

# NEBRASKA TRACTOR TEST 1782C CHALLENGER MT 645 DIESEL 18 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 |
|---|--------------------------------|------------------|-----------------------|-----------------------|--------------------------------|
| <b>MAXIMUM POWER AND FUEL CONSUMPTION</b>       |                                |                  |                       |                       |                                |
| <b>Rated Engine Speed—(PTO speed—1052 rpm)</b>  |                                |                  |                       |                       |                                |
| 181.26<br>(135.16)                              | 2200                           | 11.29<br>(42.73) | 0.438<br>(0.266)      | 16.06<br>(3.16)       |                                |
| <b>Standard Power Take-off Speed (1000 rpm)</b> |                                |                  |                       |                       |                                |
| 183.87<br>(137.11)                              | 2091                           | 10.95<br>(41.44) | 0.418<br>(0.255)      | 16.80<br>(3.31)       |                                |
| <b>Maximum Power (2 Hours)</b>                  |                                |                  |                       |                       |                                |
| 184.49<br>(137.57)                              | 2000                           | 10.60<br>(40.14) | 0.404<br>(0.246)      | 17.40<br>(3.43)       |                                |

## VARYING POWER AND FUEL CONSUMPTION

|                    |      |                  |                    |                 |                       |
|--------------------|------|------------------|--------------------|-----------------|-----------------------|
| 181.26<br>(135.16) | 2200 | 11.29<br>(42.73) | 0.438<br>(0.266)   | 16.06<br>(3.16) | Air temperature       |
| 158.24<br>(118.00) | 2258 | 10.20<br>(38.62) | 0.453<br>(0.276)   | 15.51<br>(3.06) | 76°F (25°C)           |
| 119.33<br>(88.99)  | 2280 | 8.41<br>(31.83)  | 0.495<br>(0.301)   | 14.19<br>(2.80) | Relative humidity     |
| 80.06<br>(59.70)   | 2300 | 6.53<br>(24.72)  | 0.573<br>(0.349)   | 12.26<br>(2.41) | 55%                   |
| 40.54<br>(30.23)   | 2319 | 4.78<br>(18.10)  | 0.829<br>(0.504)   | 8.48<br>(1.67)  | Barometer             |
| 1.07<br>(0.80)     | 2346 | 3.07<br>(11.63)  | 20.222<br>(12.301) | 0.35<br>(0.07)  | 28.60" Hg (96.85 kPa) |

Maximum Torque - 589 lb.-ft. (799 Nm) at 1300 rpm  
Maximum Torque Rise - 36.1%  
Torque rise at 1801 engine rpm - 21%

| TRACTOR SOUND LEVEL WITH CAB | Front Wheel Drive |                     |
|------------------------------|-------------------|---------------------|
|                              | Engaged<br>dB(A)  | Disengaged<br>dB(A) |
| At no load in 9th gear       | 73.0              | 72.7                |
| 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 18.4R42; \*\*; 22 (150)  
Two 14.9R30; \*\*; 24 (165)  
16.0 in (405 mm)  
12220 lb (5543 kg)  
6800 lb (3084 kg)  
19020 lb (8627 kg)

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

**Dates of Test:** September 19-26, 2000

**Manufacturer:** AGCO Corporation, 4205 River Green Parkway, Duluth, Ga. 30096-2568, USA.

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8441 **Fuel weight** 7.028 lbs/gal (0.842 kg/l) **Oil SAE 15W40 API service classification** CE/CF-4 **Transmission and hydraulic lubricant** AGCO Power fluid 821 XL **Front axle lubricant** AGCO Power Lube 715 **Total time engine was operated** 8.0 hours

**ENGINE: Make** Sisu/Valmet Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** H8276 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.251" x 5.278" (108.0 mm x 134.0 mm) **Compression ratio** 16.5 to 1 **Displacement** 449 cu in (7365 ml) **Starting system** 12volt **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 transmission oil **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS:**  
**Fuel rate:** 78.9 - 87.1 lb/h (35.8 - 39.5 kg/h) **High idle:** 2304 - 2404 rpm **Turbo boost:** nominal 19.0 - 26.0 psi (131 - 179 kPa) as measured 25.2 psi (174 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** \*CG198001\* **Tread width** rear 61.5" (1562 mm) to 126.0" (3200 mm) front 59.9" (1522 mm) to 87.9" (2233 mm) **Wheelbase** 121.1" (3075 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.36 (2.19) second 1.76 (2.83) third 2.27 (3.65) fourth 2.59 (4.17) fifth 2.92 (4.70) sixth 3.33 (5.36) seventh 3.78 (6.09) eighth 4.31 (6.94) ninth 4.88 (7.85) tenth 5.56 (8.95) eleventh 6.31 (10.16) twelfth 7.20 (11.58) thirteenth 8.13 (13.09) fourteenth 9.26 (14.91) fifteenth 10.53 (16.94) sixteenth 13.56 (21.82) seventeenth 17.54 (28.23) eighteenth 22.60 (36.37) reverse 1.36 (2.19), 2.27 (3.65), 2.59 (4.17), 3.78 (6.09), 4.31 (6.94), 6.31 (10.16) **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 2091 engine rpm **Unladen tractor mass** 18845 lb (8555 kg)

