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BLT WIESELBURG

Akt Zl. 164/97

OECD-TEST-REPORT
for approbation according to OECD-Full Code (Code 1)
Standard Code by the OECD-Coordinating Centre at
C.E.M.A.G.R.E.F.
Antony, Cedex

Number and date of approval: 1/1763, May 28th, 1998



Dieseltractor CASE IH MX 150-MAXXUM
(40 km/h version), power shift

Trade name: CASE IH MX 150-MAXXUM (4 WD)

This report has been approved by the O.E.C.D. Coordinating Centre (CEMAGREF, France) as being in accordance with the O.E.D.C. Test Code.

TABLE OF CONTENTS

	Page
SPECIFICATIONS OF TRACTOR	2
Tractor	2
Engine	2
Transmission to wheels	6
Power take-off	9
Power lift	10
Trailer hitch	14
Holed drawbar	14
Steering	15
Brakes	16
Wheels	16
Protective structure	17
Driver's seat	17
Miscellaneous	18
Lighting	19
TEST CONDITIONS	19
TEST RESULTS	23
Compulsory test	23
Main power take-off performance - 1000 rev/min	23
Hydraulic power and lifting force	27
Drawbar performance	31
Turning area and turning circle	34
Location of centre of gravity	34
Braking	34
Measurement of external noise level	36
Repairs	36
Remarks	36
OPTIONAL TESTS	37
Turning area and turning circle	37
Power lift test - NA-version	38

Tractor manufacturer's name and address:	Case United Kingdom Limited Wheatley Hall Road Doncaster DN2 4PG, England and Case Corporation 700 State Street Racine, Wisconsin 53404, USA
Location of tractor assembly:	Doncaster DN2 4PG
Submitted for test by:	Manufacturer
Selected for test by:	Manufacturer by agreement with BLT Wieselburg
Place of running-in:	Doncaster DN3 4NR
Duration of running-in:	40 hours
Location of test:	Wieselburg, Austria

SPECIFICATIONS OF TRACTOR

IDENTIFICATION:

Make:	CASE IH
Trade name:	MX150 Series MAXXUM
Type:	MX 150
Model:	40 km/h version, power shift
Number of driving wheels:	4
Serial no.:	*X150ACH72E0TH0596A*CASE
1st serial no.:	JJE0980001

ENGINE:

Make:	CDC
Model:	6TA-590
Type:	watercooled 4 stroke diesel engine with direct injection and exhaust turbo super-charger air to water intercooler
Serial no.:	45520965

Cylinder:

Number/disposition:	6, vertical in line
Bore/stroke:	102/120 mm
Capacity:	5883 cm^3
Compression ratio:	$17,5^{\pm 1,5}$: 1
Arrangement of valves:	Overhead valves
Cylinder liners:	Wet liners

Supercharging:

Make:	HOLSET
Model:	HX35
Type:	Exhaust turbo supercharger air to water intercooler
Pressure:	max. $105^{\pm 20}$ kPa behind intercooler

Fuel system:

Fuel feed system:	FEDERAL MOGUL fuel feed pump
Make, model and type of fuel filter:	Fleetguard FS 0125100 replaceable fuel filter
Capacity of fuel tank:	347 l
Make, model and type of injection pump:	MICO (Lic. BOSCH) in line "A" Optional: BOSCH in line "A"
Code no.:	3933621
Serial no.:	56508813A
Manufacturer's production setting of injection pump, flow rate and timing:	$86^{\pm 2,5}$ mm^3 per stroke at engine speed of 2000 rpm at full injection $17^{\pm 2°}$ crank angle before TDC
Make, model and type of injectors:	BOSCH multihole injection nozzles
Opening pressure:	$24,0^{+1}_{-0}$ MPa (240^{+1} bar)

Governor:

Make:	MICO (lic. BOSCH RSV) with LDA (Aneroid) Optional: BOSCH RSV with LDA (Aneroid)
Type:	Variable speed governor, mechanically acting, incorporated in injection pump
Governed range of engine speed:	From $950^{\pm 50}$ to $2420^{\pm 50}$ rev/min engine speed for installed engine
Rated engine speed:	2200 rev/min

Air cleaner:

Location of air intake:	Inside the bonnet, in front of the radiator
Pre-cleaner:	Incorporated in main-cleaner
Main-cleaner:	
Make:	DONALDSON
Model:	141568A*, aspirated
Type:	Dry paper element filter with pre-cleaner, safety element, replaceable cartridge; electric warning indicator lamp; air intake below bonnet
Location:	Inside the bonnet, on top of engine, behind the radiator
Service intervals:	
Pre-cleaner:	None, exhaust aspirated
Main-cleaner paper insert:	Cleaning interval: when control lamp indication is shown Changing interval: 1 year
Maintenance indication:	Electric lamp indication, -65 mbar for indication

Lubrication system:

Type of feed pump:	Forced oil circulation, by gear pump
Type of filter:	Full flow oil filter with replaceable cartridge
Type of oilcooler:	Engine oil/cooling-water heat exchanger

Cooling system:

Type of coolant:	Water-anti-freeze mixture
Type of pump:	Centrifugal impeller pump belt driven
Specification of fan:	Puller, 2 driving belts
Number of fan blades:	7, visco-fan
Fan diameter:	609 mm
Coolant capacity:	~20 l
Type of temperature control:	Thermostat and by-pass circuit
Superpressure system:	Overpressure relief valve set to 103^{+7}_{-0} kPa

Starting system:

Make:	DENSO
Model:	R3.0 or R2.7
Type:	Solenoid pre-engaged starter motor
Starter motor power rating:	3,0 kW or 2,7 kW
Cold starting aid:	Flame plug in air intake channel Optional: Ether injection to air intake manifold
Safety device:	Forward/neutral/reverse control in neutral position Operator Presence Control

Electrical system:

Voltage:	12 V, negative earth
Generator:	Make: BOSCH Type: three phase type Power: K1-14 V/95 A 1330 W
Battery:	2 lead acid type Option: 1 lead acid type Rating: 105 Ah at 20 hours discharge period, each battery

Exhaust system:

Make:	DONALDSON or NELSON
Model:	220159A*, 140 mm dia, 1790 mm long
Type:	Aspirated, multi-chamber expansion
Location:	By RH cab "A" post; mouth showing forward-rightwards, 3041 mm above ground

TRANSMISSION TO WHEELS:

Clutch: Travel alone

Make:	Case France
Model:	None
Type:	Wet multi-plate clutch, 127 mm dia
Number of plates:	8
Diameter of plates:	127 mm
Method of operation:	Hydraulically operated, by pedal or electro-hydraulically controlled by forward-reverse lever

Gear box: Mechanical

Make:	Case France
Model:	40 km/h
Type:	Power shift speed change with 4 speeds
Model:	as tested (40 km/h)
Number of gears:	Power shift speed change with 4 speeds and 4 synchronized ranges (I, II, III, IV); Power shift reversing gear (F, R); Range IV locked out in reverse operation; Total number of gears: 16 forward, 12 reverse; 1 lever

Available options:	a) Synchronized shifted creeper range (CR), acting on 2 range gears (I, II, III, IV); provides total 32 forward and 24 reverse speeds b) Max. speed 30 km/h Total number of gears: 16 forward, 12 reverse; 1 lever c) 30 km/h version with creeper range total 32 forward and 24 reverse speeds

Rear axle and final drives:

Type:	Flange and bar axle
Make:	Case France
Model:	6000
Type:	Bevel gear differential with multiplate differential lock, planetary final drives
Differential lock:	Electro-hydraulically engaged/disengaged by switch or automatically disengaged by service brake operation or engine cutoff

Front axle and final drives:

Make:	CARRARO
Model:	20,29
Type:	Axle mounting is offset pivot type with central located steering cylinder and driveshaft. Pinion and bevel gear differential with universal joints and three planetary gears in wheel hubs
Differential lock:	Limited slip differential ball and ramp type, automatic activation
Front wheel drive:	A rocker switch is used for electro-hydraulic actuation of the drive clutch and central driveshaft. The drive clutch is spring applied and hydraulically released.

