torque at maximum power						
36,9	2328	605	10,92	9,04	245	3,38
(ii) unloaded						
-	2396	623	3,50	2,90	-	-
(iii) 50% of the load defined in (i)						
18,7	2359	613	7,19	5,95	318	2,60
(iv) maximum power						
42,9	2300	598	12,44	10,30	240	3,45
(v) 25% of the load defined in (i)						
9,4	2377	618	5,33	4,41	469	1,76
(vi) 75% of the load defined in (i)						
27,9	2342	609	9,18	7,60	272	3,04

No load maximum engine speed: 2396 rev/min
Equivalent crankshaft torque at maximum power: 178 Nm
Maximum equivalent crankshaft torque: 210 Nm at 1500 rev/min of the engine

Mean atmospheric conditions:
- temperature 15°C
- pressure 981 mbar
- relative humidity 80%

Maximum temperatures:
- coolant not recorded
- engine oil 90°C
- fuel 20°C


PRÜFUNGS-ABTEILUNG
Zapfwellenprüfung
P.t.o. - test
INTRAC 2003 A
Kraftstoffverbrauch B fuel consumption kg/h
Md equiv
standard p.t.o. speed
Nz
N m
spez. Kraftstoffverbrauch bz spec. fuel consumption g/kWh
Zapfwellenleistung Nz p.t.o. power kW
äquivalentes Drehmoment Md equiv equivalent crankshaft torque
B
bz
1100 1300 1500 1700 1900 2100 2300
Motordrehzahl n engine speed min⁻¹
Lufttemperatur temperature 15°C
Luftdruck pressure 981 mb
Kraftstoff fuel 0.828 kg/l


PRÜFUNGS-ABTEILUNG
Zapfwellenprüfung
P.t.o.-test
INTRAC 2003 A
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehzahl n engine speed min⁻¹
Drehmoment Md equiv equivalent crankshaft torque Nm
spez. Kraftstoffverbrauch bz spec. fuel consumption g/kWh
n
Md equiv
B
bz
Zapfwellenleistung Nz p.t.o. power kW
Lufttemperatur temperature 15 °C
Luftdruck pressure 981 mb
Kraftstoff fuel 0.828 kg/l

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(2) DRAWBAR PERFORMANCE

Date of tests: 25th March till 10th April 1975
Type of track: Concrete

Gear No. and Group	Speed km/h	Power kW	Drawbar pull N	Engine speed rev/min	Slip of wheels %	Specific energy kWh/l
(i) MAXIMUM POWER with ballast height of drawbar above ground 350 mm						
1 creep	0,38	4,7	44100	2365	15,0	0,96
2 creep	0,60	7,4	44000	2360	15,0	1,32
3 creep	0,88	10,8	44150	2359	15,0	1,67
4 creep	1,48	18,1	44100	2344	15,0	2,14
1 slow	1,85	22,6	43950	2338	15,0	2,39
2 slow	2,93	33,8	41550	2299	13,6	2,65
3 slow	4,53	35,8	28430	2300	8,1	2,79
1 fast	5,89	37,1	22660	2300	6,6	2,87
4 slow	7,90	36,3	16540	2299	4,5	2,81
2 fast	9,63	36,7	13720	2300	3,6	2,83
3 fast	14,25	34,4	8710	2300	2,3	2,68
(ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 1st gear of fast group						
1 fast	6,12	28,9	17000	2332	4,3	2,77
(iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i)						
1 slow	-	-	44150	2339	-	-
(v) MAXIMUM POWER without ballast height of drawbar above ground 350 mm						
1 slow	1,85	17,5	34100	2353	15,0	2,17
2 slow	2,91	27,5	34100	2331	15,0	2,54
3 slow	4,33	34,7	28880	2300	11,8	2,69
1 fast	5,74	36,5	22870	2300	8,7	2,82
4 slow	7,75	36,1	16770	2299	6,1	2,80
2 fast	9,48	36,9	14050	2300	4,6	2,86
3 fast	14,11	36,2	9230	2301	2,9	2,82