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

CATEGORY: III

Quick Attach: None

Maximum Force Exerted

Through Whole Range: 19710 lbs (87.7 kN)

|  |                        |                         |
|--|------------------------|-------------------------|
|  |                        | <u>High flow option</u> |
| i) Opening pressure of relief valve:                               | NA                     | NA                      |
| Sustained pressure of the open relief valve:                       | 2900 psi (200 bar)     | 2850 psi (196 bar)      |
| ii) Pump delivery rate at minimum pressure and rated engine speed: | 29.5 GPM (111.7 l/min) | 39.3 GPM (148.8 l/min)  |
| iii) Pump delivery rate at maximum hydraulic power:                | 25.4 GPM (96.1 l/min)  | 35.9 GPM (135.9 l/min)  |
| Delivery pressure:   | 2690 psi (185 bar)     | 2490 psi (172 bar)      |
| Power:   | 39.9 HP (29.7 kW)      | 52.2 Hp (38.9 kW)       |

### THREE POINT HITCH PERFORMANCE

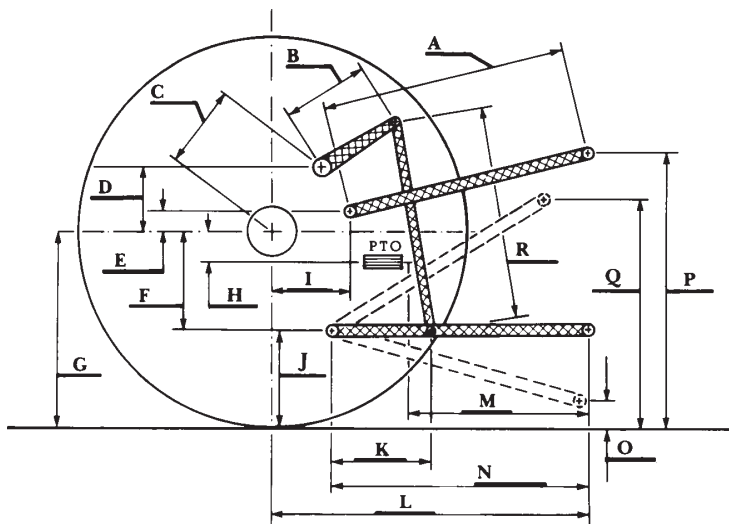
|                                      |                |
|--------------------------------------|----------------|
| Observed Maximum Pressure psi. (bar) | 3020 (208)     |
| Location:                            | lift cylinder  |
| Hydraulic oil temperature: °F (°C)   | 149 (65)       |
| Location:                            | hydraulic sump |
| Category:                            | III            |
| Quick attach:                        | none           |

#### SAE Static Test—System pressure 2720 psi (187 Bar)

|   |            |            |            |            |             |
|---|------------|------------|------------|------------|-------------|
| Hitch point distance to ground level in. (mm) | 11.7 (297) | 16.0 (406) | 24.0 (610) | 32.0 (813) | 40.0 (1016) |
| Lift force on frame lb                        | 22635      | 23229      | 22302      | 22860      | 21726       |
| " " " " " " (kN)                              | (107.7)    | (103.3)    | (99.2)     | (101.7)    | (96.6)      |

|   | SAE TEST |      | OECD TEST |      |
|---|----------|------|-----------|------|
|   | inch     | mm   | inch      | mm   |
| A | 28.8     | 732  | 29.8      | 756  |
| B | 15.0     | 380  | 15.0      | 380  |
| C | 19.4     | 492  | 19.4      | 492  |
| D | 17.6     | 447  | 17.6      | 447  |
| E | 11.0     | 280  | 11.0      | 280  |
| F | 13.0     | 330  | 13.0      | 330  |
| G | 36.3     | 920  | 34.3      | 870  |
| H | 3.9      | 100  | 3.9       | 100  |
| I | 17.6     | 447  | 17.6      | 447  |
| J | 23.3     | 590  | 21.3      | 540  |
| K | 21.3     | 540  | 23.2      | 590  |
| L | 48.2     | 1225 | 48.2      | 1225 |
| M | 23.1     | 588  | 23.1      | 588  |
| N | 38.4     | 975  | 38.4      | 975  |
| O | 11.6     | 295  | 9.3       | 235  |
| P | 45.3     | 1150 | 48.2      | 1225 |
| Q | 41.5     | 1054 | 36.9      | 937  |
| R | 34.0     | 864  | 36.0      | 914  |

HITCH DIMENSIONS AS TESTED—NO LOAD



Agricultural Research Division  
 Institute of Agriculture and Natural Resources  
 University of Nebraska—Lincoln  
 Darrell Nelson, Dean and Director

**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. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 112°F(44°C).

**NOTE:** The data on this report was obtained from Nebraska test 1782B conducted on the Massey Ferguson 8260 Diesel.

**Report reissued:** Supplemental sales permit for Challenger MT645 Diesel, July 2003.

We, the undersigned, certify that this is a true and correct report of Official Tractor Test No. 1782C, June 26, 2003.

Leonard L. Bashford  
 Director

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