Optional:	Non driven front axle (North America)
Make:	Case IH (Racine)
Model:	177749A*
Type:	Non driven

Total ratios and travelling speeds:

Range no.	Gear no.	Number of engine revolutions for one revolution of driving wheels	Nominal travelling speed at rated engine speed to 2200 rev/min *) km/h
Forward speeds			
I	1	261,02	2,88
	2	216,71	3,46
	3	175,34	4,28
	4	141,54	5,30
II	1	114,53	6,55
	2	95,09	7,89
	3	76,94	9,76
	4	62,10	12,09
III	1	69,66	10,78
	2	57,84	12,98
	3	46,80	16,04
	4	37,77	19,87
IV	1	35,31	21,26
	2	29,32	25,60
	3	23,72	31,64
	4	19,15	39,20
Reverse speeds			
I	1	225,02	3,34
	2	186,82	4,02
	3	151,16	4,97
	4	122,02	6,15
II	1	98,73	7,60
	2	81,97	9,16
	3	66,32	11,32
	4	53,54	14,02
III	1	60,05	12,50
	2	49,86	15,05
	3	40,34	18,61
	4	32,56	23,05

*) Calculated with rear tyre dynamic radius index of 905 mm (ISO 4251/1-1992)

test tyre equipment: rear 20.8 R 42
front 480/70 R 30

Number of revolutions of front wheels for one revolution of rear wheels: 1,321

Optional, creeper ratio: 1 : 6,82

POWER TAKE-OFF:

Main power take-off:

Type:	P.t.o., independent of main clutch
Method of engagement:	Driven by wet multi-plate clutch; electro-hydraulically operated, electronically controlled by lever; 1 stub, shiftable, double ended; change speed with a manual shift lever
Number of shafts:	1
Method of changing power take-off shaft speeds:	Speed selection by one hand lever and a shift collar Option: speed change by reversing shaft for North America 1 shaft at rear of tractor, reversible
Diameter of power take-off shaft end:	35 mm
Number of splines:	540 rev/min p.to.: 35 mm dia, 6 splines conformity with ISO R 500 - 1991, type 1 1000 rev/min p.t.o.: 35 mm dia, 21 splines conformity with ISO R 500 - 1991, type 2
Height above ground:	700 mm with tyre index radius of 905 mm
Distance from the median plane of the tractor:	0 mm
Distance behind rear wheel axis:	602 mm

p.t.o. type	p.t.o. speed rev/min	engine speed rev/min	p.t.o. transmission ratio	power restriction kW
540	540	2163	4,0062 *)	-
540	549	2200	4,0062 *)	-
1000	1000	2209	2,2095 **)*)	-
1000	996	2200	2,2095 **)*)	-
540	540	1875	3,4720 **)	-
540	634	2200	3,4720 **)	-

*) North American (NA)-version; **) EURO-version

Power restriction and max. torque:	None, torque in Type I (540) shaft is restricted by reduced p.t.o. clutch pressure
Direction of rotation (viewed from behind tractor):	Clockwise
Front p.t.o.:	Optional
Location:	In front of tractor, direction forward, 877 mm above ground, 663 mm before front axle, in median plane, driven directly from the engine by a propellershaft, mechanical multi plate clutch and spur gear transmission.
Dimension of p.t.o. shaft end:	ISO R 500 - 1991, type I (35 mm, 6 splines)
P.t.o. speed at rated engine speed:	1100 rev/min
Ratio of rotation speed:	2,00
Power restriction and max. torque:	None
Direction of rotation (viewed from front of tractor):	Anticlockwise
Power take-off proportional to ground speed:	Not available

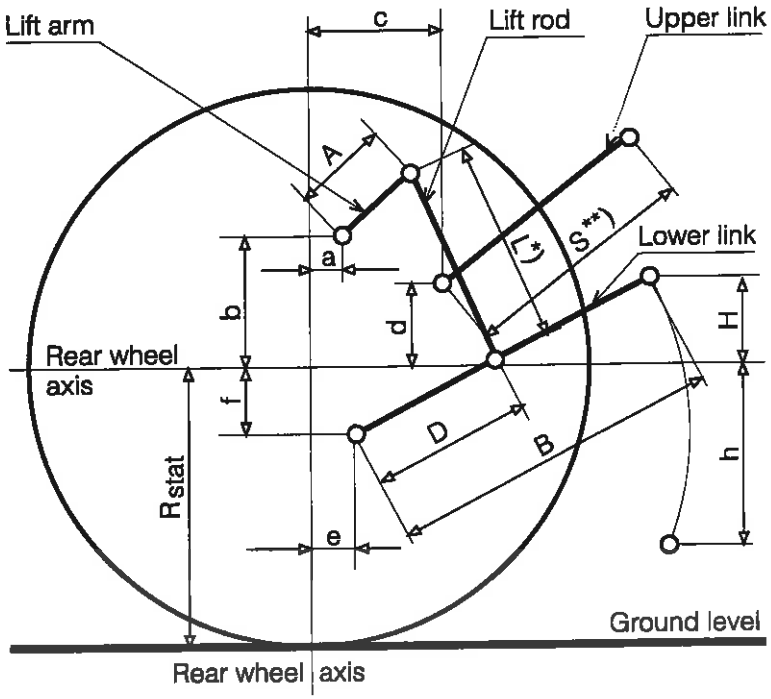
POWER LIFT:

In the rear:	
Make:	Case IH
Type:	Electro-hydraulic power lift, unit construction, draft, position- and intermixable control, floating position, fast raising, lowering throttle, lower links' sensing
Type of hydraulic system:	Closed, load sensing, pressure and flow compensated system
Type and number of cylinder:	Two single acting cylinders, 260 mm stroke, 89 Ø mm bore

Type of linkage lock for transport:	Hydraulically by position control lock
Relief valve pressure setting:	$202^{\pm 4}$ bar (pump compensator)
Opening pressure of cylinder safety valve:	234 bar (23,4 MPa)
Lift pump type:	Variable displacement piston pump
Max. delivery at rated engine speed: Option:	110 l/min 132 l/min
Transmission between pump and engine:	Pump directly driven by engine by gear transmission
Type and number of filter:	One full flow pressure type spin on element in the charge pump pressure line
Site of oil reservoir:	Gear box
Type, number and location of tapping points:	Up to 8 tapping points (4 oil circuits for single or double acting cylinders), 466 mm behind rear axle, 420/464 mm above rear axle, max. 110/190 mm right of median plane In accordance to ISO/DIS 5675 - 1979
Available options:	Load sensing valves; block of 2, 3 or 4 auxiliary valves with one priority valve and flow control of all mechanical valves
Maximum volume of oil available to external cylinders:	30 l (stationary mode)
<u>In the front:</u>	On tested tractor; hydraulic linkage, actuated by auxiliary valve of power lift
Make:	Case IH
Type:	None
Type of hydraulic system:	Close type, load sensing type, independent lower links with quick coupling ends cat. II fastened to a lifting frame
Type and number of cylinder:	2 double acting cylinders 200 mm stroke, 63 Ø mm bore
Type of linkage lock for transport:	Hydraulically by auxiliary valve

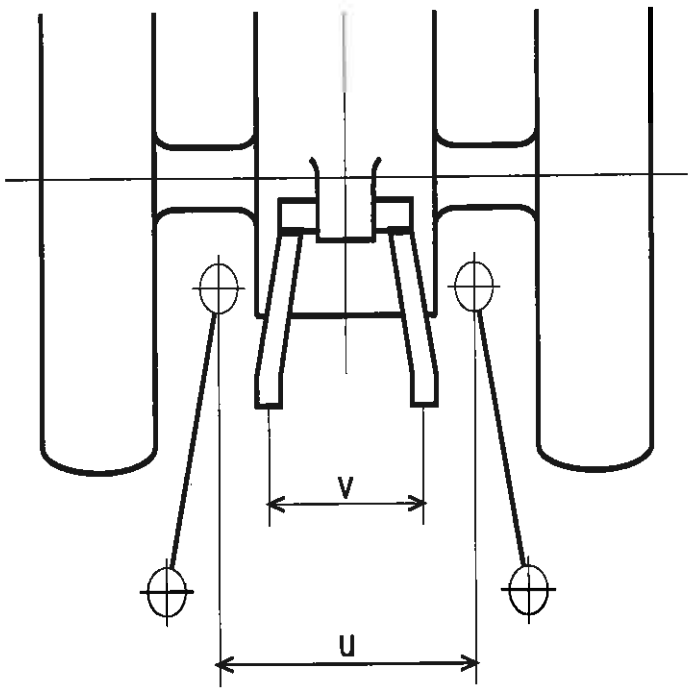
Three-point-linkage:

Category adapter: I/II; in conformity with ISO 730/1-1990



*) Left lift rod adjustable from 894 mm to 1076 mm length by thread; right lift rod adjustable from 894 mm to 1076 mm by thread.

