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CODE 2

**OECD RESTRICTED STANDARD CODE FOR THE OFFICIAL TESTING
OF AGRICULTURAL AND FORESTRY TRACTOR PERFORMANCE**

**Steyr PEC7AC3 (6135) Four-Wheel Drive Tractor with
16-speed Semi Powered Shift Transmission (30 km/h)**



Manufactured by: CNH UK Limited
Basildon
Essex SS14 3AD
United Kingdom

Reference No: 859

Date: August 2004

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Rev: 21 December 2004

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Statement

The information opposite each item has been validated by the Testing Station. An item marked [C] indicates to the test report user that the information declared by the manufacturer has been checked; an item marked [D] indicates that the manufacturer's declaration has been endorsed.

| | | |
|-----|--|---|
| [C] | Tractor manufacturer's name and address: | CNH UK Limited Basildon, Essex, SS14 3AD United Kingdom |
| [C] | Location of tractor assembly: | Basildon, Essex / St Valentin, Austria |
| [D] | Submitted for test by: | The manufacturer |
| [C] | Selected for test by: | The manufacturer with the agreement of the testing station |
| [D] | Place of running in: | Basildon, Essex |
| [D] | Duration of running in: | 10 hours |
| [C] | Location of test: | Silsoe Research Institute Wrest Park, Silsoe, MK45 4HS United Kingdom |

1. SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1

| | | |
|-----|---------------------|--------------------------------------|
| [C] | Make of tractor: | Steyr |
| [C] | Model (trade name): | 6135 |
| [C] | Type: | Four- wheel drive, unit construction |

1.1.2 Numbers

| | | |
|-----|---|---------------------|
| [D] | 1 st Serial No or prototype: | ACP207661/EKP001001 |
| [C] | Serial No: | 209584 |

1.1.3 Other specifications (if applicable)

| | | |
|-----|---|---------------------------|
| [D] | Model(s) for other countries: | None |
| [C] | Transmission type or gears x ranges: | 16-Speed Semi-Power Shift |
| [C] | Speed version: | 30 km/h |
| [C] | Manufacturer identification or Technical type number: | PEC7AC3 |

1.2 Engine

| | | |
|-----|------------|---|
| [C] | Make: | CNH |
| [C] | Model: | F4DE0684A*D |
| [C] | Type: | 4 stroke turbocharged direct injection and after cooled diesel |
| [C] | Serial No: | 00066631 |

1.2.1 Cylinders

| | | |
|-----|------------------------|-----------------------------|
| [C] | Number/disposition: | 6 vertical in-line |
| [D] | Bore/stroke: | 104.0mm/132.0mm |
| [D] | Capacity: | 6728 cm ³ |
| [D] | Compression ratio: | 17.0 : 1 |
| [D] | Arrangement of valves: | Overhead |
| [D] | Cylinder liners: | None, monobloc construction |

1.2.2 Supercharging

- | | |
|-----------------|-------------------------------|
| [D] Make/Model: | Holset/HX35W, HX35 |
| [C] Type: | Exhaust driven |
| [D] Pressure: | 0.115 MPa at rated speed/load |

1.2.3 Fuel system

- | | |
|---|---|
| [D] Fuel feed system: | Gear pump |
| [C] Make, type and model of fuel filter: | None, two disposable canister filters incorporating sediment and water separation plus plastic strainer in tank |
| [D] Capacity of fuel tank: | 254 dm ³ |
| [D] Make, type and model of injection pump: | Bosch, high pressure pump – common rail/CR/CP3 S3 |
| [D] Serial No: | 489 8921 |
| Manufacturer's production setting of injection pump | |
| [C] Flow rate (rated engine speed and full load): | 82 mm ³ ± 5% per stroke at 2200 min ⁻¹ (rev/min) 30.84–34.10 dm ³ /h |
| [D] Timing: | Variable |
| [D] Make, type and model of injectors: | Bosch, managed by electronic control unit DSLA143 P970 |
| [D] Injection pressure: | 92 MPa |
| 1.2.4 Governor | |
| [C] Make: | Bosch |
| [D] Model: | None |
| [C] Type: | Managed by electronic control unit |
| [C] Governed range of engine speed: | 700 to 2375 min ⁻¹ (rev/min) |
| [C] Rated engine speed: | 2200 min ⁻¹ (rev/min) |
| 1.2.5 Air cleaner | |
| [C] Pre-cleaner | Not fitted |
| [C] Type: | --- |
| [C] Location: | --- |
| Main cleaner | |
| Make: | Donaldson |
| [C] Type: | 3 stage dry paper element with replaceable cartridge |
| [D] Model: | None |
| [C] Location of air intake: | Under engine bonnet at front and above radiator. |
| [C] Maintenance indicator: | Warning light on instrument panel |

1.2.6 Lubrication system

| | |
|------------------------|--|
| [D] Type of feed pump: | Forced feed from concentric rotor pump |
| [D] Type of filter: | Mesh strainer in sump on suction line and full flow disposable canister on pressure line to engine |
| [C] Number: | 1 |

1.2.7 Cooling system

| | |
|----------------------------------|-------------------------------------|
| [C] Type of coolant: | Water and antifreeze (50% solution) |
| [D] Type of pump: | Belt driven centrifugal impeller |
| Specification of fan | |
| [C] Number of fan blades: | 5 |
| [C] Fan diameter: | 510 mm |
| [D] Coolant capacity: | 25 dm ³ |
| [D] Type of temperature control: | Thermostat with full flow bypass |
| [D] System pressure: | 100 kPa |

1.2.8 Starting system

| | |
|---------------------------------|--|
| [D] Make: | Bosch |
| [D] Model: | EV3 |
| [C] Type: | Electrical, positive engagement, solenoid operated |
| [D] Starter motor power rating: | 3.1/3.6 kW 3.0 kW (Reduction geared) |
| [D] Cold starting aid: | Phillips and Tempro, injection management thermostarter |
| [C] Safety device: | Starting inoperable unless shuttle lever in neutral, clutch pedal depressed and operator seat presence switch is activated |

1.2.9 Electrical system

| | |
|--------------|--|
| [C] Voltage: | 12 V |
| Generator: | |
| [C] Make: | Alternator Denso |
| [C] Model: | A 127 |
| [C] Type: | Belt driven |
| [C] Power: | 120 amps at 6000 min ⁻¹ (rev/min) |
| Batteries | |
| [C] Number: | 1 Exide lead acid, mounted behind right hand steps |
| [D] Rating: | 176 Ah at 20 hours |

1.2.10 Exhaust system

- [C] Make: COR.TUBI
- [D] Model: None
- [C] Type: Vertical stack pipe with intergral silencer
- [C] Location: Engine rear on right hand side
- [C] Height of outlet above ground: 2930 mm

1.3 Transmission

1.3.1 Clutch (Travel alone)

- [D] Make: CNH
- [D] Model: None
- [D] Type: Wet multiplate in gearbox, for travel only
- [D] Number of plates: 9
- [D] Diameter of plates: 160 mm
- [C] Method of operation: Electro-hydraulic with pedal override

1.3.2 Gear box

- [D] Make: CNH
- [C] Model: Semi power shift
- [C] Description: Electro/Hydraulic, synchromesh operation. 4 powershift gears with 4 ranges (total 16 speeds) selected by a combination of mechanical lever and electrical buttons located within the right-hand console

Forward/reverse is actuated by a steering column mounted shuttle lever.

| | | Forward | Reverse |
|-----|-------------------------|---------|---------|
| [C] | Number of gears | 4 | 4 |
| [C] | Number of ranges/groups | 4 | 4 |
| [C] | Total of arrangements | 16 | 16 |

Available options:

12 x12 with or without creep (30/40 km/h)
16 x 16 with or without creep (30/40 km/h)
24 x 24 with or without creep (30/40 km/h)
17 x 16 less creep only (50km/h)

1.3.3 *Rear axle and final drives*

- [D] **Make:** CNH
- [D] **Model:** None
- [D] **Type:** Crown wheel pinion with differential and inboard epicyclic reduction gear final drive

Differential lock:

- [D] **Type:** Mechanical or multiplate
- [C] **Method of engagement:** Electro-hydraulic actuation in response to signal from switch on right-hand control panel or auto diff lock actuation
- [C] **Method of disengagement:** Via panel switch or in response to signal from brakes on application or auto diff lock disengagement

1.3.4 *Front axle and final drives*

- [D] **Make:** CNH
- [D] **Model:** None
- [D] **Type:** Crown wheel and pinion with differential and outboard epicyclic reduction gear final drives

Drive engagement:

- [D] **Type:** Mechanical or multiplate clutch – located within the gearbox
- [C] **Method of operation:** Electro-hydraulic actuation in response to signal from switch on right-hand control panel or auto 4wd engagement

Differential lock:

- [D] **Type:** Mechanical or multiplate clutch
- [C] **Method of engagement:** Electro-hydraulic actuation in response to signal from switch on right-hand control panel or auto diff lock actuation
- [C] **Method of disengagement:** Via panel switch or in response to signal from brakes on application or auto diff lock disengagement

