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CENTRE NATIONAL
DU MACHINISME AGRICOLE
DU GÉNIE RURAL
DES EAUX ET DES FORÊTS

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Division Tracteurs et Travail du Sol

**TEST REPORT N° 7953** **DATE OF PUBLICATION : 13th SEPTEMBER 1990**

**OECD TEST OF AN AGRICULTURAL TRACTOR (RESTRICTED CODE)** 50.12

**Reference texts :** O.E.C.D code II



**OECD Approval**

**N° 1282 Restricted Code**

**Date 12th september 1990**

| Tested equipment | |
|---|---|
| **Nature** | : TRACTOR |
| **Make** | : MASSEY FERGUSON |
| **Model** | : B 105/2 |
| **Trade name** | : 3095 |
| **Number of driving wheels** | : 2 |
| **Type** | : standard |

**Submitted for tests by**

**Name** : MASSEY FERGUSON S.A.

**Address** : avenue Blaise Pascal
BP 307
60026 BEAUVAIS CEDEX

**Tel : 44.89.33.33** **Telex : 140396 F**

This test report may only be duplicated as a whole

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## 1. GENERALITIES

Tractor manufacturer's name and address : MASSEY FERGUSON S.A, BP 307 avenue Blaise Pascal 60026 BEAUVAIS

Submitted for tests by : MASSEY FERGUSON S.A.

Selected for tests by the manufacturer with the agreement of CEMAGREF

Date of arrival of the equipment in CEMAGREF : 13th march 1990

Place of running in : BEAUVAIS

Duration of running in : 20 h

## 2. SPECIFICATIONS

### 2.1 Tested tractor

Make : MASSEY FERGUSON
Model : B 105/2
Trade name : 3095
Number of driving wheels : 2
Type : standard
Serial number : P 143 045
1st serial number : P 143 045

### 2.2 Engine

#### 2.2.1 Identification

Make : PERKINS
Model : 1006-6-HR
Type : 4 strokes, direct injection diesel
Serial number : YA 31230 U 500228

#### 2.2.2 Cylinders

Number : 6
Disposition : vertical, in line
Bore/stroke : 100/127 mm
Capacity : 5985 $cm^3$
Compression ratio : 16,5/1
Arrangement of valves : overhead
Cylinders liners : dry

#### 2.2.3 Supercharging

none

#### 2.2.4 Fuel system

Fuel feed system : diaphragm fuel feed pump
Make, type and model of fuel filter : CAV 2 FAS 58488130, dual element with water trap
Capacity of fuel tank : 190 l
Make, type and model of injection pump : CAV, DPA 938, rotative
Serial number : 06734 EFG
Manufacturer's setting of injection pump : 56 ± 2 $mm^3$/stroke (at rated engine speed and full load)
Injection pump timing : 18° before T.D.C.
Make, type and model of injectors : CAV, LRB, 670 1422
Injection pressure : 220 bars

#### 2.2.5 Governor

Make : CAV
Type : mechanical, incorporated into fuel injection pump
Model : DPA
Governed range of engine speed : 850 - 2310 rev/min

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2.2.6 Rated engine speed : 2200 rev/min

2.2.7 Air cleaner

Pre-cleaner : . Make : DONALDSON
. Type and model : cyclone incorporated into main
. Location : under bonnet

Main : . Make : DONALDSON
. Type and model : dry, ELB 08 - 0024
. Location : under bonnet

Maintenance indicator : Lamp on desk board

2.2.8 Lubrication system

Type of feed pump : gear
Total oil capacity including filter : 19 l
Oil change period : 400 h
Type and number of filter : 1 cartridge
Filter change period : 400 h
Recommended oil : see "fuel and lubricants used in test"

2.2.9 Cooling system

Type of coolant : water or water anti-freeze mixture
Type of pump : centrifugal
Description of fan
. Puller
. Number of fan blades : 7
. Fan diameter : 504 mm
Coolant capacity : 25 l
Type of temperature control : thermostatic
Surpressure system : 0,5 bar

2.2.10 Starting system

Safety device : electrical switch under clutch pedal
Make : LUCAS
Type and model : pre-engaged M 127
Power : 2,8 kW
Cold starting aid : safety switch on clutch pedal

2.2.11 Electrical system

Voltage : 12 V
Generator :
. Make : MOTOROLA
. Type and model : alternator, 70 AMS
. Power : 840 W
Batteries
. Number : 2
. Rating : 80 Ah at 20 hours
. Cold starting capacity : 420 A for 60 s at -18 °C

2.2.12 Exhaust system

Make : LUCHAIRE
Type : perforated
Model : 86
Location : under bonnet with vertical stak pipe
Height of outlet above ground : 2774 mm

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2.3 Steering wheels

Number : 2
Location : front axle
Tyres :
. Size : 11.0 - 16
. Ply rating : 8
. Type of casing : cross ply
. Maximum permissible load on each tyre : 13,1 kN (with inflation pressure 276 kPa)

Track width : 1543 - 1622 - 1644 - 1724 - 1746 - 1826 - 1848 - 1927 - 1949 - 2028 - 2051 - 2130 - 2153 - 2231
2254 - 2333 mm
Method of adjustment : telescopic

2.4 Driving wheels

Number : 2
Location : rear
Tyres :
. Size : 18.4 - 38
. Ply rating : 8
. Type of casing : cross ply
. Maximum permissible load on each tyre : 27 kN (with inflation pressure 138 kPa)

