# SILSOE RESEARCH INSTITUTE
## Wrest Park, Silsoe,
## Bedford MK45 4HS

**Report No:** OECD/7161/0196
**OECD Approval No:** 1705 Restricted Code
**Approval Date:** 18 November 1997

**Report on test in accordance with the OECD STANDARD CODE II (RESTRICTED CODE) for the Official Testing of Agricultural and Forestry Tractors**

Massey Ferguson 4225 Four-Wheel Drive Tractor (30 Km/h)



**Manufactured by:** AGCO Limited
P O Box 62
Banner Lane
Coventry
West Midlands CV4 9GF
England

**Submitted for test by:** The manufacturer

**Report No:** 783

**Date:** July 1997

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| | |
|---|---|
| **Tractor manufacturer's name and address:** | AGCO Limited, P O Box 62<br>Banner Lane, Coventry, West Midlands, CV4 9GF |
| **Location of tractor assembly:** | Coventry, England |
| **Submitted for test by:** | The manufacturer |
| **Selected for test by:** | The manufacturer with the agreement of the testing station |
| **Place of running in:** | Coventry |
| **Duration of running in:** | 70 hours |
| **Location of test:** | Silsoe Research Institute<br>Wrest Park, Silsoe, England |

## I. SPECIFICATION OF TRACTOR

### TRACTOR

| | |
|---|---|
| Make: | Massey Ferguson |
| Model: | MF 4225 (30 Km/h) |
| Type: | Four wheel drive, unit construction |
| Serial No: | DBAD14BCXAE15999 |
| 1st Serial No: | DBAD14BCXAE15999 |
| Tractor type code: | DBAD14BCXA |

### ENGINE

| | |
|---|---|
| Make: | Perkins |
| Model: | 4.41 |
| Type: | 4 stroke, direct injection, naturally aspirated diesel |
| Serial No: | 33070PL02LMU740230B (prototype only with air conditioning) |
| Type number: | 1949/2200 |
| Ist serial No: | LM31290U****** (production number with air conditioning)<br>LM31320U****** (production number without air conditioning) |

Cylinders

| | |
|---|---|
| Number/disposition: | 4 vertical In-line |
| Bore/stroke: | 101 mm/127 mm |
| Capacity: | 4070 $cm^3$ |
| Compression ratio: | 16:1 |
| Arrangement of valves: | Overhead |
| Cylinder liners: | Dry |

Supercharging

| | |
|---|---|
| Make: | None |

Fuel system

| | |
|---|---|
| Fuel feed system: | Superpar |
| Make, type and model of fuel filter: | 1 off, Paper element filters with transparent sediment bowl (one off as standard build two off as an option) |
| Capacity of fuel tank: | 84 litres |
| Make, type and model of injection pump: | CAV, rotary, type 1143 |
| Serial No: | 11464AOG |
| Manufacturer's production setting of injection pump: | 13.77 - 14.63 l/hr |
| Flow rate: | 53.8 +/- 3% $mm^3$/stroke at 2200 rev/min engine speed at full load on 45°C pump inlet temperature |
| Timing: | 12 +/- 2 degrees before top dead centre |
| Make, type and model of injectors: | Lucas CAV, code HL |

| | Complete injector | Nozzle |
|---|---|---|
| CAV number:- | LRB6701407 | JB6801027 |
| Perkins number:- | 2645K002 | 2645K602 |

| | |
|---|---|
| Injection pressure: | 233 +/-5 bars |

Governor

| | |
|---|---|
| Make: | CAV |
| Model: | Not applicable |
| Type: | Mechanical, all speed, incorporated in injection pump |
| Governed range of engine speed: | 750 to 2310 rev/min |
| Rated engine speed: | 2200 rev/min |

Air cleaner

| | |
|---|---|
| Make: | Mann and Hummel |
| Type: | 3 stage, 2 stages are paper elements |
| Model: | 44, 211, 92, 921 |
| Location of air intake: | Behind radiator grill, in front of radiator |
| Maintenance indicator: | Warning light on instrument panel |

Lubrication system

| | |
|---|---|
| Type of feed pump: | Forced feed from eccentric rotor pump |
| Type of filter: | Full flow, replaceable canister |
| Number: | 1 |

Cooling system

| | |
|---|---|
| Type of coolant: | Water or water and antifreeze solution |
| Type of pump: | Centrifugal |
| Specification of fan: | Belt driven puller |
| Number of fan blades: | 4 |
| Fan diameter: | 457 mm |
| Coolant capacity: | 17.5 litres |
| Type of temperature control: | Thermostat |
| System pressure: | 75 kPa |

Starting system

| | |
|---|---|
| Make: | Magneti Marelli |
| Model: | M127 |
| Type: | Electrical, pre-engaged, solenoid operated |
| Starter motor power rating: | 2.8 kW |
| Cold starting aid: | CAV, SINTEROM or ISKRA induction heater |
| Safety device: | Starting operable only when shuttle and PTO levers are in neutral |

Electrical system

| | |
|---|---|
| Voltage: | 12 |
| Generator: | Alternator |
| Make: | Magneti Marrelli |
| Model: | A 127-70 |
| Type: | Belt driven |
| Power: | 0.84 kW |
| Batteries: | 1 M-F Power Part, type 665 lead acid, maintenance free |
| Rating: | IEC 545 amp. Equivalent to 120 AH at 20 hour rating |

Exhaust system

| | |
|---|---|
| Make: | Technov |
| Model: | Massey Ferguson type 131 |
| Type: | Horizontal silencer |
| Location: | Under bonnet, right hand side |
| Height of outlet above ground: | 2547 mm |

**TRANSMISSION TO WHEELS**

Clutch

| | |
|---|---|
| Make: | LUK |
| Model: | None |
| Type: | Dry for transmission only |
| Number of plates: | 1 |
| Diameter of plates: | 305 mm |
| Method of operation: | Mechanical by pedal |

Gear box

| | |
|---|---|
| Make: | Massey Ferguson |
| Model: | None |
| Type: | Mechanical manual synchromesh operation, 4 speeds and 3 ranges, selected with single side mounted lever. Console mounted hand lever selects forward and reverse for each combination. |
| Number of gears: | 12 forward 12 reverse |
| Available options: | 12x4, 12x4 with creep, 12x12 with creep, 18 x 6 |

Rear axle final drives

| | |
|---|---|
| Make: | Own make |
| Model: | None |
| Type: | Crown wheel and pinion with differential and outboard epicyclic reduction gear final drives |
| Differential lock: | |
| Type: | Mechanical dog clutch on differential gears |
| Method of engagement: | Hydraulically operated in response to right hand side console mounted electrical switch |
| Method of disengagement: | Reverse of above switch |

Front axle and final drives

| | |
|---|---|
| Make: | Dana Spicer Europe |
| Model: | AG 75 |
| Type: | Crown wheel and pinion with differential and outboard epicyclic reduction gear final drives |
| Differential lock: | |
| Type: | Mechanical dog clutch on differential gears |
| Method of engagement: | Hydraulically actuated in unison with rear differential in response to electrical signal from rear differential lock switch on side console |
| Method of disengagement: | Reverse of above switch |

Total ratios and travelling speeds

| Gear | Group No | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed at rated engine speed:* 2200 rev/min km/h |
|---|---|---|---|
| Forward | | | |
| 1 | L | 353.797 | 1.688 |
| 2 | L | 270.763 | 2.205 |
| 3 | L | 206.299 | 2.895 |
| 4 | L | 157.533 | 3.791 |
| 1 | M | 125.455 | 4.760 |
| 2 | M | 96.011 | 6.220 |
| 3 | M | 73.153 | 8.163 |
| 4 | M | 55.861 | 10.690 |
| 1 | H | 46.465 | 12.852 |
| 2 | H | 35.560 | 16.793 |
| 3 | H | 27.094 | 22.040 |
| 4 | H | 20.689 | 28.863 |
| Reverse | | | |
| 1 | L | 345.242 | 1.730 |
| 2 | L | 264.216 | 2.260 |
| 3 | L | 201.311 | 2.966 |
| 4 | L | 153.724 | 3.885 |
| 1 | M | 122.421 | 4.878 |
| 2 | M | 93.690 | 6.374 |
| 3 | M | 71.384 | 8.365 |
| 4 | M | 54.510 | 10.955 |
| 1 | H | 45.341 | 13.170 |
| 2 | H | 34.700 | 17.209 |
| 3 | H | 26.439 | 22.586 |
| 4 | H | 20.189 | 29.578 |

Range selection, (main gear lever): L = low M = Medium H =High

(*) Calculated with a tyre dynamic radius index of 720 mm (ISO 4251/1-1992)