1.3.5 Total ratios and travelling speeds

| | Gear | Group or range | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed at rated engine speed:* 2200 rev/min km/h |
|-----|----------------|----------------|---|--|
| | Forward | | | |
| [C] | 1 | A | 298.92 | 2.28 |
| [C] | 2 | A | 244.66 | 2.78 |
| [C] | 3 | A | 200.12 | 3.40 |
| [C] | 4 | A | 163.80 | 4.15 |
| [C] | 5 | B | 127.24 | 5.35 |
| [C] | 6 | B | 104.15 | 6.53 |
| [C] | 7 | B | 85.19 | 7.98 |
| [C] | 8 | B | 69.73 | 9.75 |
| [C] | 9 | C | 96.24 | 7.07 |
| [C] | 10 | C | 78.77 | 8.63 |
| [C] | 11 | C | 64.43 | 10.56 |
| [C] | 12 | C | 52.74 | 12.90 |
| [C] | 13 | D | 40.97 | 16.60 |
| [C] | 14 | D | 33.53 | 20.28 |
| [C] | 15 | D | 27.43 | 24.80 |
| [C] | 16 | D | 22.45 | 30.30 |
| | Reverse | | | |
| [C] | 1 | A | 302.45 | 2.25 |
| [C] | 2 | A | 247.56 | 2.75 |
| [C] | 3 | A | 202.49 | 3.37 |
| [C] | 4 | A | 165.73 | 4.10 |
| [C] | 5 | B | 128.75 | 5.28 |
| [C] | 6 | B | 105.38 | 6.45 |
| [C] | 7 | B | 86.20 | 7.89 |
| [C] | 8 | B | 70.55 | 9.64 |
| [C] | 9 | C | 97.38 | 6.98 |
| [C] | 10 | C | 79.70 | 8.53 |
| [C] | 11 | C | 65.19 | 10.43 |
| [C] | 12 | C | 53.36 | 12.75 |
| [C] | 13 | D | 41.46 | 16.41 |
| [C] | 14 | D | 33.93 | 20.05 |
| [C] | 15 | D | 27.75 | 24.51 |
| [C] | 16 | D | 22.71 | 29.94 |

(*) Calculated with a tyre dynamic radius index of 820 mm

[C]

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

1.353

1.4 Power take-off

1.4.1 Main power take-off

| | | |
|-----|---|---|
| [C] | Type: | Independent |
| [C] | Method of engagement: | Electro – hydraulic operated multi-plate clutch in response to a signal from switch on the right-hand control panel |
| [C] | Number of shafts: | 1 interchangeable shaft, 6 or 21 splines to ISO 500/1991 |
| [C] | Method of changing power take-off speeds: | Two speed shiftable, 540 or 1000 min ⁻¹ (rev/min) by lever on right-hand console or by changing shafts |

Clutch

| | | |
|-----|---------------------|-----------------|
| [D] | Make: | CNH |
| [D] | Model: | None |
| [D] | Type: | Multiplate, wet |
| [D] | Number of plates: | 6 |
| [D] | Diameter of plates: | 140.0 mm |

1.4.1.1 Power take-off proportional to engine speed

Power take-off at 540 min⁻¹ (rev/min)

| | | |
|-----|---|---|
| [C] | Location: | Rear of tractor |
| [C] | Diameter of power take-off shaft: | 34.9 mm |
| [C] | Number of splines: | 6 in conformity with ISO 500/1991 (available option 21) |
| [C] | Height above ground: | 792 mm |
| [C] | Distance from the median plane of the tractor: | Central |
| [C] | Distance behind rear wheel axis: | 555 mm |
| [C] | PTO speed at rated engine speed: | 603 min ⁻¹ (rev/min) |
| [C] | Engine speed at standard power take-off speed: | 1969 min ⁻¹ (rev/min) |
| [C] | Ratio of rotation speeds: | 3.65 |
| [D] | Power restriction: | None |
| [D] | Maximum torque transmissible: | None |
| [C] | Direction of rotation (viewed from behind tractor): | Clockwise |

Power take-off at 1000 min⁻¹ (rev/min)

| | | |
|-----|---|--|
| [C] | Location: | Rear of tractor |
| [C] | Diameter of power take-off shaft: | 34.9 mm |
| [C] | Number of splines: | 21 in conformity with ISO 500/1991 (available option 6) |
| [C] | Height above ground: | 792 mm |
| [C] | Distance from the median plane of the tractor: | Central |
| [C] | Distance behind rear wheel axis: | 555 mm |
| [C] | PTO speed at rated engine speed: | 1038 min ⁻¹ (rev/min) |
| [C] | Engine speed at standard power take-off speed: | 2120 min ⁻¹ (rev/min) |
| [C] | Ratio of rotation speeds: | 2.12 |
| [D] | Power restriction | None |
| [D] | Maximum torque transmissible: | None |
| [C] | Direction of rotation (viewed from behind tractor): | Clockwise |

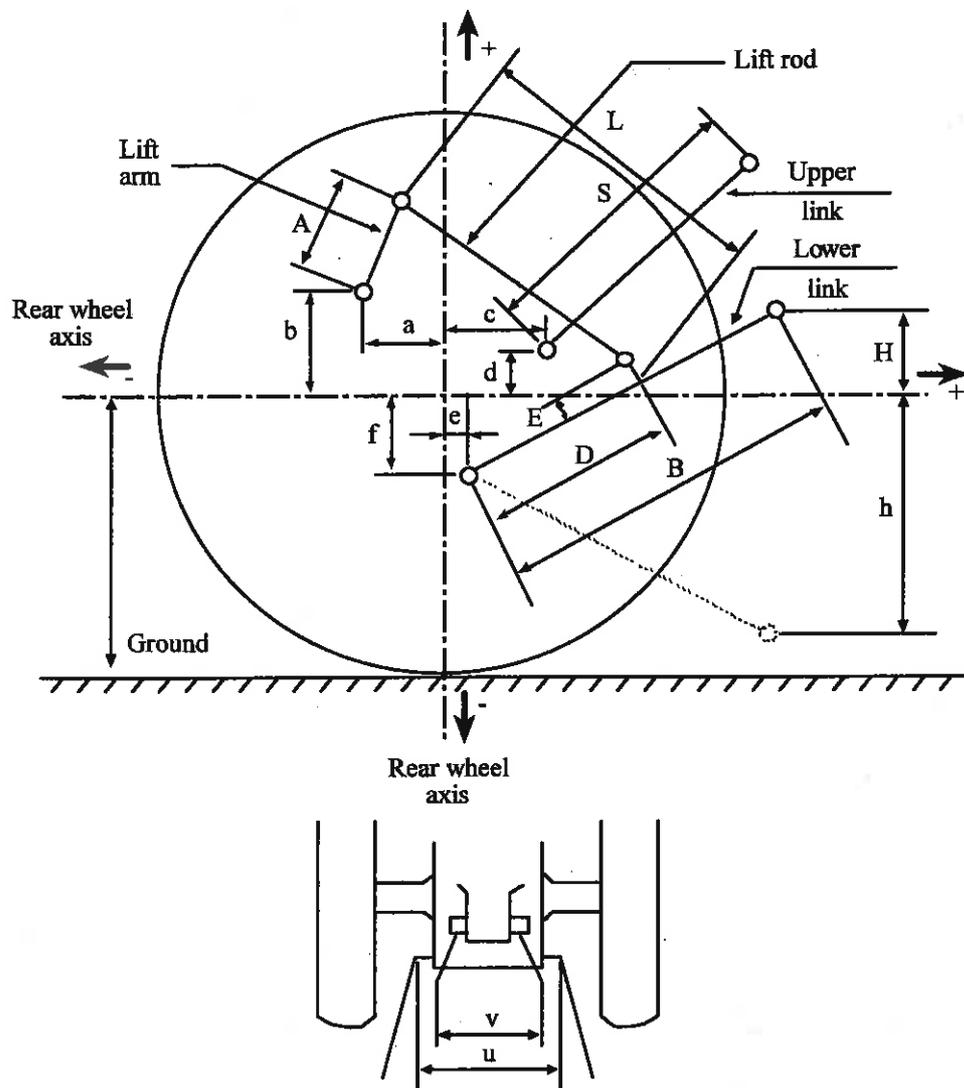
1.4.1.2 Power take-off proportional to ground speed Not applicable

1.5 Hydraulic power lift

| | | |
|-----|---|--|
| [C] | Make: | CNH |
| [D] | Model: | None |
| [D] | Type: | Electro-hydraulic closed centre load sensing |
| [C] | Type and number of cylinders: | 2 single acting externally mounted rams. |
| [C] | Type of linkage lock for transport: | Hydraulic |
| [D] | Pump maximum pressure / Relief valve pressure setting: | 20.5 – 21.5 MPa |
| [D] | Opening pressure of cylinder safety valve: | 22.0 – 23.0 MPa |
| [D] | Lift pump type: | Variable displacement piston pump |
| [D] | Transmission between pump and engine: | Gear driven from PTO shaft, independent of main and PTO clutches |
| [C] | Type and number filters: | 1 disposable canister filter and 1 cartridge filter |
| [C] | Site of oil reservoir: | Rear axle housing |
| [C] | Type, number and location of tapping points: | 4 remote couplers at rear of tractor |
| [D] | Maximum volume of oil available to external cylinders: | 19 litres under normal conditions (flat fields) 27 litres when operating stationary on level ground |

1.6 Three-point linkage

| | | |
|-----|-------------------|---|
| [C] | Category: | 2 in conformity with ISO 730-1:1994 + Cor.1:1995 |
| [C] | Category adapter: | None |
| [C] | Controls: | Electronic draught/ position control with lower link sensing |



LIFT TEST
Linkage geometry

Fig 1.1 and Fig 1.2

Table 1.1
Dimensions of linkage when attached to the standard frame (ISO 730-1-1994 CAT 2)

| | | | | Dimensions or ranges | Settings used in tests | | |
|-----|---|---------------|-----|--|------------------------|-----|---------|
| | | | | | 3.2.2 | 7.1 | 7.2 |
| | | | | mm | mm | mm | mm |
| [C] | Length of lift arms: | | (A) | 310 | 310 | 310 | 310 |
| [C] | Length of lower links: | | (B) | 950 | 950 | 950 | 950 |
| [C] | Distance of lift arm pivot point from rear wheel centre line: | horizontally: | (a) | 138 | 138 | 138 | 138 |
| | | vertically: | (b) | 370 | 370 | 370 | 370 |
| [C] | Horizontal distance between the two lower link points: | | (u) | 460 | 460 | 460 | 460 |
| [C] | Horizontal distance between the two lift arm end points: | | (v) | 550 | 550 | 550 | 550 |
| [C] | Length of upper link: | | (S) | 650 – 913 | 700 | 720 | 708 |
| [C] | Distance of upper link pivot point from rear wheel centre line: | horizontally: | (c) | 430 – 455 | 455 | 430 | 430 |
| | | vertically: | (d) | 208 – 275 | 208 | 275 | 275 |
| [C] | Distance of lower link pivot point from rear wheel centre line: | horizontally: | (e) | 168 | 168 | 168 | 168 |
| | | vertically: | (f) | 235 | 235 | 235 | 235 |
| [C] | Distance of lower link points to lift rod pivot points on lower link centre line: | | (D) | 502 – 580 | 502 | 580 | 580 |
| [C] | Length of lift rods: | | (L) | 700 – 888 | 825 | 875 | 875/820 |
| | Height of lower hitch points (*) Relative to the rear wheel centre line, situated 820 mm above the ground level: | | | | | | |
| [C] | - in low position | | (h) | 290 – 750 | 625 | 622 | 594/503 |
| [C] | - in high position | | (H) | 0 – 260 | 48 | 0 | 0/85 |
| [C] | 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 820 mm