Track width : 1530 - 1650 - 1750 - 1850 - 1950 mm
Method of adjustment : lugs

2.5 Wheelbase : 2696 mm

2.6 Transmission

2.6.1 Clutch (travel)

Mak : VALEO
Type : dry, single plate clutch, pulled type
Number of plates : 1
Diameter of plates : 330 mm
Method of operation (for travel) : foot pedal

2.6.2 Gear box

Make : MASSEY FERGUSON
Type and model : basic gearbox to be manual (4 x 2 speeds)
1 gearbox with 2 groups and 1 gearbox with 4 gears
Arrangement : mechanically operated gear shift
Number of speeds : 8 forward and 8 reverse
Available options : speedshift (16 forward and 16 reverse) tested model
speedshift and creeper (32 forward and 32 reverse)

2.6.3 Rear axle and final drives

Make : MASSEY FERGUSON
Type and model : crown wheel and pinion and inboard epicyclic reduction
Differential lock :
. Type and model : mechanical hydraulically actuated
. Method of engagement : electrical switch
. Method of disengagement : when brake pedal is depressed

2.6.4 Front axle

Make : MASSEY FERGUSON
Type and model : telescopic

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2.6.5 Transmission oils

Capacity :

. Gear box : }
. Hydraulic system : } 64 l
. Rear axle final drives : }

Change period : 1200 h

Filter change period : 600 h

Type of oil filter : removable cartridge in metallic filter elements

Recommanded oils : see "fuel and lubricants used in tests"

2.6.6 Total ratios and travelling speeds

| Group | Gear | Number of engine revolutions for one revolution of driving wheels | Nominal travelling speed(*) at rated engine speed of 2200 rev/min (km/h) |
|---|---|---|---|
| ST | 1 | 296,371 | 2,295 |
| | 2 | 248,525 | 2,737 |
| | 3 | 211,737 | 3,212 |
| | 4 | 179,602 | 3,787 |
| ST (rear) | 1 | 260,612 | 2,610 |
| | 2 | 218,539 | 3,112 |
| | 3 | 186,189 | 3,653 |
| | 4 | 157,932 | 4,306 |
| FT | 1 | 147,934 | 4,597 |
| | 2 | 124,052 | 5,482 |
| | 3 | 105,689 | 6,435 |
| | 4 | 89,649 | 7,586 |
| FT (rear) | 1 | 147,861 | 4,600 |
| | 2 | 123,990 | 5,485 |
| | 3 | 105,636 | 6,438 |
| | 4 | 89,604 | 8,121 |
| SR | 1 | 73,903 | 9,202 |
| | 2 | 61,972 | 10,974 |
| | 3 | 52,799 | 12,881 |
| | 4 | 44,786 | 15,185 |
| SR (rear) | 1 | 70,231 | 9,684 |
| | 2 | 58,893 | 11,548 |
| | 3 | 50,175 | 13,554 |
| | 4 | 42,560 | 15,980 |
| FR | 1 | 36,889 | 18,436 |
| | 2 | 30,934 | 21,986 |
| | 3 | 26,355 | 25,805 |
| | 4 | 22,355 | 30,423 |
| FR (rear) | 1 | 39,329 | 17,293 |
| | 2 | 32,979 | 20,622 |
| | 3 | 28,098 | 24,205 |
| | 4 | 23,833 | 28,535 |

T : Turtle - R : Rabbit - S : Slow F: Fast
(*) Calculated with a tyre dynamic index of 820 mm (ISO 4251/1 - 1984)

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## 2.7 Main power take-off

### 2.7.1 General specifications

Independant

Hydraulic multiplate wet clutch

Engagement by lever with electrical switch located at the middle of the upper RH side console

Number of shafts : 1

Method of changing power take-off speed : speed and spline change achieved by physically replacing the 540 rev/min shaft by the 1000 rev/min and vice-versa

### 2.7.2 Power take-off proportional to engine speed

**540 rev/min**

Location : at the rear of the tractor on vertical center plane
Diameter of power take-off shaft : 34,9 mm
Number of splines : 6 (in accordance with ISO R 500 - 1979)
Height above ground : 777 mm with tyres 18.4-38
Distance from the median plane of the tractor : 0 mm
Distance behind rear axle : 450 mm

Power take-off speed : 600 rev/min
for rated engine speed : 2200 rev/min

Engine speed : 1980 rev/min
for standard power take-off speed : 540 rev/min

Engine to power take-off ratio : 3,666
Power restriction : none
Direction of rotation (viewed facing driving end) : clockwise

**1000 rev/min**

Location : at the rear of the tractor on vertical center plane
Diameter of power take-off shaft : 34,9 mm
Number of splines : 21 (in accordance with ISO R 500 - 1979)
Height above ground : 777 mm with tyres 18.4-38
Distance from the median plane of the tractor : 0 mm
Distance behind rear axle : 450 mm

Power take-off speed : 1100 rev/min
for rated engine speed : 2200 rev/min

Engine speed : 2000 rev/min
for standard power take-off speed : 1000 rev/min

Engine to power take-off ratio : 2,00
Power restriction : none
Direction of rotation (viewed facing driving end) : clockwise