Number of revolutions of front wheels for one revolution of rear wheels: 1.3618.1

**POWER TAKE-OFF**

Main power take-off

| | |
|---|---|
| Type: | Independent |
| Method of engagement: | By hand lever hydraulically engaging wet multi-plate clutch |
| Number of shafts: | 1 (interchangeable for 6 or 21 splines to ISO.500/1991) |
| Method of changing power take-off speeds: | Manually by hand lever in cab |

Clutch

| | |
|---|---|
| Make: | Own make |
| Model: | None |
| Type: | Hydraulically actuated wet multiplate |
| Number of plates: | 5 |
| Diameter of plates: | 128 mm |

Power take-off proportional to engine speed

*540 rev/min*

| | |
|---|---|
| Location: | Rear of tractor |
| Diameter of power take-off shaft: | 34.9 mm |
| Number of splines: | 6 to ISO 500/1991 |
| Height above ground: | 584 mm |
| Distance from the median plane of the tractor: | Central |
| Distance behind rear wheel axis: | 333 mm |
| Pto speed at rated engine speed: | 625 rev/min |
| Engine speed at standard power take-off speed: | 1902 rev/min |
| Ratio of rotation speeds: | 3.5226:1 |
| Power restriction and maximum torque: | None |
| Direction of rotation (viewed from behind tractor): | Clockwise |

*1000 rev/min*

| | |
|---|---|
| Location: | Rear of tractor |
| Diameter of power take-off shaft: | 34.9 mm |
| Number of splines: | 21 to ISO 500/1991 |
| Height above ground: | 584 mm |
| Distance from the median plane of the tractor: | Central |
| Distance behind rear-wheel axis: | 333 mm |
| PTO speed at rated engine speed: | 1100 rev/min |
| Engine speed at standard power take-off speed: | 2000 rev/min |
| Ratio of rotation speeds: | 2:1 |
| Direction of rotation (viewed from behind tractor): | Clockwise |

**POWER LIFT** (as fitted to the test tractor)

| | |
|---|---|
| Make: | Massey Ferguson |
| Model: | None |
| Type: | Hydraulic, with inlet suction control closed system |
| Type and number of cylinders: | 1 single acting, internal |
| Type of linkage lock for transport: | Hydraulic |
| Relief valve pressure setting: | 21.4 - 24.0 MPa |
| Opening pressure of cylinder safety valve: | 26.2 - 27.6 MPa |
| Lift pump type: | 4 cylinder, piston |
| Transmission between pump and engine: | Driven from PTO shaft independent of main clutch |
| Type and number of filters: | Full flow with metal mesh strainer, 1 |
| Site of oil reservoir: | Transmission housing |
| Type, number and location of tapping points: | Optional tapping port (not fitted to test tractor), a valve allows flow to spool valve and quick release couplings |
| Maximum volume of oil available to external cylinders: | 20.0 litres |

**POWER LIFT** (option with electro-hydraulic control)

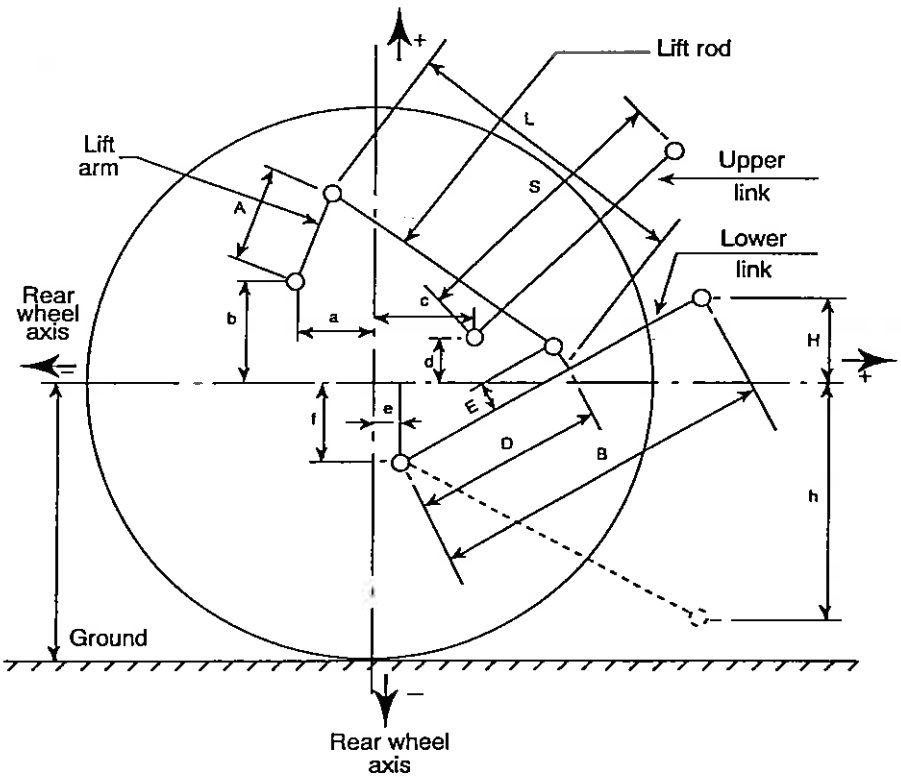
| | |
|---|---|
| Make: | Massey Ferguson/Bosch |
| Model: | None |
| Type: | Electro-hydraulic with proportional solenoid valves, open centre, for both lift and drop |
| Type and number of cylinders: | 1 single acting, internal |
| Type of linkage lock for transport: | Hydraulic |
| Relief valve pressure setting: | 21.4 - 24.0 MPa |
| Opening pressure of cylinder safety valve: | 26.2 - 27.6 MPa |
| Lift pump type: | Gear, Bosch or Sauer-Sundstrand |
| Transmission between pump and engine: | Driven from PTO shaft independent of main clutch |
| Type and number of filters: | Full flow with metal mesh strainer, 1 |
| Site of oil reservoir: | Transmission housing |
| Type, number and location of tapping points: | Optional tapping port (not fitted to test tractor), a valve allows flow to spool valve and quick release couplings |
| Maximum volume of oil available to external cylinders: | 20.0 litres |

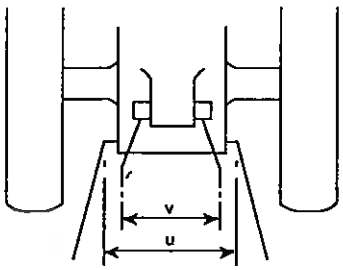
**AUXILIARY HYDRAULIC SYSTEM**

| | |
|---|---|
| Make: | Sundstrand |
| Model: | SP250 |
| Type: | Gear |
| Relief valve pressure setting: | 19.0 - 21.6 MPa |
| Transmission between pump and engine: | Driven by chain from PTO shaft which is independent of the main clutch |
| Type and number of filters: | One off metal mesh full flow strainer; and one off by-pass centrifugal filter |
| Site of oil reservoir: | Main transmission housing |
| Type and number of tapping points: | 2 spool valves, each with quick release coupling and separate return, to ISO5675. Note 2 further spool valves may be fitted if required. A valve allows combination with main system up to the auxiliary relief valve pressure |
| Maximum volume of oil available to external cylinders: | 20.0 litres |

**THREE-POINT LINKAGE**

| | |
|---|---|
| Category: | 2 to ISO standard 730-1:1994 |
| Category adaptor: | None |
| Controls: | Draught or position control with top link sensing |




**LIFT TEST**
**Linkage geometry**

Table 2.1
Dimensions of linkage when attached to the standard frame (ISO 730-1-1994 CAT 2)

| | | | Dimensions or range | Setting used in Main Test | Setting used in Test 2 (Test 3) |
|---|---|---|---|---|---|
| Length of lift arms: | | (A) | 310 mm | 310 mm | 310 mm |
| Length of lower links: | | (B) | 1000 mm | 1000 mm | 1000 mm |
| Distance of lift arm pivot point from rear wheel centre line: | horizontally:<br>vertically: | (a)<br>(b) | 196 mm<br>233 mm | 196 mm<br>233 mm | 196 mm<br>233 mm |
| Horizontal distance between the two lower link points: | | (u) | 492 mm | 492 mm | 492 mm |
| Horizontal distance between the two lift arm end points: | | (v) | 584 mm | 584 mm | 584 mm |
| Length of upper link: | | (S) | 678 - 918 mm | 815 mm | 815 mm |
| Distance of upper link pivot point from rear wheel centre line: | horizontally:<br>vertically: | (c)<br>(d) | 186, 200, 216 mm<br>205, 171, 132 mm | 186 mm<br>205 mm | 186 mm<br>205 mm |
| Distance of lower link pivot point from rear wheel centre line: | horizontally:<br>vertically: | (e)<br>(f) | 32 mm forward<br>212 mm | 32 mm<br>212 mm | 32 mm<br>212 mm |
| Distance of lower link points to lift rod pivot points on lower link centre line: | horizontally:<br>vertically: | (D)<br>(E) | 675 mm<br>-9 mm (below C/l) | 675 mm<br>-9 mm | 675 mm<br>-9 mm |
| Length of lift rods: | | (L) | 685 - 805 mm | 780 mm | 745 mm<br>(685 mm) |
| Height of lower hitch points (*) relative to the rear wheel centre line, situated 720 mm above the ground level: | | | | | |
| - in low position | | (h) | 266 - 560 mm | 523 mm | 420 mm<br>(290 mm) |
| - in high position | | (H) | 110 - 297 mm | 125 mm | 175 mm<br>(262 mm) |
| Height of lower hitch points when locked in transport position (*) | | | Any height within lift range (hydraulic transport lock) | | |