Total oil consumption during ten hours duration of tests (ii) and (iii): 51 g/h

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Tyres make and size — Front: CONTINENTAL 10,5-18 MPT 6 ply
Rear: DUNLOP 14,9-28 AS 6 ply

Specific fuel consumpt. g/kWh	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure mbar
tyre inflation pressure 1,4 bar rolling radius of tyres under static load 646 mm						
872	14	-	75	11	72	998
626	13	-	75	11	73	998
498	14	-	90	10	75	999
389	14	-	78	8	79	999
348	14	-	80	7	79	999
316	15	-	93	6	82	999
299	15	-	92	6	82	999
290	15	-	90	10	90	993
296	18	-	94	7	70	993
295	16	-	96	8	81	993
310	15	-	93	10	88	993
299	14	-	93	10	87	995
-	14	-	92	11	85	995
tyre inflation pressure 1,4 bar rolling radius of tyres under static load 646 mm						
383	12	-	81	7	87	1000
326	12	-	87	6	91	1000
308	12	-	90	6	89	1000
294	13	-	88	6	86	1000
298	13	-	90	6	87	1000
291	12	-	82	7	88	1000
295	12	-	82	7	91	1000

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

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 10,5-18 MPT 6 ply
rear: 14,9-28 AS 6 ply

Track of wheels front: 1548 mm
rear: 1513 mm

	With all-wheel drive		With rear-wheel drive	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning space	5,71	5,45	4,89	5,08
Radius of turning circle	5,42	5,17	4,60	4,80

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	867 mm
Distance forward from the vertical plane containing the axis of the rear wheels	1090 mm
Distance of the median plane of the tractor to the right hand side	5 mm

(5) BRAKING PERFORMANCE

A) FOOT BRAKE

Date of tests: 2nd and 7th April 1975
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor 4650 kg with driver

Front wheel drive engaged

Cold brakes

		With ballast	Without ballast
Travelling speed	km/h	25,0	25,0
Deceleration	m/s^2	5,5	8,2
Stopping distance	m	5,4	4,0
Force on pedal	N	800	740
Force on pedal to achieve a deceleration of 2,5 m/s^2	N	420	340

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	133	105
Stopping distance	cold/hot	%	112	105
Force on pedal	cold/hot	%	104	115

B) PARK BRAKE

Tractor facing up slope:
Pull on hand brake 170 N, tractor does not roll

Tractor facing down slope:
Pull on hand brake 190 N, tractor does not roll

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Test No. 74-190

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 2nd May 1975
Type of track: Concrete
Type of sound level meter: Brüel and Kjaer type 2203

Results of test

Gear: 4th fast gear
Travelling speed before acceleration: 18,75 km/h
Sound level: 87 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 29th April till 2nd May 1975
Type of track: Concrete
Type of sound level meter: Brüel and Kjaer type 2607
Type of frequency analyser: Brüel and Kjaer type 1614 (fitted with octave filter)

The tractor was fitted out with an O.E.C.D. tested safety cab. O.E.C.D. approval no.: CS 1095 from 8th August 1975

Results of tests

Gear	Drawbar pull at which the tractor develops the maximum sound level N	Travelling speed nominal km/h	Travelling speed effective km/h	Sound level dB(A)
With all-wheel drive; doors and windows of the cab closed				
1 creep	33300	0,44	0,38	96
2 creep	33050	0,69	0,61	96
3 creep	33000	1,01	0,89	96
4 creep	33300	1,71	1,45	97
1 slow	33000	2,15	1,87	97
2 slow	33150	3,42	2,98	97
3 slow	27550	5,00	4,47	97,5
1 fast	21880	6,39	5,84	97
4 slow *)	16100	8,41	7,92	97
2 fast	13300	10,17	10,17	98
3 fast	8370	14,84	14,13	97
4 fast	light load	25,01	25,71	96,5

*) The 4th slow gear corresponds to the travelling speed nearest to 7,5 km/h

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(7) NOISE AT THE DRIVER'S EAR LEVEL (Continuation)