### 2.7.3 Power take-off proportional to ground speed :

Speed of shaft : both 540 and 1000 rev/min
Size of tyre : 18.4 - 38
Travelling distance for one revolution of power take-off shaft : 0,843 (540), 0,460 (1000)
Number of power take-off shaft revolutions for one revolution of rear wheels : 5,6 (540), 10,3 (1000)
Direction of rotation with forward gear engaged : clockwise

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## 2.8 Power lift

Make : MASSEY FERGUSON
Type : top link, electronic position, draft or mixed control
Type hydraulic system : open centre system
Type and number of cylinders : 2, single acting, diameter 66,67 mm
Type of linkage lock for transport : hydraulic lock
Relief valve pressure setting : 188 bars
Opening pressure of cylinder safety valve : 200 bars
Lift pump type : gears
Transmission between pump and engine : mechanical
Make and number of filters : 1 - PUROLATOR
Time between oil changes : 1200 h
Time between filter changes : 600 h
Oil capacity : 64 l
Site of oil tank : transmission housing
Type and number of tapping points : 2 - on lift cover
Maximum volume of oil available to external cylinders : 25 l
Recommended oil : see "fuel and lubricants used in test"

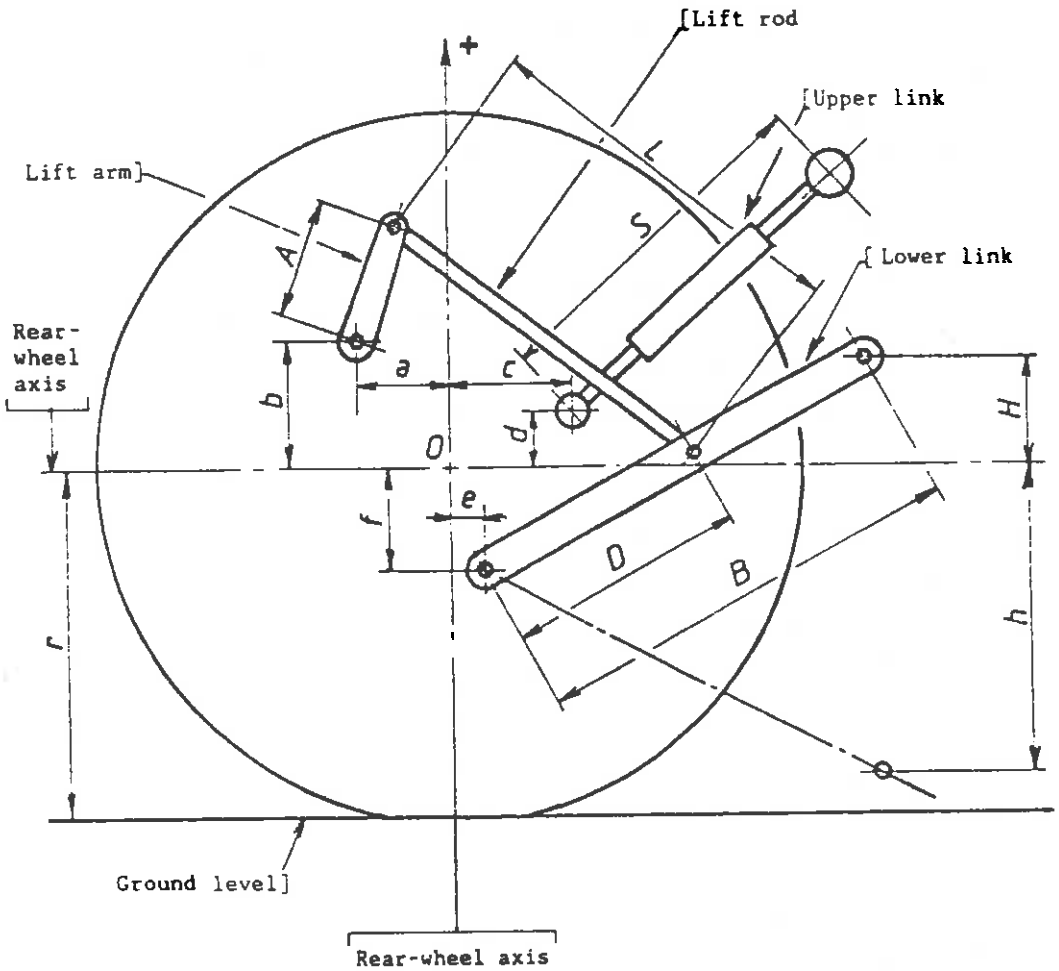
## 2.9 Three-point linkage

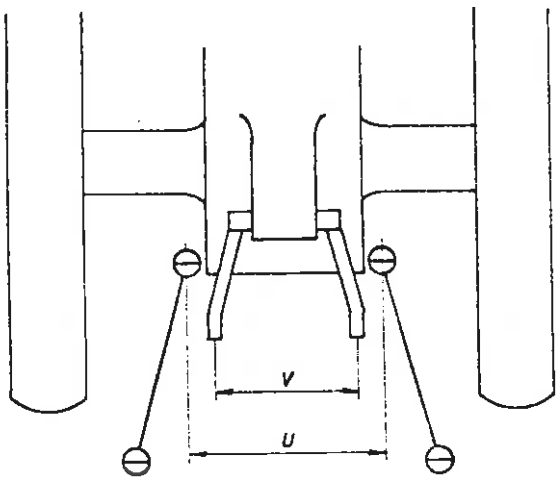
Category : II (in accordance with ISO 730/I - 1977)
Category adapter : none
Controls : Position control by linear sensor measuring the rockshaft position
Draft control by pin sensors at each lower link