* Assuming r = tyre dynamic radius index of 720 mm ISO 4251/1-1992

**SWINGING DRAWBAR**

| | |
|---|---|
| Type: | Clevis |
| Height above ground: maximum | 507 mm |
| minimum: | 303 mm |
| Type of adjustment: | Inverting drawbar and clevis |
| Distance of hitch point from rear-wheel axis, horizontally: | 583 mm, 683 mm, 733 mm |
| Distance of hitch point from power take-off shaft ends: | |
| Vertically: | 77 mm, 180 mm, 185 mm, 281 mm |
| Horizontally: | 250 mm, 350 mm, 400 mm |
| Lateral adjustment (centre of clevis): | |
| Right-hand: | 169 mm drawbar in, 196 mm, 210 mm, drawbar out |
| Left-hand: | 169 mm drawbar in, 196 mm, 210 mm, drawbar out |
| Distance of pivot point from rear axles horizontally: | 30 mm forward |
| Width of clevis: | 70 mm |
| Diameter of drawbar pin hole: | 33 mm |
| Maximum vertical permissible load: | 11.6 kN |

**TRAILER HITCH**

| | |
|---|---|
| Type: | None fitted |

**LINKAGE DRAWBAR**

| | |
|---|---|
| Type: | None fitted |

**FRONT TOWING HITCH**

| | |
|---|---|
| Type: | Clevis in front weight frame |
| Vertical height to centre of clevis: | 792 mm |
| Width of clevis: | 50 mm |
| Diameter of pin hole: | 33 mm |

**STEERING**

| | |
|---|---|
| Make: | Own make |
| Model: | None |
| Type: | Hydrostatic |
| Method of operation: | |
| Pump: | Bosch/Sundstrand, gear type mounted on transmission case in tandem with auxiliary hydraulic system pump |
| Motor: | Danfoss OSPC-100-ON |
| Ram: | 1 double acting operating both track rods |
| Filter: | None |

**BRAKES**

Service brake

| | |
|---|---|
| Make: | Girling |
| Model: | None |
| Type: | Oil-immersed multiplate discs, 4 per side |
| Method of operation: | Independent on rear wheels or combined pedal giving compensated actuation and automatic engagement of 4WD providing 4-wheel braking |
| Trailer braking take-off: | Connection fitted to ISO 5676-1983 |

Parking brake

| | |
|---|---|
| Type: | Mechanical via cable |
| Method of operation: | Hand lever with ratchet, acts on all 4 wheels due to automatic 4WD engagement |

**WHEELS**

Number: 4

Front: 2 steering and driving

Rear: 2 driving

Wheelbase: 2350 mm

Track width adjustment:

| | Minimum, mm | Maximum, mm | Adjustment method |
|---|---|---|---|
| Front | 1610* | 1915 | By reversing wheels and offset lug rims |
| Rear | 1535 | 2130 | By reversing wheels and offset lug rims |

* 55° steering angle available only on 1860 mm and larger track settings

**PROTECTIVE STRUCTURE**

Make: GKN Sankey Industrial Products

Model: 5003
Type: Safety cab

Manufacturer's name and address: GKN Sankey Industrial Products, Hadley Castle (Cab-Works), P O Box 86, Telford TF1 4RE

Protective device: Safety cab

Tiltable/Not tiltable: Non tiltable

OECD approval number: CSS 0444/4, 17 July 1997

**DRIVERS SEAT**

Make/Model/Type: KAB XH2/T6-1

Type of suspension: Spring

Type of damping: Hydraulic

Range of adjustment:

Longitudinal: 160 mm

Vertical: 75 mm

**LIGHTING**

Unrestricted beam angle of headlight in plan view: 110°

| | Height above ground to centre mm | Size mm | Distance from outside edge to median plane of tractor mm |
|---|---|---|---|
| Headlight | 1040 | 160 x 100 | 196 |
| Sidelights | 1566 | 110 x 35 | 777 |
| Rear lights | 1502 | 145 x 52 | 752 |
| Axle reflectors | 754 | 80 dia | 485 |
| Cab reflectors | 1502 | 43 x 52 | 802 |

## II TEST CONDITIONS

Overall dimensions

| Length mm | Width | | Height at top of | |
|---|---|---|---|---|
| | Minimum mm | Maximum mm | Protective structure mm | Exhaust pipe mm |
| 3935 | 1990 | 2590 | 2468 | 2547 |

Ground clearance (unballasted tractor) 240 mm

Clearance-limiting part: Drawbar clevis in lowest position

Tractor mass (with safety cab)

| | Unballasted | | Ballasted | |
|---|---|---|---|---|
| | Without driver kg | With driver kg | Without driver kg | With driver kg |
| Front | 1377 | 1390 | -- | -- |
| Rear | 2083 | 2145 | -- | -- |
| Total | 3460 | 3535 | -- | -- |

Tyres and track width specification

| | Front | Rear |
|---|---|---|
| Tyres<br>dimensions<br>ply rating<br>type | 360/70R24<br><br>Radial | 18.4 x 30<br><br>Radial |
| Maximum load (tyre manufacturer's), kg | 1640 | 2870 |
| Maximum load (tractor manufacturer's), kg | 1640 | 2268 |
| Inflation pressure (tyre manufacturer's), Bar | 1.6 | 1.0 |
| Dynamic radius index | 540 | 720 |
| Chosen track width (manufacturer's nominal) | 1630 | 1625 |

Oils and lubrication

Capacity and change interval

| | Capacity litre | Oil change hours | Filter change hours |
|---|---|---|---|
| Engine | 6.5 | 250 | 250 |
| Front axle differential | 7 | 1000 | None |
| Front axle hub (each) | 1 | 1000 | None |
| Gearbox | 50 | 1000 | 1000 |
| Rear axle<br>Hydraulic system<br>Final drives (rear)<br>Steering | Integral with rear axle | | |
| Brakes | - - | Top-up | None |

Fuels and lubricants used in tests

Fuel

Type: Diesel oil to Class D, 1.5 to 5.5 cST
Specific gravity: 0.8390 g/cm$^2$ at 15°C

| Oils | Recommended | Used during test |
|---|---|---|
| Engine oil | | |
| Type: | SAE 15W/30, 15W/50 or 10W/40 | SAE 15W/30 |
| Viscosity: | 54 cSt at 50°C | |
| Classification: | MIL-L-2104-2C, API. CD. Min | |
| Transmission oils | | |
| Type: | SAE 15W/30 | As recommended |
| Viscosity: | 54 cSt at 50°C | |
| Classification: | MF 1139 or MF 1135 | |
| Rear final drives | | |
| Type: | SAE 15W/30 | As recommended |
| Viscosity: | 54 cSt at 50°C | |
| Classification: | MF 1139 or MF 1135 | |
| Front differential and final drives | | |
| Type: | SAE 15W/30 | As recommended |
| Viscosity: | 54 cSt at 50°C | |
| Classification: | MF 1139 or MF 1135 | |
| Hydraulic brakes | | |
| Type: | Mineral | As recommended |
| Viscosity: | 7.2 cSt at 50°C | |
| Classification: | MF CMS 1151A | |
| Hydraulic fluid | | |
| Type: | SAE 15W/30 | As recommended |
| Viscosity: | 54 cSt at 50°C | |
| Classification: | MF 1139 or MF 1135 | |
| Steering oil | | |
| Type: | SAE 15W/30 | As recommended |
| Viscosity: | 54 cSt at 50°C | |
| Classification: | MF 1139 or MF 1135 | |
| Recommended grease: | Consistency 2 lithium | As recommended |
| Number of lubrication points: | 19 | |

III. TEST RESULTS

A. COMPULSORY TESTS

1. MAIN POWER TAKE-OFF (540)

Date and location of tests: 10 December 1996
Silsoe Research Institute,
Wrest Park, Silsoe, Bedford