**) Upper link length adjustable from 700 mm to 926 mm.



Dimensions of linkage geometry:

			Dimension of range mm	Settings used in test mm
Length of lift arms:		(A)	410	410
Length of lower links:		(B)	1003	1003
Distance of lift arm pivot points from rear wheel axis:	horizontally	(a)	100	100
	vertically	(b)	450	450
Horizontal distance between the lower link points:		(u)	500	500
Horizontal distance between the 2 lift arm end points:		(v)	660	660
Length of upper link:		(S)	700 - 926	820
Distance of upper link pivot point from rear wheel axis:	horizontally	(c)	450	450
	vertically	(d)	200/310	200/310
	version NA	(d)	170/250	170/250
Distance of lower link pivot point from rear wheel axis:	horizontally	(e)	250	250
	vertically	(f)	350	350

Height of lower link hitch points relative to the rear wheel axis (555 mm above ground)*):

		Min. lift rod length	During test	Max. lift rod length
Length of lift arms	(A) mm	328		
Linkage distance of lift rod	(D) mm	495		
Length of lift rods	(L) mm	894	1076	1076
Lowest position	(h) mm	375	675	675
Highest position	(H) mm	200	65	65

Height above ground of lower hitch points when locked in transport position*): Any height within lift range

*) With dynamic radius index 905 mm (ISO 4251/1 - 1992)

TRAILER HITCH:	European
Type:	Euro height adjustable short ladder
Optional:	Euro height adjustable long ladder
Optional:	Auto pick-up hitch
Optional:	Piton fixe
Hole diameter/ bolt diameter:	32,5/31,5 mm
Optional:	-/30 mm
Optional:	-/38 mm
Height above ground:	Height adjustable variable
Distance of hitch point from rear wheel axis, horizontally:	759 mm
Distance of hitch point from power take-off shaft end, vertically:	-159/-66/34/84/184/234/284 mm
horizontally:	157 mm
Maximum vertical permissible load:	20 kN
HOLED DRAWBAR:	
Length:	1420 mm
Number of holes (with central hole):	4
Distance between holes:	58 and 150 mm
Hole diameter:	41 mm
Thickness/width of the drawbar:	45 mm
Height above gound:	450 mm
Horizontal distance to power take-off shaft end (rear):	408 mm
HITCH HOOK:	
Make:	TRIMA, Sweden
Model:	Hydraulically operated, hook interchangeable with drawbar
SWINGING DRAWBAR:	
Make:	CASE
Model:	None

	Auto hitch hook	Drawbar Retracted	extended
Distance of hitch point from rear axis: horizontally: mm	702	852 - 1002 - 1152	
From p.t.o. shaft end: vertically: mm	208	230	
horizontally: mm	100	250 - 400 - 550	
Max. vertical permissable load: kN	3,0	1,8	1,6 1,4

STEERING:

Make:	Danfoss, Nordborg or Eaton, Eden Prairie, Minnesota, USA
Model:	Danfoss OSPD 60/230LS or Eaton 263-4374-002
Type:	Hydrostatic steering
Method of operation:	Steering wheel acting on front wheels
Pump:	110 l/min at rated engine speed (2200 rev/min)
Rams:	Incorporated in front axle, acting piston area 32,84 cm², dia 75 mm, cylinderrod 38 mm, stroke 270 mm
Working pressure:	18,3 MPa (183 bar)
Optional:	2 WD for North America
Make:	Danfoss, Nordberg or Eaton, Eden Prairie, Minnesota, USA
Model:	Danfoss OSPC150-8125 185LSR DYN or Eaton 263-4256-002
Type:	Hydrostatic steering
Method of operation:	Steering wheel acting on front wheels
Pump:	110 l/min at rated engine speed (2200 rev/min)
Rams:	Incorporated in front axle, acting piston area 27,0 cm², dia 66,7 mm, cylinder rod 31,8 mm
Working pressure:	18,3 MPa (183 bar)

BRAKES:

Service brake:

Make:	Rear axle: Case IH
Model:	Rear axle: 305 mm x 197 mm x 6 discs
Type:	Rear axle: Servo brake in oil bath, 12 acting faces with 305 mm effective diameter each, with automatic connection to front wheel drive
Method of operation:	Rear axle: Pedal actuated hydraulic - power
Trailer braking take-off:	Optional, air pressure system Storage pressure: 0,74 MPa (7,4 bar) Storage volume: 20 l Working pressure: 0,74 MPa (7,4 bar) two line system 0,56 MPa (5,6 bar) one line system or hydraulic trailer brake system Working pressure: 150 bar maximum

Parking brake:

Type:	Mechanically acting on rear axle final drive, pinion shaft connected to front axle through spring engaged MFD clutch
Method of operation:	Hand lever with ratchet, mechanically acting on SIRMAC brake 6 acting faces 143 mm x 92 mm effective diameter with automatic connection to front drive wheel

Steering assistance brake: Operated by divided pedal of service brake, pedals disconnectable by a flap

WHEELS:

Number:	Front: 2, steering and driving function Rear: 2, driving function
Wheelbase:	2850 mm

Track width adjustment: With flange axle

	Minimum mm	Maximum mm	Adjustment method
Front	1530	2230	Fix wheels or adjustment rims
Rear	1630	2230	

Note: With bar axle
1575 - 3400 mm

PROTECTIVE STRUCTURE:

Make: Case France (Europe)
Case Racine (North America)

Model: MX30 EUR 2-DOOR CAB (Europe)
MX30 NA 1-DOOR CAB (North America)

Type: Cab

Manufacturer's name and address: Case France S.A., BP 109,
59964 Croix Cedex, France and
Case Corporation, 700 State Street,
Racine, Wisconsin 53404, USA

Protective device: Welded steel tube construction

Date of approval: 21.4.1998

OECD-approval no.: 4/0522

DRIVER'S SEAT:

Make: EURO GRAMMER

Model: MSG 95/31A

Type of suspension: Pneumatical, with a rubber bladder

Type of damping: Hydraulically damping

Range of adjustment,
longitudinal: 210 mm
vertical: 140 mm

Safety belt: Yes

Make: NA	SEARS
Model:	None
Type of suspension:	Pneumatical, with a rubber bladder
Type of damping:	Hydraulically damping
Range of adjustment,	
longitudinal:	152 mm
vertical:	76 mm
vertical, optional:	60 mm
Safety belt:	Yes

Optional:

Make:	GRAMMER
Model:	DS 85/91A
Type of suspension:	Mechanical, 2 coil springs
Type of damping:	Hydraulically damping
Range of adjustment;	
longitudinal:	210 mm
vertical:	140 mm
Safety belt:	Yes

MISCELLANEOUS:

Additional seat:	Own make
Location:	On left side of driver's seat
Number of places:	1

LIGHTING:

	*) Height above ground of centre mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
Head lights	1435	185 x 102	237
Position lights	1943	120 x 41	890
Direction indicator front	1983	120 x 41	890
Direction indicator rear	1957	62 x 66	954
Rear tail lights	1957	62 x 66	830
Reflectors upper	1957	62 x 66	892
Reflectors lower	820	102 x 60	670

*) Measured with tyre dynamic radius index at rear 905 mm and 695 mm at front (ISO 4251/1 - 1992)

TEST CONDITIONS

Overall dimensions:

	Length	Width *)	Height at top of	
			exhaust silencer	protective structure
	mm	mm	mm	mm
Ballasted	5535	2500	3041	3026
Unballasted	5000	2500	3041	3026

*) Measured on the outside edges of the front wheels

Ground clearance:
(unballasted tractor)

Clearance limiting part: 560 mm under the front axle
495 mm under the lower rung of step

Tractor mass: With tanks full and cab, trailer hitch, front hitch, front p.t.o.