| Linkage dimensions (mm) | | | | Settings used for test |
|---|---|---|---|---|
| Rear tyres : dynamic index radius | | (r) * | 820 | |
| Front tyres : loaded radius | | (r') | 450 | |
| Length of lift arms | | (A) | 266 | |
| Length of lower links | | (B) | 940 | |
| Distance of lift arm pivot point from rear wheels centre line | horizontally | (a) | 128 | |
| | vertically | (b) | 330 | |
| Horizontal distance between the two lower link points | | (u) | 580 | |
| Horizontal distance between the two lift arm end points | | (v) | 604 | |
| Length of upper link | | (S) | from 590 to 750 | 650 |
| Distance of upper link pivot point from rear wheels centre | horizontally | (c) | 382 | |
| | vertically | (d) | 120\|160\|200 | 200 |
| Distance of lower link pivot point from rear wheels centre | horizontally | (e) | 100 | |
| | vertically | (f) | -260 | |
| Distance of lower link points to lift rod pivot points on lower link | | (D) | 568 | |
| Length of lift rods | | (L) | from 680 to 745 | 745 |
| Height of lower hitch points relative to the rear wheels centre | | | | |
| - in low position | | (h) | from 447 to 580 | 580 |
| - in high position | | (H) | from 15 to 150 | 15 |
| Height of lower hitch points when locked in transport position | | | from 863 to 964 | / |

* Assuming (r) : tyre dynamic index radius of ISO 4251/1-1984

## 2.10 Linkage geometry



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2.11 Swinging drawbar

Height above ground : . maximum : 538 mm
. minimum : 538 mm
Type of adjustment : none
Distance of hitch point from rear axle centre, horizontally : 875 mm to rear
Distance of hitch point from power take-off shaft end : . vertically : 234 mm
. horizontally : 400 mm
Maximum permissible load : .vertically : 30 kN
.horizontally : 45 kN
Lateral adjustment : 293 mm (left and right hand)
Distance of pivot point from rear axle horizontally : 106 mm to rear
Diameter drawbar pin hole : 30 mm

2.12 Trailer hitch

Height above ground : . maximum : 945 mm
. minimum : 560 mm
Distance of hitch point from rear axle centre, horizontally : 619 mm
Distance of hitch point from power take-off shaft end :
. vertically : from -162 to 223 mm
. horizontally : 144 mm
Maximum vertical permissible load : 17 kN (static load)
Diameter of pin hole : 33 mm

2.13 Linkage drawbar

Height above ground : . maximum : 964 mm
. minimum : 237 mm
Horizontal distance to power take-off shaft end : 565 mm
Number of holes : 9
Distance between holes : 80 mm
Hole diameter : 24 mm
Thickness and width of drawbar : 30/80 mm

2.14 Front towing hitch

Vertical height at centre of clevis : 851 mm
Width of clevis : 365 mm
Diameter of pin hole : 32 mm

2.15 Steering

Method of operation : hydrostatic steering system, gearbox housing mounted on gear pump
Make : DANFOSS steering unit
Model : OSPC - ON
Type : open center type with integral system relief valves, anti-shock end and anti-cavitation valves
Working pressure : 15,7 to 16,2 MPa
Oil capacity : 64 l
Oil change period : 1200 h
Filter change period : 600 h
Recommended oil : see "fuels and lubricants used in test"

2.16 Brakes

2.16.1 Service brake

Make : MASSEY FERGUSON and GIRLING
Model : oil-immersed, 652 cm² friction area on each brake
Type : single disk brake, hydraulic actuated Girling hydraulic master cylinder
MF hydraulic slave annular piston.
Method of operation : independant or dependant operation of twin pedals (which can be latched)

2.16.2 Parking brake

Make and Type : SIRMAC - HUSCO
Method of operation : hand lever - cable and rod

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### 2.16.3 Trailer brake

Make : BOSCH
Type : hydraulically actuated valve to regulate oil flow and pressure to the trailer brakes
proportional and progressive trailer/tractor braking effort is achieved by linking their services together via a sensive valve
Method of operation : automatic, as the right hand side tractor brake pedal is depressed
Maximum braking pressure : 130-150 bars
Maximum flow : 15 l/min

## 2.17 Protective structure specifications

### 2.17.1 Specifications

Manufacturer's name : MASSEY FERGUSON S.A.
Trade name : 3000 - B
Type of structure : . cab
. tiltable : no
CEMAGREF test : ---- (Italian test)
OECD approval number : CSD 1043/10

Description : see test report

### 2.17.2 Driver's seat

Make : GRAMMER DS 85H/90 AR
Type of suspension : parallelogram
Type of damping : gas cylinder
Range of adjustment . longitudinal : 150 mm
. vertical : 60 mm

### 2.17.3 Miscellaneous

Passenger's seat : either factory fitted or as an accessory
Location : left of the operator
Number of places : 1