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

With 1012 mm lower links

| | | | | Dimensions or ranges | Settings used in tests | | |
|-----|---|------------------------------|-----|--|------------------------|-------|---------|
| | | | | | 3.2.2.1 | 7.1.1 | 7.2.1 |
| | | | | mm | mm | mm | mm |
| [C] | Length of lift arms: | | (A) | 310 | 310 | 310 | 310 |
| [C] | Length of lower links: | | (B) | 1012 | 1012 | 1012 | 1012 |
| [C] | Distance of lift arm pivot point from rear wheel centre line: | horizontally: vertically: | (a) | 138 | 138 | 138 | 138 |
| | | | (b) | 370 | 370 | 370 | 370 |
| [C] | Horizontal distance between the two lower link points: | | (u) | 460 | 460 | 460 | 460 |
| [C] | Horizontal distance between the two lift arm end points: | | (v) | 550 | 550 | 550 | 550 |
| [C] | Length of upper link: | | (S) | 650 – 913 | 760 | 782 | 770 |
| [C] | Distance of upper link pivot point from rear wheel centre line: | horizontally: vertically: | (c) | 430 – 455 | 455 | 430 | 430 |
| | | | (d) | 208 – 275 | 208 | 275 | 275 |
| [C] | Distance of lower link pivot point from rear wheel centre line: | horizontally: vertically: | (e) | 168 | 168 | 168 | 168 |
| | | | (f) | 235 | 235 | 235 | 235 |
| [C] | Distance of lower link points to lift rod pivot points on lower link centre line: | | (D) | 502,580,658 | 502 | 658 | 580 |
| [C] | Length of lift rods: | | (L) | 700 – 888 | 820 | 888 | 888/820 |
| | Height of lower hitch points (*) Relative to the rear wheel centre line, situated 820 mm above the ground level: | | | | | | |
| [C] | - in low position | | (h) | 202 – 720 | 625 | 565 | 625/515 |
| [C] | - in high position | | (H) | 0 – 318 | 80 | 38 | 20/100 |
| [C] | 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 820 mm

1.7 Swinging drawbar

| | | | | | |
|-----|---|--------------------|-------------------|------------------|---------|
| [C] | Type: | | Clevis | | |
| [C] | Height above ground: | Unballasted | Maximum: | 558 mm | |
| | | | Minimum: | 448 mm | |
| [C] | Type of adjustment: | | Inverting drawbar | | |
| [C] | Distance of hitch point from rear-wheel axis, horizontally: | | 805 mm | 905 mm | 955 mm |
| [C] | Distance of hitch point from power take-off shaft end: | | | | |
| | | Vertically: | 234 mm | 344 mm | |
| | | Horizontally: | 250 mm | 350 mm | 400 mm |
| [C] | Lateral adjustment (centre of clevis): | | | | |
| | | Right-hand: | — | 203 mm | 225 mm |
| | | Left-hand: | — | 203 mm | 225 mm |
| [C] | Distance of pivot point from rear axles | horizontally: | 243 mm | behind rear axle | |
| [C] | Width of clevis: | | 70 mm | | |
| [C] | Diameter of drawbar pin hole: | | 33 mm | | |
| [D] | Maximum vertical permissible load: | Clevis uppermost: | 2040 kg | 1330 kg | 1140 kg |
| | | Clevis underneath: | 1305 kg | 1225 kg | 1045 kg |

1.8 Trailer hitch None fitted

1.9 Holed drawbar

Type: None fitted

1.10 Steering

- [D] Make: CNH
- [D] Model: None
- [D] Type: Hydrostatic
- Method of operation
- [C] Pump: Bosch
- [C] Motor: Sauer Danfoss OSPC-160-OR
- [C] Ram: 2, balanced system with double acting cylinders one operating each steering arm
- [D] Filter: Integral with hydraulic power lift system
- [D] Working pressure: 17 MPa

1.11 Brakes

1.11.1 Service brake

- [D] Make: CNH
- [D] Model: None
- [D] Type: Oil-immersed single plate disc
- [C] Method of operation: Hydraulic, independent on rear wheels (On 4WD models. When the service brakes are activated the front wheel drive is automatically engaged providing 4-wheel braking)
- [C] Trailer braking take-off: Hydraulic connector fitted to ISO 5676-1983

1.11.2 Parking brake

- [D] Type: Fully independent four plate disc operating on bevel pinion shaft
- [C] Method of operation: Hand lever with ratchet

1.12 Wheels

Number

| | | |
|-----|------------|--------------------|
| [C] | Front: | 2 driving/steering |
| [C] | Rear: | 2 driving |
| [C] | Wheelbase: | 2652 mm |

Track width adjustment:

| | | Minimum mm | Maximum mm | Adjustment method |
|-----|--------|---------------|---------------|--------------------------------------|
| [C] | Front* | 1630 | 2080 | Reversing wheels and offset lug rims |
| [C] | Rear | 1730 | 2130 | Reversing wheels and offset lug rims |

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

1.13 Protective structure

| | | |
|-----|----------------------------------|---|
| [C] | Make: | CNH |
| [C] | Model: | SLTV 12 |
| [C] | Type: | Cab safety frame - suspended |
| [C] | Manufacturer's name and address: | CNH UK Ltd Cranes Farm Road Basildon Essex SS14 3AD |

Protective device

| | | |
|-----|-----------------------------|--------------|
| [C] | Cab/frame/rollguard/ other: | Cab |
| [C] | Tiltable/Not tiltable: | Not tiltable |

OECD approval

| | | |
|-----|---|-------------------|
| [C] | Approval number: | 4/0741 |
| [C] | Date of approval: | 20 September 2002 |
| | Nos. minor modification certificates, if any: | 2 |

The certificates for minor modifications established by Danish testing station

1.14 Seat

1.14.1 *Driver's seat*

- [C] Make/model/Type: Grammer MSG 93/731, 95A/741
EEC approved to 78/764/EEC – e1*0006*03, e1*100514*07
- [C] Seat and steering wheel reversible: No
- [C] Type of suspension: Parallelogram, suspension air spring
- [C] Type of damping: Double acting, hydraulic
- Range of adjustment -
- [C] Longitudinal: + 90 mm / -120 mm
- [C] Vertical: ± 40 mm
- [C] Safety belt: Yes

1.14.2 *Optional driver's seat(s)*

1.14.3 *Passenger seat*

- [C] Make: Not fitted

1.15 Lighting

| | | Height above ground to centre | Size | Distance from outside edge of lights to medium plane of tractor |
|-----|------------------------|-------------------------------|----------|---|
| | | mm | mm | mm |
| [D] | Headlights | 1305 | 135 Dia | 220 |
| [C] | Sidelights | 1890 | 75 x 70 | 1008 |
| [D] | Rear lights | 1925 | 90 x 90 | 950 |
| [D] | Rear fender reflectors | 1925 | 35 x 90 | 950 |
| [C] | Rear axle reflectors | 795 | 100 x 35 | 581 |

2 TEST CONDITIONS

2.1 Overall dimensions

| | length | Width | | Height at top of | |
|-------------|--------|---------|---------|----------------------|--------------|
| | | minimum | maximum | Protective structure | Exhaust pipe |
| | mm | mm | mm | mm | mm |
| Unballasted | 4505 | 2420 | 2420 | 2935 | 2930 |

2.2 **Ground clearance (unballasted tractor)** 350 mm

Clearance-limiting part: Drawbar clevis in lowest position

2.3 Tractor mass

Mass (with or without frame/roll guard/cab/other): With cab

| | Unballasted | |
|-------|----------------|-------------|
| | Without driver | With driver |
| | kg | kg |
| Front | 2140 | 2149 |
| Rear | 3312 | 3378 |
| Total | 5452 | 5527 |

2.4 **Ballast** Not applicable

2.5 **Track specifications** Not applicable

2.6 Tyres and track width specification

| | Front | Rear |
|--|-------------------|-------------------|
| Tyres | | |
| Dimensions | 480/65R28 | 600/65R 38 |
| ply rating | 136 A8 | 153 A8 |
| type | Radial | Radial |
| Maximum load (tyre manufacturer's) 30/40/50 km/h | 15.4/14.4/13.1 kN | 25.3/23.6/21.4 kN |
| Maximum load (tractor manufacturer's) 30/40/50 | 15.4/14.4/13.1 kN | 25.3/23.6/21.4 kN |
| Inflation pressure (tyre manufacturer's) | 62 kPa | 62 kPa |
| Dynamic radius index | 640 mm | 820 mm |
| Chosen track width (manufacturer's nominal) | 1830 mm | 1830 mm |

2.7 Fuel

Type: Diesel oil to Class D, 1.5 to 5.5 cSt.