		Without driver	With driver
		kg	kg
Unballasted	Front	2985	3000
	Rear	4385	4445
	Total	7370	7445
Ballasted	Front	5000	5015
	Rear	7500	7560
	Total	12500	12575

Remark:
Unballasted tractormass,
Standard version: 7063 kg

Ballast:

	Number of weights	Mass total kg	Water kg
Front	-	-	528
Rear	-	-	-
Optional front	39 on frame	1922	-
Optional rear	54 on frame	2680	-

Tyres and track width specifications:

Tyres:

	Front	Rear
Dimensions	480/70R30	20.8R42
Ply rating	141 A8	163 A8
Type	AS	AS
Max. load (tyre manufacturer's)	2575 kg	4875 kg
Max. load (tractor manufacturer's)	2500 kg	3750 kg
Inflation pressure (tyre manufacturer's)	1,6 bar	1,6 bar
Dynamic radius index	695 mm	905 mm
Chosen track width	1820 mm	1770 mm

Oil and lubrication:

Capacity and change interval:

	Capacity (dm3)	Oil change (h)	Filter change (h)
Engine	15	300	300
Gear box and rear axle *)	90	1200	1200
Front axle	6	1200	-
Rear axle *)	90	1200	1200
Final drive front	2 x 0,7	1200	-
Final drive rear *)	90	1200	1200
Hydraulic system *)	90	1200	1200
Steering *)	90	1200	1200
Front p.t.o.	2,75	300	-

*) Common oil sump

Specifications:

	Recommended:	Used during test:
Engine oil:		As recommended
Type:	Case No. 1	
Viscosity:	Winter: SAE 10W-30 Temperate: SAE 15W-40 Summer: SAE 15W-40 Tropics: SAE 20W-50	
Classification:	API CE	
Transmission oils:		As recommended
Type:	HY-TRAN PLUS	
Viscosity:	ISO-VG-46	
Classification:	Case MS 1207	
Hydraulic fluid:	HY-TRAN PLUS 1207	As recommended
Steering oil:		As recommended
Type:	HY-TRAN PLUS	
Classification:	Case MS 1207	
Brake fluid:		As recommended
Type:	HY-TRAN PLUS	
Classification:	Case MS 1207	
Grease:		As recommended
Type:	Lithium soap basis	
Classification:	Case 251H EP (multigrade grease)	
Number of lubrication points:	10; 16 w/front hitch	As recommended
Fuel:		As recommended
Type:	Diesel fuel In conformity with national standard according to DIN EN 590	
Density at 15°C:	0,843 g/cm³	
MFD:		As recommended
Type:	Case SAE 85W-140 EP gear oil	
Classification:	API GL-5	
Front p.t.o.:		As recommended
Type:	VG 220 CKT	
Classification:	ISO 6743/6	

TEST RESULTS

COMPULSORY TEST:

Main power take-off performance:
Date and location of tests: 27.10.1997, Wieselburg, Austria
Type of dynamometer: SCHENCK eddy-current brake W 780

Main test on: ISO R 500 - 1991, type I (DIN 9611) - **1000 rev/min**

Power	Speed		Fuel consumption		Specific energy
	engine	p.t.o.	hourly	specific	
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
MAXIMUM POWER					
Maximum power - 2 hours test					
106,40	1900	860	25,96 30,79	244,0	3,46
Power at rated engine speed					
97,40	2209	1000	25,50 30,25	262,0	3,22
Standard power take-off speed					
97,40	2209	1000	25,50 30,25	262,0	3,22
PART LOADS					
(i) The torque corresponding to maximum power at rated engine speed					
97,40	2209	1000	25,50 30,25	262,0	3,22
(ii) 85 % of torque obtained in i)					
86,80	2316	1048	23,57 27,96	271,5	3,10
(iii) 75 % of torque defined in (ii)					
66,10	2351	1064	19,71 23,38	298,0	2,83
(iv) 50 % of torque defined in (ii)					
44,70	2386	1080	15,43 18,30	345,0	2,44
(v) 25 % of torque defined in (ii)					
22,70	2426	1098	11,30 13,42	497,5	1,69
(vi) unloaded					
0	2466	1116	7,18 8,52	-	-

Power	Speed		Fuel consumption		Specific energy
	engine	p.t.o.	hourly	specific	
kW	rev/min	rev/min	kg/h l/h	g/kWh	kWh/l
PART LOADS AT STANDARD POWER TAKE-OFF SPEED					
(i) The torque corresponding to maximum power available					
97,40	2209	1000	25,50 30,25	262,0	3,22
(ii) 85 % of torque obtained at maximum power					
86,80	2316	1048	23,57 27,96	271,15	3,10
(iii) 75 % of torque defined in (ii)					
66,10	2351	1064	19,71 23,38	298,0	2,83
(iv) 50 % of torque defined in (ii)					
44,70	2386	1080	15,43 18,30	345,0	2,44
(v) 25 % of torque defined in (ii)					
22,70	2426	1098	11,30 13,42	497,5	1,69
(vi) unloaded					
0	2466	1116	7,18 8,52	-	-

No load maximum engine speed: 2466 rev/min

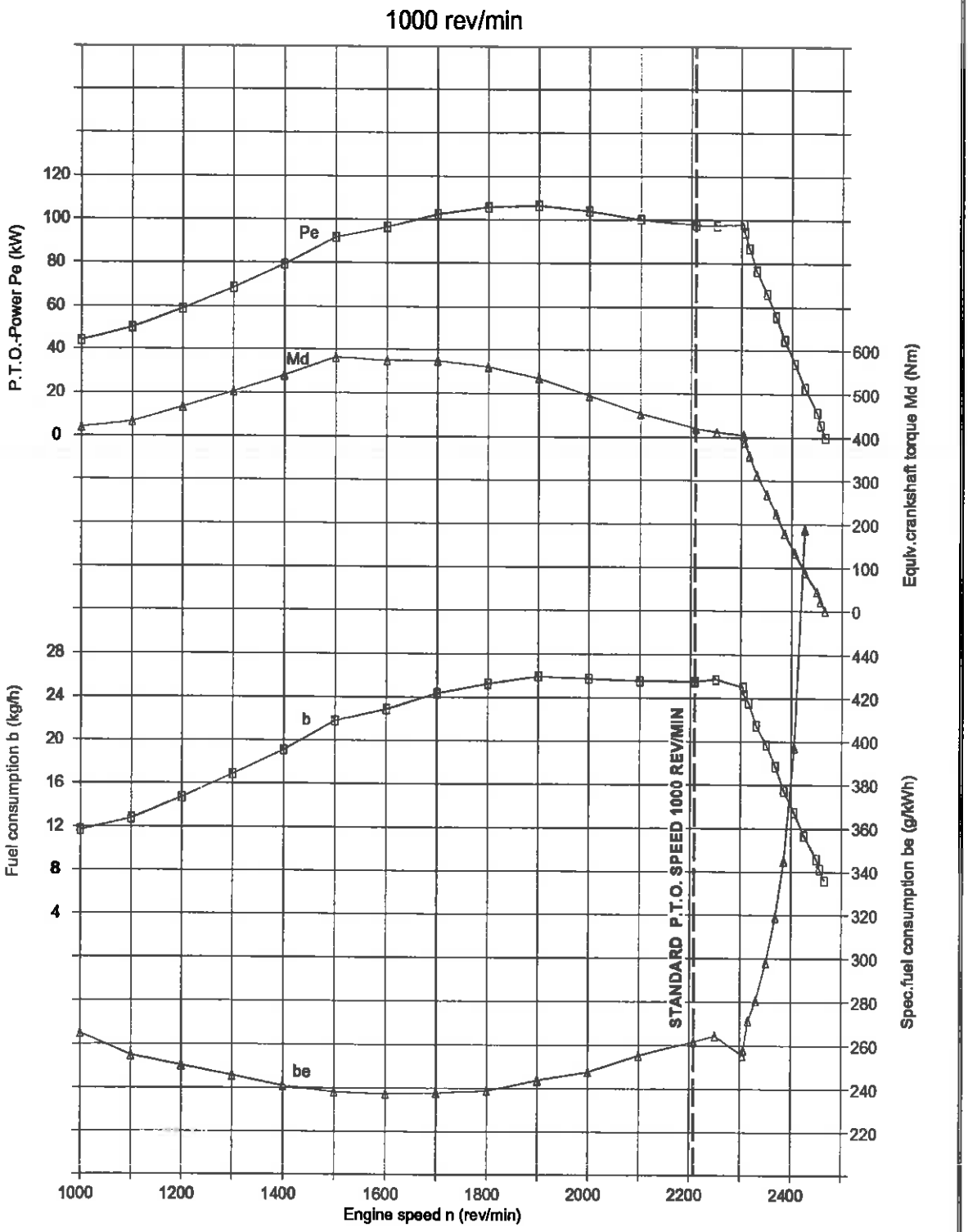
Torque (equivalent crankshaft) at maximum power
*) At rated engine speed: 421,1 Nm
*) At 2-hour test: 534,8 Nm

