

# NEBRASKA OECD TRACTOR TEST 1903 - SUMMARY 569

## AGCO RT 100A POWRMXX DIESEL CONTINUOUSLY VARIABLE TRANSMISSION

### 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 |
|--|--------------------------------|-----------------|-----------------------|-----------------------|--------------------------------|
| <b>MAXIMUM POWER AND FUEL CONSUMPTION</b>      |                                |                 |                       |                       |                                |
| <b>Rated Engine Speed—(PTO speed—1082 rpm)</b> |                                |                 |                       |                       |                                |
| 107.77<br>(80.36)                              | 2200                           | 7.09<br>(26.85) | 0.461<br>(0.280)      | 15.19<br>(2.99)       |                                |
| <b>Standard Power Take-off Speed(1000rpm)</b>  |                                |                 |                       |                       |                                |
| 116.14<br>(86.60)                              | 2034                           | 6.93<br>(26.24) | 0.418<br>(0.254)      | 16.76<br>(3.30)       |                                |
| <b>Maximum Power (1 hour)</b>                  |                                |                 |                       |                       |                                |
| 117.73<br>(87.79)                              | 1900                           | 6.68<br>(25.30) | 0.397<br>(0.242)      | 17.62<br>(3.47)       |                                |

### VARYING POWER AND FUEL CONSUMPTION

|                   |      |                 |                   |                 |                       |
|-------------------|------|-----------------|-------------------|-----------------|-----------------------|
| 107.77<br>(80.36) | 2200 | 7.09<br>(26.85) | 0.461<br>(0.280)  | 15.19<br>(2.99) | Air temperature       |
| 92.05<br>(68.64)  | 2212 | 6.37<br>(24.12) | 0.485<br>(0.295)  | 14.45<br>(2.85) | 78°F (26°C)           |
| 69.35<br>(51.72)  | 2222 | 5.24<br>(19.85) | 0.529<br>(0.322)  | 13.23<br>(2.61) | Relative humidity     |
| 46.57<br>(34.73)  | 2233 | 4.13<br>(15.63) | 0.621<br>(0.377)  | 11.28<br>(2.22) | 49%                   |
| 23.26<br>(17.34)  | 2243 | 3.09<br>(11.68) | 0.929<br>(0.565)  | 7.54<br>(1.48)  | Barometer             |
| 1.42<br>(1.06)    | 2252 | 2.13<br>(8.06)  | 10.473<br>(6.370) | 0.67<br>(0.13)  | 28.76" Hg (97.39 kPa) |

Maximum torque - 410 lb.-ft. (555 Nm) at 1200 rpm

Maximum torque rise - 59.2%

Torque rise at 1802 engine rpm - 34%

Power increase at 1900 rpm - 9.2%

### DRAWBAR PERFORMANCE (Unballasted - Front Drive Engaged) FUEL CONSUMPTION CHARACTERISTICS

| Power<br>Hp<br>(kW)   | Drawbar<br>pull<br>lbs<br>(kN) | Speed<br>mph<br>(km/h) | Crank-<br>shaft<br>speed<br>rpm | Slip<br>% | Fuel<br>Consumption<br>lb/hp.hr<br>(kg/kW.h) | Hp.hr/gal<br>(kW.h/l) | Temp. °F (°C)<br>cool-<br>ing<br>med | Air<br>dry<br>bulb | Barom.<br>inch<br>Hg<br>(kPa) |
|---|--------------------------------|------------------------|---------------------------------|-----------|--|-----------------------|--------------------------------------|--------------------|-------------------------------|
| <b>Maximum Power—4.3 mph(7.0 km/h)</b>                        |                                |                        |                                 |           |  |                       |                                      |                    |                               |
| 89.72<br>(66.90)  | 8067<br>(35.88)                | 4.17<br>(6.71)         | 2199                            | 2.21      | 0.553<br>(0.336)                             | 12.67<br>(2.50)       | 183<br>(84)                          | 70<br>(21)         | 28.80<br>(97.52)              |
| <b>75% of Pull at Maximum Power—4.3 mph(7.0 km/h)</b>         |                                |                        |                                 |           |  |                       |                                      |                    |                               |
| 68.09<br>(50.78)  | 6056<br>(26.94)                | 4.22<br>(6.79)         | 2215                            | 1.53      | 0.615<br>(0.374)                             | 11.38<br>(2.24)       | 183<br>(84)                          | 78<br>(26)         | 28.77<br>(97.43)              |
| <b>50% of Pull at Maximum Power—4.3 mph(7.0 km/h)</b>         |                                |                        |                                 |           |  |                       |                                      |                    |                               |
| 46.02<br>(34.31)  | 4030<br>(17.93)                | 4.28<br>(6.89)         | 2227                            | 0.87      | 0.727<br>(0.442)                             | 9.62<br>(1.90)        | 182<br>(84)                          | 78<br>(26)         | 28.76<br>(97.39)              |
| <b>75% of Pull at Reduced Engine Speed—5.4 mph(8.6 km/h)</b>  |                                |                        |                                 |           |  |                       |                                      |                    |                               |
| 68.02<br>(50.72)  | 6079<br>(27.04)                | 4.20<br>(6.75)         | 1750                            | 1.50      | 0.495<br>(0.301)                             | 14.13<br>(2.78)       | 188<br>(87)                          | 78<br>(26)         | 28.76<br>(97.39)              |
| <b>50% of Pull at Reduced Engine Speed—6.8 mph(10.9 km/h)</b> |                                |                        |                                 |           |  |                       |                                      |                    |                               |
| 46.13<br>(34.40)  | 4005<br>(17.81)                | 4.32<br>(6.95)         | 1413                            | 0.82      | 0.515<br>(0.313)                             | 13.60<br>(2.68)       | 188<br>(87)                          | 78<br>(26)         | 28.76<br>(97.39)              |

