

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



O.E.C.D. No.

651



Agricultural Tractor John Deere 4440 Power-Shift

Manufacturer

John Deere Werke Mannheim, D-6800 Mannheim

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: May till November 1978

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. 651

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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Printed in the Federal Republic of Germany

April 1980; DLG-No. 135



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Tractor manufacturer: JOHN DEERE WERKE MANNHEIM
D-6800 Mannheim
Submitted for test by: Manufacturer
Selected by: Manufacturer with agreement by DLG
Place of running-in: Mannheim
Duration of running-in: Engine and tractor appr. 100 hours

SPECIFICATION OF TRACTOR

Tractor

Make: JOHN DEERE WERKE MANNHEIM
Model: 4440 POWER SHIFT
Type: Wheeled tractor, unit construction, semi-frame
reinforced, all-wheel driven
Serial no.: 267097

Engine

Make: JOHN DEERE
Model: 6.466 TL-01
Type: 4-stroke DIESEL engine, direct injection,
water cooled, turbo-charged
Serial no.: 6.466 TL-01- 022716 RG
Cylinders: 6, in line, 115,8 mm bore, 120,7 mm stroke,
capacity 7627 cm³; compression ratio 15,5
Valves: Overhead
Fuel system: BOSCH fuel feed pump FP/KE 22 AD 290;
BOSCH in line injection pump:
PES 6 A 95 D 410 RS 2479;
manufacturer's production setting 91 mm³/stroke
at rated engine speed;
injection timing 30° before TDC;
BOSCH multihole injectors DLLA 155 S 713;
injection pressure 279 bar;
STANADYNE fuel filter with pre and main
cleaner and replaceable cartridges;
capacity of fuel tank 246 l
Governor: BOSCH mechanical variable speed governor:
RSV 400-1100 A 2 B 768 DL;
governed engine speed 810 to 2380 rev/min;
rated engine speed 2200 rev/min



Turbo charger: AIR RESEARCH T 04 B, optional
SCHWITZER 3 IM;
air pressure 1,0 to 1,3 bar overpressure,
without air cooler

Air cleaner: DONALDSON
6193 H 316;
dry paper element cleaner;
replaceable cartridge

**Exhaust
silencer:** NELSON MUFFLER CO, USA
multichamber absorption-reflexion type
silencer;
117,5 mm/213 mm oval, 965 mm long;
above the bonnet, mouth showing upwards,
mouth 2820 mm above ground

**Lubrication
system:** Pressurized from gear type pump;
strainer in sump;
DELUXE PRODUCTS CORP. oil filter in full flow
with by-pass and replaceable cartridge;
cartridge change at every 200 hours;
oil capacity 19 l;
oil changing interval 100 hours;
recommended oil quality MIL-L-2104 C
recommended oil viscosities:
below -30°C SAE 5W
from -30°C to -10°C SAE 10W
from -10°C to $+10^{\circ}\text{C}$ SAE 20W/20
from $+10^{\circ}\text{C}$ to $+30^{\circ}\text{C}$ SAE 30
above $+30^{\circ}\text{C}$ SAE 40
or multigrade oils

Cooling system: Water cooled, impeller assisted;
pressurized system with 0,5 to 1,0 bar over-
pressure,
with by-pass thermostat;
fan with 8 blades, 610 mm diameter;
coolant capacity 34 l

Starting system: Electrical
JOHN DEERE screw-push-starter motor 4,4 kW;
optional electrically or hand operated
ether starting aid



Electrical equipment: 12 Volt, negative earth;
DELCO REMY 3-phase alternator 12 V - 72 A;
2 lead-acid batteries 88 Ah each at 20 hours rating

Transmission

Gear box: JOHN DEERE POWER-SHIFT TRANSMISSION
2 compound planetary sets, controlled by
3 clutches and 4 brakes;
8 forward and 4 reverse speeds,
all speeds shiftable under load;
pedal operated clutch valve for
emergency stops;
acc. to manufacturer's
specifications it isn't recommended to use
permanently the maximum pull of tractor
in speeds lower than 7 km/h

Rear axle and final drive: Bevel gear drive with crown wheel and pinion;
bevel gear differential with hydraulically
pedal-operated lock,
disengaged by operating service brake;
planetary final drives

Driven front axle: Hydrostatic front wheel drive,
oil motors with planetary final drives
in each front wheel housing;
oil motors can be switched parallel to high
torque or in series to low torque;
they can be switched from high torque to low
torque or vice versa or engaged and disengaged
under load when tractor is moving;
parallel switching is possible in 1st to 4th
forward speed and in all reverse speeds;
series switching is possible in 1st to 6th
forward speed and in all reverse speeds;
if 7th or 8th speed is shifted, hydrostatic
front wheel drive is automatically put out
of action

