Prüfstelle für Landmaschinen



REPORT on test in accordance with OECD STANDARD CODE 2 for the Official Testing of Agricultural Tractor Performance

OECD No. 2/1938
8th November 2000

Agricultural Tractor

CASE IH MX115C (4WD), 40 km/h version

Manufacturer

CASE United Kingdom Limited
Doncaster, DN2 4PG, England

This is a report on a tractor test in accordance with OECD STANDARD CODE for the Official Testing of Agricultural Tractor Performance (C(2000)59(FINAL), Code 2).

It does not contain an evaluation of the tractor on practical work.

Duration of tests: March till May 2000

DLG-Testing Station for Agricultural Machinery, Max-Eyth-Weg 1,
D-64823 Groß-Umstadt

This report has been approved by the OECD Co-Ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE.

Date of approval: 8th November 2000

OECD No. 2/1938
Restricted Code

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 kN	=	1000 N	=	102	kp
Powers			1 kW	=	1.36	PS
Pressures	1 MPa	=	10 bar	=	10.2	kp/cm^2
	100 kPa	=	1000 mbar	=	750.10	mm Hg

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Printed in Germany, January 2001
DLG-No. 325

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CASE IH MX115C (4WD) **DLG-Test No. 2000-59**

Tractor manufacturer's name and address:	Case United Kingdom Limited Doncaster, DN2 4PG, England
Location of tractor assembly:	Doncaster, DN2 4PG, England
Submitted for test by:	CASE United Kingdom Limited
Selected for test by:	Manufacturer with agreement by DLG
Place of running-in:	Doncaster and Groß-Umstadt
Duration of running-in:	Engine and tractor approximate 58 h
Location of test:	DLG-Testing Station, D-64823 Groß-Umstadt

1 SPECIFICATION OF TRACTOR

1.1 Identification

- Make:	CASE IH
- Model:	MX 115C, 40 km/h version
- Type:	Wheel tractor, unit construction, four wheel driven
- Number of driving-wheels:	4
- Serial No.:	JJE 1052033
- 1st serial No.:	JJE 1050001

1.2 Engine

Make/Model/Type:	Perkins / 1004-40TA (Case - model 5681/2200)/ water-cooled 4-stroke Diesel-engine direct injection, supercharged with intercooler
Serial no.:	43846 PL 01

1.2.1 Cylinders

Number/disposition:	4 / in line
Bore/stroke:	100 / 127 mm
Capacity:	3990 cm^3
Compression ratio:	17.25 : 1
Arrangement of valves:	Overhead valves
Cylinder liners:	Dry

1.2.2 Supercharging

- Make / Model / Type:	GARRETT / GT 2052 / exhaust driven supercharger, wastegate with air to air intercooler
- Pressure	Max. 122 kPa

1.2.3 Fuel system

- Fuel feed system:	Diaphragm fuel supply pump, fuel cooler in front of engine's water cooler
- Fuel filter	
Make/Model:	PERKINS / - /
Type :	1 replaceable filter, water separator
- Capacity of fuel tank:	189 dm^3
- Injection pump	
Make/Model:	LUCAS / 8920 A851T
Type :	DP, distributor pump with timing device
Serial no.:	10341 ESG
Manufacturer's production setting:	88.0 ± 2.4 mm^3/stroke at full load and rated speed;
Flow rate:	23.2 ± 0.6 dm^3/h at 2200 min^{-1} and full load
Timing:	Commencement of delivery: Static at TDC ± 2°
- Injectors	
Make/Model:	LUCAS / KN L 063 PBA
Type :	multi hole
Injection pressure:	29.4 ± 0.5 MPa

1.2.4 Governor

- Make/Model/Type:	LUCAS / - / mechanical, centrifugal variable speed governor, integral with injection pump, with supercharge pressure compensating device
- Governed range of engine speed:	1000 ± 50 to 2360 - 50 min^{-1}
- Rated engine speed:	2200 min^{-1}

1.2.5	Air cleaner	
	- Pre-cleaner	
	Make/Model:	CASE-DONALDSON / - /
	Type:	Cyclone type, integrated in main cleaner housing
	Location of air intake:	In front of engine, below bonnet
	- Main cleaner	
	Make/Model:	CASE-DONALDSON / 222 421 A1
	Type:	Dry paper element filter with additional safety cartridge
	- Maintenance indicator:	Warning light on dashboard
1.2.6	Lubrication system	Pressure lubrication with engine oil / cooling water heat exchanger in filter socket
	- Type of feed pump:	Internal gear pump
	- Type of filter:	Full flow, replaceable (metallic cartridge)
	- Number of filters:	1
1.2.7	Cooling system	
	- Type of coolant:	Water cooling
	- Type of pump:	Impeller pump
	- Specification of fan	
	Number of fan blades:	7
	Fan diameter:	470 mm
	- Coolant capacity:	17.5 dm^3
	- Type of temperature control:	Thermostat and by-pass circuit, viscous drive fan, belt driven; variable fan speed controlled by air flow temperature
	- Superpressure system:	110 kPa