## 2.18 Lighting

Unrestricted beam angle of head light in plan view in accordance with French regulation

| | Height above ground of centre (mm) | Size (mm) | Distance from outside edge of tractor to centre at 1950 mm track width (mm) |
|---|---|---|---|
| Headlights | 1208 | 167 x 107 | 1057 |
| Sidelights | 1720 | 120 x 80 | 460 |
| Rearlights | 1734 | 300 x 62 | 444 |
| Reflectors | 769 | 98 x 62 | 723 |

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## 3. CONDITIONS DURING TEST

### 3.1 Overall dimensions

| LENGTH m | WIDTH | | HEIGHT | |
|---|---|---|---|---|
| | min m | max m | exhaust silencer m | at top of protective structure |
| 4,323 | 1,899 | 2,399 | 2,774 | 2,774 |

3.2 Ground clearance : 457 mm limited by drawbar bracket

3.3 Track setting : . front : 1864 mm
. rear : 1530 mm

3.4 Tractor mass (kg)

(with tanks full and with cab)

| | Front | Rear | Total |
|---|---|---|---|
| Without driver | 1507 | 2868 | 4375 |
| With driver | 1520 | 2930 | 4450 |

3.5 Fuel

. Type : Diesel Oil (in accordance to AFNOR standard NFM 15-008)
. Gravity at 15°C : 0,853

3.6 Recommended and used during test lubricants

Engine oil :
. Make : BP
. Type : SUPER TOU - MIL L 2104-C
. Viscosity : 10 W 30

Transmission oils }
Hydraulic fluid } Make : BP
Steering oil } Type : Agrotrans
Final drives } Classification : GL4
Front differential } Viscosity : 80 W 90
and final drives }

Grease : BP AGRICHARGE

Number of lubrication points : 15

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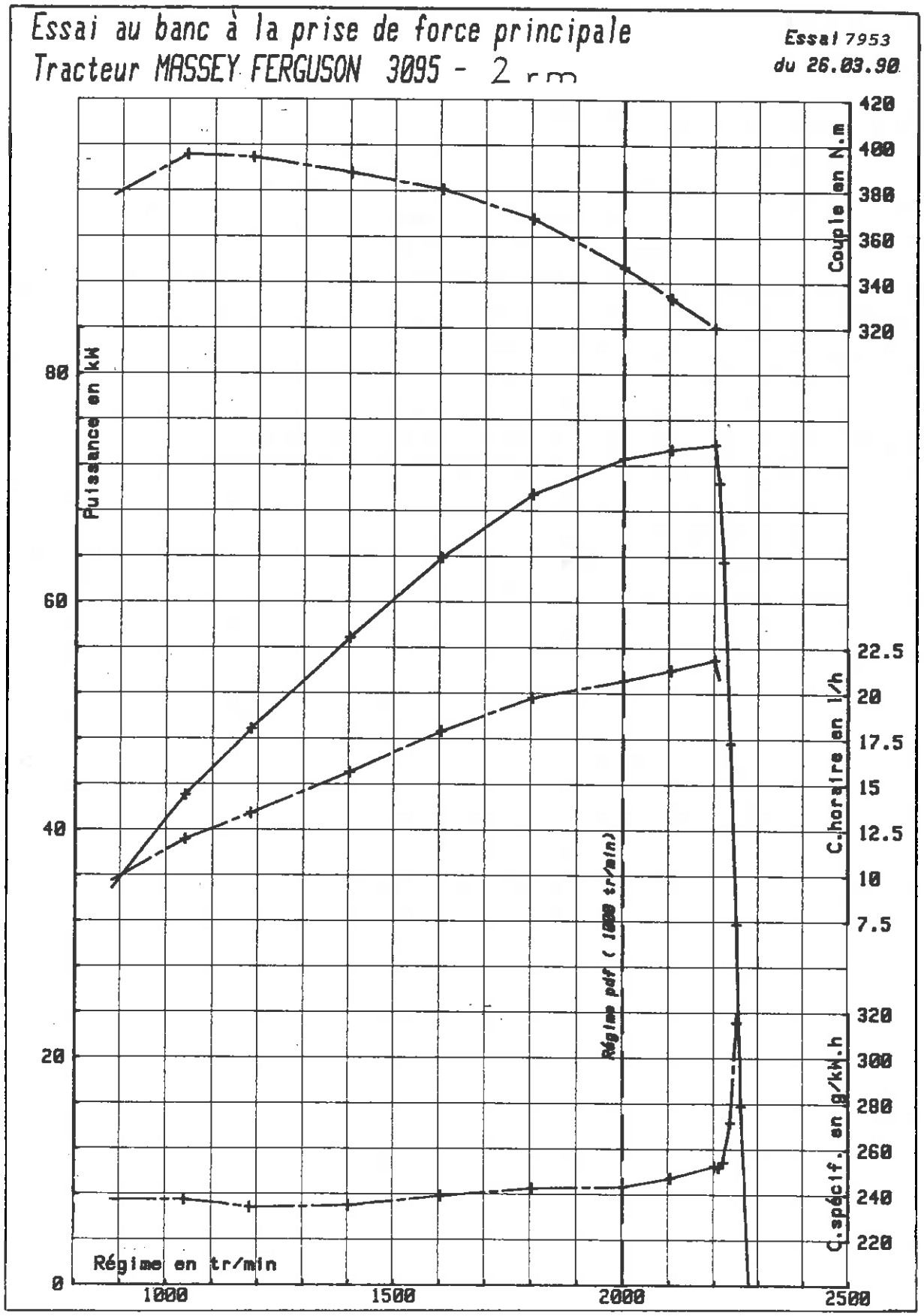
## 4. COMPULSORY TESTS RESULTS