Recommended oil: JOHN DEERE JDM J20A

Oil capacity: In common with hydraulic system 75 l

Oil changing period: 1200 hours



PRÜFUNGS-ABTEILUNG
JOHN DEERE 4440 P-S

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Test No. 78-84

Total ratios and speeds (tyres 20,8 R 38 8 ply)

Gear	Total ratio engine to driving wheel	Nominal travelling speed *) at rated engine speed km/h
Forward speeds		
1	233,66	3,03
2	166,51	4,26
3	109,83	6,46
4	85,09	8,33
5	65,08	10,90
6	50,43	14,06
7	37,59	18,36
8 **)	22,31	31,78

Reverse speeds

1	191,72	3,70
2	136,63	5,19
3	90,12	7,87
4	69,82	10,16

*) calculated with the INDEX RADIUS 855 mm WdK 154

***) locked in countries with maximum speed limited
to 25 km/h

Power take-off

Independent p.t.o.;
engageable and disengageable under load
through hydraulically operated wet
multi disc type clutch;
715 mm above ground;
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 acc. to DIN 9611 and
ISO 500 type 1;

544 rev/min at rated engine speed,
standard p.t.o. speed 540 rev/min at
2184 rev/min engine speed

This p.t.o.-shaft should not be used to
transmit the full crankshaft power,
the transmittable power is limited to 55 kW

1000 rev/min p.t.o.

35 mm dia, 21 splines acc. to DIN 9611 and
ISO 500 type 2;

1011 rev/min at rated engine speed;
standard p.t.o. speed 1000 rev/min at
2176 rev/min engine speed

All p.t.o. speeds may be set by aid of
tractormeter

Direction of rotation clockwise viewed from
tractor rear

Power lift

Hydraulic system: Own make;
hydraulic power lift in unit construction;
closed system with pressure reservoir;
self regulating 8-piston radial type pump
directly driven by front end of crankshaft;
maximum delivery rate 66 mm³/rev or
126 l/min at rated engine speed



Oil circuit is in common for all hydraulically controlled units of the tractor;
maximum system pressure 165 bar;
main cylinder integrated in power lift unit,
bore 108 mm, stroke 211 mm;
1 external lift assist cylinder standard,
bore 44,5 mm, stroke 208,3 mm;
a second lift assist cylinder optional;
main cylinder and lift assist cylinder are connected with the oil circuit by an oil flow control valve;
max. oil flow is set to 47 l/min;
single acting JOHN DEERE control valve, in power lift unit integrated, for lifting, lowering, neutral and floating position, power control, position control, both mixable in 3 steps;
up to 2 JOHN DEERE additional control valves for single or double acting oil tappings available;
hydraulically acting lock for transport;
oil reservoir and oil changing in common with gear box and front wheel drive with 75 l capacity;
up to 22 l for continuous oil flow may be taken off through oil tappings when tractor is moving as well as stationary

Implement
linkage:

Three point linkage category II DIN 9674,
category III optional;
telescopic lower links;
lift rods adjustable from 775 to 840 mm;
lifting height above ground:
with short lift rods from 432 to 1072 mm
with long lift rods from 267 to 972 mm

Pull attachment

- Swinging drawbar: Height above ground 492 or 607 mm, changeable by reversing drawbar, diameter of hole 33 mm; distance of hole from p.t.o. shaft end: 404 mm (1000 rev/min p.t.o), rear axle centre: 903 mm; pivot point 175 mm before rear axle centre; swingable to either side for 218 mm
- Trailer hitch: ROCKINGER 279 H
height above ground 1020 mm;
swingable aside when using upper link;
hitch hole 33 mm diameter;
distance of hitch hole 620 mm from rear axle centre;
permissible vertical load 1500 kg
- Towing hitch: 1000 mm above ground

Steering

Own make,
hydrostatic steering;
oil supply from hydraulic system of power lift;
hand wheel operated steering valve
acting on steering motor on front axle

Brakes

- Parking lock: Incorporated in POWER SHIFT TRANSMISSION
- Service brake: Hydraulically pedal-operated wet disc-type brake with hydraulic force-amplifier, fed by the hydraulic system;
1 brake disc on each differential half shaft, disc diameter 380 mm
- Steering brake: Divided pedal of service brake, for normal use locked together

Wheels

Steered wheels: Two pneumatics at front;
14,9-24 AS 6 ply;
diagonal type tyre casing;
maximum permissible load per tyre 1760 kg
at 1,8 bar inflation pressure and 30 km/h;
track width from 1666 to 2380 mm adjustable
in steps of 102 mm by extending telescopic
front axle arms;
rims W 12 x 24

Driving wheels: Two pneumatics at front and two at rear;
specifications of driving front wheels see
steered wheels;
driving rear wheels:
20,8 R 38 AS 8 ply;
radial type tyre casing;
maximum permissible load per tyre 3090 kg
at 1,3 bar inflation pressure and 30 km/h;
track width from 1594 to 2416 mm stepless
adjustable by rack on rear axle shaft and
pinion and by offset lug type rims;
rims W 18 L x 38