Gear	Drawbar pull at which the tractor develops the maximum sound level N	Travelling speed nominal km/h	Travelling speed effective km/h	Sound level dB(A)
With all-wheel drive; doors and windows of the cab opened, roof lifted				
1 creep	33650	0,44	0,39	94,5
2 creep	33800	0,69	0,61	94,5
3 creep	32900	1,01	0,89	95
4 creep	33270	1,71	1,51	94,5
1 slow	33630	2,15	1,88	95
2 slow	33580	3,42	2,96	96
3 slow	28000	5,00	4,47	96
1 fast	21630	6,39	5,91	95
4 slow *)	16100	8,41	7,99	96
2 fast	13070	10,71	9,68	96
3 fast	8680	14,84	13,30	95
4 fast	light load	25,01	25,71	95,5
With rear-wheel drive; doors and windows of the cab closed				
1 slow	26620	2,15	1,73	97
2 slow	26580	3,42	2,78	97
3 slow	26420	5,00	4,09	98
1 fast	20050	6,39	5,61	98
4 slow *)	16730	8,41	7,46	97
2 fast	13200	10,71	9,31	98
3 fast	8490	14,84	13,91	97,5
4 fast	light load	25,01	25,71	96,5
With rear-wheel drive; doors and windows of the cab opened, roof lifted				
1 slow	26800	2,15	1,82	95
2 slow	27330	3,42	2,68	95
3 slow	26800	5,00	3,91	96
1 fast	21230	6,39	5,55	95,5
4 slow *)	16650	8,41	7,57	96
2 fast	12700	10,71	9,34	97
3 fast	8930	14,84	13,91	96
4 fast	light load	25,01	25,71	95,5

*) The 4th slow gear corresponds to the travelling speed nearest to 7,5 km/h

PRÜFUNGS-ABTEILUNG
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Test No. 74-190

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

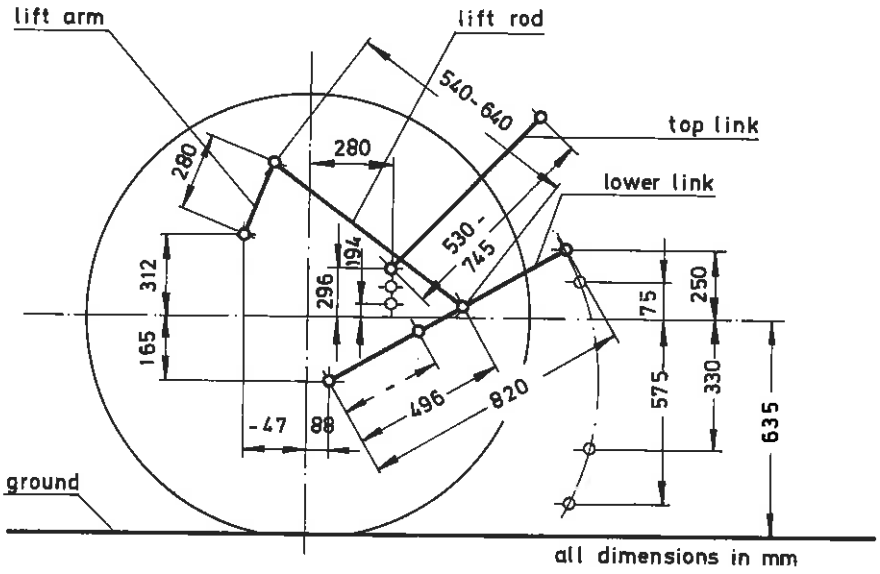
Date of tests: 14th till 19th February 1975

HYDRAULIC PUMP

(1) Opening pressure of relief valve in remote circuit	177 bar
Sustained pressure by open relief valve	172 bar
(2) Pump delivery rate at minimum pressure and maximum engine speed	35,1 l/min
(3) Pump delivery rate	32,9 l/min
Delivery pressure	161 bar
Hydraulic power	8,8 kW

