



## *Prüfstelle für Landmaschinen*



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

**OECD No. 2/1929**  
**3rd November 2000**

### Agricultural Tractor

**CASE IH MX90C (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: 3rd November 2000

OECD No. 2/1929  
Restricted Code

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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 <sup>2</sup> |
|           | 100 kPa | = | 1000 mbar | = | 750.10 mm Hg            |

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**CASE IH MX90C (4WD)**

**DLG-Test No. 2000-61**

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 70 h

Location of test:

DLG-Testing Station, D-64823 Groß-Umstadt

**1 SPECIFICATION OF TRACTOR**

**1.1 Identification**

- Make: CASE IH
- Model: MX 90C, 40 km/h version
- Type: Wheel tractor, unit construction, four wheel driven
- Number of driving-wheels: 4
- Serial No.: JJE 1053539
- 1st serial No.: JJE 1050001

**1.2 Engine**

Make/Model/Type: Perkins / 1004-4T HR (Case - model 5632/2200)/  
water-cooled 4-stroke Diesel-engine  
direct injection, supercharged

Serial no.: U 056660 F

**1.2.1 Cylinders**

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

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**1.2.2 Supercharging**

- Make / Model / Type: GARRETT / GT 2052 / exhaust driven supercharger, wastegate
- Pressure: Max. 91 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<sup>3</sup>
- Injection pump
  - Make/Model: LUCAS / 8920 A040T
  - Type : DP, distributor pump with timing device
  - Serial no.: 00258 KSG
  - Manufacturer's production setting: 75.1 ± 2.4 mm<sup>3</sup>/stroke at full load and rated speed;
  - Flow rate: 19.8 ± 0.6 dm<sup>3</sup>/h at 2200 min<sup>-1</sup> 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
- Governed range of engine speed: 1000 ± 50 to 2360 - 50 min<sup>-1</sup>
- Rated engine speed: 2200 min<sup>-1</sup>

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- |   |  |                       |                      |               |  |   |                                  |             |                             |       |   |
|---|--|-----------------------|----------------------|---------------|--|---|----------------------------------|-------------|-----------------------------|-------|---|
| 1.2.5   | <p><b>Air cleaner</b></p> <ul style="list-style-type: none"> <li>- Pre-cleaner                             <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 10px;">Make/Model:</td> <td>CASE-DONALDSON / - /</td> </tr> <tr> <td>Type:</td> <td>Cyclone type, integrated in main cleaner housing</td> </tr> <tr> <td>Location of air intake:</td> <td>In front of engine, below bonnet</td> </tr> </table> </li> <li>- Main cleaner                             <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 10px;">Make/Model:</td> <td>CASE-DONALDSON / 222 421 A1</td> </tr> <tr> <td>Type:</td> <td>Dry paper element filter with additional safety cartridge</td> </tr> </table> </li> <li>- Maintenance indicator: Warning light on dashboard</li> </ul> | Make/Model:           | CASE-DONALDSON / - / | Type:         | Cyclone type, integrated in main cleaner housing | Location of air intake:   | In front of engine, below bonnet | Make/Model: | CASE-DONALDSON / 222 421 A1 | Type: | Dry paper element filter with additional safety cartridge |
| Make/Model:   | CASE-DONALDSON / - /   |                       |                      |               |  |   |                                  |             |                             |       |   |
| Type:   | Cyclone type, integrated in main cleaner housing   |                       |                      |               |  |   |                                  |             |                             |       |   |
| Location of air intake:   | In front of engine, below bonnet   |                       |                      |               |  |   |                                  |             |                             |       |   |
| Make/Model:   | CASE-DONALDSON / 222 421 A1  |                       |                      |               |  |   |                                  |             |                             |       |   |
| Type:   | Dry paper element filter with additional safety cartridge  |                       |                      |               |  |   |                                  |             |                             |       |   |
| 1.2.6   | <p><b>Lubrication system</b></p> <p>Pressure lubrication with engine oil / cooling water heat exchanger in filter socket</p> <ul style="list-style-type: none"> <li>- Type of feed pump: Internal gear pump</li> <li>- Type of filter: Full flow, replaceable (metallic cartridge)</li> <li>- Number of filters: 1</li> </ul>  |                       |                      |               |  |   |                                  |             |                             |       |   |
| 1.2.7   | <p><b>Cooling system</b></p> <ul style="list-style-type: none"> <li>- Type of coolant: Water cooling</li> <li>- Type of pump: Impeller pump</li> <li>- Specification of fan                             <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 10px;">Number of fan blades:</td> <td>7</td> </tr> <tr> <td>Fan diameter:</td> <td>470 mm</td> </tr> </table> </li> <li>- Coolant capacity: 17.5 dm<sup>3</sup></li> <li>- Type of temperature control:                             <table border="0" style="margin-left: 20px;"> <tr> <td>Thermostat and by-pass circuit, viscous drive fan, belt driven; variable fan speed controlled by air flow temperature</td> </tr> </table> </li> <li>- Superpressure system: 110 kPa</li> </ul>   | Number of fan blades: | 7                    | Fan diameter: | 470 mm   | Thermostat and by-pass circuit, viscous drive fan, belt driven; variable fan speed controlled by air flow temperature |                                  |             |                             |       |   |
| Number of fan blades:   | 7  |                       |                      |               |  |   |                                  |             |                             |       |   |
| Fan diameter:   | 470 mm   |                       |                      |               |  |   |                                  |             |                             |       |   |
| Thermostat and by-pass circuit, viscous drive fan, belt driven; variable fan speed controlled by air flow temperature |  |                       |                      |               |  |   |                                  |             |                             |       |   |