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

**Dates of tests:** May 30-June 1, 2007

**Manufacturer:** AGCO S.A., BP 307, Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8407 Fuel weight 7.000 lbs/gal (0.839 kg/l) Oil SAE 10W40 API service classification CH-4 Transmission and hydraulic lubricant AGCO Power Fluid 821 XL fluid Front axle lubricant AGCO 715 gear lube Total time engine was operated 17.0 hours

**Engine: Make** Sisu Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** S19487 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.252" x 4.724" (108.0 mm x 120.0 mm) **Compression ratio** 18.5 to 1 **Displacement** 402 cu in (6596 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and final drive oil, radiator for transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 47.7 - 51.1 lb/h (21.6 - 23.2 kg/h) High idle: 2225-2275 rpm Turbo boost: nominal 11.9 - 13.3 psi (82 - 92 kPa) as measured 12.6 psi (87 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** R325046 **Tread width** rear 63.5" (1613 mm) to 110.4" (2803 mm) front 61.2" (1555 mm) to 89.1" (2264 mm) **Wheelbase** 113.7" (2889 mm) **Hydraulic control system** direct engine drive **Transmission** AGCO CVT. A combination of mechanical and hydrostatic sections allow an infinite speed adjustment within the ranges noted. The transmission has two mechanical ranges. **Nominal travel speeds mph (km/h)** forward: Low range 0 - 17 (0-28), high range 0 - 25 (0 - 40) reverse: Low range 0 - 11 (0 - 18), high range 0 - 12 (0 - 19) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2062 engine rpm or 1000 rpm at 2033 engine rpm **Unladen tractor mass** 15100 lb (6849 kg)