POWER LIFT

Dimensions of linkage geometry on the rear power lift
for the table on page 25



LINKAGE GEOMETRY when connected to the standard frame at rear of tractor	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	820 mm	820 mm
Lift arms	280 mm	280 mm
Lift rods	540 mm	640 mm
Top link	628 mm	635 mm
Distance of lift rod connection point from pivot point lo lower link	496 mm	496 mm
The following dimensions are given relative to rear axle centre line 635 mm above ground		
Lower link pivot point	88 mm behind, 165 mm below	88 mm behind, 165 mm below
Top link pivot point	280 mm behind, 296 mm above	280 mm behind, 194 mm above
Lift arm pivot point	47 mm behind, 312 mm above	47 mm behind, 312 mm above
Maximum and minimum height of lower link hitch points	250 mm above, 330 mm below	75 mm above, 575 mm below
Height of lower link hitch points above ground when locked in highest transport position	885 mm	710 mm

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LIFTING FORCES at rear of tractor

Lifting heights relative to horizontal lower links

mm	-420	-410	-400	-300	-200	-165	-145	-100	0
at hitch points maximum mechanical advantage									
N						21930		21240	20550
minimum mechanical advantage									
N		19170	19170	18430	18250			17790	17240

Max. force exerted throughout the whole range 18250 N

Front of tractor does not lift with maximum allowable front ballast

at test frame maximum mechanical advantage

N							23850	23470	21590
minimum mechanical advantage									
N	21300		20820	18830	17590			16530	15610

Max. force exerted throughout the whole range 15930 N

Front of tractor does not lift with maximum allowable front ballast.

PRÜFUNGS-ABTEILUNG

Test No. 74-190

0	+100	+200	+240	+270	+300	+400	+415		
lift rods 540 mm long									
20550	19810	18940			18480	18250	18250		
lift rods 640 mm long									
17240	16960	17100	17190						

lift rods 540 mm long									
21590	19750	18140			16760	15930	15930		
lift rods 640 mm long									
15610	14460	13770		13540					

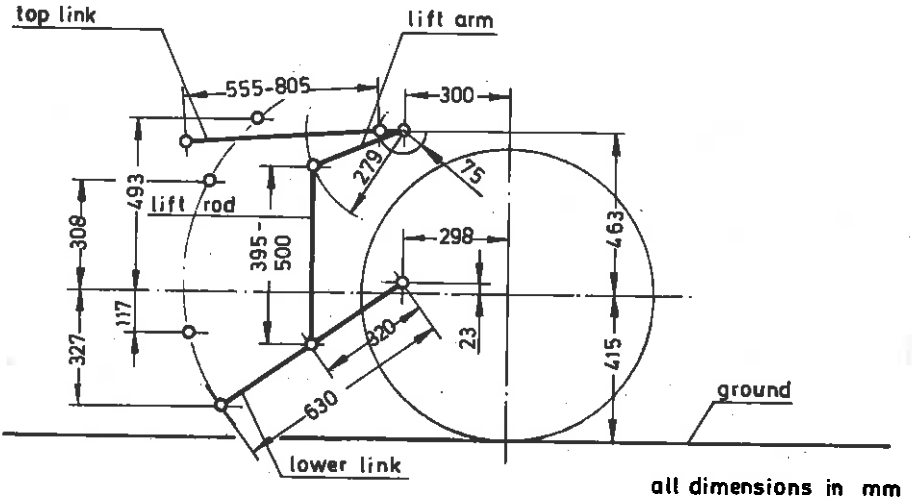
All values of forces for pressure at max. hydraulic power 161 bar, see page 24; calculated from measurements at max. oil pressure 172 bar

PRÜFUNGS-ABTEILUNG
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Test No. 74-190

POWER LIFT

Dimensions of linkage geometry on the front power lift
for the table on page 29



all dimensions in mm

LINKAGE GEOMETRY when connected to the standard frame at front of tractor	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	630 mm	630 mm
Lift arms	279 mm	279 mm
Lift rods	395 mm	500 mm
Top link	588 mm	558 mm
Distance of lift rod connection point from pivot point of lower link	320 mm	320 mm
The following dimensions are given relative to front axle centre line 415 mm above ground		
Lower link pivot point	298 mm forward, 23 mm above	298 mm forward, 23 mm above
Top link pivot point, when lower links are horizontal	376 mm forward, 468 mm above	371 mm forward, 495 mm above
Lift arm pivot point	300 mm forward, 463 mm above	300 mm forward, 463 mm above
Maximum and minimum height of lower link hitch points	493 mm above, 117 mm below	308 mm above, 327 mm below
Height of lower link hitch points above ground, when locked in highest transport position	908 mm	723 mm