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- 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 / M050128 / 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

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**1.3 Transmission**

**1.3.1 Clutch (travel alone)**

- Make/Model/Type:
- Number of plates:
- Diameter of plates:
- Method of operation:

CASE / - / wet multi-plate, integrated into gearbox 6

127 mm

Hydraulically operated by pedal, or electro-hydraulically controlled by forward/neutral/reverse lever

**1.3.2 Gear box**

- Make/Model/Type:
- Description:

CASE / - / mechanical, power shift;  
40 km/h version

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:
- Differential lock:

CASE / - / bevel gear drive with bevel gear differential and planetary final drives

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 <sup>-1</sup> km/h |
|-----------------------|----------|---|--|
| <b>Forward Speeds</b> |          |   |  |
| <b>I</b>              | 1        | 246.82  | 2.76   |
|                       | 2        | 204.93  | 3.32   |
|                       | 3        | 165.81  | 4.10   |
|                       | 4        | 133.85  | 5.08   |
| <b>II</b>             | 1        | 108.29  | 6.28   |
|                       | 2        | 89.91   | 7.56   |
|                       | 3        | 72.75   | 9.35   |
|                       | 4        | 58.73   | 11.58  |
| <b>III</b>            | 1        | 65.87   | 10.32  |
|                       | 2        | 54.69   | 12.44  |
|                       | 3        | 44.25   | 15.37  |
|                       | 4        | 35.72   | 19.04  |
| <b>IV</b>             | 1        | 33.88   | 20.07  |
|                       | 2        | 28.12   | 24.19  |
|                       | 3        | 22.75   | 29.89  |
|                       | 4        | 18.37   | 37.02  |
| <b>Reverse Speeds</b> |          |   |  |
| <b>I</b>              | 1        | 213.31  | 3.19   |
|                       | 2        | 177.11  | 3.84   |
|                       | 3        | 143.30  | 4.75   |
|                       | 4        | 115.68  | 5.88   |
| <b>II</b>             | 1        | 93.61   | 7.27   |
|                       | 2        | 77.71   | 8.75   |
|                       | 3        | 62.88   | 10.82  |
|                       | 4        | 50.75   | 13.40  |
| <b>III</b>            | 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

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**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<sup>-1</sup>**

- 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 <sup>-1</sup> | engine Speed min <sup>-1</sup> | power restriction *) kW |
|-------------|---------------------------|--------------------------------|--------------------------------|-------------------------|
| 540         | 3.4720                    | 540<br>634                     | 1875<br>2200                   | 63                      |
| 1000        | 2.2095                    | 1000<br>996                    | 2210<br>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**

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**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<sup>3</sup>/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<sup>3</sup>  
42 dm<sup>3</sup> 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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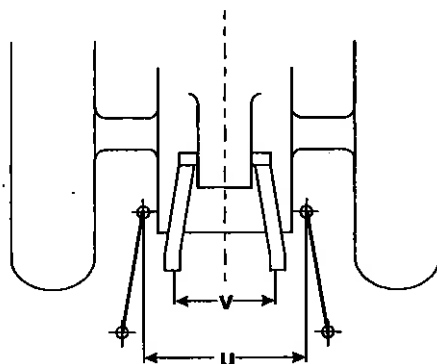
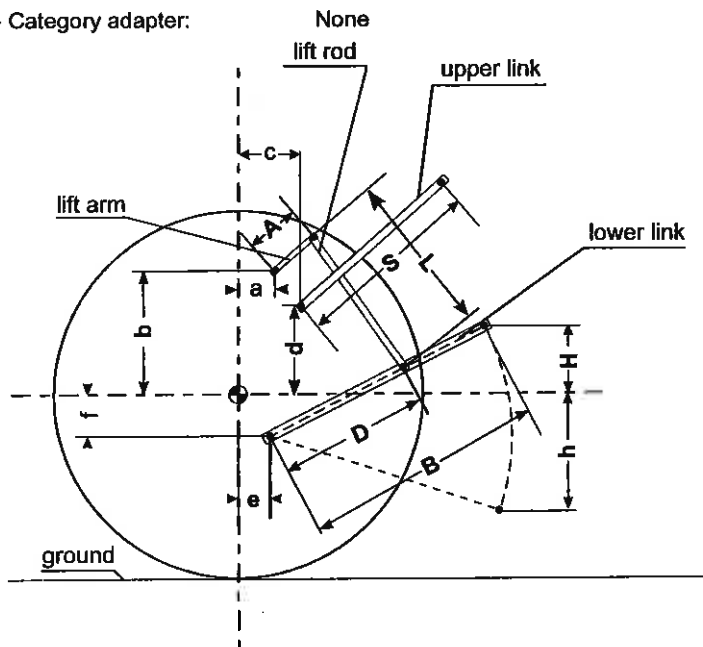
1.6 Three-point linkage:

- 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  | (r) *      |     | 820                     |                               |     |
| Front tyres 420/70 R 28   | (r') *     |     | 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 | (a) | 245                     | 245                           |     |
|   |            | (b) | 190                     | 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 | (c) | 360/330                 | 360                           |     |
|   |            | (d) | 235/301                 | 235                           |     |
| Distance of lower link pivot points from rear wheel axis  | horizontal | (e) | 230                     | 230                           |     |
|   |            | (f) | 245                     | 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)

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|              |   |  |
|--------------|---|--|
| <b>1.7</b>   | <b>Swinging drawbar</b>   | Available, not fitted  |
| <b>1.8</b>   | <b>Hitches</b>  |  |
| <b>1.8.1</b> | <b>Trailer hitch</b>  |  |
|              | - Make/Model/Type:  | CRAMER / KU 2000 A / automatic   |
|              | - Hitch pin diameter:   | 32 mm  |
|              | - Height above ground:  | Centre of clevis adjustable in 8 steps to 450/575/673/747/797/923/973 and 1023 mm                    |
|              | - Distance of hitch point from rear-wheel axis:                   | horizontal 665 mm  |
|              | - Distance of hitch point from power take-off shaft end vertical: | below 280/155 and 57 mm<br>above 17/67/193/243 and 293 mm  |
|              | horizontal:   | 165 mm   |
|              | - Maximum vertically permissible load:                            | 19.6 kN  |
| <b>1.8.2</b> | <b>Hitch hook</b>   | Available, not fitted  |
| <b>1.9</b>   | <b>Holed drawbar</b>  | Available, not fitted  |
| <b>1.10</b>  | <b>Steering</b>   |  |
|              | - 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  |

**CASE IH MX90C (4WD)**

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**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: 2422 mm
- Track width adjustment:

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

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**1.13 Protective structure**

- 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, 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: CSS 0451
  - Date of approval: 18th September 1997
- Nos. of minor modification certificates: MOD1 (24th August 1999)
- Optional protective device: Not fitted
- 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
  - Tiltable/not tiltable: not tiltable
- OECD approval
  - Approval number: 4/0 451/1
  - Date of approval: 26th October 1998
- Nos. of minor modification certificates: MOD 1 (24th August 1999)



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**1.14 Seat**

- 1.14.1 Driver's seat** Fitted to tractor
- Make/Model: Grammer/MSG95A/731
  - 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/31/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                       | 1756                             | 105x32          | 877  |
| Rearlights                       | 1660                             | 60x50           | 808  |
| Reflectors, 1st pair<br>2nd pair | 1660<br>760                      | 50x50<br>155x55 | 859<br>535   |

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## 2. TEST CONDITIONS

### 2.1 Overall dimensions

| Length | Width | Height at top of     |                       |
|--------|-------|----------------------|-----------------------|
|        |       | protective structure | exhaust silencer pipe |
| mm     | mm    | mm                   | mm                    |
| 4450   | 2357  | 2855                 | 2825                  |

2.2 Ground clearance 385 mm  
 - Clearance-limiting part: Bracket of trailer hitch

### 2.3 Tractor mass Unballasted (with cab)

|       | Without driver<br>kg | With driver<br>kg |
|-------|----------------------|-------------------|
| Front | 2000                 | 2015              |
| Rear  | 3080                 | 3140              |
| Total | 5080                 | 5155              |

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**2.5 Tyres and track widths specifications**

|                                       | Front           | Rear            |
|---------------------------------------|-----------------|-----------------|
| <b>Tyres:</b>                         | <b>GOODYEAR</b> | <b>GOODYEAR</b> |
| 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/cm <sup>3</sup> |
|                    | at drawbar power tests                         | 0.824 g/cm <sup>3</sup> |

**2.7 Oils and lubrication**
**2.7.1 Capacity and change interval**

|   | Capacity<br>dm <sup>3</sup> | Oil<br>change<br>h | Filter-<br>change<br>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)<br>Hydraulic system, Steering | common with gearbox         |                    |                        |

**CASE IH MX90C (4WD)**

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**2.7.2 Specifications:**

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

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

**2.7.3 Grease**

**Multi purpose grease**

number of lubrication points: 10

**CASE IH MX90C (4WD)**

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**3 COMPULSORY TESTS RESULTS**