Density at 15° C: 0.8453 g/cm³

2.8 Oils and lubrication

2.8.1 Capacity and change interval

| | Capacity dm ³ | Oil change h | Filter change h |
|--|-----------------------------|-----------------|--------------------|
| Engine | 15.0 | 600 | 600 |
| Front axle differential | 9.0 | 1200 | None |
| Front axle hub (each) | 1.7 | 1200 | None |
| Gearbox | 62.0 | 1200 | 600/1200 |
| Rear axle Hydraulic system Final drives (rear) Steering | Integral with gearbox | | |
| Brakes | 0.5 | Top-up | None |

2.8.2 Specifications (SAE, APL, CCMC, ACEA, MILL, ISO)

| | spec | Recommended | Used during test |
|---|-----------|--|------------------|
| Engine oil Type: Viscosity Classification: | MS 1121 | SAE 10W/30 11.5 cSt at 100° C API CH - 4 | As recommended |
| Transmission oils Type: Viscosity Classification: | MAT 3525 | SAE 10W/30 9 cSt at 100° C API GL - 4 | As recommended |
| Rear final drives Type: Viscosity: Classification: | MAT 3525 | SAE 10W/30 9 cSt at 100° C API GL - 4 | As recommended |
| Front differential and final drives Type: Viscosity: Classification: | MAT 3525 | SAE 10W/30 9 cSt at 100° C API GL - 4 | As recommended |
| Hydraulic brakes Type: Viscosity: Classification: | LHM fluid | No equivalent 6 cSt at 100° C ISO 7308 | As recommended |
| Hydraulic fluid Type: Viscosity: Classification: | MAT 3525 | SAE 10W/30 9 cSt at 100° C API GL - 4 | As recommended |
| Steering oil Type: Viscosity: Classification: | MAT 3525 | SAE 10W/30 9 cSt at 100° C API GL - 4 | As recommended |

2.8.3 Grease

Type: 251 HEP Lithium Based As recommended
Number of lubrication points: 14

3. COMPULSORY TESTS RESULTS

3.1 Main power take-off

Date and location of tests:

1 and 4 June 2004
Silsoe Research Institute
Wrest Park, Silsoe, Bedford

Type of dynamometer bench:

Eddy Current, Borghi and Saveri

| Power kW | Speed min ⁻¹ (rev/min) | | | Fuel consumption | | | Specific Energy kWh/l |
|--|--------------------------------------|--------|------|------------------|-------|-------------------|-----------------------------|
| | Engine | P.T.O. | Fan | Hourly kg/h | l/h | Specific g/kWh | |
| 3.1.1 MAXIMUM POWER – TWO - HOUR TEST | | | | | | | |
| 95.0 | 1900 | 896 | 2513 | 22.93 | 27.13 | 241 | 3.50 |
| 3.1.2 POWER AT RATED ENGINE SPEED | | | | | | | |
| 85.4 | 2199 | 1037 | 2774 | 23.01 | 27.22 | 269 | 3.14 |
| 3.1.3 STANDARD POWER TAKE-OFF SPEED [1000 ± 25 min⁻¹ (rev/min)] | | | | | | | |
| 89.6 | 2120 | 1000 | 2713 | 23.07 | 27.29 | 258 | 3.28 |
| 3.1.4 PART LOADS | | | | | | | |
| 3.1.4.1 the torque corresponding to maximum power at rated engine speed | | | | | | | |
| 85.4 | 2199 | 1037 | 2774 | 23.01 | 27.22 | 269 | 3.14 |
| 3.1.4.2 85% of torque obtained in 3.1.4.1 | | | | | | | |
| 74.6 | 2257 | 1065 | 2746 | 21.06 | 24.92 | 282 | 2.99 |
| 3.1.4.3 75% of torque defined in 3.1.4.2 | | | | | | | |
| 57.0 | 2298 | 1084 | 2579 | 17.56 | 20.78 | 308 | 2.74 |
| 3.1.4.4 50% of torque defined in 3.1.4.2 | | | | | | | |
| 38.5 | 2326 | 1097 | 2579 | 14.10 | 16.68 | 366 | 2.31 |
| 3.1.4.5 25% of torque defined in 3.1.4.2 | | | | | | | |
| 19.4 | 2358 | 1112 | 2142 | 10.50 | 12.42 | 540 | 1.57 |
| 3.1.4.6 unloaded | | | | | | | |
| 0 | 2372 | 1119 | 2115 | 7.39 | 8.74 | - | - |
| 3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED [1000± 25 min⁻¹ (rev/min)] | | | | | | | |
| 3.1.5.1 the torque corresponding to maximum power | | | | | | | |
| 89.6 | 2120 | 1000 | 2713 | 23.07 | 27.29 | 258 | 3.28 |
| 3.1.5.2 85% of torque obtained in 3.1.5.1 | | | | | | | |
| 78.1 | 2171 | 1024 | 2670 | 20.53 | 24.29 | 263 | 3.21 |
| 3.1.5.3 75% of torque defined in 3.1.5.2 | | | | | | | |
| 59.0 | 2187 | 1032 | 2570 | 16.82 | 19.90 | 285 | 2.97 |
| 3.1.5.4 50% of torque defined in 3.1.5.2 | | | | | | | |
| 39.7 | 2203 | 1039 | 2471 | 13.32 | 15.76 | 336 | 2.52 |
| 3.1.5.5 25% of torque defined in 3.1.5.2 | | | | | | | |
| 19.9 | 2219 | 1047 | 1925 | 9.74 | 11.53 | 490 | 1.73 |
| 3.1.5.6 unloaded | | | | | | | |
| 0 | 2232 | 1053 | 1911 | 6.39 | 7.56 | - | - |

| | | | | | | | |
|--|------|------|------|-------|-------|-----|------|
| 3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS | | | | | | | |
| 3.1.6.1 maximum power at rated engine speed | | | | | | | |
| 85.4 | 2199 | 1037 | 2774 | 23.01 | 27.22 | 269 | 3.14 |
| 3.1.6.2 80% of power obtained in 3.1.6.1 at max speed setting | | | | | | | |
| 68.3 | 2280 | 1075 | 2599 | 19.65 | 23.25 | 288 | 2.94 |
| 3.1.6.3 80% of power obtained in 3.1.6.1 with governor set to 90% of rated engine speed | | | | | | | |
| 68.3 | 1979 | 934 | 2340 | 17.50 | 20.71 | 256 | 3.30 |
| 3.1.6.4 40% of power obtained in 3.1.6.1 with governor set to 90% of rated engine speed | | | | | | | |
| 34.2 | 1978 | 933 | 1958 | 11.03 | 13.05 | 322 | 2.62 |
| 3.1.6.5 60% of power obtained in 3.1.6.1 with governor set to 60% of rated engine speed | | | | | | | |
| 51.2 | 1321 | 623 | 1420 | 11.89 | 14.07 | 232 | 3.64 |
| 3.1.6.6 40% of power obtained in 3.1.6.1 with governor set to 60% of rated engine speed | | | | | | | |
| 34.2 | 1321 | 623 | 1370 | 8.71 | 10.31 | 255 | 3.32 |

No load maximum engine speed: 2372 min⁻¹ (rev/min)

Torque (equivalent crankshaft) at maximum power

At rated engine speed: 371.0 Nm

At 2-hour test: 477.7 Nm

Maximum torque (equivalent crankshaft): 553.4 Nm
 (engine speed: 1398 min⁻¹ (rev/min))

| | |
|-------------------------------------|-----------|
| Mean atmospheric conditions: | |
| Temperature | 23 °C |
| Pressure | 101.0 kPa |
| Relative humidity | 56 % |
| Maximum temperatures: | |
| Coolant | 83 °C |
| Engine oil | 99 °C |
| Fuel | 54 °C |
| Engine air intake | 28 °C |

Optional power take-off test

Boosted power

| Power kW | Speed min ⁻¹ (rev/min) | | | Fuel consumption | | | Specific Energy kWh/l |
|--|--------------------------------------|--------|------|------------------|-----------------|-------|-----------------------------|
| | Engine | P.T.O. | Fan | Hourly kg/h | Specific l/h | g/kWh | |
| 3.1.1 MAXIMUM POWER | | | | | | | |
| 113.0 | 1900 | 896 | 2557 | 26.61 | 31.48 | 235 | 3.59 |
| 3.1.2 POWER AT RATED ENGINE SPEED | | | | | | | |
| 105.5 | 2199 | 1037 | 2900 | 27.29 | 32.29 | 259 | 3.27 |
| 3.1.3 STANDARD POWER TAKE-OFF SPEED [1000 ± 25 min⁻¹ (rev/min)] | | | | | | | |
| 108.3 | 2122 | 1001 | 2830 | 27.29 | 32.28 | 252 | 3.35 |
| 3.1.4 PART LOADS | | | | | | | |
| 3.1.4.1 the torque corresponding to maximum power at rated engine speed | | | | | | | |
| 105.5 | 2199 | 1037 | 2900 | 27.29 | 32.29 | 259 | 3.27 |
| 3.1.4.2 85% of torque obtained in 3.1.4.1 | | | | | | | |
| 91.5 | 2241 | 1057 | 2581 | 23.74 | 28.09 | 259 | 3.26 |
| 3.1.4.3 75% of torque defined in 3.1.4.2 | | | | | | | |
| 69.8 | 2278 | 1075 | 2777 | 20.67 | 24.45 | 296 | 2.85 |
| 3.1.4.4 50% of torque defined in 3.1.4.2 | | | | | | | |
| 47.2 | 2312 | 1090 | 2826 | 16.16 | 19.12 | 342 | 2.47 |
| 3.1.4.5 25% of torque defined in 3.1.4.2 | | | | | | | |
| 24.0 | 2352 | 1109 | 2530 | 11.77 | 13.92 | 490 | 1.72 |
| 3.1.4.6 unloaded | | | | | | | |
| 0 | 2372 | 1119 | 2340 | 7.68 | 9.08 | - | - |
| 3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED [1000± 25 min⁻¹ (rev/min)] | | | | | | | |
| 3.1.5.1 the torque corresponding to maximum power | | | | | | | |
| 108.3 | 2122 | 1001 | 2830 | 27.29 | 32.28 | 252 | 3.35 |
| 3.1.5.2 85% of torque obtained in 3.1.5.1 | | | | | | | |
| 93.5 | 2157 | 1018 | 2650 | 23.56 | 27.87 | 252 | 3.35 |
| 3.1.5.3 75% of torque defined in 3.1.5.2 | | | | | | | |
| 70.8 | 2177 | 1027 | 2660 | 19.96 | 23.61 | 282 | 3.00 |
| 3.1.5.4 50% of torque defined in 3.1.5.2 | | | | | | | |
| 47.7 | 2195 | 1035 | 2600 | 14.85 | 17.57 | 312 | 2.71 |
| 3.1.5.5 25% of torque defined in 3.1.5.2 | | | | | | | |
| 24.1 | 2217 | 1046 | 2440 | 10.78 | 12.75 | 448 | 1.89 |
| 3.1.5.6 unloaded | | | | | | | |
| 0 | 2231 | 1052 | 2300 | 6.58 | 7.78 | - | - |