1.2.8	Starting system	
	- Make/Model/Type:	ISKRA / - / electrical, solenoid pre-engaged drive starter motor
	- Starter motor power rating:	3.0 kW
	- Cold starting aid:	Flame glow plug in air intake manifold
	- Safety device:	Forward/reverse lever in neutral position p.t.o. clutch disengaged
1.2.9	Electrical system	
	- Voltage:	12 V
	- Generator:	
	Make/Model/Type:	BOSCH / K1-14V 20 - 95 A / 3-phase alternator
	Power:	1.33 kW
	- Battery:	1 lead acid battery, 90 Ah at 20 hours rating
1.2.10	Exhaust system	
	- Make/Model/Type:	CASE-DONALDSON / M050123 / multi-chamber absorption type silencer, 118 mm dia, 1000 mm long
	- Location:	On the right, beside the engine, in front of the steps, vertical stack, mouth showing upwards 45°
1.2.11	Operating hours meter:	Electronic, counts real hours when engine is running

1.3 Transmission

1.3.1 Clutch (travel alone)

- Make/Model/Type: CASE / - / wet multi-plate, integrated into gearbox
- Number of plates: 6
- Diameter of plates: 127 mm
- Method of operation: Hydraulically operated by pedal, or electro-hydraulically controlled by forward/neutral/reverse lever

1.3.2 Gear box

- Make/Model/Type: CASE / - / mechanical, power shift; 40 km/h version
- Description: power shift speed gear change with 4 speeds

  range gear with 4 synchronized ranges (I, II, III, IV)

  power shifted reversing gear (F/R), range IV locked out in reverse operation

	forward	reverse
no. of gears	4	4
no. of ranges	4	3
total	16	12

  2 levers, 1 toggle switch
- Available options:
  1. synchronized creeper range (CR), acting on all range gears, provides total 32 forward and 24 reverse speeds
  2. CASE, mechanical, power shift, 30 km/h version, additionally available with creeper

1.3.3 Rear axle and final drives

- Make/Model/Type: CASE / - / bevel gear drive with bevel gear differential and planetary final drives
- Differential lock:
  - Type: Multi-plate, wet
  - Engagement: By toggle switch or automatic; electro-hydraulically operated (through low pressure hydraulic circuit)
  - Disengagement: By switch or automatic by service brake operation or engine cut off

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1.3.4 Front axle and final drives

- Make/Model/Type: CARRARO / 20.19 / driven by wet multi plate clutch, central shaft and bevel gear; clutch electro-hydraulically operated by toggle switch or engaged by service brake operation; planetary final drives

- Differential lock:
  - Type: Limited slip multi-disc type
  - Engagement: Automatic
  - Disengagement: Automatic

1.3.5 Total ratios and travelling speeds

Range	Gear No.	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed*) at rated engine speed 2200 min^{-1} km/h
Forward Speeds			
I	1	246.82	2.76
	2	204.93	3.32
	3	165.81	4.10
	4	133.85	5.08
II	1	108.29	6.28
	2	89.91	7.56
	3	72.75	9.35
	4	58.73	11.58
III	1	65.87	10.32
	2	54.69	12.44
	3	44.25	15.37
	4	35.72	19.04
IV	1	33.88	20.07
	2	28.12	24.19
	3	22.75	29.89
	4	18.37	37.02
Reverse Speeds			
I	1	213.31	3.19
	2	177.11	3.84
	3	143.30	4.75
	4	115.68	5.88
II	1	93.61	7.27
	2	77.71	8.75
	3	62.88	10.82
	4	50.75	13.40
III	1	56.94	11.94
	2	47.27	14.39
	3	38.25	17.78
	4	30.87	22.03

*) calculated with a dynamic radius index of 820 mm
(not in conformity with ISO 4251-1:1992)

- Number of revolutions of front wheels for one revolution of rear wheels: 1.3199

1.4 Power take-off

1.4.1 Main power take-off

- Type: Independent
- Method of engagement: Driven by wet multi-plate clutch with 125 mm dia; by lever through switch electro-hydraulically operated
- Number of shafts: 1
- Method of changing power take-off shaft ends and speeds: Shaft reversible, 2 different standard speeds shiftable by separate lever