### 4.1 Main power take-off performance

Location and date of tests : ANTONY, 26th march 1990
Type of dynamometer : SCHENCK W780

| Power | Speed | | Fuel consumption | | Specific |
|---|---|---|---|---|---|
| | engine | power take-off | hourly | specific | energy |
| kW | rev/min | | l/h | g/kWh | kWh/l |
| MAXIMUM POWER - TWO HOURS TEST | | | | | |
| 73,8 | 2200 | 1100 | 21,87 | 253 | 3,38 |
| MAXIMUM POWER AT RATED ENGINE SPEED | | | | | |
| 73,8 | 2200 | 1100 | 21,87 | 253 | 3,38 |
| PART LOADS (governor control being set for maximum power at rated engine speed)<br>(1) Torque corresponding to 85% of the torque at maximum power at rated engine speed | | | | | |
| 63,6 | 2220 | 1110 | 18,96 | 254 | 3,35 |
| (2) 75% of the torque defined in (1) | | | | | |
| 47,7 | 2236 | 1118 | 15,18 | 272 | 3,14 |
| (3) 50% of the torque defined in (1) | | | | | |
| 31,8 | 2250 | 1125 | 11,77 | 316 | 2,70 |
| (4) 25% of the torque defined in (1) | | | | | |
| 15,8 | 2260 | 1130 | 8,68 | 468 | 1,82 |
| (5) Unloaded | | | | | |
| - | 2278 | 1139 | 5,84 | - | - |
| MAXIMUM POWER AT STANDARD POWER TAKE-OFF SPEED (1000 ± 25 rev/min) | | | | | |
| 72,6 | 2000 | 1000 | 20,73 | 243 | 3,50 |
| PART LOADS (governor control being set for maximum power at standard power take-off speed)<br>(6) Torque corresponding to 85% of the torque at maximum power at standard power take-off speed | | | | | |
| 62,3 | 2027 | 1014 | 17,88 | 245 | 3,49 |
| (7) 75% of the torque defined in (6) | | | | | |
| 48,0 | 2043 | 1022 | 14,66 | 261 | 3,27 |
| (8) 50% of the torque defined in (6) | | | | | |
| 32,3 | 2058 | 1029 | 11,38 | 300 | 2,84 |
| (9) 25% of the torque defined in (6) | | | | | |
| 16,3 | 2076 | 1038 | 8,08 | 423 | 2,02 |
| (10) Unloaded | | | | | |
| - | 2102 | 1051 | 5,06 | - | - |

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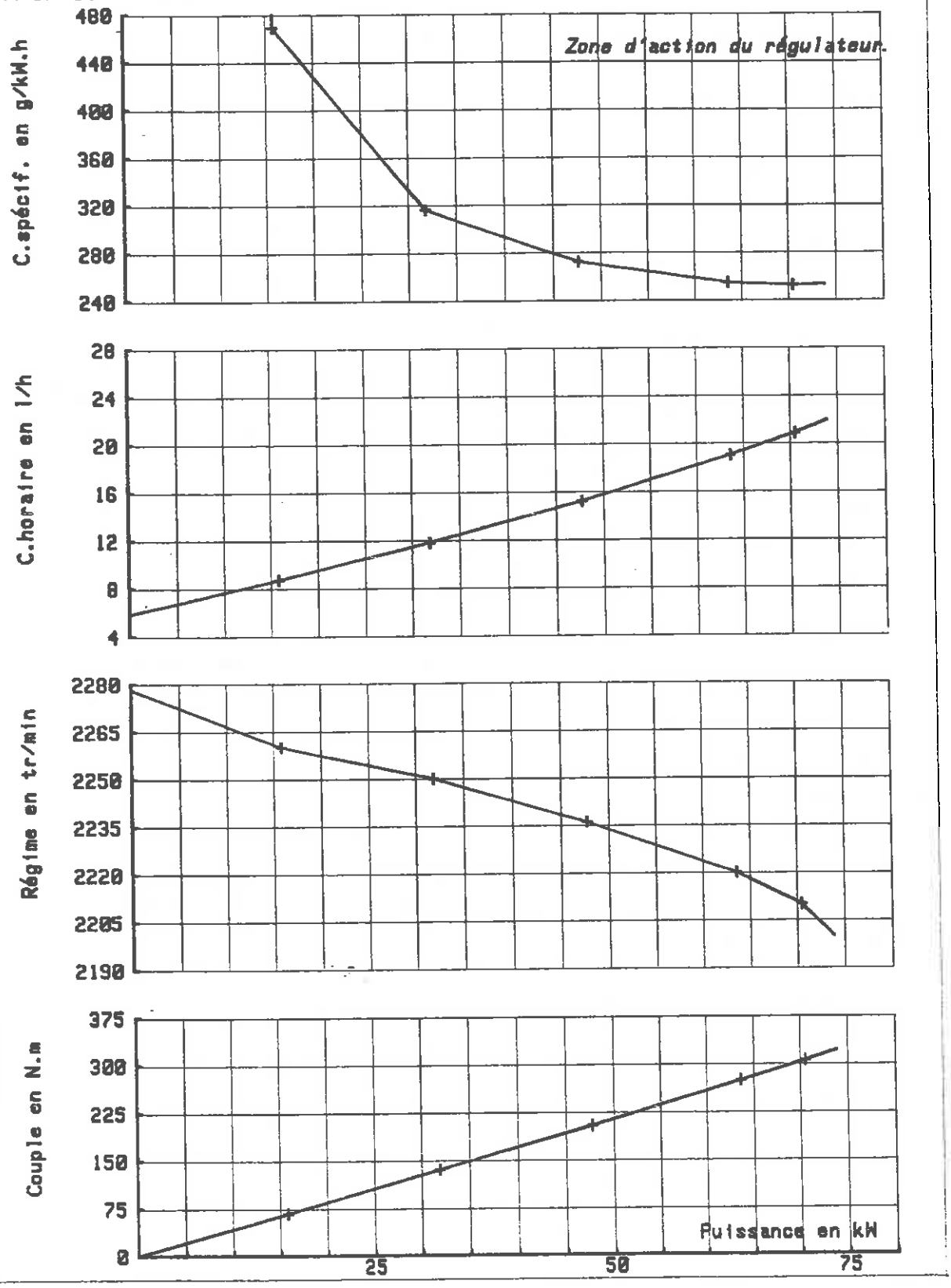