Wheel base: 2710 mm

Cab Own make;
O.E.C.D. tested;
approval-No. CS 1338c

Seat Own make;
upholstered seat with back and arm rests;
adjustable spring with shock absorber;
height of seat platform 1345 mm above ground;
height of seat above platform about 570 mm in
median position; adjustable on inclined
guideways fore and aft about 185 mm and
simultaneously 80 mm up and down;
additional independent height adjustment-
range about 70 mm

Number of grease points 14

Weights

Ready for use, as tested

		without driver	with driver
Without ballast	front	2145 kg	2150 kg
	rear	3895 kg	3970 kg
	total	6040 kg	6120 kg
Front ballast	1 base weight		55 kg
	10 front weights 42,5 kg each		425 kg
Rear ballast	3 weights per wheel		
	65 kg each		390 kg
	water in the tyres		1045 kg
With ballast	front	2695 kg	2700 kg
	rear	5260 kg	5335 kg
	total	7955 kg	8035 kg

Track setting during tests

front axle	1768 mm
rear axle	1820 mm

Dimensions

Total length:	4436 mm without ballast
	4540 mm with ballast
Total width:	2455 mm without ballast
	2455 mm with ballast
Total height:	3000 mm to top of cab roof
Ground clearance:	460 mm below swinging drawbar



Lighting equipment

	Dimensions mm	Height above ground to centre mm	Distance from outside edge of tractor to centre mm
Head lights	130 Ø	1330	910
Side lights	55 Ø	1890	460
Rear lights	30 x 65	1880	460
Reflectors			
1 st pair	80 Ø	750	1040
2 nd pair	80 Ø	1730	420

FUELS AND LUBRICANTS, USED IN TESTS

Fuel: ARAL-DIESEL-fuel DIN 51601
specific gravity at 15°C
at engine tests: 0,835 kg/l
at p.t.o tests: 0,830 kg/l
at drawbar tests: 0,828 kg/l

Engine oil: FUCHS UNIVERSAL SAE 15 W/40
MIL - L - 2104 C

Transmission
and

Hydraulic oil: JOHN DEERE JDM J 20 A



PRÜFUNGS-ABTEILUNG

JOHN DEERE 4440 P-S

Test No. 78-84

COMPULSORY TESTS

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

Date of tests: 21st June 1978

Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	engine rev/min	Speed		Fuel consumption		Specific energy kWh/l
		p.t.o. rev/min	total l/h	kg/h	specific g/kWh	

Maximum power

At 2-hour test

104.9	2200	1011	35.89	29.79	284	2.92
-------	------	------	-------	-------	-----	------

At standard p.t.o. speed

104.4	2176	1000	35.44	29.41	282	2.95
-------	------	------	-------	-------	-----	------

At the speed recommended for drawbar work

104.9	2200	1011	35.89	29.79	284	2.92
-------	------	------	-------	-------	-----	------

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

91.2	2251	1034	32.37	26.87	295	2.82
------	------	------	-------	-------	-----	------

(ii) unloaded

-	2362	1085	10.81	8.97	-	-
---	------	------	-------	------	---	---

(iii) 50% of the load defined in (i)

46.5	2298	1056	21.36	17.73	381	2.18
------	------	------	-------	-------	-----	------

(iv) maximum power

104.9	2200	1011	35.89	29.79	284	2.92
-------	------	------	-------	-------	-----	------

(v) 25% of the load defined in (i)

20.3	2316	1064	15.17	12.59	621	1.34
------	------	------	-------	-------	-----	------

(vi) 75% of the load defined in (i)

69.1	2276	1046	26.69	22.16	320	2.59
------	------	------	-------	-------	-----	------

**PRÜFUNGS-ABTEILUNG**

JOHN DEERE 4440 P-S

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Test No. 78-84

Power kW	Speed		Fuel consumption		Specific energy kWh/l	
	engine rev/min	p.t.o. rev/min	total l/h	specific kg/h		
<u>Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load</u>						
(i) 85% of the torque at maximum power at 2-hour test						
90.9	2241	1030	32.18	26.71	294	2.82
(ii) unloaded						
-	2348	1079	10.60	8.80	-	-
(iii) 50% of the load defined in (i)						
46.4	2287	1051	21.11	17.52	378	2.20
(iv) maximum power						
104.4	2176	1000	35.44	29.41	282	2.95
(v) 25% of the load defined in (i)						
23.3	2302	1058	15.65	12.99	556	1.49
(vi) 75% of the load defined in (i)						
68.9	2262	1040	26.54	22.03	320	2.60