**3.1 MAIN POWER TAKE OFF PERFORMANCE (1000 min<sup>-1</sup>)**

Date of tests: 22nd March 2000  
 Location of tests: DLG-Testing Station Groß-Umstadt  
 Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

| Power<br>kW | Speed                       |                             | Fuel consumption             |      |                   | Specific<br>energy<br>kWh/dm <sup>3</sup> |
|-------------|-----------------------------|-----------------------------|------------------------------|------|-------------------|---|
|             | Engine<br>min <sup>-1</sup> | P.t.o.<br>min <sup>-1</sup> | hourly<br>dm <sup>3</sup> /h | kg/h | specific<br>g/kWh |   |

**Maximum power**

**3.1.1 at 2-hour test**

|      |      |     |       |       |     |      |
|------|------|-----|-------|-------|-----|------|
| 56.3 | 2100 | 950 | 18.98 | 15.85 | 282 | 2.97 |
|------|------|-----|-------|-------|-----|------|

**3.1.2 at rated speed**

|      |      |     |       |       |     |      |
|------|------|-----|-------|-------|-----|------|
| 56.2 | 2200 | 996 | 19.56 | 16.33 | 291 | 2.87 |
|------|------|-----|-------|-------|-----|------|

**3.1.3 at standard p.t.o. speed**

|      |      |     |       |       |     |      |
|------|------|-----|-------|-------|-----|------|
| 56.2 | 2200 | 996 | 19.56 | 16.33 | 291 | 2.87 |
|------|------|-----|-------|-------|-----|------|

**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**

|      |      |     |       |       |     |      |
|------|------|-----|-------|-------|-----|------|
| 56.2 | 2200 | 996 | 19.56 | 16.33 | 291 | 2.87 |
|------|------|-----|-------|-------|-----|------|

**3.1.4.2 85% of the torque obtained in 3.1.4.1**

|      |      |      |       |       |     |      |
|------|------|------|-------|-------|-----|------|
| 49.0 | 2253 | 1020 | 18.36 | 15.33 | 313 | 2.67 |
|------|------|------|-------|-------|-----|------|

**3.1.4.3 75% of the torque defined in 3.1.4.2**

|      |      |      |       |       |     |      |
|------|------|------|-------|-------|-----|------|
| 37.1 | 2280 | 1032 | 15.65 | 13.07 | 352 | 2.37 |
|------|------|------|-------|-------|-----|------|

**3.1.4.4 50% of the torque defined in 3.1.4.2**

|      |      |      |       |       |     |      |
|------|------|------|-------|-------|-----|------|
| 24.9 | 2302 | 1042 | 12.91 | 10.78 | 433 | 1.93 |
|------|------|------|-------|-------|-----|------|

**3.1.4.5 25% of the torque defined in 3.1.4.2**

|      |      |      |       |      |     |      |
|------|------|------|-------|------|-----|------|
| 12.6 | 2319 | 1050 | 10.17 | 8.49 | 676 | 1.24 |
|------|------|------|-------|------|-----|------|

**3.1.4.6 unloaded**

|   |      |      |      |      |   |   |
|---|------|------|------|------|---|---|
| - | 2336 | 1057 | 7.16 | 5.98 | - | - |
|---|------|------|------|------|---|---|

**CASE IH MX90C (4WD)**
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| Power<br>kW | Speed           |                 | Fuel consumption |      |                   | Specific<br>energy<br>kWh/dm³ |
|-------------|-----------------|-----------------|------------------|------|-------------------|-------------------------------|
|             | Engine<br>min⁻¹ | P.t.o.<br>min⁻¹ | hourly<br>dm³/h  | kg/h | specific<br>g/kWh |                               |

**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**

|      |      |     |       |       |     |      |
|------|------|-----|-------|-------|-----|------|
| 56.2 | 2200 | 996 | 19.56 | 16.33 | 291 | 2.87 |
|------|------|-----|-------|-------|-----|------|

**3.1.5.2 85% of the torque obtained in 3.1.5.1**

|      |      |      |       |       |     |      |
|------|------|------|-------|-------|-----|------|
| 49.0 | 2253 | 1020 | 18.36 | 15.33 | 313 | 2.67 |
|------|------|------|-------|-------|-----|------|

**3.1.5.3 75% of the torque defined in 3.1.5.2**

|      |      |      |       |       |     |      |
|------|------|------|-------|-------|-----|------|
| 37.1 | 2280 | 1032 | 15.65 | 13.07 | 352 | 2.37 |
|------|------|------|-------|-------|-----|------|

**3.1.5.4 50% of the torque defined in 3.1.5.2**

|      |      |      |       |       |     |      |
|------|------|------|-------|-------|-----|------|
| 24.9 | 2302 | 1042 | 12.91 | 10.78 | 433 | 1.93 |
|------|------|------|-------|-------|-----|------|