| | | | | | | | |
|--|------|------|------|-------|-------|-----|------|
| 3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS | | | | | | | |
| 3.1.6.1 maximum power at rated engine speed | | | | | | | |
| 105.5 | 2199 | 1037 | 2900 | 27.29 | 32.29 | 259 | 3.27 |
| 3.1.6.2 80% of power obtained in 3.1.6.1 at max speed setting | | | | | | | |
| 84.4 | 2254 | 1063 | 2670 | 22.23 | 26.30 | 263 | 3.21 |
| 3.1.6.3 80% of power obtained in 3.1.6.1 with governor set to 90% of rated engine speed | | | | | | | |
| 84.4 | 1980 | 934 | 2550 | 20.59 | 24.36 | 244 | 3.47 |
| 3.1.6.4 40% of power obtained in 3.1.6.1 with governor set to 90% of rated engine speed | | | | | | | |
| 42.2 | 1982 | 934 | 2290 | 12.52 | 14.81 | 297 | 2.85 |
| 3.1.6.5 60% of power obtained in 3.1.6.1 with governor set to 60% of rated engine speed | | | | | | | |
| 63.3 | 1323 | 624 | 1784 | 14.38 | 17.02 | 227 | 3.72 |
| 3.1.6.6 40% of power obtained in 3.1.6.1 with governor set to 60% of rated engine speed | | | | | | | |
| 42.2 | 1318 | 622 | 1782 | 10.30 | 12.19 | 244 | 3.46 |

No load maximum engine speed: 2372 min⁻¹ (rev/min)

Torque (equivalent crankshaft) at maximum power

At rated engine speed: 458.4 Nm

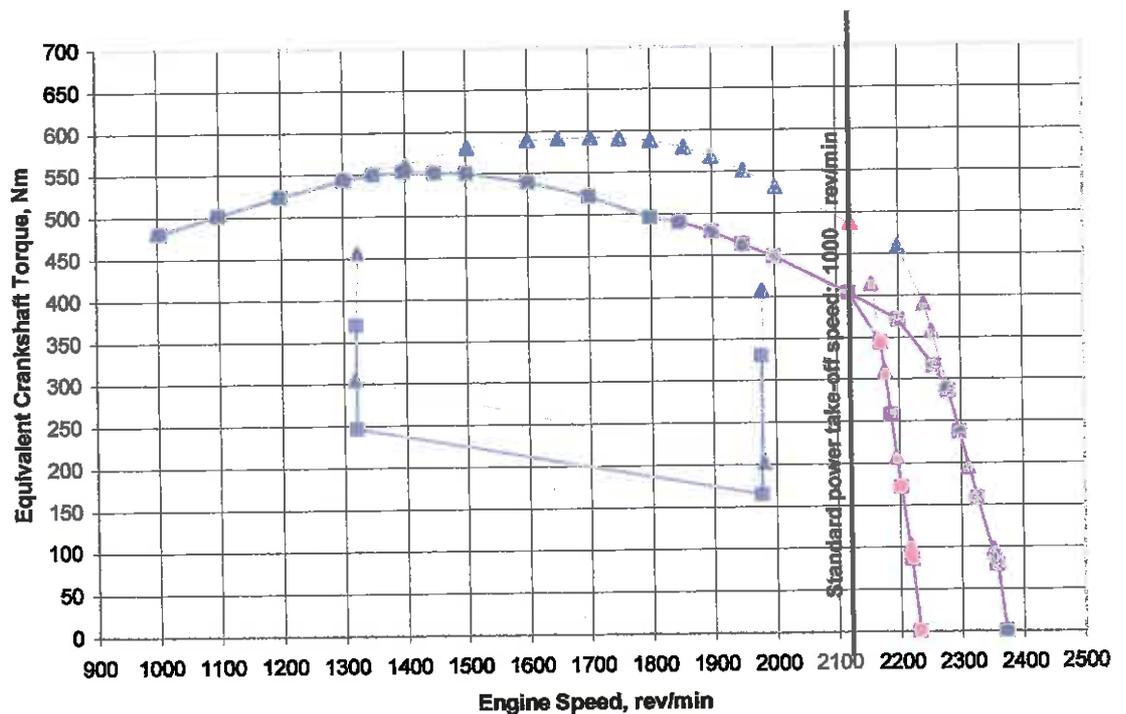
At maximum power: 568.0 Nm

Maximum torque (equivalent crankshaft): 591.8 Nm
(engine speed: 1703 min⁻¹ (rev/min))

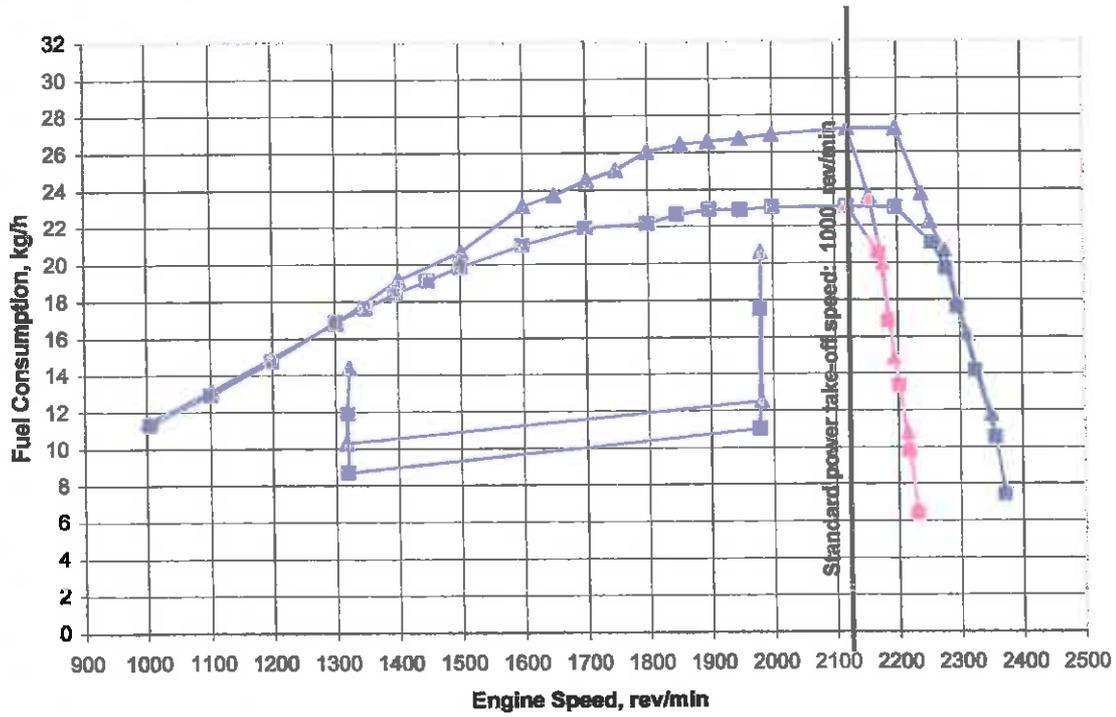
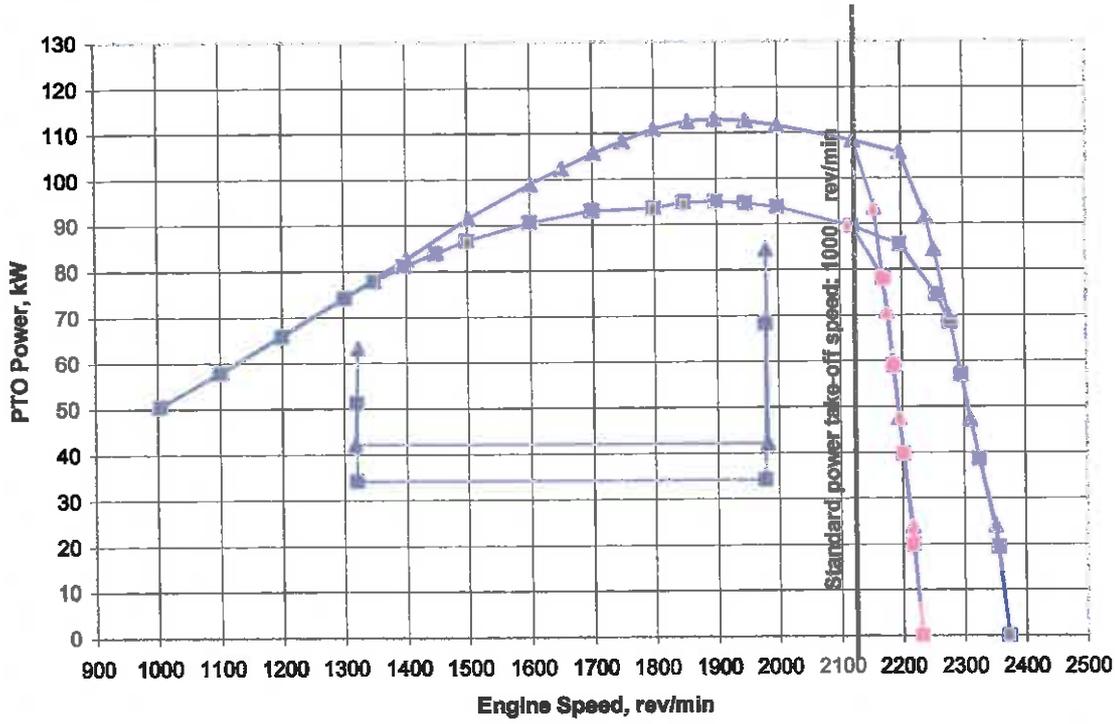
| Mean atmospheric conditions: | |
|------------------------------|-----------|
| Temperature | 23 °C |
| Pressure | 101.7 kPa |
| Relative humidity | 55 % |
| Maximum temperatures: | |
| Coolant | 82 °C |
| Engine oil | 100 °C |
| Fuel | 55 °C |
| Engine air intake | 28 °C |