Standard specific fuel consumption (g/kWh): 295/381/294/378

No load maximum engine speed: 2362 rev/min

Equivalent crankshaft torque at maximum power (2 hours): 455 Nm

Maximum equivalent crankshaft torque: 579 Nm at 1498 rev/min
of the engine

Mean atmospheric conditions: temperature 23 °C
pressure 994 mbar
relative humidity 65 %

Maximum temperatures: coolant 87 °C
engine oil 98 °C
fuel 35 °C
engine air intake 47 °C

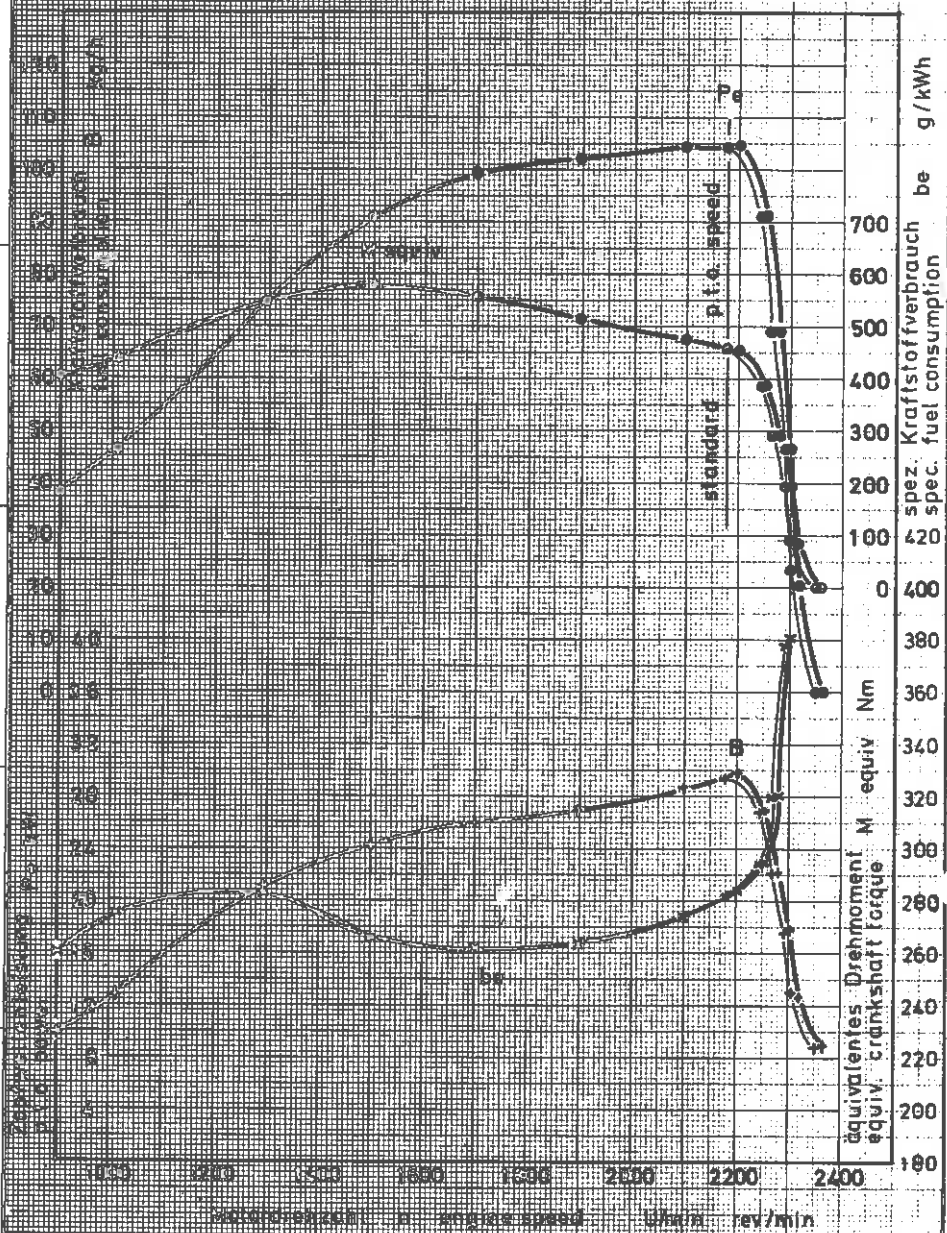


JOHN DEERE 4450 P.T.O.