Maximum torque (equivalent crankshaft)
(engine speed 1500 rev/min): 582,7 Nm

Mean atmospheric conditions
temperature: 19°C
pressure: 1000 mbar
rel. humidity: 60 %

Maximum temperatures
coolant: 89°C
engine oil: 110°C
fuel: 29°C
engine air intake: 48°

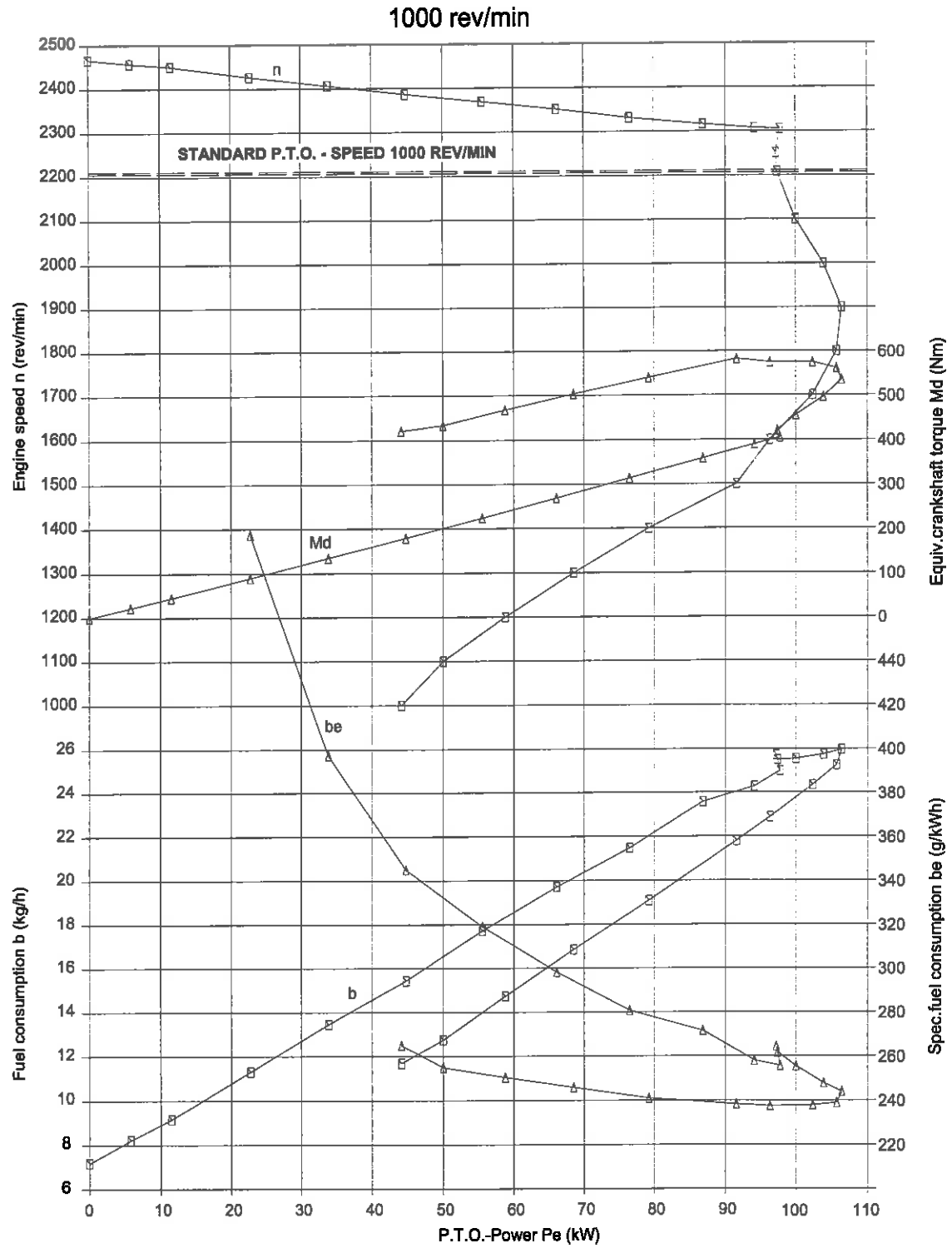
Bundesanstalt für Landtechnik Wieselburg/Erlauf, Austria	P.T.O.-test	CASE IH Typ MX 150/40 MAXXUM Mot.Typ 6TA-590



engine ser.nr. : 45520965	atm pressure: 1000 mbar	fuel temp. : 29 C	signature
tractor ser.nr.: X150ACH72E0TH0596A	air temper. : 19 C	d.of tests : 1997-10-27	
fuel : 0.843/ 15 C	coolant temp.: 89 C	test no. : mku715	
engine oil : 15W40	oil temp. : 110 C	curves no. : 1	Haider

27-JAN-1998 14:32 <pccommon.akte.1997164l>E1997164.D05 MKU715.DAT;4

Bundesanstalt für Landtechnik Wieselburg/Erlauf, Austria	P.T.O.-test	CASE IH Typ MX 150/40 MAXXUM Mot.Typ 6TA-590



engine ser.nr. : 45520965	atm pressure: 1000 mbar	fuel temp. : 29 C	signature
tractor ser.nr.: X150ACH72E0TH0596A	air temper. : 19 C	d.of tests : 1997-10-27	
fuel : 0.843/ 15 C	coolant temp.: 89 C	test no. : mku715	
engine oil : 15W40	oil temp. : 110 C	curves no. : 2	Haider

27-JAN-1998 14:44 <pccommon.akte.1997164l>E1997164.d07 MKU715.DAT;4

HYDRAULIC POWER AND LIFTING FORCE:

Date of tests: 13.2.1998

Hydraulic power test:

Sustained pressure with relief valve open: 20,0 MPa (200 bar)

Pump delivery rate at minimum pressure (at rated engine speed): 94,3 l/min

	Flow rate	Pressure	Power
	l/min	MPa	kW
Flow rate corresponding to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting and corresponding hydraulic power	42,4	18,0 (180 bar)	12,7
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	85,3	13,5 (135 bar)	19,2

Tapping point used for test: At rear of tractor, no. 1 vale

Temperature of hydraulic fluid, if different from 65° ± 5°C: -

Opening pressure of the unloading valve: 20,0 MPa (200 bar)

Closing pressure of the unloading valve: 20,5 MPa (205 bar)

Power lift test:

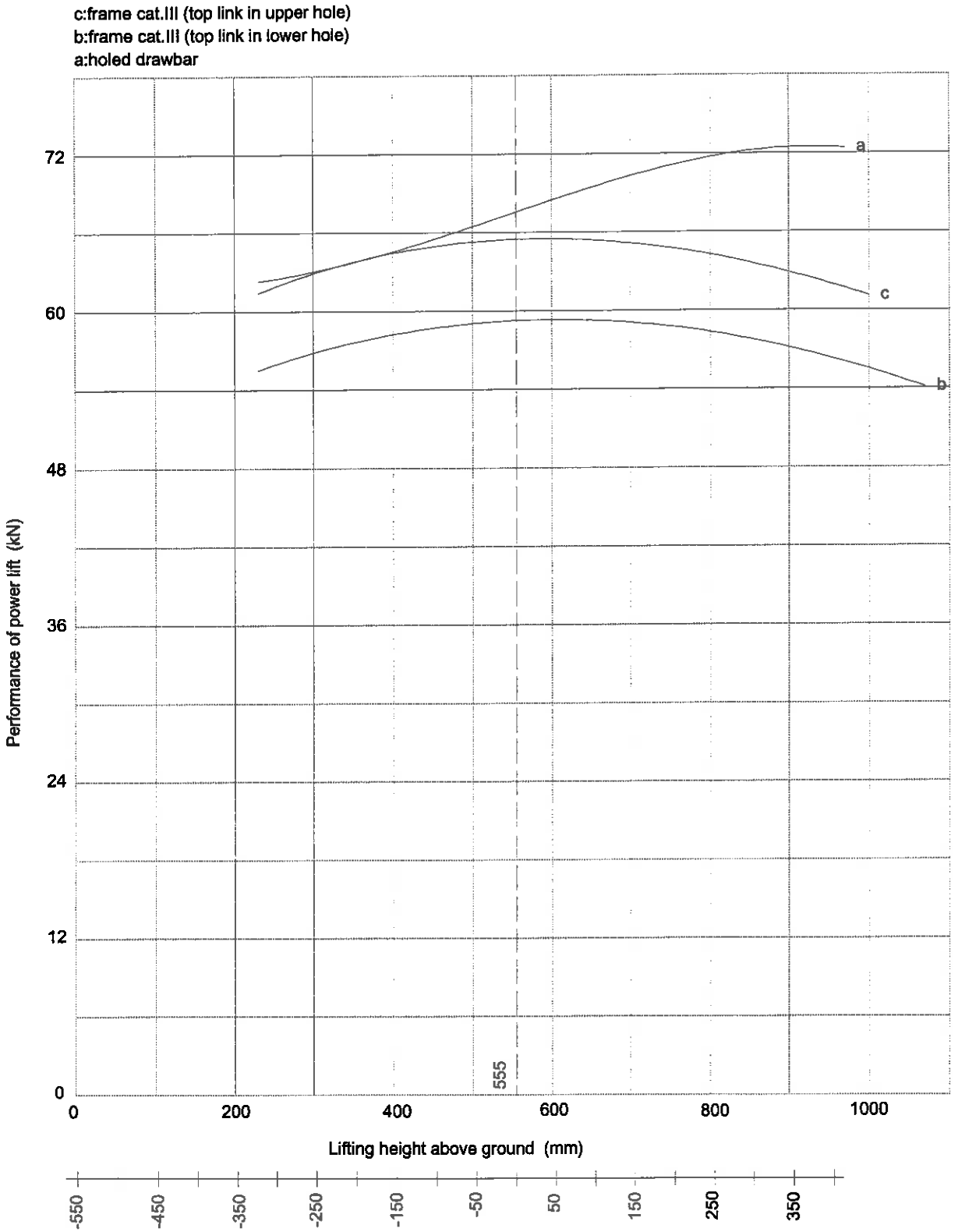
	at the hitch point	on the frame	
		685 mm mast height *)	685 mm mast height **)
Height of lower hitch points above ground in down position	230 mm	230 mm	230 mm
Vertical movement	740 mm	840 mm	770 mm
Maximum corrected force exerted through full range	62,3 kN	54,2 kN	61,2 kN
Corresponding pressure of hydraulic fluid	18,0 MPa (180 bar)	18,0 MPa (180 bar)	18,0 MPa (180 bar)
Moment about rear wheel axis	78,1 kNm	101,0 kNm	114,0 kNm
Maximum tilt angle of mast from vertical	-	from -3° to 0°and to +10°	from -1° to 0°and to +5°

*) Top link in lower hole
**) Top link in upper hole

Linkage settings for test: See table and figure in specification

Lifting heights relative to the horizontal plane including the lower link pivot points														
mm	-325	-275	-225	-150	-75	0	+75	+150	+225	+290	+355	+415	+445	+515
Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting or to maximum power delivered by the hydraulic system, which is lower)														
Corresponding pressure: 18,0 MPa (180 bar)														
at the hitch point kN	62,3	62,8	63,4	64,6	66,1	67,6	69,1	70,4	71,5	72,2	72,5	72,4		
at the frame kN *) (685 mm mast height)	55,5	56,5	57,3	58,3	58,9	59,3	59,3	59,1	58,5	57,9	57,0	56,0	55,5	54,2
at the frame kN **) (685 mm mast height)	61,4	62,5	63,4	64,5	65,2	65,5	65,5	65,1	64,5	63,7	62,7	61,7	61,2	

*) Top link in lower hole
**) Top link in upper hole



Height relative to the horizontal plane including the lower link pivot points (dyn. radius index 905 mm)

Drawbar performance:

Date of test: 13.1.1998, 21.1.1998, 28.1.1998

Type of track: Concrete

Height of drawbar above ground: unballasted 500 mm, ballasted 500 kPa

Tyre inflation pressure: front: unballasted 80 kPa, ballasted 160 kPa
rear: unballasted 80 kPa, ballasted 160 kPa

Tyre sizes: front: 480/70 R 30, 141 A 8; rear: 20.8 R 42, 163 A 8

Gear	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmosph. conditions		
								Fuel	Coolant	Engine oil	Temperature	Rel.humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	kPa
(i) Maximum power in tested gears (unballasted tractor)													
I/1	55,42	75,01	2,66	2355	15,0	355,5	2,37	17	76	94	1	80	99,1
I/2	65,86	74,80	3,17	2334	15,0	326,5	2,58	18	77	95	1	80	99,1
I/3	78,74	73,63	3,85	2299	15,0	317,5	2,66	19	76	97	1	80	99,1
I/4	86,10	71,75	4,32	2102	15,0	296,5	2,84	20	78	98	1	80	99,1
II/1	100,13	68,70	5,26	1900	8,0	259,5	3,25	21	78	97	1	80	99,1
II/2	100,75	55,75	6,52	1900	5,4	257,5	3,27	22	77	96	1	80	99,1
II/3	102,97	45,63	8,14	1900	4,4	252,0	3,34	22	78	96	1	80	99,1
II/4	102,20	36,45	10,08	1900	4,1	254,0	3,32	23	77	97	1	80	99,1

Gear	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmosph. conditions		
								Fuel	Coolant	Engine oil	Temperature	Rel.humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	kPa
III/1	102,52	41,05	9,00	1900	4,0	253,0	3,33	23	77	97	1	80	99,1
III/2	102,35	33,70	10,94	1900	3,3	253,5	3,32	24	78	97	1	80	99,1
III/3	100,28	26,78	13,46	1900	3,1	259,0	3,26	24	78	97	1	80	99,1
III/4	97,97	20,98	16,81	1900	2,9	265,0	3,18	24	78	97	1	80	99,1
IV/1	97,28	19,43	18,00	1900	2,8	267,0	3,16	24	78	98	1	80	99,1
(ii) Maximum power in tested gears (ballasted tractor)													
I/1	84,96	124,51	2,45	2166	15,0	301,0	2,80	34	77	93	1	73	100
I/2	89,38	122,84	2,63	1960	15,0	289,0	2,92	34	79	95	2	70	100
I/3	99,19	103,32	3,46	1900	7,6	261,5	3,22	35	77	95	2	70	100
I/4	99,77	82,53	4,36	1900	5,7	260,0	3,24	34	78	97	2	70	100
II/1	100,10	65,05	5,54	1900	4,9	259,5	3,25	34	78	97	2	70	100
II/2	101,16	55,60	6,55	1900	4,5	256,5	3,29	35	78	97	2	70	100
II/3	100,50	44,11	8,21	1900	3,3	258,5	3,26	35	78	97	2	70	100
II/4	98,08	34,96	10,10	1900	3,0	264,5	3,19	36	78	97	2	70	100