1.4.1.1 Power take-off proportional to engine speed, 540 and 1000 min^{-1}

- Location: At rear of tractor
- Diameter of p.t.o. shaft end: 35 mm
- Number of splines: 6 in conformity with ISO 500:1991, type 1
  21 in conformity with ISO 500:1991, type 2
- Height above ground: 730 mm
- Distance from the median plane of the tractor: 0 mm
- Distance behind rear-wheel axis: 500 mm

p.t.o. type	p.t.o. transmission ratio	p.t.o. speed min^{-1}	Engine Speed min^{-1}	power *)restriction kW
540	3.4720	540 634	1875 2200	63
1000	2.2095	1000 996	2210 2200	-

*) Maximum torque transmissible: Not specified

- Direction of rotation (viewed from behind tractor): Clockwise

1.4.1.2 Power take-off proportional to ground speed: None

1.5 Hydraulic power lift

- Make/Model/Type:	CASE / - / electro-hydraulic power lift, lower link sensing
- Type of hydraulic system:	Closed, load sensing, pressure and flow compensated system
- Type and number of cylinders:	1 internal cylinder, single acting, 105 mm bore, 227 mm stroke
- Type of linkage lock for transport:	Hydraulic locking of power lift
- Relief valve pressure setting:	20.2 ± 0.4 MPa
- Opening pressure of cylinder safety valve:	23.5 ± 0.7 MPa
- Lift pump type:	VICKERS, variable displacement axial-piston pump, max. delivery 109 dm^3/min at rated engine speed
- Transmission between pump and engine:	Pump driven by gearbox
- Type and number of filters:	1 filter in feeding line of hydraulic pump
- Site of oil reservoir:	Transmission housing, oil cooler in front of engine's coolant radiator
- Type number and location of tapping points:	2 pairs, double acting, at rear of tractor
- Maximum volume of oil available to external cylinders:	30 dm^3 42 dm^3 with overfill

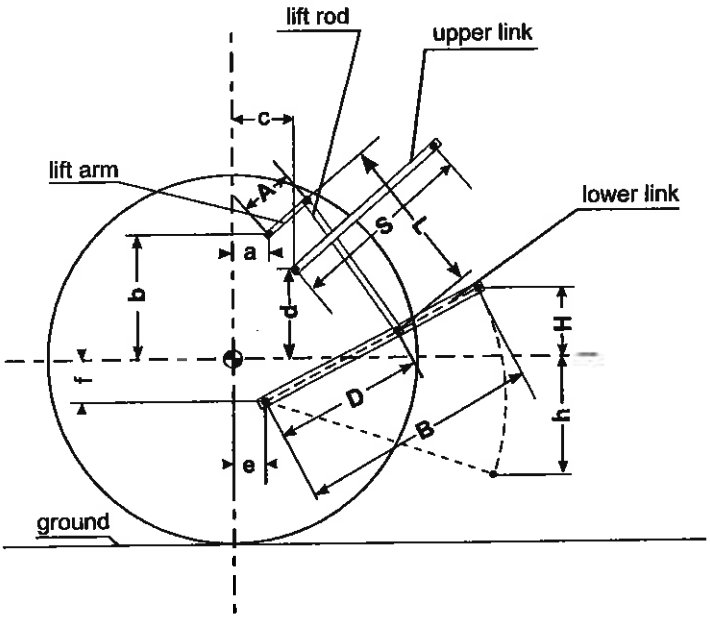
The hydraulic pump further provides hydraulic pressure for actuating of steering, p.t.o. clutch, power-shift gear, rear axle differential lock and for shifting the front axle drive clutch

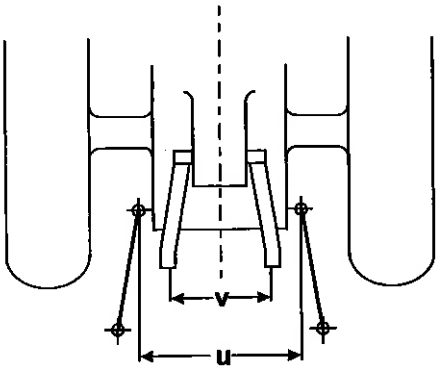
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1.6 Three-point linkage:

- Category: 2, in conformity with ISO 730-1:1994+Cor. 1:1995 with WALTERSCHEID quick couplers