Zapfwellenleistung

P.T.O. performance

Test Nr. 78-84





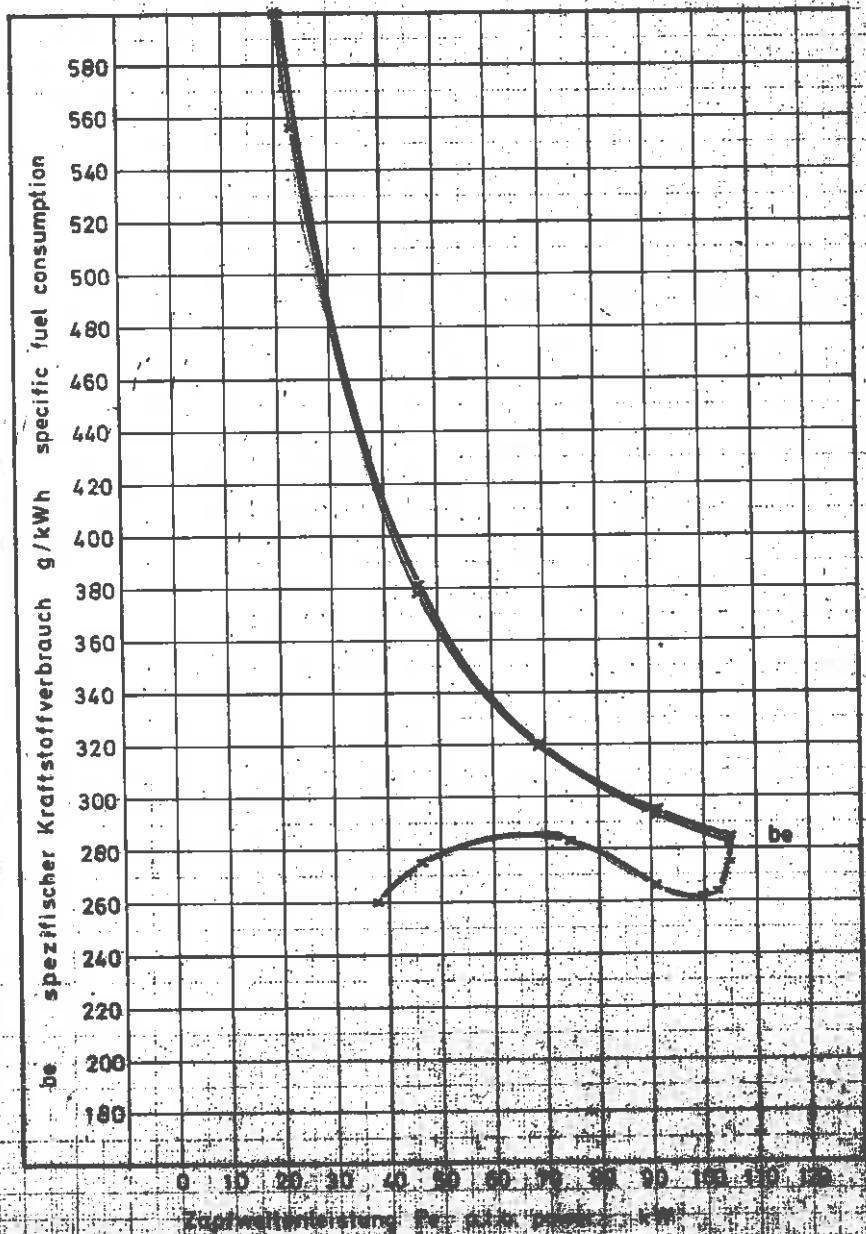
PRÜFUNGS-ABTEILUNG

JOHN DEERE 4440 P-S

Zapfwellenleistung

Pto. performance

Test Nr. 78-84




(2) DRAWBAR PERFORMANCE

Date of tests: 24th October till 3rd November 1978

Type of track: Concrete

Gear No.	Speed	Power	Drawbar pull	Engine speed	Slip of	
	km/h	kW	daN	rev/min	front wheels %	rear wheels %

(i) MAXIMUM POWER with ballast
height of drawbar above ground 460 mm

1 +)	2,69	59,3	7939	2278	4,6	15,0
2 +)	3,71	81,3	7887	2247	3,3	14,9
3 +)	6,01	93,0	5568	2200	3,1	7,0
4 +)	7,97	93,1	4203	2200	2,3	4,4
5 x)	10,51	87,9	3011	2201	0,5	3,6

(ii) FIVE-HOUR-TEST
at 75% of pull at maximum power in 4th gear

4 +)	8,30	72,7	3152	2263	2,7	3,1
------	------	------	------	------	-----	-----

(iii) FIVE-HOUR-TEST
at max. pull allowed by the manufacturer for limited time
of operation

2 +)	3,90	78,0	7200	-	-	-
------	------	------	------	---	---	---

(iv) MAXIMUM POWER without ballast
height of drawbar above ground 490 mm

1 +)	2,71	47,5	6305	2290	5,6	15,0
2 +)	3,77	64,9	6205	2267	5,4	15,0
3 +)	5,71	86,7	5470	2200	4,7	12,4
4 +)	7,72	88,4	4118	2200	3,4	8,0
5 x)	10,25	84,8	2979	2200	0,8	6,5
6 x)	13,50	82,0	2187	2200	0,7	4,5