Type of dynamometer: Eddy Current, Borghi and Saveri

| Power kW | Speed | | Fuel consumption | | | Specific energy kWh/l |
|---|---|---|---|---|---|---|
| | Engine rev/min | P.T.O. rev/min | Hourly kg/h | l/h | Specific g/kWh | |
| 1.1 MAXIMUM POWER - TWO HOUR TEST | | | | | | |
| 41.7 | 2200 | 624 | 12.17 | 14.50 | 292 | 2.88 |
| 1.2 POWER AT RATED ENGINE SPEED | | | | | | |
| 41.7 | 2200 | 624 | 12.17 | 14.50 | 292 | 2.88 |
| 1.3 STANDARD POWER TAKE-OFF SPEED (540 ± 10 rev/min) | | | | | | |
| 39.3 | 1902 | 540 | 10.68 | 12.73 | 272 | 3.09 |
| 1.4 PART LOADS<br>1.4.1 The torque corresponding to maximum power at rated engine speed | | | | | | |
| 41.7 | 2200 | 624 | 12.17 | 14.50 | 292 | 2.88 |
| 1.4.2 85% of the torque defined in 1.4.1 | | | | | | |
| 35.8 | 2224 | 631 | 10.80 | 12.87 | 301 | 2.78 |
| 1.4.3 75% of the torque defined in 1.4.2 | | | | | | |
| 27.1 | 2243 | 637 | 8.89 | 10.60 | 328 | 2.56 |
| 1.4.4 50% of the torque defined in 1.4.2 | | | | | | |
| 18.2 | 2255 | 640 | 7.26 | 8.65 | 398 | 2.11 |
| 1.4.5 25% of the torque defined in 1.4.2 | | | | | | |
| 9.2 | 2269 | 644 | 5.54 | 6.61 | 605 | 1.39 |
| 1.4.6 Unloaded | | | | | | |
| 0 | 2282 | 648 | 4.22 | 5.03 | -- | -- |

| Power kW | Speed | | Fuel consumption | | | Specific energy kWh/l |
|---|---|---|---|---|---|---|
| | Engine rev/min | P.T.O. rev/min | Hourly kg/h | l/h | Specific g/kWh | |
| 1.5 | PART LOADS AT STANDARD POWER TAKE-OFF SPEEDS (540 ± 10 rev/min) | | | | | |
| 1.5.1 | The torque corresponding to maximum power | | | | | |
| 39.3 | 1902 | 540 | 10.68 | 12.73 | 272 | 3.09 |
| 1.5.2 | 85% of the torque obtained in 1.5.1 | | | | | |
| 33.7 | 1920 | 545 | 9.40 | 11.20 | 279 | 3.01 |
| 1.5.3 | 75% of the torque obtained in 1.5.2 | | | | | |
| 25.6 | 1941 | 551 | 7.58 | 9.03 | 297 | 2.83 |
| 1.5.4 | 50% of the torque obtained in 1.5.2 | | | | | |
| 17.1 | 1957 | 556 | 5.99 | 7.14 | 350 | 2.39 |
| 1.5.5 | 25% of the torque obtained in 1.5.2 | | | | | |
| 8.7 | 1972 | 560 | 4.51 | 5.38 | 522 | 1.61 |
| 1.5.6 | Unloaded | | | | | |
| 0 | 1987 | 564 | 3.10 | 3.70 | -- | -- |

No load, maximum engine speed: 2282 rev/min

Torque (equivalent crankshaft) at maximum power: 181.0 Nm

Torque (equivalent crankshaft) at rated speed: 181.0 Nm

Maximum torque (equivalent crankshaft): 241.1 Nm
(engine speed 1104 rev/min)

Mean atmospheric conditions:

- Temperature 24°C
- Pressure 1015 m bar
- Relative humidity 29%

Maximum temperatures:

- Coolant 80°C
- Engine oil 114°C
- Fuel 48C
- Engine air intake 27°C

## 2. HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 25 March 1997

### 2.1 Hydraulic power test

| | 1 Lift system only | 2 Auxiliary only | 3 Auxiliary combination |
|---|---|---|---|
| Sustained pressure with relief valve open: | 23.8 MPa | 21.0 MPa | 21.6 MPa |
| Pump delivery rate at minimum pressure: | 29.9 l/min | 38.6 l/min | 63.3 l/min |

| | Test | Flow rate l/min | Pressure MPa | Power kW |
|---|---|---|---|---|
| Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power | 1 | 22.4 | 21.4 | 7.99 |
| | 2 | 36.4 | 18.8 | 11.40 |
| | 3 | 50.1 | 19.4 | 16.20 |
| Flow rate and hydraulic pressure corresponding to maximum hydraulic power | 1 | 25.2 | 20.0 | 8.40 |
| | 2 | 36.3 | 19.0 | 11.50 |
| | 3 | 56.9 | 18.5 | 17.54 |

Tapping point used for test: 1 — Tapping into assister ram circuit (for test only)
2 and 3 — Auxiliary service connection

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

Opening pressure of the unloading valve: -- MPa

Closing pressure of the unloading valve: -- MPa

## 2.2 Power lift test - (To ISO 730-1:1990)

| | At the hitch point | On the frame |
|---|---|---|
| Height of lower hitch points above ground in down position | 197 mm | 197 mm |
| Vertical movement | 648 mm | 820 mm |
| Maximum corrected force exerted through full range | 19.3 kN | 16.3 kN |
| Corresponding pressure of hydraulic fluid | 21.4 MPa | 21.4 MPa |
| Moment about rear-wheel axis | 18.7 kNm | 25.7 kNm |
| Maximum tilt angle of mast from vertical | -- | 12 degrees |

Linkage settings for test - see Table 2.1 and Figure 2.1

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | -378 | -311 | -200 | -100 | 0 | 100 | 200 | 250 | 300 | 337 | 442 |
| Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure delivered by the hydraulic system) | | | | | | | | | | | |
| at the hitch points kN | -- | 19.3 | 21.5 | 23.4 | 24.5 | 25.1 | 25.7 | 25.7 | 25.9 | 26.4 | -- |
| Corresponding pressure: 21.4 MPa | | | | | | | | | | | |
| at the frame kN | 16.3 | 17.0 | 17.9 | 18.5 | 18.8 | 18.7 | 18.4 | 18.1 | 17.8 | 17.5 | 17.0 |
| Corresponding pressure: 21.4 MPa | | | | | | | | | | | |

## 3. DRAWBAR POWER AND FUEL CONSUMPTION TEST (UNBALLASTED TRACTOR), 4 WHEEL DRIVE

**Date and Location of tests:** 13 March 1997
Silsoe Research Institute
Wrest Park
Silsoe
Bedford MK45 4HS

**Type of track:** Concrete

| Height of drawbar above ground | Tyre inflation pressure (kPa) Front | Rear |
|---|---|---|
| 300 mm | 103 | 83 |