## DRAWBAR PERFORMANCE

### UNBALLASTED - FRONT DRIVE ENGAGED MAXIMUM POWER AT SELECTED TRAVEL SPEEDS

| Power<br>Hp<br>(kW) | Drawbar<br>pull<br>lbs<br>(kN) | Speed<br>mph<br>(km/h) | Crank-<br>shaft<br>speed<br>rpm | Slip<br>% | Fuel<br>lb/hp.hr<br>(kg/kW.h) | Consumption<br>Hp.hr/gal<br>(kW.h/l) | Temp. °F(°C)<br>cool-<br>ing<br>med | Air<br>dry<br>bulb | Barom.<br>inch<br>Hg<br>(kPa) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|-------------------------------|--------------------------------------|-------------------------------------|--------------------|-------------------------------|
| 2.2 mph(3.5 km/h)   |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 73.09<br>(54.50)    | 15145<br>(67.37)               | 1.81<br>(2.91)         | 2211                            | 13.00     | 0.626<br>(0.381)              | 11.18<br>(2.20)                      | 182<br>(83)                         | 65<br>(18)         | 28.82<br>(97.60)              |
| 2.5 mph(4.0 km/h)   |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 84.38<br>(62.92)    | 14482<br>(64.42)               | 2.18<br>(3.52)         | 2205                            | 9.14      | 0.581<br>(0.354)              | 12.04<br>(2.37)                      | 183<br>(84)                         | 67<br>(19)         | 28.82<br>(97.60)              |
| 3.1 mph(5.0 km/h)   |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 95.22<br>(71.01)    | 13719<br>(61.03)               | 2.60<br>(4.19)         | 2035                            | 6.76      | 0.515<br>(0.313)              | 13.58<br>(2.68)                      | 184<br>(84)                         | 68<br>(20)         | 28.81<br>(97.56)              |
| 3.7 mph(6.0 km/h)   |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 98.86<br>(73.72)    | 12429<br>(55.29)               | 2.98<br>(4.80)         | 1903                            | 5.57      | 0.480<br>(0.292)              | 14.60<br>(2.88)                      | 184<br>(85)                         | 69<br>(21)         | 28.81<br>(97.56)              |
| 4.3 mph(7.0 km/h)   |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 99.68<br>(74.33)    | 10508<br>(46.74)               | 3.56<br>(5.73)         | 1905                            | 3.81      | 0.473<br>(0.288)              | 14.79<br>(2.91)                      | 187<br>(86)                         | 71<br>(22)         | 28.80<br>(97.53)              |
| 5.0 mph(8.0 km/h)   |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 99.15<br>(73.94)    | 9032<br>(40.17)                | 4.12<br>(6.63)         | 1900                            | 2.81      | 0.476<br>(0.289)              | 14.71<br>(2.90)                      | 188<br>(86)                         | 73<br>(23)         | 28.79<br>(97.49)              |
| 5.6 mph(9.0 km/h)   |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 98.32<br>(73.32)    | 7991<br>(35.54)                | 4.61<br>(7.43)         | 1904                            | 2.39      | 0.479<br>(0.291)              | 14.62<br>(2.88)                      | 186<br>(86)                         | 74<br>(23)         | 28.79<br>(97.49)              |
| 6.2 mph(10.0 km/h)  |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 97.69<br>(72.85)    | 7001<br>(31.14)                | 5.23<br>(8.42)         | 1901                            | 1.91      | 0.484<br>(0.294)              | 14.47<br>(2.85)                      | 186<br>(86)                         | 75<br>(24)         | 28.78<br>(97.46)              |
| 6.8 mph(11.0 km/h)  |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 98.06<br>(73.12)    | 6478<br>(28.82)                | 5.68<br>(9.14)         | 1903                            | 1.67      | 0.480<br>(0.292)              | 14.57<br>(2.87)                      | 186<br>(85)                         | 76<br>(24)         | 28.78<br>(97.46)              |
| 7.5 mph(12.0 km/h)  |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 96.76<br>(72.16)    | 5778<br>(25.70)                | 6.28<br>(10.11)        | 1902                            | 1.44      | 0.487<br>(0.296)              | 14.38<br>(2.83)                      | 187<br>(86)                         | 77<br>(25)         | 28.77<br>(97.43)              |
| 8.1 mph(13.0 km/h)  |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 95.16<br>(70.96)    | 5330<br>(23.71)                | 6.70<br>(10.77)        | 1903                            | 1.23      | 0.494<br>(0.301)              | 14.16<br>(2.79)                      | 189<br>(87)                         | 76<br>(24)         | 28.73<br>(97.29)              |
| 8.7 mph(14.0 km/h)  |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 94.03<br>(70.12)    | 4847<br>(21.56)                | 7.27<br>(11.71)        | 1901                            | 1.10      | 0.507<br>(0.309)              | 13.80<br>(2.72)                      | 190<br>(88)                         | 75<br>(24)         | 28.73<br>(97.29)              |
| 9.3 mph(15.0 km/h)  |                                |                        |                                 |           |                               |                                      |                                     |                    |                               |
| 93.15<br>(69.46)    | 4459<br>(19.83)                | 7.83<br>(12.61)        | 1906                            | 1.03      | 0.507<br>(0.308)              | 13.81<br>(2.72)                      | 190<br>(88)                         | 72<br>(22)         | 28.72<br>(97.26)              |

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

**NOTE:** The performance figures on this report are the result of replacing the electronic engine control module of the AGCO RT 120A with the AGCO RT 100A module.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 144°F (62°C). The performance figures on this Summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1903**, Nebraska Summary 569, July 2, 2007.

Roger M. Hoy  
Director

M.F. Kocher  
V.I. Adamchuk  
J.A. Smith  
Board of Tractor Test Engineers

| TRACTOR SOUND LEVEL WITH CAB                       | Front Wheel Drive |                     |
|--|-------------------|---------------------|
|  | Engaged<br>dB(A)  | Disengaged<br>dB(A) |
| At no load at 4.7 mph(7.5 km/h)(engine - 2250 rpm) | 68.5              | 68.1                |
| At no load at 4.7 mph(7.5 km/h)(engine - 1200 rpm) | 63.9              | 63.2                |
| Bystander in Rabbit range                          | --                | 83.9                |

#### TIRES, BALLAST 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 520/85R38;\*,12(85)  
 Two 380/85R30;\*,12(85)  
 17.0 in (430 mm)  
 9885 lb (4484 kg)  
 5390 lb (2445 kg)  
 15275 lb (6929 kg)