- Main power take-off curve
- ▲ Boosted power take-off curve

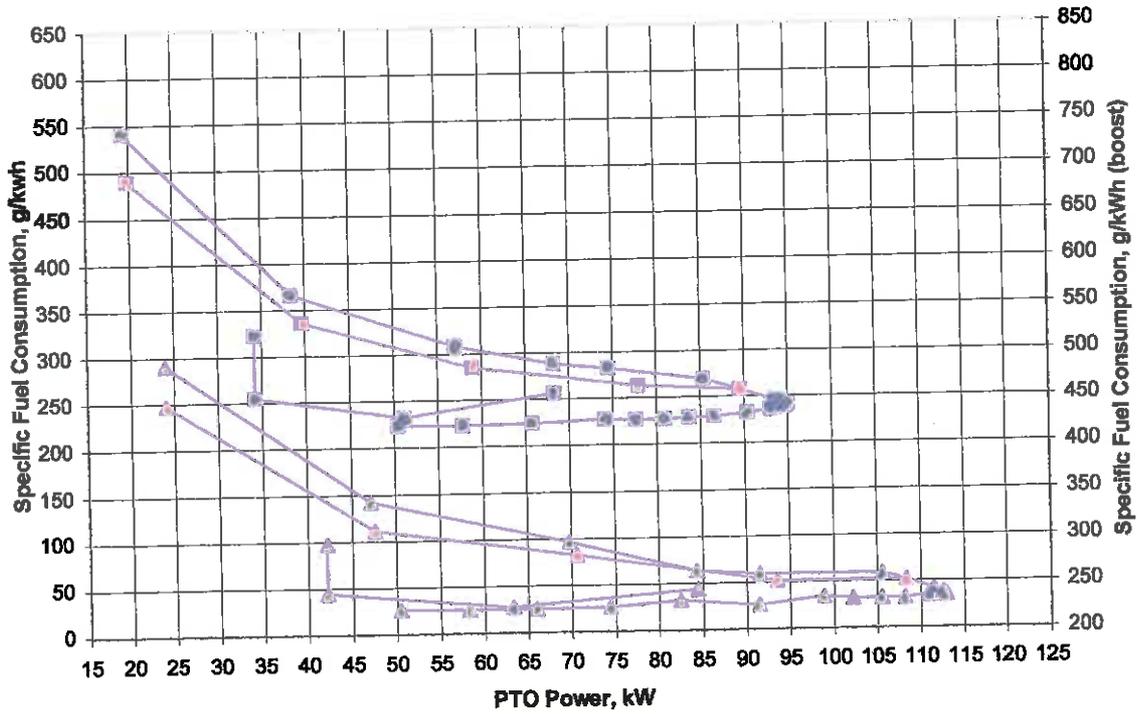
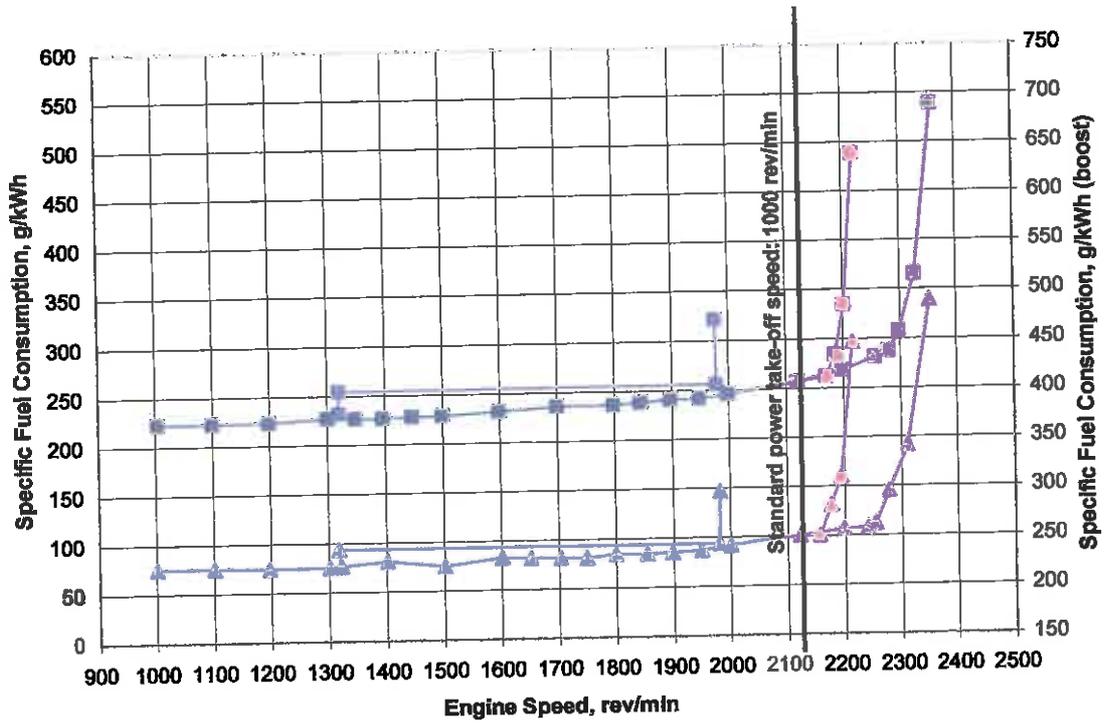
Power take-off curves



Power take-off curves



Power take-off curves



3.2 Hydraulic power and lifting force

Date of tests: 11, 12 and 16 August 2004

3.2.1 Hydraulic power test

3.2.1.1 Hydraulic fluid data

Hydraulic fluid type: MAT 3525

Viscosity index (ISO 3448+Corr 1:1993): 130

Viscosity at 65° C: 36.5mm²/s

3.2.1.2 Compulsory Reporting (Test Results):

| | Pressure | Reservoir oil Temperature °C (65 °C target) | | Engine Speed | Flow rate | Power |
|---|---------------|---|------|---------------|---------------|-----------------|
| | | MPa | Min. | | | |
| Rated Engine Speed | | | | 2200 | | |
| 3.2.1.2.1 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: Yes | 21.4 | 63 | 68 | 2370 | | |
| 3.2.1.2.2 Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power from one coupler pair: | 19.3 19.3* | 65 67* | | 2347 2341* | 66.5 73.6* | 21.40 23.67* |
| 3.2.1.2.3 Maximum available flow and maximum power from one coupler pair: | 17.5 | 65 | | 2327 | 89.4 | 26.08 |
| 3.2.1.2.4 Maximum available flow and maximum power from coupler pairs operating simultaneously (flow through two coupler pairs): | 18.0 | 65 | | 2328 | 94.5 | 28.35 |

* From 2 couplers

Maximum flow from 1 pair of couplers: 91.5 l/m

Maximum flow from 2 pairs of couplers: 99.0 l/m

3.2.2 Compulsory Power lift test

Power lift test – (To ISO 730-1:1994)

Linkage settings for test – see Table 1.1 and Figures 1.1 and 1.2.

| | At the hitch point | on the frame |
|--|--------------------|--------------|
| Height of lower hitch points above ground in down position | 195 mm | 125 mm |
| Vertical movement | 673 mm | 833 mm |
| Maximum corrected force exerted through full range | 53.1 kN | 42.4 kN |
| Corresponding pressure of hydraulic fluid | 19.3 MPa | 19.3 MPa |
| Moment about rear-wheel axis | 59.4 kNm | 73.3 kNm |
| Maximum tilt angle of mast from vertical | — | 10 degrees |

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|--|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|
| mm | - 460 | - 390 | - 255 | - 185 | - 85 | 0 | + 115 | + 200 | + 240 | + 283 | + 373 |
| Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting of the hydraulic lift system): | | | | | | | | | | | |
| at the hitch points kN | — | 53.1 | 54.8 | 56.0 | 57.8 | 58.8 | 60.6 | 61.4 | 61.8 | 62.1 | — |
| Corresponding pressure: 19.3 MPa | | | | | | | | | | | |
| at the frame kN | 47.4 | — | 47.1 | 47.3 | 47.2 | 47.1 | 45.8 | 44.6 | 43.6 | — | 42.4 |
| Corresponding pressure: 19.3 MPa | | | | | | | | | | | |

3.2.2.1

Power lift test – (To ISO 730-1:1994)

Optional Test with 1012 mm lower links

Linkage settings for test – see Table 2.1 and Figures 1.1 and 1.2.

| | At the hitch point | on the frame |
|--|--------------------|--------------|
| Height of lower hitch points above ground in down position | 195 mm | 130 mm |
| Vertical movement | 705 mm | 860 mm |
| Maximum corrected force exerted through full range | 50.1 kN | 41.1 kN |
| Corresponding pressure of hydraulic fluid | 19.3 MPa | 19.3 MPa |
| Moment about rear-wheel axis | 59.1 kNm | 73.6 kNm |
| Maximum tilt angle of mast from vertical | — | 10 degrees |