| Gear and Range | Power | Drawbar Pull | Speed | Engine Speed | Slip of wheels or track | Spec Fuel cons | Spec energy | Temperature | | | Atmospheric conditions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Fuel | Coolant | Eng oil | Temp | Rel Humidity | Pressure |
| | kW | kN | km/h | rev/min | % | g/kwh | kWh/l | Deg C | Deg C | Deg C | Deg C | % | kPa |
| 3.1 MAXIMUM POWER IN TESTED GEARS | | | | | | | | | | | | | |
| 1L* | 15.0 | 36.2 | 1.49 | 2252 | 15.5 | 515 | 1.63 | 29 | 78 | 101 | 11 | 61 | 102.( |
| 2L* | 19.6 | 36.0 | 1.96 | 2245 | 14.8 | 452 | 1.86 | 31 | 78 | 101 | 11 | 60 | 102.0 |
| 3L | 26.0 | 35.5 | 2.64 | 2234 | 12.1 | 397 | 2.11 | 30 | 78 | 100 | 11 | 62 | 102.0 |
| 4L | 33.2 | 35.1 | 3.40 | 2210 | 12.4 | 367 | 2.28 | 34 | 79 | 105 | 12 | 59 | 102.2 |
| 1M | 35.4 | 28.2 | 4.52 | 2200 | 7.1 | 347 | 2.42 | 35 | 79 | 104 | 12 | 59 | 102.2 |
| 2M | 36.0 | 21.4 | 6.05 | 2204 | 4.9 | 340 | 2.47 | 37 | 80 | 102 | 12 | 63 | 102.2 |
| 3M | 36.2 | 16.2 | 8.03 | 2202 | 3.7 | 338 | 2.48 | 36 | 79 | 104 | 11 | 64 | 102.2 |
| 4M | 35.7 | 12.1 | 10.63 | 2206 | 2.9 | 341 | 2.46 | 33 | 79 | 102 | 10 | 71 | 102.2 |
| 1H | 35.4 | 10.0 | 12.79 | 2198 | 2.4 | 344 | 2.44 | 35 | 79 | 103 | 11 | 65 | 102.2 |
| 2H | 34.0 | 7.3 | 16.78 | 2196 | 1.8 | 360 | 2.33 | 35 | 79 | 104 | 11 | 65 | 102.2 |
| 3.2 FUEL CONSUMPTION<br>3.2.1 In selected gear, at maximum power at rated speed | | | | | | | | | | | | | |
| 3M | 36.2 | 16.2 | 8.03 | 2202 | 3.7 | 338 | 2.48 | 36 | 79 | 104 | 11 | 64 | 102.2 |
| 3.2.1.1 75% of pull at maximum power at rated speed | | | | | | | | | | | | | |
| 3M | 27.8 | 12.2 | 8.22 | 2234 | 2.9 | 379 | 2.21 | 36 | 79 | 105 | 12 | 61 | 102.2 |
| 3.2.1.2 50% of pull at maximum power at rated speed | | | | | | | | | | | | | |
| 3M | 18.9 | 8.1 | 8.37 | 2254 | 2.0 | 444 | 1.89 | 34 | 79 | 104 | 11 | 63 | 102.2 |
| 3.2.1.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.1.1 | | | | | | | | | | | | | |
| 4M | 27.8 | 12.2 | 8.22 | 1705 | 2.9 | 325 | 2.58 | 35 | 78 | 102 | 11 | 63 | 102.2 |
| 3.2.1.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.1.2 | | | | | | | | | | | | | |
| 4M | 18.8 | 8.1 | 8.38 | 1723 | 2.0 | 359 | 2.34 | 34 | 78 | 99 | 11 | 63 | 102.2 |
| 3.2.2 In selected gear nearest to 7.5 km/h, at maximum power at rated engine speed | | | | | | | | | | | | | |
| 3M | 36.2 | 16.2 | 8.03 | 2202 | 3.7 | 338 | 2.48 | 36 | 79 | 104 | 11 | 64 | 102.2 |
| 3.2.2.1 75% of pull at maximum power at rated speed | | | | | | | | | | | | | |
| 3M | 27.8 | 12.2 | 8.22 | 2234 | 2.9 | 379 | 2.21 | 36 | 79 | 105 | 12 | 61 | 102.2 |
| 3.2.2.2 50% of pull at maximum power at rated speed | | | | | | | | | | | | | |
| 3M | 18.9 | 8.1 | 8.37 | 2254 | 2.0 | 444 | 1.89 | 34 | 79 | 104 | 11 | 63 | 102.2 |
| 3.2.2.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.2.1 | | | | | | | | | | | | | |
| 4M | 27.8 | 12.2 | 8.22 | 1705 | 2.9 | 325 | 2.58 | 35 | 78 | 102 | 11 | 63 | 102.2 |
| 3.2.2.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.2.2 | | | | | | | | | | | | | |
| 4M | 18.8 | 8.1 | 8.38 | 1723 | 2.0 | 359 | 2.34 | 34 | 78 | 99 | 11 | 63 | 102.2 |

* Maximum power limited by wheelslip

**TEST RESULTS**

**B. SUPPLEMENTARY TEST**

1. MAIN POWER TAKE-OFF (1000)

Date and location of tests: 10 December 1996
Silsoe Research Institute,
Wrest Park, Silsoe, Bedford

Type of dynamometer: Eddy Current, Borghi and Saveri

| Power kW | Speed | | Fuel consumption | | | Specific energy kWh/l |
|---|---|---|---|---|---|---|
| | Engine rev/min | P.T.O. rev/min | Hourly kg/h | Hourly l/h | Specific g/kWh | |
| 1.1 MAXIMUM POWER | | | | | | |
| 43.0 | 2201 | 1100 | 12.20 | 14.54 | 284 | 2.96 |
| 1.2 POWER AT RATED ENGINE SPEED | | | | | | |
| 43.0 | 2201 | 1100 | 12.20 | 14.54 | 284 | 2.96 |
| 1.3 STANDARD POWER TAKE-OFF SPEED (1000 ± 25 rev/min) | | | | | | |
| 41.8 | 2000 | 1000 | 11.22 | 13.38 | 268 | 3.13 |
| 1.4 PART LOADS<br>1.4.1 The torque corresponding to maximum power at rated engine speed | | | | | | |
| 43.0 | 2201 | 1100 | 12.20 | 14.54 | 284 | 2.96 |
| 1.4.2 85% of the torque defined in 1.4.1 | | | | | | |
| 37.1 | 2221 | 1110 | 10.88 | 12.96 | 293 | 2.86 |
| 1.4.3 75% of the torque defined in 1.4.2 | | | | | | |
| 28.1 | 2242 | 1121 | 8.97 | 10.69 | 319 | 2.63 |
| 1.4.4 50% of the torque defined in 1.4.2 | | | | | | |
| 18.8 | 2254 | 1127 | 7.31 | 8.72 | 389 | 2.16 |
| 1.4.5 25% of the torque defined in 1.4.2 | | | | | | |
| 9.4 | 2268 | 1134 | 5.60 | 6.88 | 597 | 1.40 |
| 1.4.6 Unloaded | | | | | | |
| 0 | 2278 | 1139 | 4.21 | 5.02 | -- | -- |

| Power kW | Speed | | Fuel consumption | | | Specific energy kWh/l |
|---|---|---|---|---|---|---|
| | Engine rev/min | P.T.O. | Hourly kg/h | l/h | Specific g/kWh | |
| 1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEEDS (1000 ± 25 rev/min) | | | | | | |
| 1.5.1 The torque corresponding to maximum power | | | | | | |
| 41.8 | 2000 | 1000 | 11.22 | 13.38 | 268 | 3.13 |
| 1.5.2 85% of the torque obtained in 1.5.1 | | | | | | |
| 35.9 | 2021 | 1010 | 9.92 | 11.82 | 276 | 3.04 |
| 1.5.3 75% of the torque obtained in 1.5.2 | | | | | | |
| 27.2 | 2041 | 1021 | 8.06 | 9.61 | 296 | 2.83 |
| 1.5.4 50% of the torque obtained in 1.5.2 | | | | | | |
| 18.3 | 2056 | 1028 | 6.46 | 7.70 | 354 | 2.37 |
| 1.5.5 25% of the torque obtained in 1.5.2 | | | | | | |
| 9.2 | 2073 | 1037 | 4.89 | 5.83 | 532 | 1.58 |
| 1.5.6 Unloaded | | | | | | |
| 0 | 2088 | 1044 | 3.44 | 4.10 | -- | -- |

No load, maximum engine speed: 2278 rev/min

Torque (equivalent crankshaft) at maximum power: 187.6 Nm

Torque (equivalent crankshaft) at rated speed 187.6 Nm

Maximum torque (equivalent crankshaft): 248.6 Nm
(engine speed 1106 rev/min)

Mean atmospheric conditions:

- Temperature 25°C
- Pressure 1014 m bar
- Relative humidity 28%

Maximum temperatures:

- Coolant 81°C
- Engine oil 111°C
- Fuel 48°C
- Engine air intake 29°C

2. POWER LIFT TESTS

I Power lift test - (To manufacturers lift rod setting of 745 mm)

| | At the hitch point | On the frame |
|---|---|---|
| Height of lower hitch points above ground in down position | 300 mm | 300 mm |
| Vertical movement | 595 mm | 793 mm |
| Maximum corrected force exerted through full range | 20.2 kN | 17.0 kN |
| Corresponding pressure of hydraulic fluid | 21.4 MPa | 21.4 MPa |
| Moment about rear-wheel axis | 19.6 kNm | 26.8 kNm |
| Maximum tilt angle of mast from vertical | -- | 15 degrees |

- Linkage settings for test - see Table 2.1 and Figure 2.1

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | -260 | -208 | -100 | 0 | 100 | 200 | 250 | 300 | 387 | 483 | 533 |
| Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure delivered by the hydraulic system) | | | | | | | | | | | |
| at the hitch points kN | -- | 20.2 | 22.6 | 24.0 | 25.1 | 26.0 | 26.2 | 26.3 | 26.1 | -- | -- |
| Corresponding pressure: 21.4 MPa | | | | | | | | | | | |
| at the frame kN | 17.0 | 17.6 | 19.0 | 19.3 | 19.4 | 19.2 | 19.0 | 18.9 | 18.5 | 17.6 | 17.1 |
| Corresponding pressure: 21.4 MPa | | | | | | | | | | | |