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

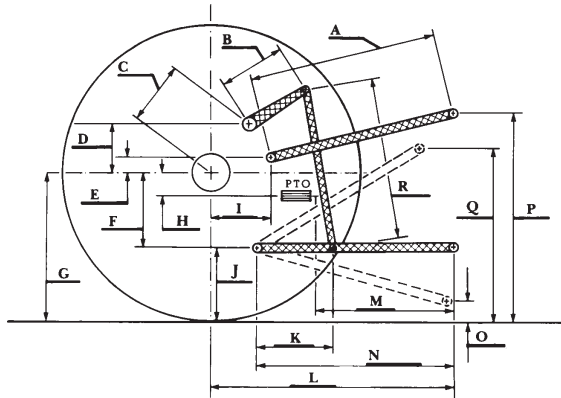
|   |  |
|---|--|
| CATEGORY: II  |  |
| Quick Attach: None                                  |  |
| Maximum force exerted through whole range:          | 10915 lbs (48.55 kN) CVT Transmission<br>8923 lbs (39.7 kN) Quadrashift Transmission |
| i) Opening pressure of relief valve:                | NA   |
| Sustained pressure of the open relief valve:        | 2864 psi (198 bar)   |
| ii) Pump delivery rate at minimum pressure:         | 30.4 GPM (115.1 l/min)   |
| iii) Pump delivery rate at maximum hydraulic power: | 26.3 GPM (99.6 l/min)  |
| Delivery pressure:                                  | 2714 psi (187 bar)   |
| Power:  | 41.6 HP (31.1 kW)  |

### THREE POINT HITCH PERFORMANCE QUADRASHIFT TRANSMISSION

|                                      |                |
|--------------------------------------|----------------|
| Observed Maximum Pressure psi. (bar) | 2800 (193)     |
| Location:                            | lift cylinder  |
| Hydraulic oil temperature: °F (°C)   | 149 (65)       |
| Location:                            | hydraulic sump |
| Category:                            | II             |
| Quick attach:                        | none           |

#### SAE Static Test—System pressure 2520 psi (174 Bar)

|   |           |            |            |            |            |
|---|-----------|------------|------------|------------|------------|
| Hitch point distance to ground level in. (mm) | 8.0 (203) | 15.1 (384) | 22.0 (559) | 29.3 (744) | 36.2 (919) |
| Lift force on frame lb                        | 12539     | 11933      | 11629      | 11129      | 9939       |
| " " " " " (kN)                                | (55.8)    | (53.1)     | (51.7)     | (49.5)     | (44.2)     |



AGCO RT 100A Diesel

Institute of Agriculture and Natural Resources  
University of Nebraska-Lincoln

### CVT TRANSMISSION HITCH DIMENSIONS AS TESTED—NO LOAD

|   | inch | mm   |
|---|------|------|
| A | 29.1 | 740  |
| B | 14.0 | 355  |
| C | 13.8 | 351  |
| D | 11.6 | 295  |
| E | 5.5  | 140  |
| F | 9.8  | 250  |
| G | 32.2 | 820  |
| H | 2.8  | 70   |
| I | 17.5 | 445  |
| J | 22.4 | 570  |
| K | 26.2 | 665  |
| L | 45.1 | 1145 |
| M | 26.0 | 660  |
| N | 40.6 | 1030 |
| O | 7.9  | 200  |
| P | 46.5 | 1180 |
| Q | 36.2 | 920  |
| R | 29.3 | 745  |

### QUADRASHIFT TRANSMISSION HITCH DIMENSIONS AS TESTED—NO LOAD

|   | SAE TEST |      | OECD TEST |      |
|---|----------|------|-----------|------|
|   | inch     | mm   | inch      | mm   |
| A | 27.6     | 702  | 28.2      | 716  |
| B | 11.6     | 295  | 11.6      | 295  |
| C | 13.9     | 354  | 13.9      | 354  |
| D | 13.0     | 330  | 13.0      | 330  |
| E | 7.9      | 200  | 7.9       | 200  |
| F | 10.2     | 260  | 10.2      | 260  |
| G | 32.3     | 820  | 32.3      | 820  |
| H | 0.3      | 8    | 0.3       | 8    |
| I | 15.3     | 389  | 15.3      | 389  |
| J | 22.1     | 560  | 22.1      | 560  |
| K | 21.5     | 545  | 21.5      | 545  |
| L | 40.9     | 1040 | 40.9      | 1040 |
| M | 22.2     | 565  | 22.2      | 565  |
| N | 37.0     | 940  | 37.0      | 940  |
| O | 8.0      | 203  | 8.0       | 203  |
| P | 41.1     | 1043 | 46.1      | 1170 |
| Q | 36.0     | 914  | 36.0      | 914  |
| R | 29.4     | 748  | 29.4      | 748  |