PRÜFUNGS-ABTEILUNG
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LIFTING FORCES at front of tractor

Lifting heights relative to horizontal lower links

mm	-380	-350	-300	-200	-150	-140	-100	0	+100
at hitch points maximum mechanical advantage									
N						17470	17050	16360	16270
minimum mechanical advantage									
N		17580	16820	15900			15440	15220	14990

Max. force exerted throughout the whole range 14990 N
Rear of tractor does not lift with maximum allowable rear ballast

at test frame maximum mechanical advantage									
N					15060		14970	14690	14500
minimum mechanical advantage									
N	15350		14530	14300			14070	13970	13610

Max. force exerted throughout the whole range 13590 N
Rear of tractor does not lift with maximum allowable rear ballast.

PRÜFUNGS-ABTEILUNG

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+200	+285	+290	+300	+400	+470	+475		
lift rods 395 mm long								
16000			15540	15080	14990			
lift rods 500 mm long								
14800	14620							

lift rods 395 mm long

14320			14040	13590		13590		
lift rods 500 mm long								
13330		13050						

All values of forces for pressure at max. hydraulic power 161 bar, see page 24; calculated from measurements at max. oil pressure 172 bar

PRÜFUNGS-ABTEILUNG
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Test No. 74-190

OPTIONAL TESTS

(9) ENGINE PERFORMANCE

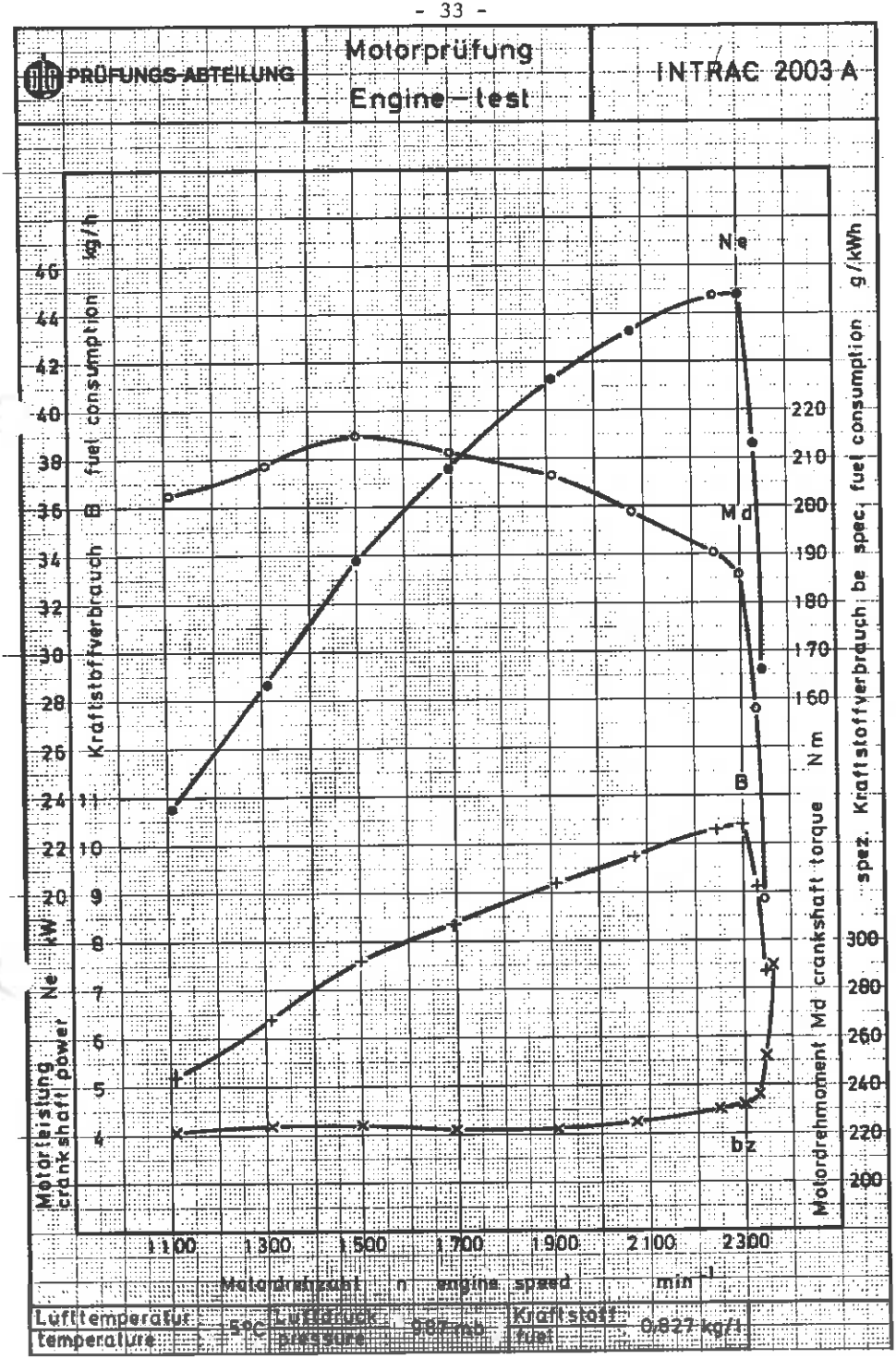
Date of tests: 11th and 12th December 1974
Type of dynamometer: Schenck eddy current dynamometer W 150