**3.1.5.5 25% of the torque defined in 3.1.5.2**

|      |      |      |       |      |     |      |
|------|------|------|-------|------|-----|------|
| 12.6 | 2319 | 1050 | 10.17 | 8.49 | 676 | 1.24 |
|------|------|------|-------|------|-----|------|

**3.1.5.6 unloaded**

|   |      |      |      |      |   |   |
|---|------|------|------|------|---|---|
| - | 2336 | 1057 | 7.16 | 5.98 | - | - |
|---|------|------|------|------|---|---|

|   |            |
|---|------------|
| No load maximum engine speed:                     | 2336 min⁻¹ |
| Equivalent flywheel torque at rated engine speed: | 244 Nm     |
| Equivalent flywheel torque at 2-hour test:        | 256 Nm     |
| at engine speed:                                  | 2100 min⁻¹ |
| Maximum equivalent flywheel torque:               | 320 Nm     |
| at engine speed:                                  | 1394 min⁻¹ |

**Mean atmospheric conditions**

|                    |           |
|--------------------|-----------|
| temperature:       | 22 °C     |
| pressure:          | 100.1 kPa |
| relative humidity: | 30 %      |

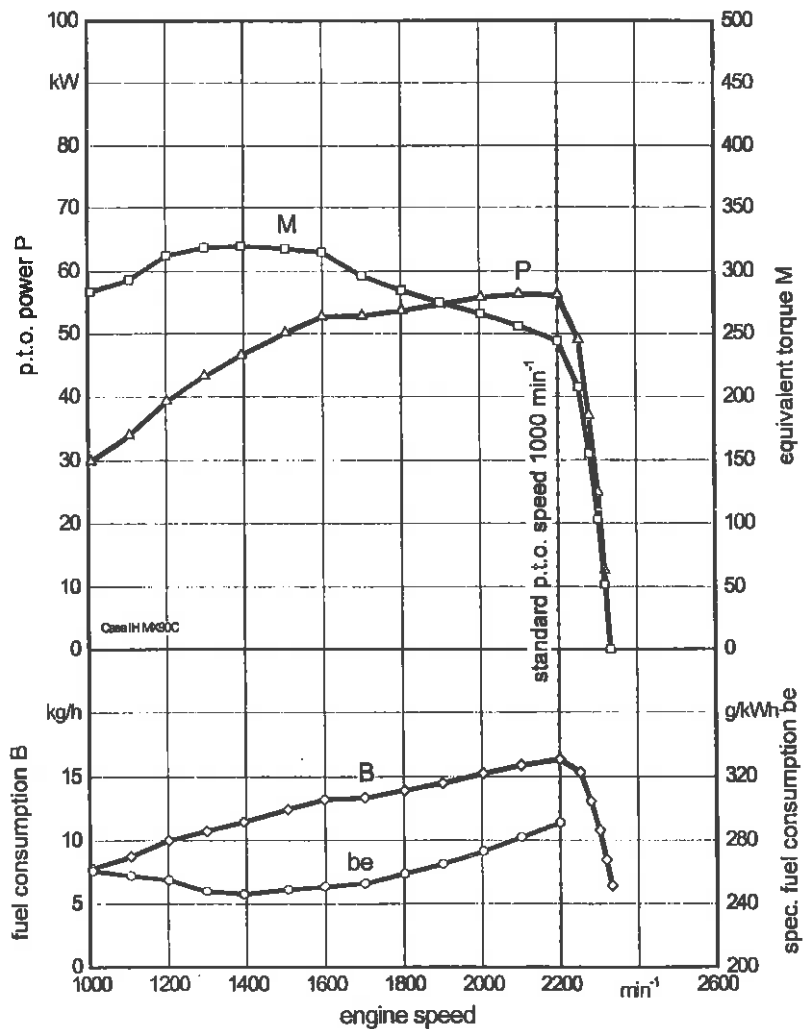
**Maximum temperatures**

|             |        |
|-------------|--------|
| coolant:    | 80 °C  |
| oil:        | 118 °C |
| fuel:       | 50 °C  |
| air intake: | 22 °C  |

CASE IH MX90C (4WD)