- Category adapter: None





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Dimensions of rear implement linkage			projected lengths in mm dimensions and range	settings used in test-page 25
Rear tyres 520/70 R 38 Front tyres 420/70 R 28		(r) *) (r') *)	820 640	
Length of lift arms		(A)	230	230
Length of lower links		(B)	890	890
Distance of lift arm pivot points from rear wheel axis	horizontal vertical	(a) (b)	245 190	245 190
Horizontal distance between the 2 lower link pivot points		(u)	530	530
Horizontal distance between the 2 lift arm end points		(v)	695	695
Length of upper link		(S)	from 640 to 900	780
Distance of upper link pivot point from rear wheel axis	horizontal vertical	(c) (d)	360/330 235/301	360 235
Distance of lower link pivot points from rear wheel axis	horizontal vertical	(e) (f)	230 245	230 245
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	550	550
Length of lift rods		(L)	from 545 to 660	655

Heights (h, H, H') of lower link hitch points relative to rear wheel axis (situated 820 mm above ground), at different adjustments of L

These data are valid for unloaded power lift

Length of lift rods	(L)	545	655	660
Linkage distance of lift rods	(D)		550	
Lowest position	(h)	370	620	642
Highest position	(H)	270	120	95
Transport position	(H')	270	120	95

*) Assuming r resp. r' = tyre dynamic radius index not in conformity with ISO 4251-1:1992

1.7 Swinging drawbar

- Type:	Longitudinally adjustable
- Height above ground:	398 mm
- Type of height adjustment:	none
- Distance of hitch point from rear-wheel axle	895/945/1045/1145 mm
- Distance of hitch point from power take-off shaft end	
Vertical	321 mm
Horizontal	395/445/545/645 mm
- Lateral adjustment (centre of clevis) pin hole swingable 6° or 11° left and right:	
drawbar fully in:	101/184 mm
drawbar fully out:	127/218 mm
- Distance of pivot point from rear-wheel axis, horizontal (rearward)	73 mm
- Drawbar pin hole diameter	33 mm
- Maximum vertically permissible load (short position)	18 kN

1.8 Hitches

1.8.1 Trailer hitch

- Make/Model/Type:	CRAMER / KU 2000 A / automatic	
- Hitch pin diameter:		32 mm
- Height above ground:	Centre of clevis adjustable in 6 steps to 747/797/847/897/947 and	997 mm
- Distance of hitch point from rear-wheel axis:	horizontal	665 mm
- Distance of hitch point from power take-off shaft end vertical:	above 17/67/117/167/217 and	267 mm
horizontal:		165 mm
- Maximum vertically permissible load:		19.6 kN

1.8.2 Hitch hook — Available, not fitted

1.9 Holed drawbar — Available, not fitted

1.10 Steering

- Make/Model/Type: REXROTH / LAGC 160-12 / hydrostatic
- Method of operation:
  - Pump: Connected by sequence valve to the hydraulic system of the tractor, see on page 11
  - Ram: WEBER, integrated cylinder of symmetrical design; 240 mm stroke, 72 mm bore, 38 mm dia of piston rod
- Working pressure: 18.3 ± 0.35 MPa

1.11 Brakes

1.11.1 Service brake

- Make/Model/ Type: CASE / - / muscle power brake with hydraulic transmission
- Method of operation: Pedal operated, acting on rear wheels, front axle drive is automatically engaged when braking, oil-immersed disc brake with 1 ring-piston on each differential half shaft, disc 300 mm dia
- Trailer braking take-off: Available, not fitted; optionally hydraulic trailer braking take-off or couplings for compressed air braking system

1.11.2 Parking brake

- Type: Mechanical, separate wet disc brake on drive shaft of rear axle; 2 lining discs with 143 mm dia each
- Method of operation: Hand lever with ratchet

1.12 Wheels

- Number
  - Front: 2, driving and steering
  - Rear. 2, driving
- Wheel base: 2517 mm
- Track width adjustment:

	Minimum	Maximum	Adjustment method
Front	1530	2230	adjustable rims
Rear	1630	2230	adjustable rims

1.13 Protective structure

- Make/Model/Type:	CASE IH / MX12, 2-door / Low Profile Cab
- Manufacturer's name and address:	CASE France S.A. BP 109 59964 Croix Cedex France
- Protective device:	
Cab/frame/rollguard/other:	Cab, has an all-steel welded frame, which is bolted to the chassis with four rubber antivibration (A/V) isolators
Tiltable/not tiltable:	not tiltable
- OECD approval	
Approval number:	4/0451/1
Date of approval:	26 th October 1998
- Nos. of minor modification certificates:	MOD 1 (24th August 1999)
- Optional protective device:	Not fitted
- Make/Model/Type:	CASE IH / MX12, 2-door / Standard Cab
- Manufacturer's name and address:	CASE France S.A. BP 109 59964 Croix Cedex France
- Protective device:	
Cab/frame/rollguard/other:	Cab
Tiltable/not tiltable:	not tiltable
- OECD approval	
Approval number:	CSS 0451
Date of approval:	18th September 1997
- Nos. of minor modification certificates:	MOD1 (24th August 1999)