II Power lift test - (To manufacturers lift rod setting of 685 mm)

| | At the hitch point | On the frame |
|---|---|---|
| Height of lower hitch points above ground in down position | 430 mm | 430 mm |
| Vertical movement | 552 mm | 761 mm |
| Maximum corrected force exerted through full range | 23.8 kN | 17.1 kN |
| Corresponding pressure of hydraulic fluid | 21.4 MPa | 21.4 MPa |
| Moment about rear-wheel axis | 23.0 kNm | 27.0 kNm |
| Maximum tilt angle of mast from vertical | -- | 20 degrees |

- Linkage settings for test - see Table 2.1 and Figure 2.1

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | -96 | -78 | -0 | 100 | 200 | 300 | 350 | 400 | 474 | 570 | 665 |
| Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure delivered by the hydraulic system) | | | | | | | | | | | |
| at the hitch points kN | -- | 23.8 | 25.0 | 26.4 | 27.0 | 27.6 | 27.5 | 27.6 | 27.6 | - | - |
| Corresponding pressure: 21.4 MPa | | | | | | | | | | | |
| at the frame kN | 20.4 | 20.5 | 20.6 | 20.8 | 20.6 | 20.0 | 19.7 | 19.5 | 18.7 | 17.6 | 17.1 |
| Corresponding pressure: 21.4 MPa | | | | | | | | | | | |

# DRAWBAR POWER AND FUEL CONSUMPTION TEST (UNBALLASTED TRACTOR), 2 WHEEL DRIVE

**Date and Location of tests:** 14 March 1997
Silsoe Research Institute
Wrest Park
Silsoe
Bedford MK45 4HS

**Type of track:** Concrete

| Height of drawbar above ground | Tyre inflation pressure (kPa) Front | Rear |
|---|---|---|
| 490 mm | 103 | 83 |

| Gear and Range | Power | Drawbar Pull | Speed | Engine Speed | Slip of wheels or track | Spec Fuel cons | Spec energy | Temperature | | | Atmospheric conditions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Fuel | Coolant | Eng oil | Temp | Rel Humidity | Pressure |
| | kW | kN | km/h | rev/min | % | g/kwh | kWh/l | Deg C | Deg C | Deg C | Deg C | % | kPa |
| 1 | MAXIMUM POWER IN TESTED GEARS | | | | | | | | | | | | |
| 2L* | 14.6 | 26.9 | 1.95 | 2249 | 14.6 | 514 | 1.63 | 32 | 78 | 104 | 14 | 57 | 101.4 |
| 3L* | 18.8 | 26.8 | 2.52 | 2242 | 15.5 | 454 | 1.85 | 34 | 79 | 105 | 14 | 56 | 101.4 |
| 4L* | 25.0 | 26.9 | 3.34 | 2226 | 15.1 | 403 | 2.08 | 36 | 79 | 106 | 14 | 56 | 101.4 |
| 1M | 31.2 | 26.2 | 4.29 | 2212 | 11.7 | 368 | 2.28 | 36 | 79 | 105 | 14 | 58 | 101.4 |
| 2M | 35.5 | 21.8 | 5.85 | 2200 | 7.1 | 340 | 2.47 | 35 | 79 | 105 | 13 | 62 | 101.4 |
| 3M | 36.0 | 16.5 | 7.85 | 2201 | 5.2 | 337 | 2.49 | 38 | 80 | 100 | 14 | 62 | 101.4 |
| 4M | 35.6 | 12.3 | 10.40 | 2200 | 4.0 | 343 | 2.44 | 36 | 80 | 103 | 13 | 61 | 101.4 |
| 1H | 35.3 | 10.1 | 12.58 | 2201 | 3.3 | 349 | 2.40 | 36 | 79 | 104 | 13 | 62 | 101.4 |
| 2H | 33.7 | 7.3 | 16.52 | 2197 | 2.8 | 358 | 2.34 | 36 | 79 | 105 | 13 | 63 | 101.4 |
| 2 | FUEL CONSUMPTION | | | | | | | | | | | | |
| 2.1 | In selected gear, at maximum power at rated speed | | | | | | | | | | | | |
| 3M | 36.0 | 16.5 | 7.85 | 2201 | 5.2 | 337 | 2.49 | 38 | 80 | 100 | 14 | 62 | 101.4 |
| 2.1.1 | 75% of pull at maximum power rated speed | | | | | | | | | | | | |
| 3M | 27.6 | 12.4 | 8.03 | 2227 | 4.1 | 377 | 2.22 | 37 | 79 | 105 | 14 | 59 | 101.4 |
| 2.1.2 | 50% of pull at maximum power at rated speed | | | | | | | | | | | | |
| 3M | 18.9 | 8.3 | 8.20 | 2246 | 2.9 | 437 | 1.92 | 37 | 79 | 105 | 14 | 60 | 101.4 |
| 2.1.3 | Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.1.1 | | | | | | | | | | | | |
| 4M | 27.7 | 12.4 | 8.01 | 1698 | 4.1 | 308 | 2.73 | 37 | 79 | 102 | 14 | 57 | 101.4 |
| 2.1.4 | Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.1.2 | | | | | | | | | | | | |
| 4M | 18.8 | 8.3 | 8.18 | 1713 | 3.0 | 350 | 2.40 | 36 | 78 | 101 | 14 | 56 | 101.4 |
| 2.2 | In selected gear nearest to 7.5 km/h, at maximum power at rated engine speed | | | | | | | | | | | | |
| 3M | 36.0 | 16.5 | 7.85 | 2201 | 5.2 | 337 | 2.49 | 38 | 80 | 100 | 14 | 62 | 101.4 |
| 2.2.1 | 75% of pull at maximum power at rated speed | | | | | | | | | | | | |
| 3M | 27.6 | 12.4 | 8.03 | 2227 | 4.1 | 377 | 2.22 | 37 | 79 | 105 | 14 | 59 | 101.4 |
| 2.2.2 | 50% of pull at maximum power at rated speed | | | | | | | | | | | | |
| 3M | 18.9 | 8.3 | 8.20 | 2246 | 2.9 | 437 | 1.92 | 37 | 79 | 105 | 14 | 60 | 101.4 |
| 2.2.3 | Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.2.1 | | | | | | | | | | | | |
| 4M | 27.7 | 12.4 | 8.01 | 1698 | 4.1 | 308 | 2.73 | 37 | 79 | 102 | 14 | 57 | 101.4 |
| 2.2.4 | Next higher gear at reduced engine speed; same pull and travelling speed as in 3.2.2.2 | | | | | | | | | | | | |
| 4M | 18.8 | 8.3 | 8.18 | 1713 | 3.0 | 350 | 2.40 | 36 | 78 | 101 | 14 | 56 | 101.4 |

**Maximum power limited by wheelslip**

## C. OPTIONAL TESTS

### C1. LOCATION OF CENTRE OF GRAVITY

| | |
|---|---|
| Height above ground, mm | 867 |
| Distance forward from the vertical plane containing the axis of the rear wheels, mm | 920 |
| Distance from the median plane of the tractor, mm (to left viewed from rear) | 2 |

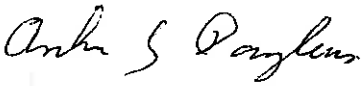
**REPAIRS AND ADJUSTMENTS DURING TESTS:** None

**REMARKS:** None

**Test carried out by:** S J Devonshire

**Signed:** Officer in charge of tests

P C Seward

**Signed:**  for the Director

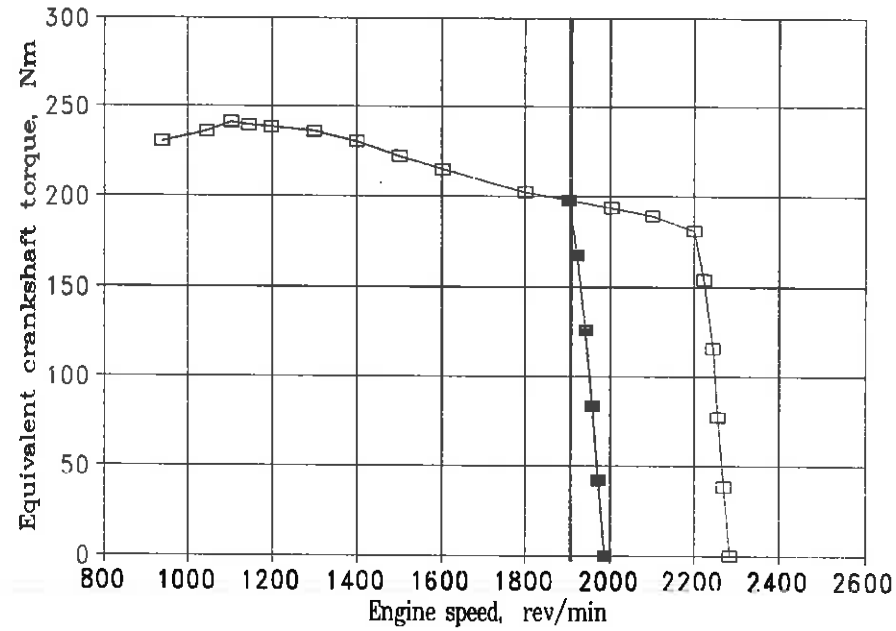
A Douglas
Interim Manager, Test Engineering Group