Total oil consumption during ten hours duration of tests
(ii) and (iii): 12 g/h

+) hydrostatic front wheel drive switched to high torque

x) hydrostatic front wheel drive switched to low torque



Tyres size front: 14,9 - 24 6 ply

rear: 20,8 R 38 8 ply

Tread bar height at the beginning of drawbar tests:

at front 95%, at rear 77% of the value when new

Specific energy kWh/l	Specific fuel consumpt. g/kWh	Temperatures			Atmospheric conditions		
		Fuel °C	Coolant °C	Engine- oil °C	Tempe- rature °C	Relative humidity %	Pressure mbar

tyre inflation pressure 1,2 bar at front and 1,0 bar at rear

2,06	398	24	86	95	12	95	1014
2,27	361	24	86	95	13	98	1014
2,49	329	24	86	95	13	98	1014
2,50	329	24	86	95	13	100	1014
2,37	346	24	86	95	13	97	1013

2,29	359	24	86	95	13	100	1014
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(see description of gear box on page 6)

-	-	24	86	95	14	97	1014
---	---	----	----	----	----	----	------

tyre inflation pressure 0,8 bar at front and 1,0 bar at rear

1,90	432	26	86	95	16	83	1008
2,11	388	26	86	94	16	90	1008
2,34	351	26	86	100	15	98	1007
2,38	344	27	86	95	15	97	1007
2,29	358	25	86	95	15	100	1006
2,21	371	25	86	99	16	100	1006

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

(3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 14,9 - 24 AS 6 ply

rear: 20,8 R 38 AS 8 ply

Track of wheels front: 1768 mm

rear: 1820 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	4,53	4,57	5,07	5,13
Radius of turning circle	4,30	4,35	4,84	4,91

(4) LOCATION OF CENTRE OF GRAVITY

Height above ground	1053 mm
Distance forward from rear axle centre	945 mm
Distance from tractor's median plane	0 mm

**(5) BRAKING PERFORMANCE****A) SERVICE BRAKE**

Date of tests: 1st and 2nd November 1978
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs-
und Pedalkraftschreiber

Weight of ballasted tractor with driver 8035 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	3,8
Stopping distance	m	8,0	8,2
Force on pedal	daN	29	22
Force on pedal to achieve a deceleration of 2,5 m/s ²	daN	20	16

Brake fade characteristics (hot tests)

Deceleration	hot/cold	%	100	100
Stopping distance	cold/hot	%	105	93
Force on pedal	cold/hot	%	107	96

B) PARKING BRAKE (at 16%-slope)

Hand lever operated parking lock incorporated
in POWER SHIFT TRANSMISSION

Tractor facing up slope: tractor does not roll

Tractor facing down slope: tractor does not roll

(6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 30th October 1978
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Results of test

Gear: 8th
Travelling speed before
acceleration: 24,9 km/h
Sound level: 89,0 dB(A)

(7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 27th October 1978
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

A safety cab was fitted on tractor
O.E.C.D.-tested, approval no. CS 1338c

Results of tests

Gear No.	Drawbar pull at which the tractor develops the maximum sound level daN	Travelling speed		Sound level
		nominal km/h	effective km/h	
1 +)	6024	3,03	2,75	81,5
2 +)	6028	4,26	3,79	81,0
3 +)	5517	6,46	5,64	81,5
4 **)	4227	8,33	7,67	81,5
5 x)	3067	10,90	10,12	82,0
6 x)	2188	14,06	13,48	82,0
7 o)	1693	18,87	18,07	81,5
8 o)	light load	31,79	33,23	81,5

- *) the 4th gear corresponds to the travelling speed nearest to 7,5 km/h
+) hydrostatic front wheel drive switched to high torque
x) hydrostatic front wheel drive switched to low torque
o) hydrostatic front wheel drive automatically switched off

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of tests: 6th September and 16th November 1978

HYDRAULIC PUMP

The tractor contains one oil circuit for all hydraulically controlled tractor units. Power lift assembly is connected to the hydraulic supply circuit by an oil flow control valve. This restricts the oil flow to the power lift to maximum 47 l/min