1.14 Seat

1.14.1	Driver's seat	Fitted to tractor
	- Make/Model:	Grammer/MSG95A/31
	- Type:	Air suspended upholstered seat with back rest and arm rests
	- Seat and steering wheel reversible:	No
	- Type of suspension:	Pneumatic
	- Type of damping:	Hydraulic
	- Range of adjustment	
	Longitudinally:	210 mm
	Vertically:	140 mm
	- Safety belt:	Optional, lap belt
1.14.2	Optional driver's seats	
	- Make/Model/Type:	GRAMMER/MSG95A/731/air suspension GRAMMER/DS85H/7L/mechanical suspension GRAMMER/DS85H/90A/mechanical suspension GRAMMER/MSG85A/731/mechanical suspension
1.14.3	Passenger seat:	Optional, fitted to tractor tested
	- Location:	On the mudguard, to the left hand side of the driver
	- Capacity:	1

1.15 Lighting

Electrical, 12 Volt

	Height above ground of centre mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
Headlights	1350	170x100	195
Sidelights	1748	105x32	877
Rearlights	1717	60x50	808
Reflectors, 1st pair 2nd pair	1717 775	50x50 155x55	859 535

2. TEST CONDITIONS

2.1 Overall dimensions

Length	Width	Height at top of	
		protective structure	exhaust silencer pipe
mm	mm	mm	mm
4540	2357	2666	2646

2.2 Ground clearance 380 mm

- Clearance-limiting part: Bracket of swinging drawbar

2.3 Tractor mass Unballasted (with cab)

	Without driver kg	With driver kg
Front	1965	1980
Rear	3175	3235
Total	5140	5215

2.5 Tyres and track widths specifications

	Front	Rear
Tyres:	GOODYEAR	GOODYEAR
dimensions	420/70 R 28	520/70 R 38
load index speed index	133 A8	150 A8
type	radial ply	radial ply
maximum load (tyre manufacturer's)	20.21 kN	32.86 kN
at travelling speed	40 km/h	40 km/h
at tyre inflation pressure	160 kPa	160 kPa
radius index (ISO 4251/1-1992)	640 mm	820 mm
Chosen track width:	1835 mm	1835 mm
Technically permissible axle load:	32.4 kN	61.3 kN
Technically permissible total weight:	76.7 kN	

2.6 Fuel

- Type: ARAL-Diesel-fuel, in conformity with DIN 51601
- Density at 15°C: At p.t.o. tests 0.835 g/cm³
  at drawbar power tests 0.824 g/cm³

2.7 Oils and lubrication

2.7.1 Capacity and change interval

	Capacity dm³	Oil change h	Filter-change h
Engine	7	250	250
Gear box	71	1000	1000
Front axle	6	1000	-
Rear axle	common with gearbox		
Final drives (front each)	0.6	1000	-
Final drives (rear) Hydraulic system, Steering	common with gearbox		

2.7.2 Specifications:

	Recommended	Used during test
Engine oil:		
Used in engine		
Type	Multi-grade oil	MS1121*) Case N.
Viscosity	SAE 15W-40	SAE 15W-40
Classification	API CG-4 or CF-4	API CG-4 or CF-4
Transmission oil:		
Used in gearbox, rear axle, hydraulic- and steering system		
Type	CASE HY-TRAN ULTRA	CASE HY-TRAN ULTRA
Viscosity	ISO-VG-46	ISO-VG-46
Classification	MS 1209*)	MS 1209*)
Used in front axle and front final drives		
Type	Gear oil	CASE Gear oil
Viscosity	SAE 84W-140	SAE 84W-140
Classification	API-GL5 or MS 1316*)	MS 1316*)