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| mm | - 455 | - 390 | - 285 | - 180 | - 100 | 0 | + 85 | + 179 | + 235 | + 315 | + 405 |
| Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting of the hydraulic lift system): | | | | | | | | | | | |
| at the hitch points kN | – | 50.1 | 51.2 | 52.7 | 54.2 | 55.4 | 56.8 | 57.7 | 58.1 | 58.9 | – |
| Corresponding pressure: 19.3 MPa | | | | | | | | | | | |
| at the frame kN | 44.7 | – | 44.7 | 45.0 | 45.0 | 44.9 | 44.3 | 43.4 | 42.4 | – | 41.1 |
| Corresponding pressure: 19.3 MPa | | | | | | | | | | | |

3.3 Drawbar power test (unballasted tractor)

Date and Location of tests:

28 and 29 June 2004
Silsoe Research Institute
Wrest Park
Silsoe
Bedford MK45 4HS

Type of track:

Concrete

| | Height of drawbar above ground mm | Tyre inflation pressure | |
|----------------------------|--------------------------------------|-------------------------|-------------|
| | | Front kPa | Rear kPa |
| Unballasted 4WD | 415 | 70 | 70 |
| Unballasted 4WD disengaged | 515 | 70 | 70 |

(Four-Wheel Drive)

| Gear number and range | Power kW | Drawbar pull kN | Speed Km/h | Engine speed min ⁻¹ | Slip of wheels or track % | Fan speed min ⁻¹ | Specific fuel cons g/kWh | Specific Energy kWh/l | Temperature | | | Atmospheric condition | | |
|---|-------------|--------------------|---------------|-----------------------------------|------------------------------|--------------------------------|-----------------------------|--------------------------|-------------|---------------|------------------|-----------------------|------------------------|-----------------|
| | | | | | | | | | Fuel °C | Coolant °C | Engine oil °C | Temp °C | Relative humidity % | Pressure kPa |
| 3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor) | | | | | | | | | | | | | | |
| 1A | 30.9 | 52.3 | 2.13 | 2323 | 13.0 | 1924 | 473 | 1.79 | 53 | 83 | 88 | 22 | 38 | 101.9 |
| 2A | 37.6 | 52.0 | 2.60 | 2311 | 12.5 | 2367 | 422 | 2.00 | 53 | 84 | 89 | 22 | 34 | 101.9 |
| 3A | 46.7 | 52.3 | 3.21 | 2292 | 10.9 | 2378 | 388 | 2.18 | 51 | 83 | 89 | 21 | 40 | 101.9 |
| 4A | 55.1 | 50.7 | 3.91 | 2277 | 10.8 | 2361 | 351 | 2.41 | 53 | 83 | 100 | 21 | 43 | 101.9 |
| 5B | 69.1 | 50.2 | 4.95 | 2203 | 9.2 | 2421 | 327 | 2.58 | 54 | 82 | 100 | 21 | 40 | 101.9 |
| 6B | 77.3 | 49.7 | 5.60 | 2034 | 8.9 | 2624 | 294 | 2.88 | 54 | 81 | 99 | 21 | 42 | 101.9 |
| 9C | 77.8 | 48.4 | 5.79 | 1902 | 7.0 | 2347 | 295 | 2.86 | 51 | 81 | 97 | 19 | 50 | 101.9 |
| 7B | 78.0 | 41.9 | 6.70 | 1911 | 5.2 | 2370 | 286 | 2.95 | 51 | 80 | 97 | 20 | 47 | 101.9 |
| 10C | 79.5 | 39.6 | 7.23 | 1900 | 4.7 | 2488 | 279 | 3.03 | 52 | 81 | 98 | 20 | 47 | 101.9 |
| 8B | 79.2 | 34.3 | 8.31 | 1920 | 4.3 | 2540 | 291 | 2.90 | 53 | 80 | 97 | 22 | 39 | 101.9 |
| 11C | 77.7 | 30.9 | 9.04 | 1921 | 3.8 | 2471 | 300 | 2.82 | 53 | 81 | 99 | 20 | 45 | 101.9 |
| 12C | 76.6 | 24.9 | 11.09 | 1915 | 3.2 | 2365 | 308 | 2.75 | 53 | 80 | 99 | 20 | 44 | 101.9 |
| 13D | 76.7 | 19.2 | 14.41 | 1923 | 2.7 | 2492 | 303 | 2.79 | 52 | 80 | 99 | 20 | 43 | 101.9 |

(Four-Wheel Drive)

| 3.3.2 FUEL CONSUMPTION | | | | | | | | | | | | | | |
|--|------|------|------|------|-----|------|-----|------|----|----|----|----|----|-------|
| 3.3.2.1 In selected gear, at maximum power at rated speed | | | | | | | | | | | | | | |
| 10C | 70.1 | 29.7 | 8.48 | 2203 | 3.8 | 2839 | 319 | 2.65 | 54 | 81 | 99 | 23 | 34 | 101.9 |
| 3.3.2.1.1 75% of pull corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | |
| 10C | 54.9 | 22.3 | 8.86 | 2281 | 3.1 | 2574 | 349 | 2.42 | 53 | 82 | 99 | 22 | 35 | 101.9 |
| 3.3.2.1.2 50% of pull corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | |
| 10C | 37.6 | 14.9 | 9.05 | 2311 | 2.2 | 2593 | 445 | 1.90 | 53 | 82 | 99 | 22 | 37 | 101.9 |
| 3.3.2.1.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.1 | | | | | | | | | | | | | | |
| 8B | 54.9 | 22.3 | 8.87 | 2021 | 3.0 | 2276 | 329 | 2.57 | 53 | 80 | 97 | 22 | 37 | 101.9 |
| 3.3.2.1.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2 | | | | | | | | | | | | | | |
| 8B | 37.5 | 14.9 | 9.07 | 2049 | 2.3 | 2295 | 370 | 2.28 | 53 | 81 | 97 | 22 | 38 | 101.9 |
| 3.3.2.2 In selected gear nearest to 7.5 km/h at rated engine speed | | | | | | | | | | | | | | |
| 9C | 70.4 | 36.8 | 6.88 | 2199 | 4.5 | 1904 | 318 | 2.66 | 51 | 82 | 94 | 19 | 53 | 101.9 |
| 3.3.2.2.1 75% of pull corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | |
| 9C | 55.2 | 27.6 | 7.20 | 2279 | 3.5 | 2290 | 353 | 2.39 | 50 | 82 | 98 | 19 | 48 | 101.9 |
| 3.3.2.2.2 50% of pull corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | |
| 9C | 37.8 | 18.4 | 7.37 | 2310 | 2.8 | 2460 | 427 | 1.98 | 50 | 82 | 98 | 19 | 52 | 101.9 |
| 3.3.2.2.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.1 | | | | | | | | | | | | | | |
| 7B | 55.4 | 27.6 | 7.21 | 2020 | 3.6 | 2346 | 335 | 2.52 | 53 | 81 | 97 | 22 | 36 | 101.9 |
| 3.3.2.2.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2 | | | | | | | | | | | | | | |
| 7B | 37.8 | 18.4 | 7.40 | 2052 | 2.5 | 2365 | 368 | 2.30 | 52 | 81 | 97 | 22 | 39 | 101.9 |

Drawbar power test (unballasted tractor)

Optional Test

(Four-Wheel Drive disengaged)

| Gear number and range | Power kW | Drawbar pull kN | Speed Km/h | Engine speed min ⁻¹ | Slip of wheels or track % | Fan speed min ⁻¹ | Specific fuel cons g/kWh | Specific Energy kWh/l | Temperature | | | Atmospheric condition | | |
|---|-------------|--------------------|---------------|-----------------------------------|------------------------------|--------------------------------|-----------------------------|--------------------------|-------------|---------------|------------------|-----------------------|------------------------|-----------------|
| | | | | | | | | | Fuel °C | Coolant °C | Engine oil °C | Temp °C | Relative humidity % | Pressure kPa |
| 3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor) | | | | | | | | | | | | | | |
| 1A | 22.4 | 38.1 | 2.12 | 2342 | 12.8 | 2381 | 557 | 1.52 | 55 | 83 | 99 | 24 | 44 | 101.8 |
| 2A | 27.0 | 37.9 | 2.57 | 2331 | 13.0 | 2505 | 497 | 1.70 | 55 | 84 | 99 | 23 | 42 | 101.8 |
| 3A | 33.2 | 37.7 | 3.17 | 2316 | 11.6 | 2597 | 459 | 1.84 | 56 | 84 | 99 | 24 | 42 | 101.8 |
| 4A | 40.4 | 37.7 | 3.86 | 2304 | 11.5 | 2418 | 416 | 2.03 | 55 | 82 | 99 | 23 | 43 | 101.8 |
| 5B | 51.5 | 37.5 | 4.95 | 2282 | 11.0 | 2482 | 389 | 2.17 | 54 | 83 | 99 | 23 | 45 | 101.8 |
| 6B | 61.9 | 37.3 | 5.98 | 2237 | 10.1 | 2686 | 361 | 2.34 | 54 | 83 | 99 | 23 | 42 | 101.7 |
| 9C | 68.1 | 37.1 | 6.60 | 2200 | 7.0 | 2550 | 333 | 2.54 | 49 | 81 | 94 | 21 | 56 | 101.8 |
| 7B | 72.4 | 36.8 | 7.08 | 2079 | 6.5 | 2555 | 314 | 2.69 | 52 | 81 | 99 | 20 | 58 | 101.9 |
| 10C | 75.9 | 36.5 | 7.48 | 2034 | 6.6 | 2471 | 296 | 2.85 | 49 | 81 | 94 | 20 | 56 | 101.8 |
| 8B | 78.2 | 35.0 | 8.05 | 1916 | 5.6 | 2501 | 299 | 2.82 | 54 | 81 | 99 | 22 | 52 | 101.9 |
| 11C | 77.5 | 31.9 | 8.75 | 1911 | 4.8 | 2473 | 289 | 2.92 | 51 | 80 | 93 | 23 | 45 | 101.8 |
| 12C | 78.9 | 26.1 | 10.87 | 1913 | 3.4 | 2333 | 295 | 2.87 | 52 | 81 | 98 | 21 | 55 | 101.9 |
| 13D | 79.4 | 20.3 | 14.06 | 1907 | 2.6 | 2430 | 283 | 2.99 | 52 | 80 | 98 | 20 | 59 | 101.9 |