Essai au banc à la prise de force principale
Tracteur MASSEY FERGUSON 3095 - 2 rm
Essai 7953
du 26.03.90
Puissance en kW
Couple en N.m
C.horaire en l/h
C.spécif. en g/kW.h
Régime en tr/min
0
20
40
60
80
1000
1500
2000
2500
320
340
360
380
400
420
7.5
10
12.5
15
17.5
20
22.5
220
240
260
280
300
320

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## Essai au banc à la prise de force principale

Tracteur MASSEY FERGUSON 3095 - 2 rm

Essai 7953
du 26.03.90



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4.1 Main power take-off performance (continued)

Other results

No load, maximum engine speed : 2278 rev/min
Equivalent crakshaft torque at maximum power at rated engine speed : 320,6 N.m
Maximum equivalent crankshaft torque : 395,9 N.m at 1039 rev/min

Mean atmospheric conditions

Temperature : 21 °C
Pressure : 1025 mbar
Relative humidity : 35 %

Maximum temperatures

Coolant : 96 °C
Engine oil : 98 °C
Fuel : 32 °C
Air intake : 22 °C

Fuel consumption at varying load

| Charge | Governor control being set for maximum power at rated engine speed | | Governor control being set for maximum power at standard pto speed | |
|---|---|---|---|---|
| | at 85% (1) | at 50% of 85% (2) | at 85% (1) | at 50% of 85% (2) |
| Hourly consumption (l/h) | 18,96 | 11,77 | 17,88 | 11,38 |
| Standard specific consumption (g/kWh) | 254 | 316 | 245 | 300 |

(1) 85% of the torque corresponding to maximum power for the position of the governor hand lever
(2) 50% of the torque defined in (1)

4.2 Lifting force and hydraulic power

Date : 21st may 1990

4.2.1 Power lift test

Hydraulic fluid : see "fuel and lubricants used in tests"

| | at the hitch point | on the frame |
|---|---|---|
| Height of lower hitch point above ground in low position mm | 240 | 240 |
| Vertical movement mm | 595 | 635 |
| Maximum force exerted through full range kN | 34,7 | 29,0 |
| Corresponding pressure of hydraulic fluid bar | 158 | 158 |
| Moment about rear axle kN.m | 36,1 | 47,9 |
| Maximum tilt angle of mast over range of lift degree | / | 3° |

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4.2.1 Power lift test (continued)

| Lifting height (1) | mm | -320 | -300 | -200 | -100 | 0 | +100 | +200 | +275 | +305 |
|---|---|---|---|---|---|---|---|---|---|---|
| Lifting force (2) | at the hitch point kN | 34,7 | 36,9 | 39,2 | 40,5 | 41,8 | 41,8 | 42,3 | 40,4 | / |
| | at the frame kN | 39,4 | 39,0 | 38,5 | 35,6 | 36,8 | 35,0 | 33,6 | 33,2 | 29,0 |

(1) Lifting height relative to the horizontal plane including the lower link pivot points
(2) The values of force 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, whichever is lower.

4.2.2 Hydraulic power test

Tapping point used for test : auxiliary service connection
Sustained pressure with relief valve open : 182 bars
Pump delivery rate at minimum pressure : 50,6 l/min

| | | corresponding to maximum hydraulic power | corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting |
|---|---|---|---|
| Pressure | bars | 158 | 164 |
| Flow rate | l/min | 48,2 | 44,8 |
| Power | kW | 12,7 | 12,3 |

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## 4.3 Drawbar performance (unballasted tractor)

Date and location of test : 16th may 1990, Antony

Type of track : Tarmacadam

Height of drawbar above ground : 0,850 m

| Tyres | Front | Rear |
|---|---|---|
| . Size : | 11.0 - 16 | 20.8 - 38 |
| . Inflation pressure (bar) : | 2,5 | 1,0 |

Atmospheric conditions :