*) MS 1121, MS 1209 and MS 1316 are CASE specifications

2.7.3 Grease Multi purpose grease

- number of lubrication points: 10

3 COMPULSORY TESTS RESULTS

3.1 MAIN POWER TAKE OFF PERFORMANCE (1000 min^{-1})

Date of tests: 13th March 2000
Location of tests: DLG-Testing Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed Engine min^{-1}	Speed P.t.o. min^{-1}	Fuel consumption hourly dm³/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/dm³
Maximum power						
3.1.1 at 2-hour test						
75.7	2200	996	23.19	19.36	256	3.26
3.1.2 at rated speed						
75.7	2200	996	23.19	19.36	256	3.26
3.1.3 at standard p.t.o. speed						
75.7	2200	996	23.19	19.36	256	3.26
3.1.4 Part loads, the governor hand lever in the position corresponding to maximum power at full load (curve a)						
3.1.4.1 the torque corresponding to maximum power at rated speed						
75.7	2200	996	23.19	19.36	256	3.26
3.1.4.2 85% of the torque obtained in 3.1.4.1						
67.1	2266	1026	21.74	18.15	271	3.09
3.1.4.3 75% of the torque defined in 3.1.4.2						
50.5	2284	1034	18.19	15.19	301	2.78
3.1.4.4 50% of the torque defined in 3.1.4.2						
34.1	2306	1044	14.67	12.25	359	2.32
3.1.4.5 25% of the torque defined in 3.1.4.2						
17.3	2326	1053	10.60	8.85	513	1.63
3.1.4.6 unloaded						
-	2341	1060	6.08	5.08	-	-

Power kW	Speed Engine min^{-1}	Speed P.t.o. min^{-1}	Fuel consumption hourly dm³/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/dm³
3.1.5 Part loads, the governor hand lever in the position corresponding to standard p.t.o. speed at full load (curve b)						
3.1.5.1 the torque corresponding to maximum power						
75.7	2200	996	23.19	19.36	256	3.26
3.1.2 85% of the torque obtained in 3.1.5.1						
67.1	2266	1026	21.74	18.15	271	3.09
3.1.5.3 75% of the torque defined in 3.1.5.2						
50.5	2284	1034	18.19	15.19	301	2.78
3.1.5.4 50% of the torque defined in 3.1.5.2						
34.1	2306	1044	14.67	12.25	359	2.32
3.1.5.5 25% of the torque defined in 3.1.5.2						
17.3	2326	1053	10.60	8.85	513	1.63
3.1.5.6 unloaded						
-	2341	1060	6.08	5.08	-	-

No load maximum engine speed:	2341 min^{-1}
Equivalent flywheel torque at rated engine speed:	329 Nm
Equivalent flywheel torque at 2-hour test:	329 Nm
at engine speed:	2200 min^{-1}
Maximum equivalent flywheel torque:	412 Nm
at engine speed:	1394 min^{-1}