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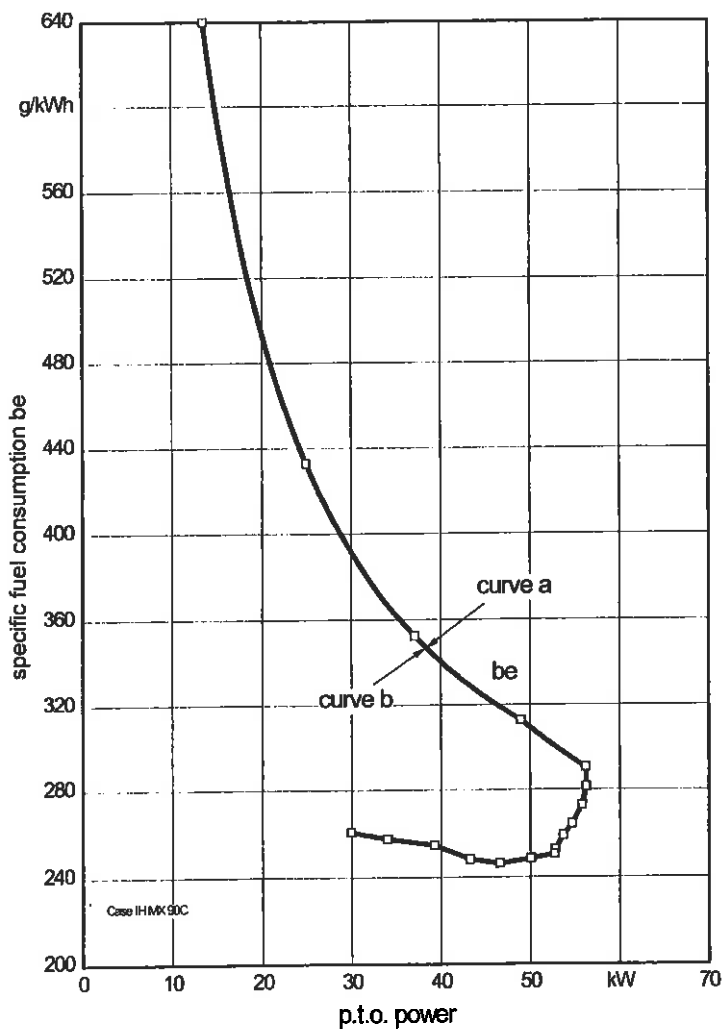
P.T.O. Test



CASE IH MX90C (4WD)

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P.T.O. Test





**CASE IH MX90C (4WD)**
**DLG-Test No. 2000-61**
**3.2 HYDRAULIC POWER AND LIFTING FORCE**

- Date of tests: 15th May 2000

**3.2.1 Hydraulic power test**

- Sustained pressure with relief valve open
- Pump stalled
- Pump delivery rate at minimum pressure

19.0 MPa  
No  
88.4 dm<sup>3</sup>/min

|   | Hydraulic power<br>kW | Flow rate<br>dm <sup>3</sup> /min | Pressure<br>MPa | Oil Temperature<br>°C |
|---|-----------------------|-----------------------------------|-----------------|-----------------------|
| At 90% of the actual relief valve setting | 14.2                  | 49.7                              | 17.1            | 65                    |
| Maximum                                   | 19.8                  | 79.0                              | 15.0            | 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 20.0 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                   | 740 mm              |       |       |       |       |       |       |       | 850 mm       |       |       |      |       |
| with lifting forces  | 730 mm              |       |       |       |       |       |       |       | 816 mm       |       |       |      |       |
| Max. corrected force exerted through full range            | 39.70 kN            |       |       |       |       |       |       |       | 32.50 kN     |       |       |      |       |
| Corresponding pressure                                     | 18.0 MPa            |       |       |       |       |       |       |       |              |       |       |      |       |
| Moment about rear axle                                     | -                   |       |       |       |       |       |       |       | 56.2 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 18.0 MPa      |                     |       |       |       |       |       |       |       |              |       |       |      |       |
| kN   |                     |       | 39.70 | 45.40 | 49.50 | 50.80 | 50.80 | 49.90 | 48.60        | 46.80 | 45.00 |      |       |
| Lifting forces at standard frame. corrected to 18.0 MPa    |                     |       |       |       |       |       |       |       |              |       |       |      |       |
| kN   | 37.00               | 39.20 |       | 42.30 | 43.70 | 43.20 | 42.30 | 40.50 | 38.30        | 35.60 |       |      | 32.50 |