(Four-Wheel Drive disengaged)

| 3.3.2 FUEL CONSUMPTION | | | | | | | | | | | | | | |
|--|------|------|-------|------|-----|------|-----|------|----|----|----|----|----|-------|
| 3.3.2.1 In selected gear, at maximum power at rated speed | | | | | | | | | | | | | | |
| 13D | 68.1 | 15.0 | 16.30 | 2196 | 2.1 | 2343 | 334 | 2.53 | 53 | 81 | 99 | 21 | 50 | 101.9 |
| 3.3.2.1.1 75% of pull corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | |
| 13D | 51.7 | 11.2 | 16.62 | 2231 | 1.7 | 2636 | 415 | 2.04 | 54 | 81 | 98 | 22 | 49 | 101.8 |
| 3.3.2.1.2 50% of pull corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | |
| 13D | 35.7 | 7.6 | 16.91 | 2261 | 1.2 | 2600 | 591 | 1.43 | 53 | 81 | 99 | 21 | 52 | 101.8 |
| 3.3.2.1.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.1 | | | | | | | | | | | | | | |
| 14D* | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3.3.2.1.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2 | | | | | | | | | | | | | | |
| 14D* | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3.3.2.2 In selected gear nearest to 7.5 km/h at rated engine speed | | | | | | | | | | | | | | |
| 9C | 68.1 | 37.1 | 6.60 | 2200 | 7.0 | 2550 | 333 | 2.54 | 49 | 81 | 94 | 21 | 56 | 101.8 |
| 3.3.2.2.1 75% of pull corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | |
| 9C | 54.7 | 27.8 | 7.08 | 2282 | 3.6 | 2478 | 360 | 2.35 | 51 | 82 | 97 | 21 | 57 | 101.9 |
| 3.3.2.2.2 50% of pull corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | |
| 9C | 37.7 | 18.6 | 7.27 | 2312 | 2.4 | 2387 | 433 | 1.95 | 50 | 82 | 97 | 20 | 58 | 101.9 |
| 3.3.2.2.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.1 | | | | | | | | | | | | | | |
| 7B | 54.8 | 27.8 | 7.09 | 2028 | 4.0 | 2548 | 311 | 2.72 | 50 | 80 | 93 | 23 | 44 | 101.8 |
| 3.3.2.2.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2 | | | | | | | | | | | | | | |
| 7B | 37.7 | 18.6 | 7.29 | 2055 | 2.7 | 2308 | 357 | 2.37 | 50 | 81 | 93 | 23 | 45 | 101.8 |

* Shutdowns were not possible in gear 14D as speed was too fast to control test load vehicle

5. REPAIRS None

6. REMARKS Boosted Engine Power Operation

This vehicle is equipped with an electronically – controlled engine Power Management™ system that monitors and boosts engine power output in certain circumstances, as engine load increases. This is achieved by electronically changing the characteristics of the engine power-speed curve.

The engine Power Management function ("boosted" power level) becomes active in higher transmission gears (16th gear and above with 24 x 24 transmissions and 13th gear and above with 16 x 16 transmissions), for road transport applications. With the 24 x 24 transmission, the system is also activated once power transfer through the rear P.T.O. exceeds a pre-set level (and forward speed exceeds 0.5 km/h), for mobile P.T.O. – driven implement applications.

An over-ride system is provided to enable P.T.O. operation at the "boosted" power level whilst the vehicle is stationary, for test purposes. The results of such a P.T.O. power output test are presented in this report.

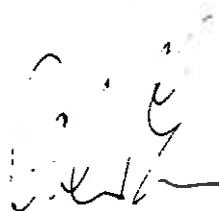
The test results for this report were obtained from a test carried out on a New Holland TS135A which is identical to the Steyr 6135 in all practical aspects relating to the tests.

Test carried out by:

S J Devonshire

Signed:

Officer in charge



J P Evans
Senior Test Engineer
Field Machinery Centre

Date:

4 January 2005

APPENDIX 1 ADDITIONAL TESTS

7.1 Power lift tests – (To Manufacturers lift rod setting)

“Not covered by the approval”

Linkage settings for test – see Table 1.1 and Figures 1.1 and 1.2.

| | At the hitch point | on the frame |
|--|--------------------|--------------|
| Height of lower hitch points above ground in down position | 198 mm | 198 mm |
| Vertical movement | 622 mm | 705 mm |
| Maximum corrected force exerted through full range | 58.8 kN | 47.6 kN |
| Corresponding pressure of hydraulic fluid | 19.3 MPa | 19.3 MPa |
| Moment about rear-wheel axis | 65.7 kNm | 82.3 kNm |
| Maximum tilt angle of mast from vertical | — | 5 degrees |

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | | |
|--|-------|-------|-------|-------|------|------|------|-------|-------|-------|-------|--|
| mm | - 430 | - 387 | - 295 | - 190 | - 75 | 0 | + 40 | + 115 | + 180 | + 235 | + 275 | |
| Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting of the hydraulic lift system): | | | | | | | | | | | | |
| at the hitch points kN | — | 58.8 | 59.8 | 61.4 | 63.2 | 63.9 | 64.4 | 64.6 | 64.6 | 64.3 | — | |
| Corresponding pressure: 19.3 MPa | | | | | | | | | | | | |
| at the frame kN | 55.2 | — | 55.1 | 55.6 | 54.8 | 54.5 | 54.5 | 53.0 | 51.4 | — | 47.6 | |
| Corresponding pressure: 19.3 MPa | | | | | | | | | | | | |

7.1.1 Optional Test with 1012 mm lower links

Linkage settings for test – see Table 2.1 and Figures 1.1 and 1.2.

| | At the hitch point | on the frame |
|--|--------------------|--------------|
| Height of lower hitch points above ground in down position | 255 mm | 255 mm |
| Vertical movement | 603 mm | 685 mm |
| Maximum corrected force exerted through full range | 62.2 kN | 49.8 kN |
| Corresponding pressure of hydraulic fluid | 19.3 MPa | 19.3 MPa |
| Moment about rear-wheel axis | 73.4 kNm | 89.1 kNm |
| Maximum tilt angle of mast from vertical | — | 6 degrees |

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|--|-------|-------|-------|------|------|------|-------|-------|-------|-------|-------|
| mm | - 365 | - 330 | - 200 | - 90 | 0 | + 90 | + 185 | + 200 | + 240 | + 275 | + 320 |
| Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting of the hydraulic lift system): | | | | | | | | | | | |
| at the hitch points kN | — | 62.2 | 63.6 | 64.9 | 65.5 | 65.6 | 65.1 | 64.7 | 64.1 | 63.4 | — |
| Corresponding pressure: 19.3 MPa | | | | | | | | | | | |
| at the frame kN | 57.7 | — | 57.8 | 57.4 | 56.6 | 55.2 | 52.5 | 51.6 | 50.8 | — | 49.8 |
| Corresponding pressure: 19.3 MPa | | | | | | | | | | | |

7.2 Power lift tests – (To SAE J283)

Linkage settings for test – see Table 1.1

* Lift rods readjusted to 820 mm to allow for lift force to be measured throughout the total lift range

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| mm | - 387 | - 325 | - 268 | - 223 | - 117 | 0 | +88 | + 178 | + 207 | — | — |
| *mm | — | — | - 268 | - 223 | - 117 | 0 | + 88 | + 178 | + 207 | + 258 | + 320 |
| SAE J283 | | | | | | | | | | | |
| kN | 69.1 | 69.1 | 66.9 | 64.7 | 62.6 | 61.0 | 59.1 | 56.6 | 55.7 | — | — |
| *kN | — | — | 64.4 | 64.4 | 63.0 | 61.9 | 60.2 | 58.4 | 57.5 | 56.0 | 53.6 |
| Corresponding pressure: 18.5 MPa | | | | | | | | | | | |

7.2.1 Optional Test with 1012 mm lower links

Linkage settings for test – see Table 2.1

* Lift rods readjusted to 820 mm to allow for lift force to be measured throughout the total lift range

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| mm | - 390 | - 345 | - 280 | - 190 | - 110 | 0 | + 90 | +185 | + 255 | — | — |
| *mm | — | — | - 280 | - 190 | - 110 | 0 | + 90 | + 185 | + 255 | + 317 | + 335 |
| SAE J283 | | | | | | | | | | | |
| kN | 64.5 | 64.5 | 62.0 | 60.1 | 58.9 | 57.7 | 56.1 | 53.8 | 51.4 | — | — |
| *kN | — | — | 60.7 | 59.7 | 59.0 | 57.7 | 57.0 | 55.4 | 53.3 | 50.7 | 50.0 |
| Corresponding pressure: 18.5 MPa | | | | | | | | | | | |

TEST RESULTS (OECD Code 5)

"Not covered by the approval"

Make and type of sound level meter: **Bruel and Kjaer 2260**

Type of test track: **Concrete**

Date of tests: **23 August 2004**

Four wheel drive engaged Windows closed

| Gear | Test Condition | Measured travelling speed km/h | Sound level dB(A) |
|------|----------------|--------------------------------|-------------------|
| 9C | Light Load | 7.7 | 73 |

Four wheel drive engaged Windows open

| Gear | Test Condition | Measured travelling speed km/h | Sound level dB(A) |
|------|----------------|--------------------------------|-------------------|
| 9C | Light Load | 7.7 | 76 |

Four wheel drive dis-engaged Windows closed

| Gear | Test Condition | Measured travelling speed km/h | Sound level dB(A) |
|------|----------------|--------------------------------|-------------------|
| 9C | Light Load | 7.7 | 72 |

Four wheel drive dis-engaged Windows open

| Gear | Test Condition | Measured travelling speed km/h | Sound level dB(A) |
|------|----------------|--------------------------------|-------------------|
| 9C | Light Load | 7.7 | 75 |