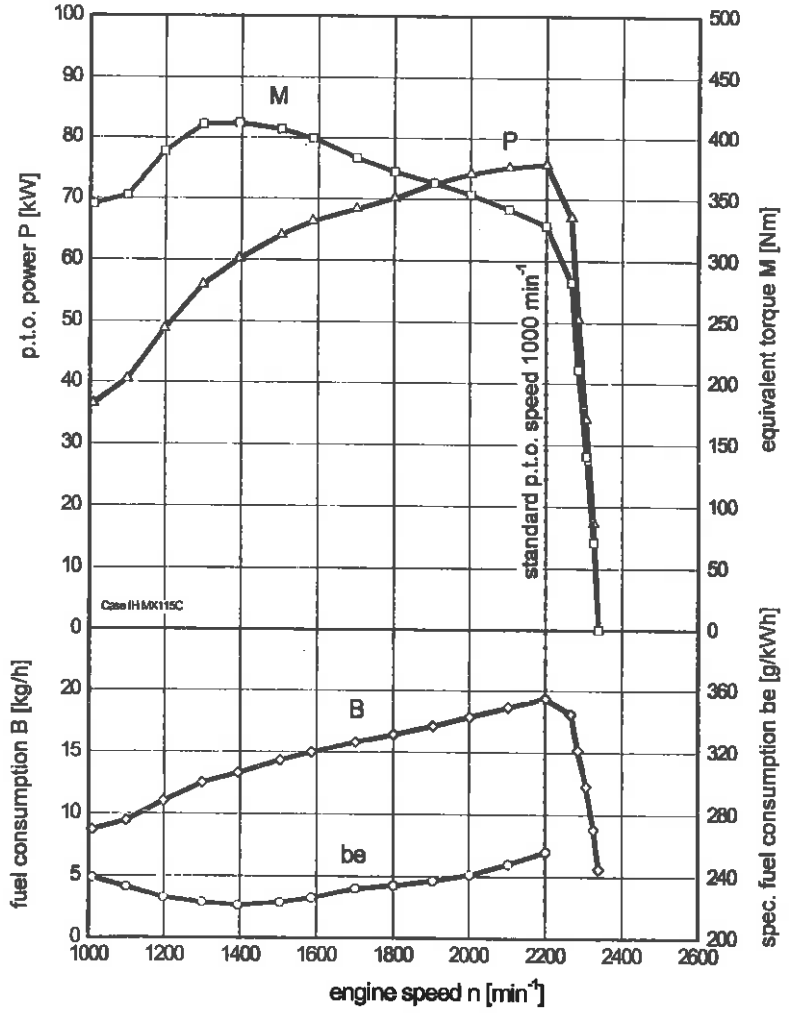
Mean atmospheric conditions

temperature:	21 °C
pressure:	100.7 kPa
relative humidity:	28 %

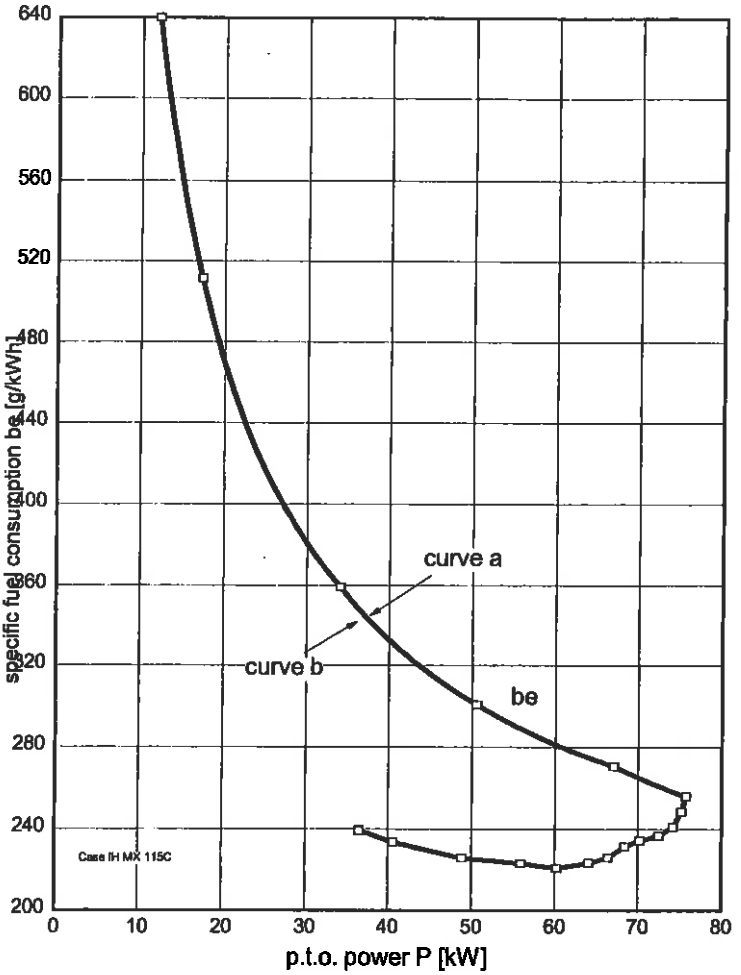
Maximum temperatures

coolant:	79 °C
oil:	119 °C
fuel:	52 °C
air intake:	21 °C

P.T.O. Test


M
P
B
be
Case IH MX115C
p.t.o. power P [kW]
standard p.t.o. speed 1000 min⁻¹
equivalent torque M [Nm]
fuel consumption B [kg/h]
spec. fuel consumption be [g/kWh]
engine speed n [min⁻¹]
100
90
80
70
60
50
40
30
20
10
0
500
450
400
350
300
250
200
150
100
50
0
20
15
10
5
0
360
320
280
240
200
1000
1200
1400
1600
1800
2000
2200
2400
2600

P.T.O. Test


specific fuel consumption be [g/kWh]
640
600
560
520
480
440
400
360
320
280
240
200
0
10
20
30
40
50
60
70
80
p.t.o. power P [kW]
curve a
curve b
be
Case IH MX 115C

3.2 HYDRAULIC POWER AND LIFTING FORCE

- Date of tests: 23rd May 2000

3.2.1 Hydraulic power test

- Sustained pressure with relief valve open 19.2 MPa
- Pump stalled No
- Pump delivery rate at minimum pressure 84.4 dm³/min

	Hydraulic power kW	Flow rate dm³/min	Pressure MPa	Oil Temperature °C
At 90% of the actual relief valve setting	12.6	43.8	17.3	65
Maximum	18.6	79.5	14.0	65

- Tapping point used for test: At rear of tractor, connected to additional control valve no. 1
- Opening/closing pressure of the unloading valve: Not applicable