## CASE IH MX90C (4WD)

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## 3.3 DRAWBAR PERFORMANCE

Date of test: 23rd and 24th March 2000  
 Type of track: Concrete

| Gear number and range   | Power<br>kW | Drawbar pull<br>kN | Speed<br>km/h | Engine speed<br>min-1 | Slip of wheels<br>% |
|---|-------------|--------------------|---------------|-----------------------|---------------------|
| <b>3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)</b>  |             |                    |               |                       |                     |
| I 1   | 35.7        | 53.52              | 2.40          | 2261                  | 15.1                |
| I 2   | 41.6        | 53.10              | 2.82          | 2212                  | 15.0                |
| I 3   | 44.7        | 45.10              | 3.57          | 2104                  | 9.0                 |
| I 4   | 45.7        | 36.33              | 4.52          | 2093                  | 6.2                 |
| II 1  | 47.1        | 29.71              | 5.71          | 2103                  | 4.5                 |
| II 2  | 47.7        | 24.86              | 6.92          | 2095                  | 3.1                 |
| II 3  | 47.4        | 19.86              | 8.60          | 2100                  | 3.0                 |
| III 1   | 48.2        | 18.18              | 9.53          | 2098                  | 2.6                 |
| III 4   | 46.9        | 15.74              | 10.73         | 2098                  | 2.1                 |
| III 2   | 47.2        | 14.68              | 11.57         | 2101                  | 2.0                 |
| III 3   | 44.3        | 11.17              | 14.28         | 2090                  | 1.7                 |
| <b>3.3.2 FUEL CONSUMPTION</b>   |             |                    |               |                       |                     |
| <b>3.3.2.1 in selected gear, at maximum power at rated speed</b>  |             |                    |               |                       |                     |
| III 1   | 47.2        | 16.97              | 10.02         | 2199                  | 2.2                 |
| <b>3.3.2.1.1 75 % of pull at maximum power at rated speed</b>   |             |                    |               |                       |                     |
| III 1   | 36.8        | 12.74              | 10.36         | 2268                  | 1.7                 |
| <b>3.3.2.1.2 50 % of pull at maximum power at rated speed</b>   |             |                    |               |                       |                     |
| III 1   | 24.9        | 8.49               | 10.53         | 2293                  | 1.5                 |
| <b>3.3.2.1.3 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.1</b> |             |                    |               |                       |                     |
| II 4  | 36.5        | 12.64              | 10.39         | 2018                  | 1.5                 |
| <b>3.3.2.1.4 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2</b> |             |                    |               |                       |                     |
| II 4  | 24.7        | 8.42               | 10.55         | 2040                  | 1.1                 |
| <b>3.3.2.2 in selected gear nearest to 7.50 km/h at rated speed</b>                                       |             |                    |               |                       |                     |
| II 2  | 46.6        | 23.08              | 7.27          | 2205                  | 3.5                 |
| <b>3.3.2.2.1 75 % of pull at maximum power at rated speed</b>   |             |                    |               |                       |                     |
| II 2  | 36.5        | 17.40              | 7.55          | 2268                  | 2.6                 |
| <b>3.3.2.2.2 50 % of pull at maximum power at rated speed</b>   |             |                    |               |                       |                     |
| II 2  | 24.5        | 11.43              | 7.71          | 2295                  | 1.6                 |
| <b>3.3.2.2.3 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.1</b> |             |                    |               |                       |                     |
| II 3  | 36.4        | 17.27              | 7.59          | 1846                  | 2.7                 |
| <b>3.3.2.2.4 next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2</b> |             |                    |               |                       |                     |
| II 3  | 25.0        | 11.68              | 7.71          | 1857                  | 1.8                 |

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|             | Height of drawbar above ground | Tyre inflation pressure |        |
|-------------|--------------------------------|-------------------------|--------|
|             |                                | Front                   | Rear   |
| unballasted | 380 mm                         | 80 kPa                  | 80 kPa |

| Specific fuel consumption<br>g/kWh | Specific energy<br>kWh/l | Temperature |               |                  | Atmospheric conditions |                        |                 |
|------------------------------------|--------------------------|-------------|---------------|------------------|------------------------|------------------------|-----------------|
|                                    |                          | Fuel<br>°C  | Coolant<br>°C | Engine oil<br>°C | Temperature<br>°C      | Relative humidity<br>% | Pressure<br>kPa |
| 421                                | 1.96                     | 46          | 78            | 112              | 17                     | 60                     | 100.0           |
| 390                                | 2.11                     | 48          | 80            | 114              | 19                     | 60                     | 100.0           |
| 352                                | 2.34                     | 50          | 81            | 116              | 18                     | 60                     | 100.0           |
| 343                                | 2.40                     | 49          | 80            | 116              | 18                     | 60                     | 100.0           |
| 334                                | 2.47                     | 48          | 80            | 116              | 18                     | 60                     | 100.0           |
| 333                                | 2.47                     | 44          | 78            | 114              | 14                     | 64                     | 100.0           |
| 334                                | 2.47                     | 43          | 77            | 113              | 13                     | 65                     | 100.0           |
| 328                                | 2.51                     | 44          | 78            | 115              | 13                     | 65                     | 100.0           |
| 336                                | 2.45                     | 43          | 78            | 114              | 13                     | 65                     | 100.0           |
| 335                                | 2.46                     | 45          | 78            | 115              | 18                     | 60                     | 100.0           |
| 354                                | 2.33                     | 45          | 78            | 114              | 19                     | 60                     | 100.0           |
| 345                                | 2.39                     | 42          | 78            | 114              | 14                     | 52                     | 99.8            |
| 387                                | 2.13                     | 42          | 77            | 114              | 13                     | 52                     | 99.8            |
| 472                                | 1.75                     | 41          | 76            | 112              | 13                     | 52                     | 99.8            |
| 352                                | 2.34                     | 41          | 76            | 110              | 14                     | 52                     | 99.8            |
| 429                                | 1.92                     | 41          | 77            | 110              | 14                     | 52                     | 99.8            |
| 350                                | 2.35                     | 48          | 80            | 116              | 19                     | 50                     | 99.8            |
| 382                                | 2.16                     | 48          | 80            | 116              | 19                     | 50                     | 99.8            |
| 472                                | 1.75                     | 46          | 78            | 115              | 21                     | 50                     | 99.9            |
| 328                                | 2.51                     | 46          | 78            | 111              | 20                     | 50                     | 99.8            |
| 383                                | 2.15                     | 46          | 76            | 109              | 20                     | 50                     | 99.8            |

CASE IH MX90C (4WD)

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|   |                        |      |
|---|------------------------|------|
| 4 | OPTIONAL TESTS RESULTS | None |
| 5 | REPAIRS                | None |
| 6 | REMARKS                | None |

Head of tractor test section

A handwritten signature in black ink, appearing to read 'M. Lober', is positioned above the printed name.

