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January 2004

## Test 1841: AGCO LT90 Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1841

## AGCO LT90 DIESEL

### 16 SPEED

#### POWER TAKE-OFF PERFORMANCE

| Power<br>HP<br>(kW)                        | Crank<br>shaft<br>speed<br>rpm | Gal/hr<br>(l/h) | lb/hp.hr<br>(kg/kW.h) | Hp.hr/gal<br>(kW.h/l) | Mean Atmospheric<br>Conditions |
|--|--------------------------------|-----------------|-----------------------|-----------------------|--------------------------------|
| MAXIMUM POWER AND FUEL CONSUMPTION         |                                |                 |                       |                       |                                |
| Rated Engine Speed—(PTO speed—1101 rpm)    |                                |                 |                       |                       |                                |
| 86.56<br>(64.55)                           | 2200                           | 6.38<br>(24.13) | 0.516<br>(0.314)      | 13.58<br>(2.67)       |                                |
| Standard Power Take-off Speed - (1000 rpm) |                                |                 |                       |                       |                                |
| 87.70<br>(65.40)                           | 1999                           | 6.05<br>(22.90) | 0.484<br>(0.294)      | 14.50<br>(2.86)       |                                |
| Maximum Power (2 hours)                    |                                |                 |                       |                       |                                |
| 87.70<br>(65.40)                           | 1999                           | 6.05<br>(22.90) | 0.484<br>(0.294)      | 14.50<br>(2.86)       |                                |

#### VARYING POWER AND FUEL CONSUMPTION

|                  |      |                 |                   |                 |                      |
|------------------|------|-----------------|-------------------|-----------------|----------------------|
| 86.56<br>(64.55) | 2200 | 6.38<br>(24.13) | 0.516<br>(0.314)  | 13.58<br>(2.67) | Air temperature      |
| 79.03<br>(58.94) | 2370 | 6.12<br>(23.16) | 0.543<br>(0.330)  | 12.92<br>(2.54) | 75°F (24°C)          |
| 58.98<br>(43.98) | 2358 | 4.92<br>(18.63) | 0.585<br>(0.356)  | 11.99<br>(2.36) | Relative humidity    |
| 39.09<br>(29.15) | 2348 | 3.85<br>(14.58) | 0.691<br>(0.420)  | 10.15<br>(2.00) | 44%                  |
| 20.03<br>(14.93) | 2403 | 2.91<br>(11.01) | 1.019<br>(0.620)  | 6.88<br>(1.36)  | Barometer            |
| 1.22<br>(0.91)   | 2441 | 2.01<br>(7.61)  | 11.553<br>(7.027) | 0.61<br>(0.12)  | 29.03"Hg (98.31 kPa) |

Maximum Torque 322 lb.-ft. (436 Nm) at 1251 rpm  
Maximum Torque Rise - 55.3%  
Torque rise at 1798 rpm - 23%

| TRACTOR SOUND LEVEL WITH CAB | Front wheel drive |            |
|------------------------------|-------------------|------------|
|                              | Engaged           | Disengaged |
| At no load in 6th(3LD) gear  | 77.7              | 77.7       |
| Bystander                    | --                | --         |

#### TIRES AND WEIGHT

**Rear Tires**—No., size, ply & psi (kPa)  
**Front Tires**—No., size, ply & psi (kPa)  
**Height of Drawbar**  
**Static Weight with operator**—Rear  
— Front  
— Total

**Tested Without Ballast**  
Two 18.4R38; \*\*, 16 (110)  
Two 14.9R28; \*\*, 16 (110)  
19.5 in (495 mm)  
5960 lb (2703 kg)  
4035 lb (1830 kg)  
9995 lb (4533 kg)

**Location of Test:** Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln  
Nebraska 68583-0832

**Dates of Test:** October 13-22, 2004

**Manufacturer:** AGCO Corporation, Duluth Georgia 30096

**FUEL, OIL and TIME:** Fuel No. 2 Diesel  
**Specific gravity converted to 60°/60° F (15°/15°C)** 0.8420  
**Fuel weight** 7.011 lbs/gal (0.840 kg/l)  
**Oil SAE 15W40 API service classification** CE/CF-4  
**Transmission and hydraulic lubricant** AGCO Power Fluid 821 XL fluid  
**Total time engine was operated** 9.5 hours

**ENGINE: Make** Cummins Diesel **Type** four cylinder vertical with turbocharger  
**Serial No.** 21602955  
**Crankshaft** lengthwise  
**Rated engine speed** 2200  
**Bore and stroke** 4.094" x 5.197" (104.0 mm x 132.0 mm)  
**Compression ratio** 17.5 to 1  
**Displacement** 274 cu in (4485 ml)  
**Starting system** 12 volt  
**Lubrication pressure**  
**Air cleaner** one paper element and one polyester felt element  
**Oil filter** one full flow cartridge  
**Oil cooler** engine coolant heat exchanger for crankcase oil  
**Fuel filter** one paper element and water separator  
**Muffler** underhood  
**Exhaust** vertical  
**Cooling medium temperature control** thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate:** 42.4 - 46.7 lb/h (19.2 - 21.2 kg/h)  
**High idle:** 2350 - 2450 rpm  
**Turbo boost:** nominal 12.7 - 15.4 psi (87- 106 kPa) as measured 14.0 psi (97 kPa)