3.2.2 Power lift test: maximum pressure in lift cylinder 20.2 MPa

	At the hitch points	On the frame
Height of lower hitch points above ground in down position	200 mm	
Vertical movement without lifting forces with lifting forces	740 mm 730 mm	850 mm 816 mm
Max. corrected force exerted through full range	40.10 kN	32.90 kN
Corresponding pressure	18.2 MPa	
Moment about rear axle	-	56.9 kNm
Max. tilt angle of mast from vertical		7°

Lifting heights relative to horizontal lower links												
mm	-435	-400	-375	-300	-200	-100	0	+100	+200	+300	+355	+380
Lifting forces at hitch points. Corrected to 18.2 MPa												
kN			40.10	45.90	50.00	51.30	51.30	50.40	49.10	47.30	45.50	
Lifting forces at standard frame. corrected to 18.2 MPa												
kN	37.40	39.60		42.80	44.10	43.70	42.80	41.00	38.70	36.00		32.90

3.3 DRAWBAR PERFORMANCE

Date of test: 15th and 16th March 2000
Type of track: Concrete

Gear number and range	Power	Drawbar pull	Speed	Engine speed	Slip of wheels
	kW	kN	km/h	min-1	%
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)					
I 2	42.8	53.04	2.91	2281	15.0
I 3	50.4	52.99	3.56	2264	15.1
I 4	58.7	45.57	4.64	2206	8.5
II 1	61.3	37.68	5.86	2196	5.8
II 2	63.5	31.75	7.20	2200	4.2
II 3	63.7	25.52	8.99	2202	3.1
III 1	64.9	23.37	10.00	2208	2.8
II 4	63.5	20.38	11.22	2199	2.5
III 2	62.8	18.70	12.09	2202	2.3
III 3	60.1	14.49	14.93	2194	1.8
3.3.2 FUEL CONSUMPTION					
3.3.2.1 in selected gear, at maximum power at rated speed					
III 1	64.9	23.37	10.00	2208	2.8
3.3.2.1.1 75 % of pull at maximum power at rated speed					
III 1	50.5	17.55	10.35	2272	2.1
3.3.2.1.2 50 % of pull at maximum power at rated speed					
III 1	34.5	11.75	10.56	2303	1.4
3.3.2.1.3 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.1					
II 4	50.3	17.51	10.35	2026	2.1
3.3.2.1.4 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2					
II 4	34.4	11.74	10.56	2052	1.4
3.3.2.2 in selected gear nearest to 7.50 km/h at rated speed					
II 2	63.5	31.75	7.20	2200	4.2
3.3.2.2.1 75 % of pull at maximum power at rated speed					
II 2	49.6	23.80	7.50	2263	2.9
3.3.2.2.2 50 % of pull at maximum power at rated speed					
II 2	33.7	15.81	7.67	2291	1.9
3.3.2.2.3 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.1					
II 3	49.5	23.80	7.49	1829	2.9
3.3.2.2.4 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2					
II 3	33.9	15.89	7.69	1863	1.9

CASE IH MX115C (4WD) **DLG-Test No. 2000-59**

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
unballasted	430 mm	80 kPa	80 kPa

Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
		Fuel	Coolant	Engine oil	Tempe-rature	Relative humidity	Pressure
g/kWh	kWh/l	°C	°C	°C	°C	%	kPa
393	2.10	43	69	107	8	65	101.0
381	2.16	44	72	109	9	65	101.0
331	2.49	43	75	109	7	65	101.0
317	2.60	42	77	111	9	65	101.0
306	2.69	43	77	113	9	65	101.0
305	2.70	43	76	113	8	65	101.0
299	2.75	42	71	109	8	65	101.0
304	2.71	43	76	112	7	65	101.0
309	2.66	43	75	112	8	65	101.0
321	2.56	43	76	112	8	65	101.0
299	2,75	42	71	109	8	65	101.0
348	2.37	45	77	112	12	85	101.0
413	1.99	44	73	111	11	85	101.0
320	2.58	44	74	110	11	85	101.0
371	2.22	44	71	109	13	85	101.0
306	2.69	43	77	113	9	65	101.0
347	2.37	46	78	113	13	85	101.0
407	2.03	46	74	110	13	85	101.0
294	2.80	44	74	108	13	85	101.0
335	2.46	44	72	107	12	85	101.0

4	**OPTIONAL TESTS RESULTS**	**None**
5	**REPAIRS**	**None**
6	**REMARKS**	**None**

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Test carried out by

B. Huber

Dipl.-Ing. Bodo Huber

Date: 3rd January 2001



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