Gear	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperature			Atmosph. conditions		
								Fuel	Coolant	Engine oil	Temperature	Rel.humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	kPa
III/1	99,63	39,48	9,07	1900	3,1	260,5	3,24	36	79	98	2	70	100
III/2	98,82	32,40	10,98	1900	2,9	262,5	3,21	36	78	98	2	70	100
III/3	97,31	25,76	13,61	1900	2,5	267,0	3,16	36	78	98	2	70	100
III/4	94,45	20,12	16,88	1900	2,3	275,0	3,07	36	79	97	2	70	100
IV/1	92,91	18,47	18,11	1900	2,3	279,5	3,02	36	79	97	2	70	100
(iii) Five-hour-test at 75 % of pull at maximum power (at rated engine speed)													
II/2	69,64	30,81*)	8,14	2315	2,5	338,5	2,49	24	77	97	-2	80	99,5
*) drawbar pull at maximum power (measured at rated engine speed): 40,84 kN													
(iv) Five-hour-test at pull corresponding to 15 % wheelslip in test (ii)													
I/2	88,94	123,15	2,60	1970	15,00	290,5	2,90	35	80	100	4	73	100

Oil consumption during 10 hours duration of tests (iii) and (iv): 80,5 g/h

TURNING AREA AND TURNING CIRCLE:

Wheel equipment: front: 480/70 R 30; 141 A 8
rear: 20.8 R 42; 163 A 8

Track of wheel: front: 1820 mm
rear: 1770 mm

Results *)	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning area	5,87/6,11	5,65/6,16	7,88/7,38	7,81/7,32
Radius of turning circle	5,44/5,68	5,22/5,73	7,45/6,95	7,38/6,89

*) Four-wheel-drive switched: ON/OFF

Remark:
Steering stop setting: 30 degree

LOCATION OF CENTRE OF GRAVITY:

	mm
Height above ground	1013
Distance forward from the vertical plane containing the axis of the rear wheels	1148
Distance from the median plane of the tractor, left-side	25

BRAKING:

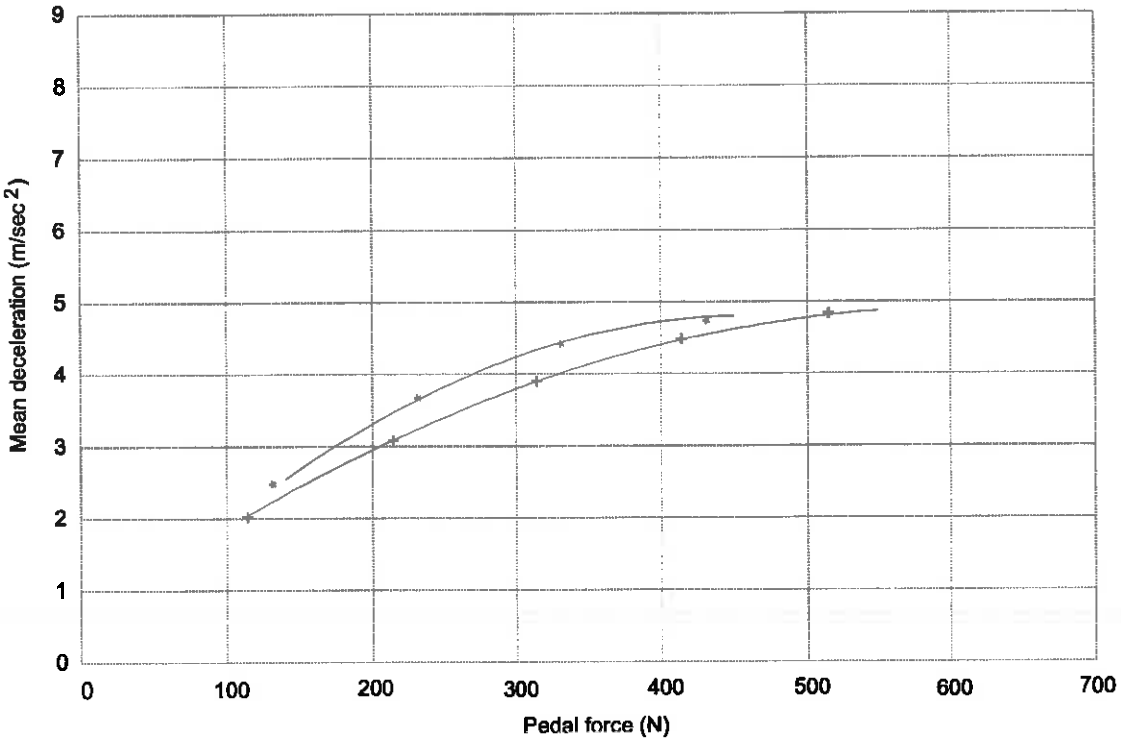
Date of tests: 3.11.1997; 27.11.1997
Type of track: Concrete
Type of decelerometer: Moto-Meter Nr. 03382 (Kombi-Schreiber)

Tractor mass during brake tests (with driver):

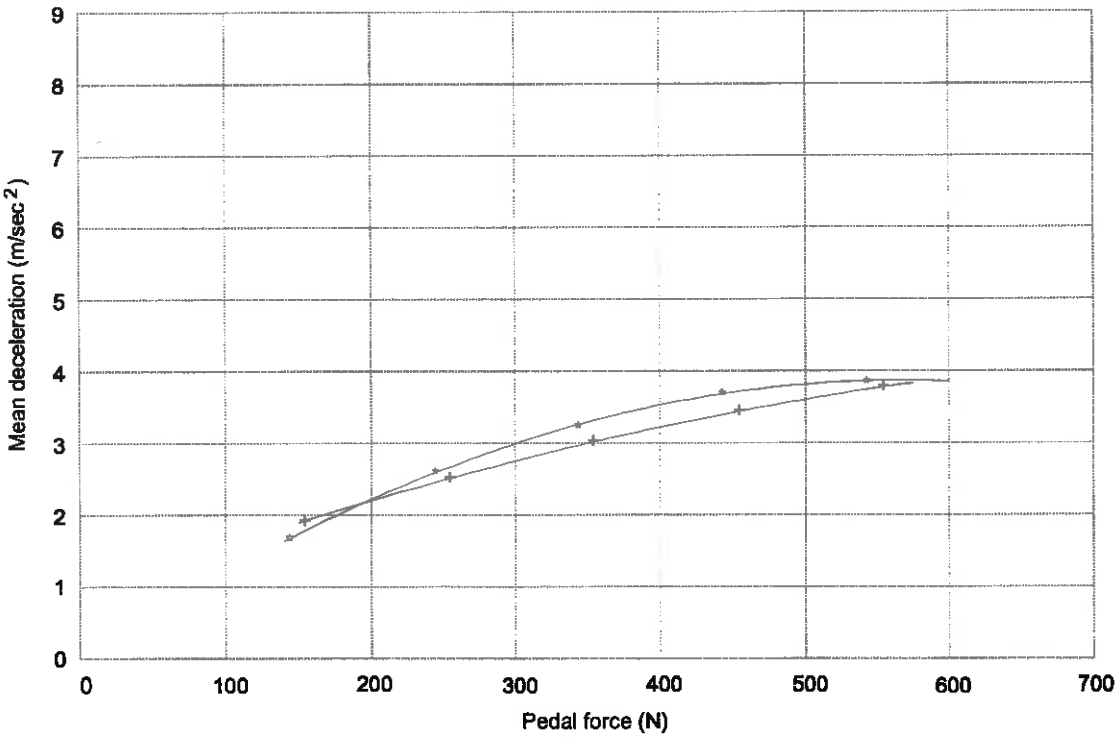
	Front kg	Rear kg	Total kg
Ballasted	5015	7560	12575
Unballasted	3000	4445	7445

Service brake:

*... unballasted, 4WD, cold
+... unballasted, 4WD, fade



*... ballasted, 4WD, cold
+... ballasted, 4WD, fade



Speed before application of brakes: 41.70 km/h

The tractor brakes were heated by towing of the tractor for 1 km.