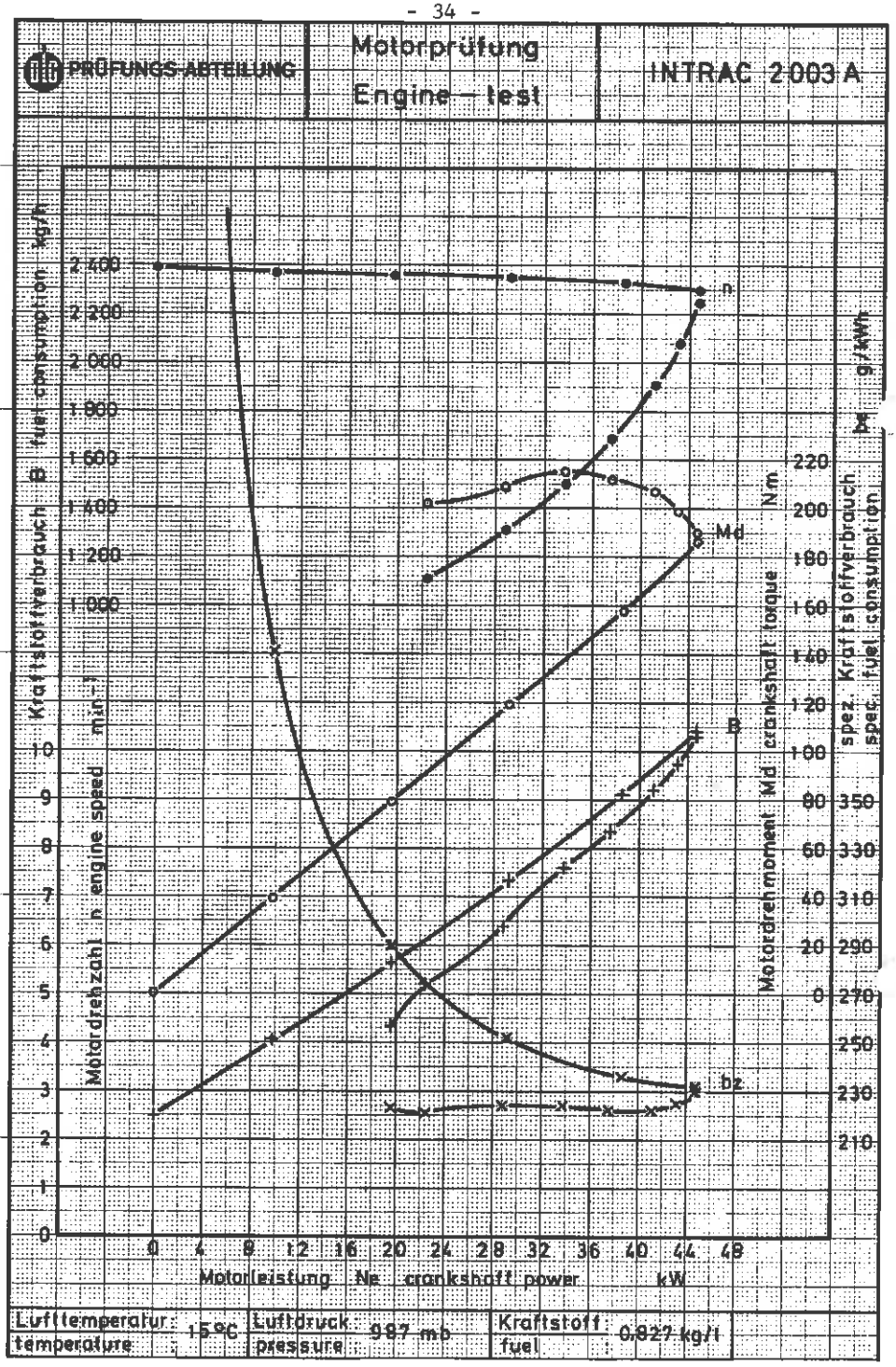
Maximum power

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
At maximum power 2-hour test					
44,8	2300	12,56	10,39	232	3,55
At standard p.t.o. speed (540 rev/min)					
43,3	2077	11,80	9,76	225	3,67
At the speed recommended for drawbar work					
44,8	2300	12,56	10,39	232	3,55
Part loads					
(i) 85% of torque at maximum power					
38,6	2330	11,01	9,11	236	3,50
(ii) unloaded					
-	2393	3,01	2,49	-	-
(iii) 50% of the load defined in (i)					
19,5	2359	6,84	5,66	290	2,87
(iv) maximum power					
44,8	2300	12,56	10,39	232	3,55
(v) 25% of the load defined in (i)					
9,8	2373	4,87	4,03	411	2,00
(vi) 75% of the load defined in (i)					
29,2	2346	8,90	7,36	252	3,28

Optimum fuel consumption: 220 g/kWh at 29,4 kW and 1600 rev/min
Standard fuel consumption 1/2 (DIN 9606): 5,34/10,65 l/h
No load maximum engine speed: 2393 rev/min
Torque at maximum power: 186 Nm
Maximum torque: 215 Nm at 1500 rev/min of the engine

Mean atmospheric conditions:	temperature	15°C
	pressure	987 mbar
	relative humidity	69%
Maximum temperatures:	coolant	not recorded
	engine oil	95°C
	fuel	16°C


PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine – test
INTRAC 2003 A
Ne
Md
B
bz
Motorleistung Ne kW crankshaft power
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehmoment Md crankshaft torque Nm
spez. Kraftstoffverbrauch be spec. fuel consumption g/kWh
1100 1300 1500 1700 1900 2100 2300
Motordrehzahl n engine speed min⁻¹
Lufttemperatur temperature °C
Luftdruck air pressure mb
Kraftstoff fuel 0,827 kg/l


PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine — test
INTRAC 2003 A
Kraftstoffverbrauch B fuel consumption kg/h
Motordrehzahl n engine speed min⁻¹
Motordrehmoment Md crankshaft torque Nm
spez. Kraftstoffverbrauch spec. fuel consumption g/kWh
n
Md
B
bz
Motorleistung Ne crankshaft power kW
Lufttemperatur temperature 15 °C
Luftdruck pressure 987 mb
Kraftstoff fuel 0,827 kg/l

PRÜFUNGS-ABTEILUNG
Motorprüfung
Engine – test
INTRAC 2003 A
Motorleistung in % der Leistung bei Nenndrehzahl
engine power in % of power at rated engine speed
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
220 g / kWh
223
225
230
240
250
260
275
300
350
450
Luftlemperatur
temperature
+50°C
Luftdruck
pressure
987 mb
Kraftstoff
fuel
0,827 kg/l