**CHASSIS: Type** front wheel assist  
**Serial No.** N147018  
**Tread width** rear 56.1" (1530 mm) to 83.9" (2144 mm) front 54.0" (1568 mm) to 78.0" (2051 mm)  
**Wheelbase** 100.5" (2553 mm)  
**Hydraulic control system** direct engine drive  
**Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift  
**Nominal travel speeds mph (km/h)** first 1.67 (2.68) second 2.10 (3.38) third 2.51 (4.04) fourth 3.18 (5.11) fifth 3.72 (5.98) sixth 4.70 (7.56) seventh 5.03 (8.10) eighth 6.23 (10.03) ninth 6.36 (10.24) tenth 7.88 (12.68) eleventh 9.43 (15.17) twelfth 11.90 (19.15), thirteenth 13.94 (22.43) fourteenth 17.62 (28.35) fifteenth 18.86 (30.35) sixteenth 23.84 (38.36) reverse 1.67 (2.68), 2.10 (3.38), 2.51 (4.04), 3.18, (5.11), 3.72 (5.98), 4.70 (7.56), 5.03 (8.10), 6.23 (10.03), 6.36 (10.24), 7.88 (12.68), 9.43 (15.17), 11.90 (19.15), 13.94 (22.43), 17.62 (28.35), 18.86 (30.35), 23.84 (38.36)  
**Clutch** multiple wet disc electro-hydraulically operated by foot pedal  
**Brakes** single wet disc hydraulically operated by two foot pedals which can be locked together  
**Steering** hydrostatic  
**Power take-off** 540 rpm at 1902 engine rpm or 1000 rpm at 2000 engine rpm  
**Unladen tractor mass** 9820 lb (4454 kg)

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range: 7817 lbs (34.8 kN) 9189 lbs (40.9 kN)

i) Opening pressure of relief valve: NA  
Sustained pressure of the open relief valve: 2753 psi (190 bar) 3079 psi (212 bar)

ii) Pump delivery rate at minimum pressure and rated engine speed: 15.2 GPM (57.5 l/min) 24.9 GPM (94.3 l/min)

iii) Pump delivery rate at maximum hydraulic power: 15.2 GPM (57.5 l/min) 25.6 GPM (96.9 l/min)  
Delivery pressure: 2498 psi (172 bar) 2208 psi (152 bar)  
Power: 22.2 HP (16.5 kW) 33.0 Hp (24.6 kW)

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar) 2770 (191)  
Location: lift cylinder  
Hydraulic oil temperature: °F (°C) 152 (67)  
Location: hydraulic valve  
Category: II  
Quick attach: none

#### SAE Static Test—System pressure 2490 psi (172 Bar)

Hitch point distance to ground level in. (mm) 9.9 (251) 15.0 (381) 22.0 (559) 29.0 (737) 36.0 (914)  
Lift force on frame lb 15561 12897 11745 10314 9126  
" " " " " (kN) (69.2) (57.4) (51.0) (45.9) (40.6)

#### High lift Option

#### SAE Static Test—System pressure 2490 psi (172 Bar)

Hitch point distance to ground level in. (mm) 10.2 (259) 15.0 (381) 22.0 (559) 29.0 (737) 36.0 (914)  
Lift force on frame lb 18747 15849 14310 12789 11421  
" " " " " (kN) (83.4) (70.5) (63.7) (56.9) (50.8)

#### SAE test

#### OECD test

|   | inch | mm   | inch | mm   |
|---|------|------|------|------|
| A | 24.8 | 629  | 24.8 | 629  |
| B | 11.6 | 295  | 11.6 | 295  |
| C | 13.9 | 353  | 13.9 | 353  |
| D | 13.0 | 330  | 13.0 | 330  |
| E | 7.9  | 200  | 7.9  | 200  |
| F | 10.2 | 260  | 10.2 | 260  |
| G | 30.3 | 770  | 30.3 | 770  |
| H | 1.4  | 35   | 1.4  | 35   |
| I | 16.2 | 413  | 16.2 | 413  |
| J | 20.1 | 510  | 20.1 | 510  |
| K | 24.2 | 615  | 24.2 | 615  |
| L | 41.2 | 1046 | 41.2 | 1046 |
| M | 23.5 | 596  | 23.5 | 596  |
| N | 37.2 | 946  | 37.2 | 946  |
| O | 8.0  | 203  | 8.0  | 203  |
| P | 40.2 | 1020 | 44.1 | 1120 |
| Q | 33.5 | 850  | 33.5 | 850  |
| R | 29.0 | 737  | 29.0 | 737  |

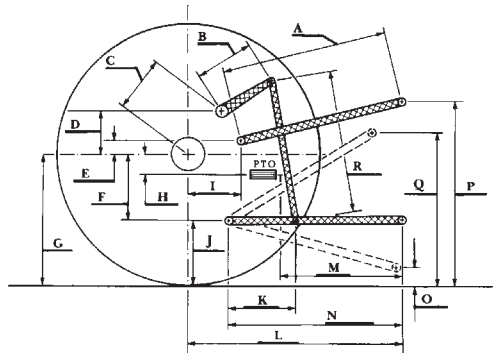
**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor did not meet the manufacturer's claim of 26.4 GPM (100 lpm) combined hydraulic flow at remote outlets. For the maximum power tests, the fuel temperature at the injection pump was maintained at 168°F (76°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1841, February 4, 2005.

Leonard L. Bashford  
Director

M.F. Kocher  
V.I. Adamchuk  
W.P. Campbell  
Board of Tractor Test Engineers



HITCH DIMENSIONS AS TESTED - NO LOAD



AGCO LT 90 Diesel

Institute of Agriculture and Natural Resources  
University of Nebraska-Lincoln