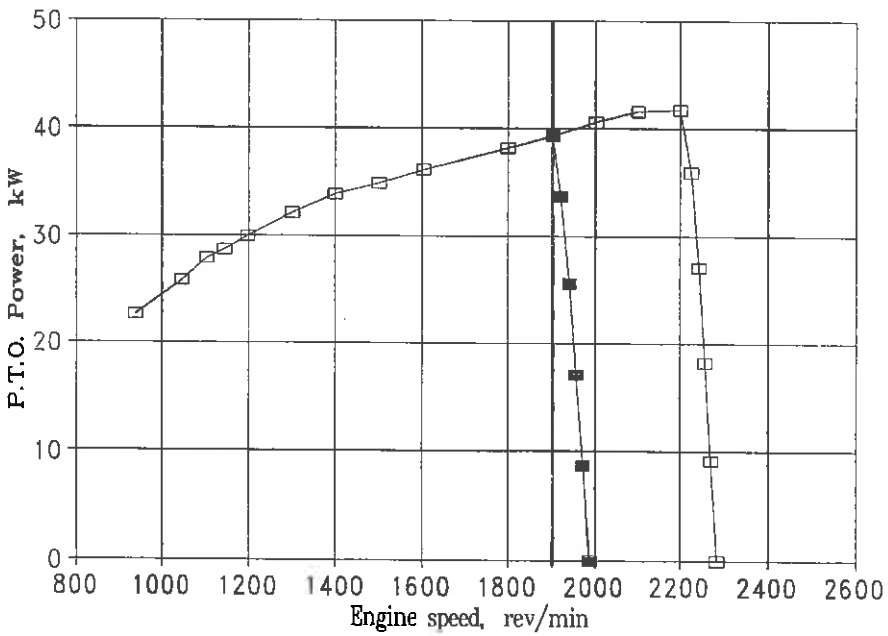
**Date:** 20.5.98

## ANNEX 1 MAIN POWER TAKE-OFF CURVES

**P.T.O. POWER TEST - MASSEY FERGUSON 4225 FOUR-WHEEL DRIVE (540 rev/min)**

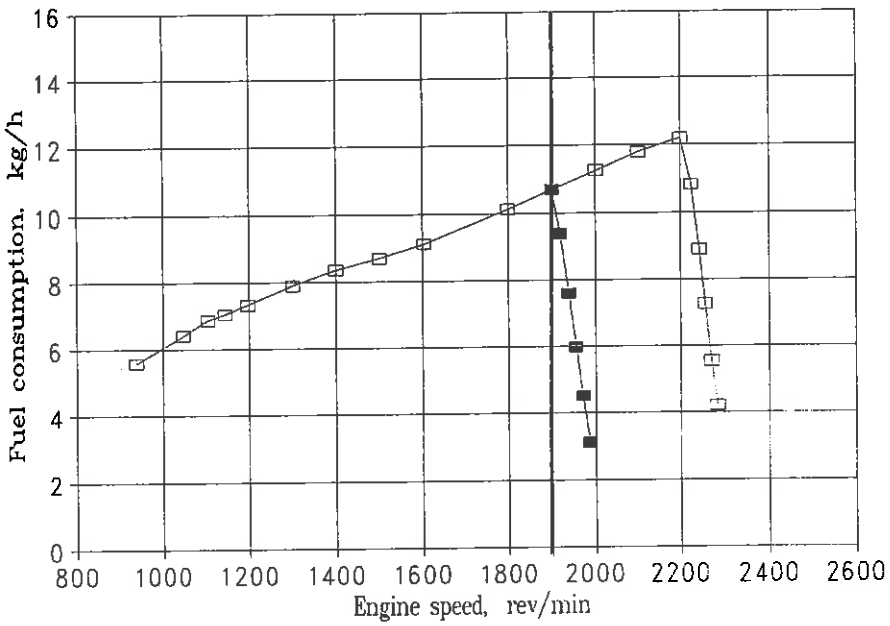
Governor set for maximum power at rated speed □
Governor set for maximum power at pto speed ■
Standard power take-off speed (540 rev/min) |

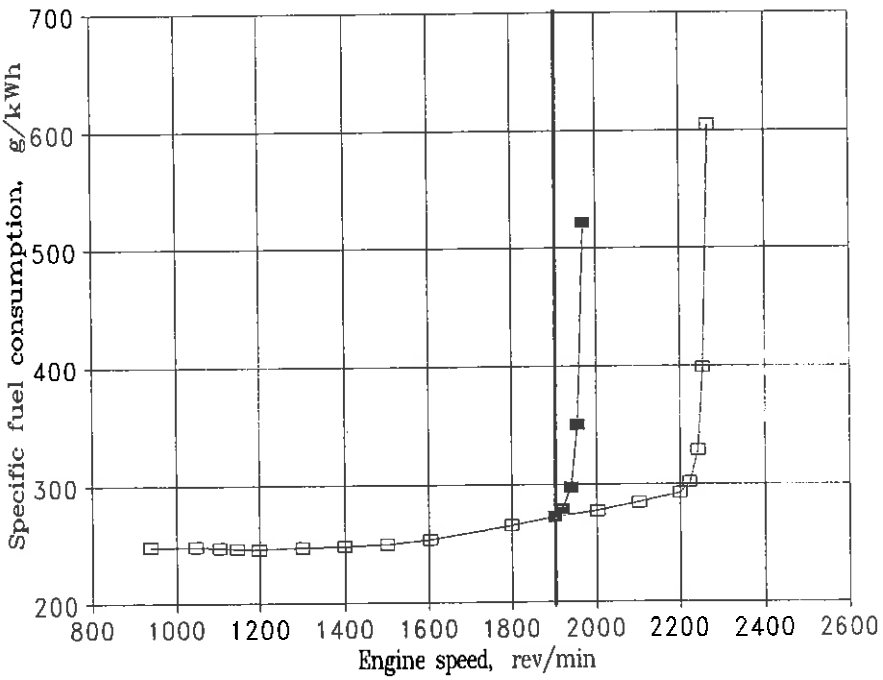


## P.T.O. POWER TEST - MASSEY FERGUSON 4225 FOUR-WHEEL DRIVE (540 rev/min)

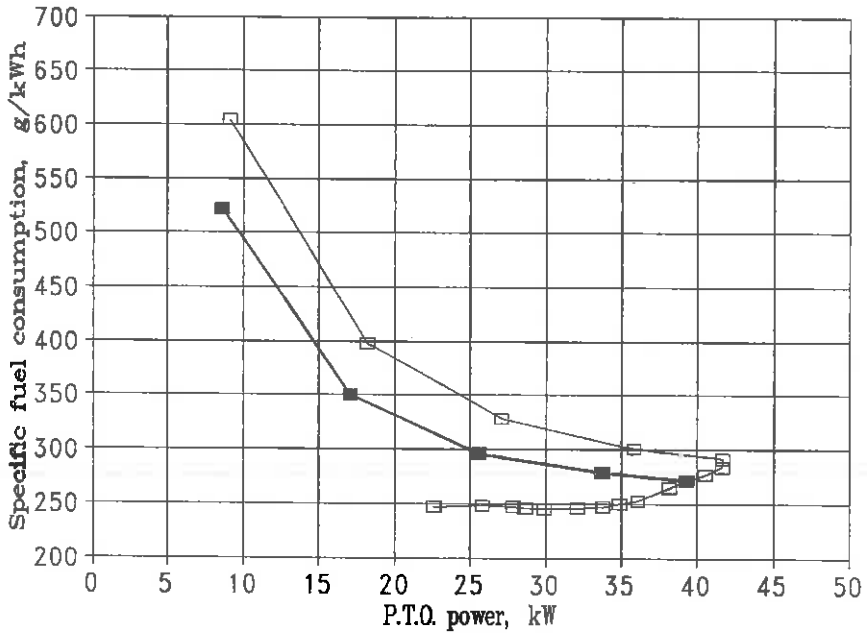
Governor set for maximum power at rated speed □
Governor set for maximum power at pto speed ■
Standard power take-off speed (540 rev/min) ▮