Circuit of power lift

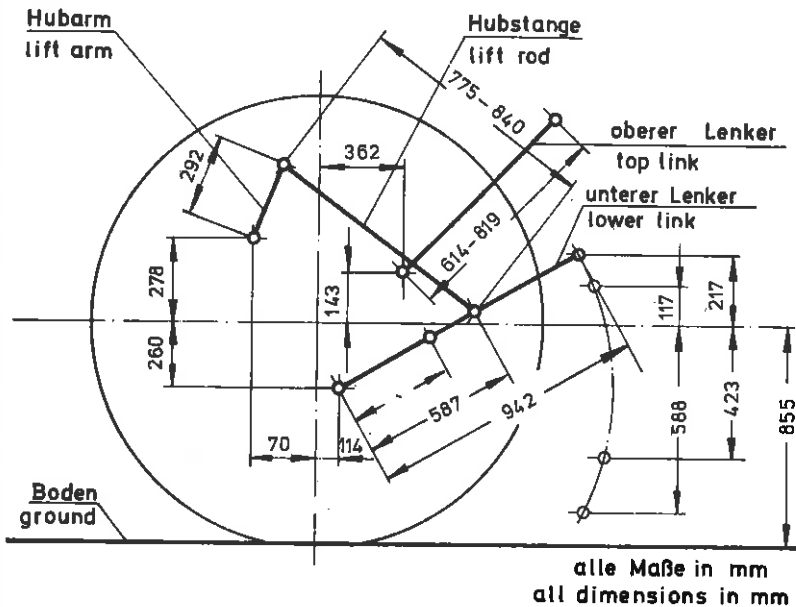
- | | |
|---|------------|
| (1) Sustained pressure with pump stalled | 165 bar |
| (2) Pump delivery rate at minimum pressure and rated engine speed | 46,8 l/min |
| (3) Pump delivery rate at maximum hydraulic power | 44,9 l/min |
| corresponding delivery pressure | 128 bar |
| power | 9,5 kW |



Remote circuit with oil tappings

- | | |
|--|------------|
| (1) Sustained pressure with pump stalled | 165 bar |
| (2) Delivery rate at minimum pressure and rated engine speed | 64,8 l/min |
| (3) Delivery rate at max. hydraulic power | 77,1 l/min |
| corresponding delivery pressure | 106 bar |
| power | 13,6 kW |

Dimensions of implement linkage for the table on page 25





LINKAGE GEOMETRY when connected to the standard frame	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
Lower links	942 mm	942 mm
Lift arms	292 mm	292 mm
Lift rods	840 mm	775 mm
Top link	697 mm	700 mm
Distance of lift rod connection point from pivot point of lower link	587 mm	587 mm
The following dimensions are given relative to rear axle centre line 855 mm above ground		
Lower link pivot point	114 mm behind, 260 mm below	114 mm behind, 260 mm below
Top link pivot point	362 mm behind, 143 mm above	362 mm behind, 143 mm above
Lift arm pivot point	70 mm forward, 278 mm above	70 mm forward, 278 mm above
Maximum and minimum height of lower link hitch points	117 mm above, 588 mm below	217 mm above, 423 mm below
Height of lower link hitch points above ground when locked in highest transport position	972 mm	1072 mm

LIFTING FORCES with 1 external lift assist cylinder

Lifting heights relative to horizontal lower links

mm	-353	-328	-300	-200	-195	-163	-100	0	+100
----	------	------	------	------	------	------	------	---	------

at hitch points maximum mechanical advantage

daN						3180	3330	3630	3750
-----	--	--	--	--	--	------	------	------	------

minimum mechanical advantage

daN		2910	2950	3250			3440	3560	3670
-----	--	------	------	------	--	--	------	------	------

Max. force exerted throughout the whole range 3180 daN
 Front of tractor does not lift

at test frame maximum mechanical advantage

daN	2980		3050	3130			3130	3090	3020
-----	------	--	------	------	--	--	------	------	------

minimum mechanical advantage

daN					2940		3130	3170	3130
-----	--	--	--	--	------	--	------	------	------

Max. force exerted throughout the whole range 2710 daN
 Front of tractor does not lift if front axle is ballasted
 to its maximum allowable load (3520 kg)



+200	+300	+377	+400	+442	+477	+500	+600	+607	
------	------	------	------	------	------	------	------	------	--

lift rods 775 mm long

3860	3900		3970		4050				
------	------	--	------	--	------	--	--	--	--

lift rods 840 mm long

3710	3780	3860							
------	------	------	--	--	--	--	--	--	--

lift rods 840 mm long

2940	2826		2710	2710					
------	------	--	------	------	--	--	--	--	--

lift rods 775 mm long

3050	2980		2830			2710	2670	2670	
------	------	--	------	--	--	------	------	------	--

All values of forces for pressure 128 bar at max. hydraulic power, see page 23; calculated from measurements at max. oil pressure 165 bar



LIFTING FORCES with 2 external lift assist cylinders

Lifting heights relative to horizontal lower links

mm	-353	-328	-300	-200	-195	-163	-100	0	+100
----	------	------	------	------	------	------	------	---	------

at hitch points maximum mechanical advantage

daN						3670	3900	4160	4350
-----	--	--	--	--	--	------	------	------	------

minimum mechanical advantage

daN		3370	3400	3710			3940	4130	4200
-----	--	------	------	------	--	--	------	------	------