. Temperature : 19°C
. Pressure : 1017 mbar
. Relative humidity : 58 %

| Gear ratio | Travelling speed km/h | Drawbar pull kN | Power kW | Engine speed rev/min | Wheelslip % | Specific consumption g/kWh | Specific energy kW/l | Temperatures (1) °C | (2) °C | (3) °C |
|---|---|---|---|---|---|---|---|---|---|---|
| MAXIMUM POWER IN TESTED GEAR | | | | | | | | | | |
| 1 ST | 2,00 | 36,4 | 20,2 | 2269 | 15 | 481 | 1,77 | 29 | 84 | 79 |
| 2 ST | 2,38 | 36,0 | 23,8 | 2262 | 15 | 443 | 1,92 | 32 | 82 | 80 |
| 3 ST | 2,82 | 36,0 | 28,2 | 2257 | 15 | 407 | 2,10 | 30 | 84 | 82 |
| 4 ST | 3,30 | 35,8 | 32,8 | 2249 | 15 | 392 | 2,18 | 32 | 84 | 83 |
| 1 FT | 4,03 | 35,5 | 39,8 | 2230 | 14 | 365 | 2,34 | 32 | 84 | 84 |
| 2 FT | 4,79 | 35,5 | 46,7 | 2222 | 14 | 350 | 2,44 | 33 | 84 | 84 |
| 3 FT | 5,59 | 35,0 | 54,4 | 2204 | 11 | 350 | 2,44 | 32 | 85 | 84 |
| 4 FT | 6,97 | 29,9 | 57,8 | 2198 | 8 | 334 | 2,56 | 34 | 84 | 84 |
| 1 SR | 8,64 | 23,8 | 57,2 | 2184 | 5 | 334 | 2,55 | 35 | 84 | 87 |
| 2 SR | 10,45 | 22,0 | 64,0 | 2178 | 4 | 300 | 2,85 | 35 | 84 | 84 |
| 3 SR | 12,45 | 18,2 | 63,1 | 2181 | 2 | 304 | 2,81 | 34 | 87 | 86 |
| 4 SR | 14,69 | 15,1 | 61,7 | 2164 | 2 | 307 | 2,77 | 33 | 87 | 85 |
| 1 FR | 17,95 | 12,7 | 63,3 | 2156 | 1 | 299 | 2,85 | 34 | 87 | 85 |
| TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS<br>(i) Maximum drawbar power in tested gear | | | | | | | | | | |
| 2 SR | 10,45 | 22,0 | 64,0 | 2178 | 4 | 300 | 2,85 | 35 | 84 | 84 |
| (ii) 75% of pull at maximum power | | | | | | | | | | |
| 2 SR | 10,94 | 16,7 | 50,7 | 2243 | 2 | 308 | 2,77 | 35 | 84 | 84 |
| (iii) 50% of pull at maximum power | | | | | | | | | | |
| 2 SR | 11,22 | 11,1 | 34,5 | 2260 | 1 | 354 | 2,41 | 33 | 82 | 83 |
| (iv) Higher gear same pull as in (i) reduced engine speed | | | | | | | | | | |
| 3 SR | 10,94 | 16,4 | 49,8 | 1903 | 2 | 285 | 2,99 | 34 | 84 | 84 |
| (v) Higher gear as in (ii) reduced engine speed | | | | | | | | | | |
| 3 SR | 11,21 | 11,1 | 34,5 | 1921 | 1 | 317 | 2,69 | 34 | 84 | 80 |

(1) Fuel temperature - (2) Coolant temperature - (3) Engine oil temperature

CEMAGREF

4.3 Drawbar performance (unballasted tractor) continued

| TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS (continued) (vi) in selected gear nearest to 7,5 km/h | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 FT | 6,97 | 29,9 | 57,8 | 2198 | 8 | 334 | 2,56 | 34 | 84 | 84 |
| (vii) 75% of pull at maximum power at rated speed | | | | | | | | | | |
| 4 FT | 7,27 | 22,8 | 46,1 | 2223 | 5 | 342 | 2,49 | 34 | 83 | 82 |
| (viii) 50% of pull at maximum power at rated speed | | | | | | | | | | |
| 4 FT | 7,54 | 15,0 | 31,4 | 2241 | 3 | 392 | 2,18 | 34 | 84 | 84 |
| (ix) Higher gear as in (vii) reduced engine speed | | | | | | | | | | |
| 1 SR | 7,27 | 22,7 | 45,9 | 1829 | 5 | 324 | 2,63 | 40 | 81 | 78 |
| (x) Higher gear as in (viii) reduced engine speed | | | | | | | | | | |
| 1 SR | 7,50 | 15,0 | 31,2 | 1839 | 2 | 352 | 2,42 | 33 | 81 | 78 |

(1) Fuel temperature - (2) Coolant temperature - (3) Engine oil temperature

## 5. OPTIONAL TESTS RESULTS

### 5.1 Measurement of external noise level

Date of test : 23rd may 1990
Type of sound level meter : BRUEL & KJAER 2209
Type of track : Tarmacadam
Gear : 4 FR
Travelling speed before acceleration : 23,4 km/h
Sound level : 88 dB(A)

## 6. REPAIRS AND ADJUSTMENTS DURING TESTS

none

Le Technicien chargé des essais — N.HOCQUEL

L'Ingénieur responsable des essais — E.HUGO

Le Chef de la Division Tracteurs Travail du Sol — J.F.GOUPILLON

- This test report was approved for publication by the requester of the test -

| Diffusion 1990 | |
|---|---|
| N°129 | 1ère édition |