Dipl.-Ing. Manfred Lober

Date: 10. November 2000



Deutsche  
Landwirtschafts-  
Gesellschaft

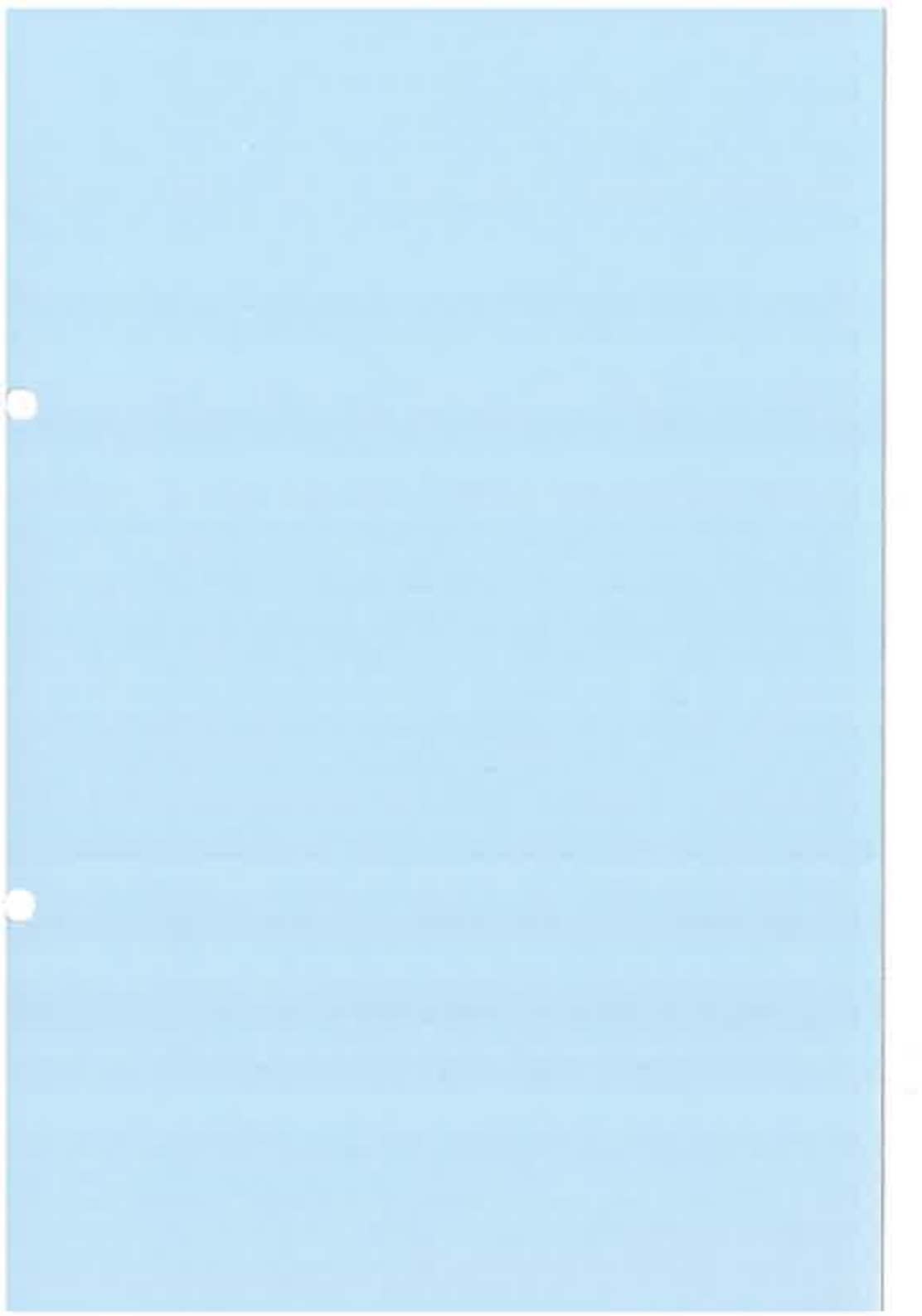
Test carried out by

A handwritten signature in black ink, appearing to read 'B. Huber', is positioned above the printed name.

Dipl.-Ing. Bodo Huber









*Wir setzen  
Maßstäbe*

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