Max. force exerted throughout the whole range 3670 daN
Front of tractor does not lift if front axle is ballasted
to its maximum allowable load (3520 kg)

at test frame maximum mechanical advantage

daN	3550		3620	3700			3700	3620	3550
-----	------	--	------	------	--	--	------	------	------

minimum mechanical advantage

daN					3510		3620	3660	3660
-----	--	--	--	--	------	--	------	------	------

Max. force exerted throughout the whole range 3170 daN
Front of tractor does not lift if front axle is ballasted
to its maximum allowable load (3520 kg)



+200	+300	+377	+400	+442	+477	+500	+600	+607	
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lift rods 775 mm long

4510	4540		4620		4730				
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lift rods 840 mm long

4280	4350	4430							
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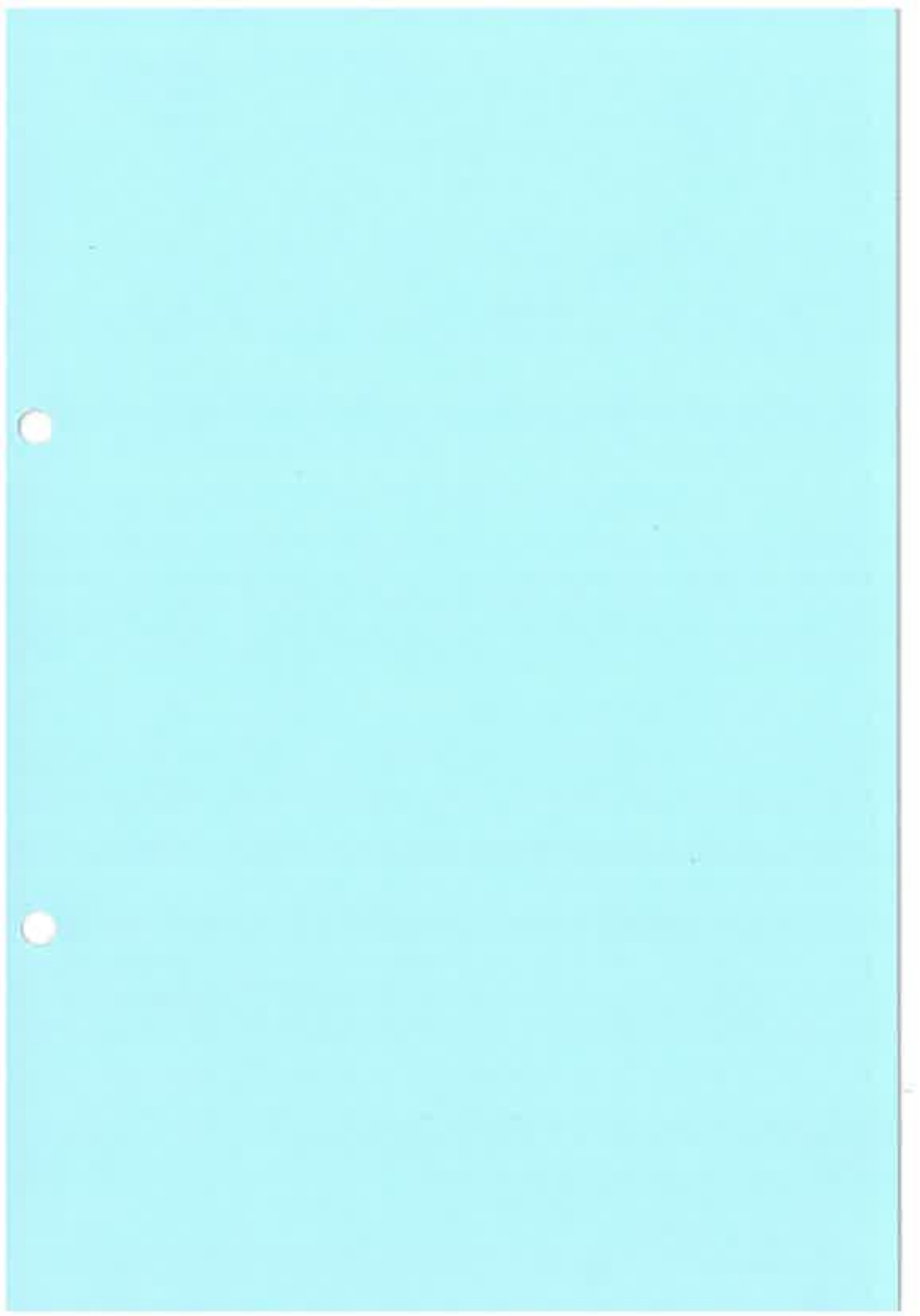
lift rods 840 mm long

3430	3320		3210	3170					
------	------	--	------	------	--	--	--	--	--

lift rods 775 mm long

3590	3430		3280			3090	2980	2940	
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All values of forces for pressure 128 bar at max. hydraulic power, see page 23; calculated from measurements at max. oil pressure 165 bar



Published
with the support of the Federal Minister for Food, Agriculture and Forestry

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