Maximum deviation of tractor from its original course: None

Abnormale vibration: None

Parking brake device test:

	Ballasted tractor on 18 % slop	
Braking device control force	up	down
	200 N	240 N

MEASUREMENT OF EXTERNAL NOISE LEVEL:

Date of test: 6.2.1998

Type of sound level meter: BRÜEL & KJAER 2231

Type of track: Concrete

Gear number: IV 4

Travelling speed before acceleration: 31,3 km/h

Sound level: 86,2 dB(A)

REPAIRS: None

REMARKS: None

OPTIONAL TESTS

TURNING AREA AND TURNING CIRCLE:

Wheel equipment: front: 480/70 R 30; 141 A 8
rear: 20.8 R 42; 163 A 8

Track of wheel: front: 1820 mm
rear: 1770 mm

Without fender, without front lift
Steering stop position, 40 degree setting

Results *)	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning area	5,25/5,23	5,21/5,26	6,55/6,04	6,56/6,01
Radius of turning circle	4,96/4,94	4,92/4,97	6,26/5,75	6,27/5,72

*) Four-wheel-drive switched: ON/OFF

Without fender, without front lift
Steering stop position, 45 degree setting

Results *)	With brakes		Without brakes	
	right-hand	left-hand	right-hand	left-hand
	m	m	m	m
Radius of turning area	4,93/5,00	4,92/5,02	6,24/5,68	6,29/5,65
Radius of turning circle	4,64/4,71	4,63/4,73	5,95/5,39	6,00/5,36

*) Four-wheel-drive switched: ON/OFF

POWER LIFT TEST: North American-version

	on the frame	
	685 mm mast height *)	685 mm mast height **)
Height of lower hitch points above ground in down position	230 mm	230 mm
Vertical movement	920 mm	860 mm
Maximum corrected force exerted through full range	54,5 kN	59,0 kN
Corresponding pressure of hydraulic fluid	18,0 MPa (180 bar)	18,0 MPa (180 bar)
Moment about rear wheel axis	101,5 kNm	109,9 kNm
Maximum tilt angle of mast from vertical	from -5° to 0°and to +12°	from -3° to 0°and to +7°

*) Top link in lower hole
**) Top link in upper hole

Remark: results of hitch points: refer to page 28

Linkage settings for test: See table and figure in specification

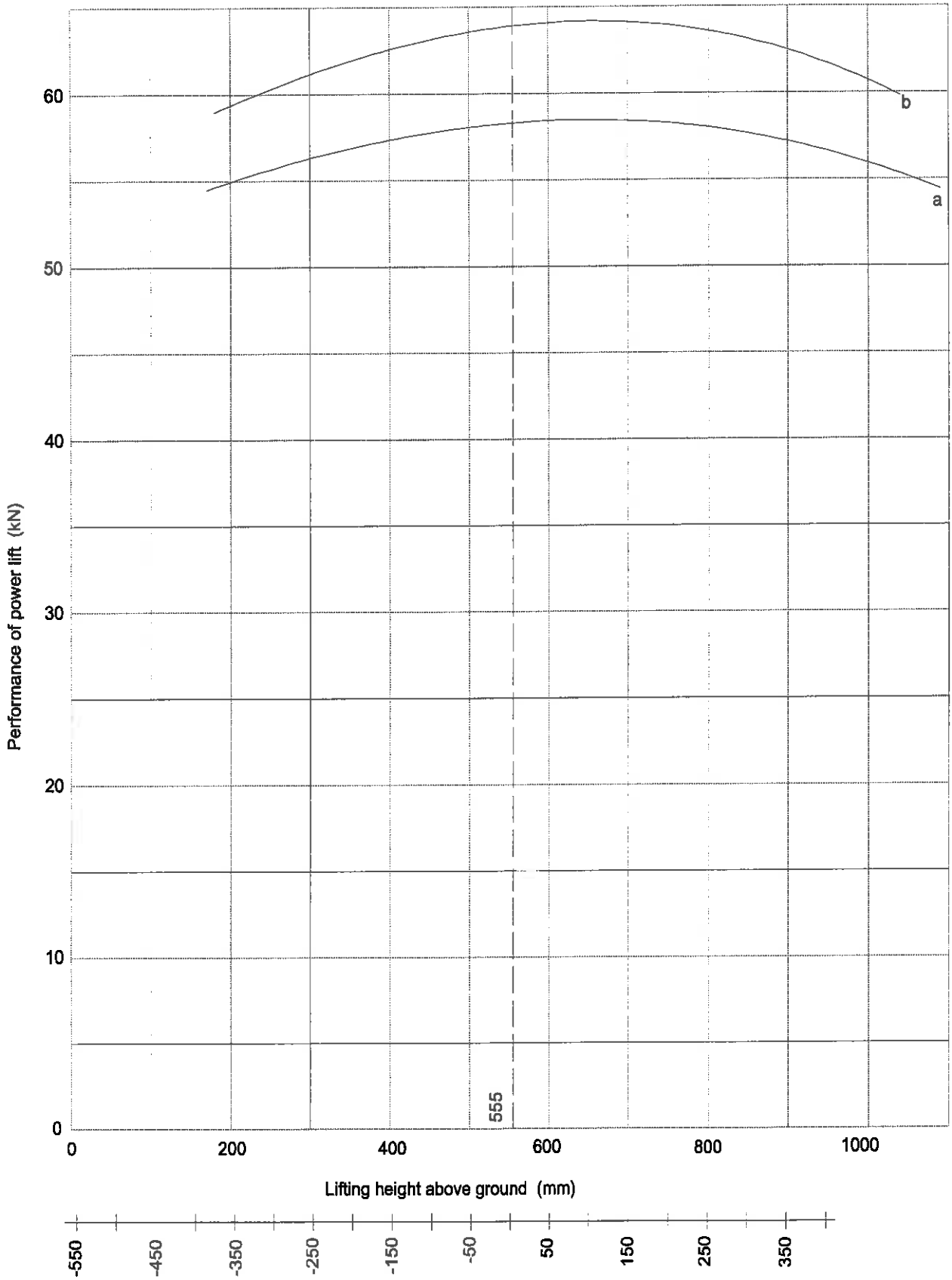
North American Version

Lifting heights relative to the horizontal plane including the lower link pivot points														
mm	-375	-300	-225	-150	-75	0	+75	+150	+225	+300	+350	+400	+485	+535
Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting or to maximum power delivered by the hydraulic system, which is lower)														
Corresponding pressure: 18,0 MPa (180 bar)														
at the frame kN *) (685 mm mast height)	54,5	55,7	56,7	57,4	58,0	58,3	58,5	58,4	58,1	57,6	57,2	56,6	55,3	54,5
at the frame kN **) (685 mm mast height)	59,0	60,4	61,6	62,6	63,4	63,9	64,2	64,1	63,7	63,0	62,4	61,6	59,8	

*) Top link in lower hole
**) Top link in upper hole

Remark: results of hitch points: refer to page 29

b:frame cat.III (NA version: top link in upper hole
a:frame cat.III (NA version: top link in lower hole



Height relative to the horizontal plane including the lower link pivot points (dyn. radius index 905 mm)

The head of department:

(Dipl.Ing. H. Lampel)
Hofrat

Bundesanstalt für Landtechnik, Wieselburg a. d. Erlauf

Test and report carried out by:

(Ing. Hermann Schaufler)

The director of testing station:

(Dipl.Ing.Dr. J. Schrottmaier)
Hofrat