**P.T.O. POWER TEST - MASSEY FERGUSON 4225 FOUR-WHEEL DRIVE (540 rev/min)**

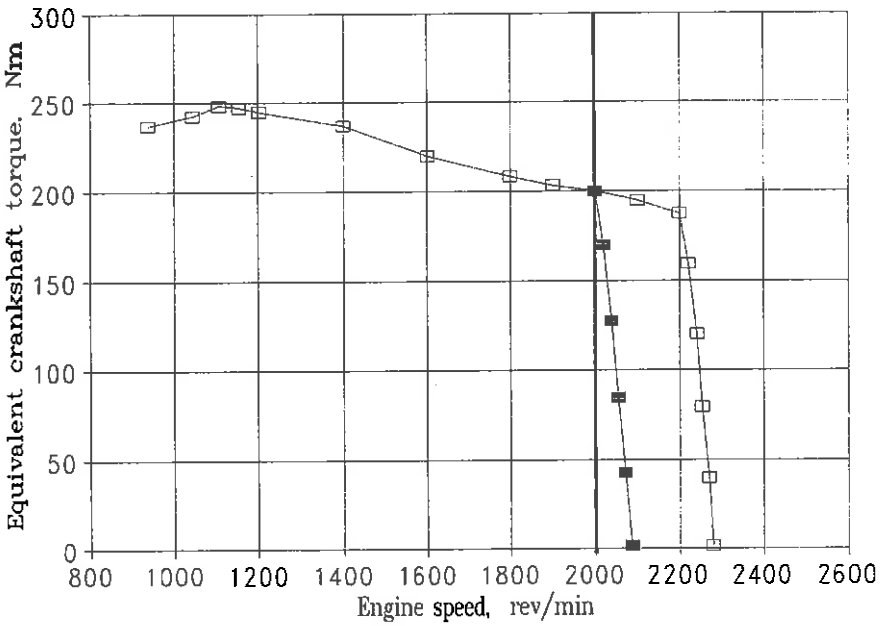
Governor set for maximum power at rated speed □
Governor set for maximum power at pto speed ■

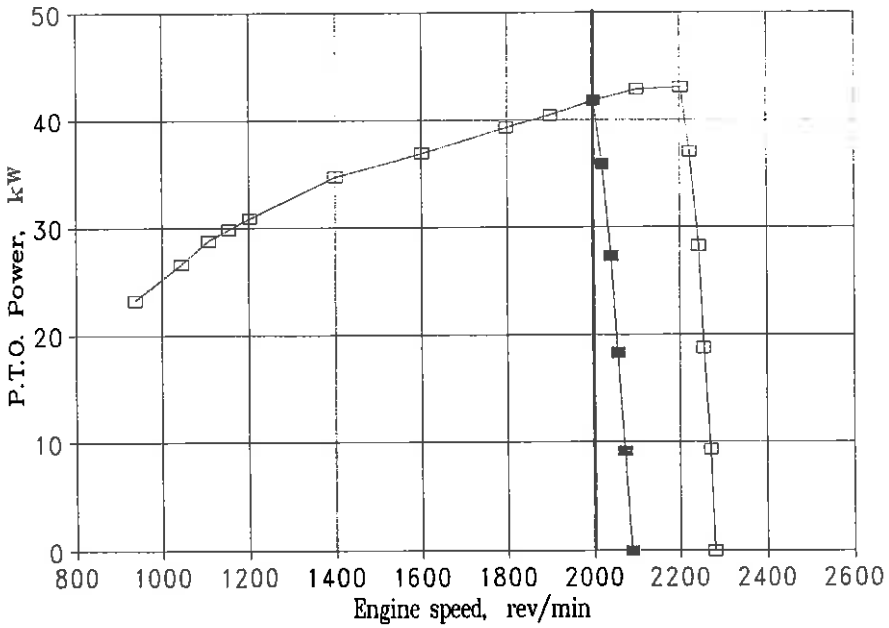


## ANNEX 2 MAIN POWER TAKE-OFF CURVES

**P.T.O. POWER TEST - MASSEY FERGUSON 4225 FOUR-WHEEL DRIVE (1000 rev/min)**

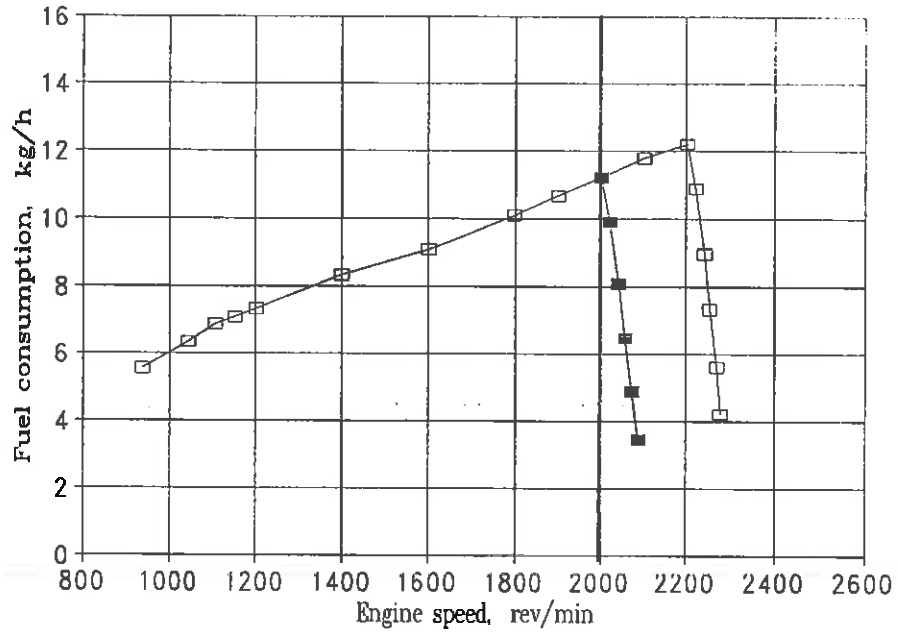
Governor set for maximum power at rated speed □
Governor set for maximum power at pto speed ■
Standard power take-off speed (1000 rev/min) ▮

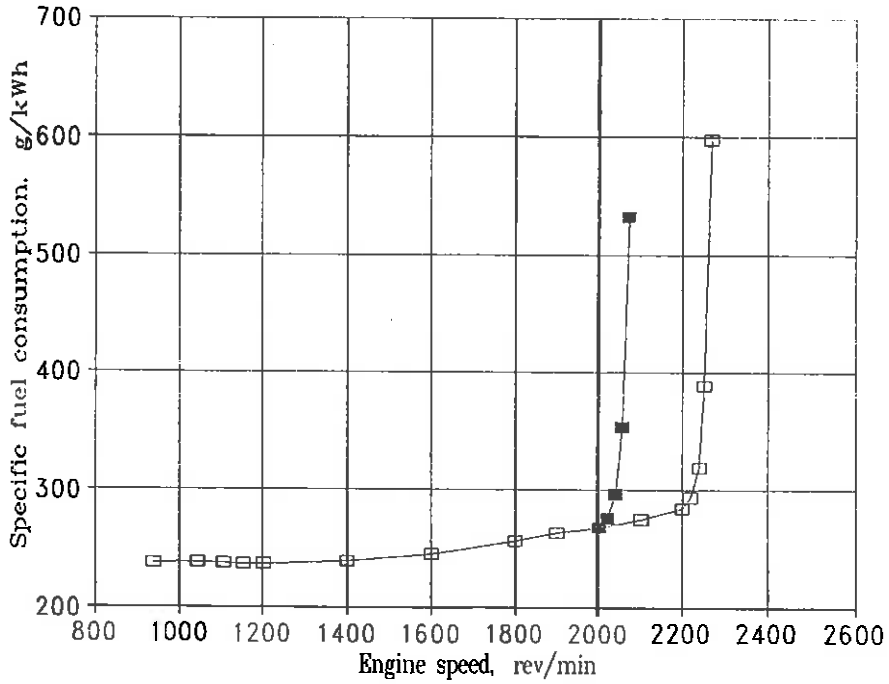


**P.T.O. POWER TEST - MASSEY FERGUSON 4225 FOUR-WHEEL DRIVE (1000 rev/min)**

Governor set for maximum power at rated speed □
Governor set for maximum power at pto speed ■
Standard power take-off speed (1000 rev/min) |



**P.T.O. POWER TEST - MASSEY FERGUSON 4225 FOUR-WHEEL DRIVE (1000 rev/min)**

**Governor set for maximum power at rated speed** □
**Governor set for maximum power at pto speed** ■

