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January 1999

Tests 1860 & 1861: Challenger MT 535 Diesel

Nebraska Tractor Test Lab

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SUMMARY OF OECD TESTS 1860 & 1861–NEBRASKA SUMMARY 303A

CHALLENGER MT 535 DIESEL

32 SPEED

POWER TAKE-OFF PERFORMANCE

| Power HP (kW) | Crank shaft speed rpm | Gal/hr (l/h) | lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Mean Atmospheric Conditions |
|--|--------------------------------|-----------------|-----------------------|-----------------------|--------------------------------|
| MAXIMUM POWER AND FUEL CONSUMPTION | | | | | |
| Rated Engine Speed—(PTO speed—1090 rpm) | | | | | |
| 100.2 (74.7) | 2180 | 6.08 (23.00) | 0.431 (0.262) | 16.49 (3.25) | |
| Maximum Power (2 Hours) | | | | | |
| 103.9 (77.5) | 2030 | 5.93 (22.46) | 0.406 (0.247) | 17.51 (3.45) | |
| Standard Power Take-off Speed(1000 rpm) | | | | | |
| 103.5 (77.2) | 2000 | 5.85 (22.15) | 0.401 (0.244) | 17.69 (3.49) | |

VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|-----------------|------|-----------------|------------------|-----------------|----------------------|
| 100.2 (74.7) | 2180 | 6.08 (23.00) | 0.431 (0.262) | 16.49 (3.25) | Air temperature |
| 87.8 (65.5) | 2227 | 5.59 (21.18) | 0.452 (0.275) | 15.70 (3.09) | 64°F (18°C) |
| 66.4 (49.5) | 2251 | 4.82 (18.26) | 0.515 (0.314) | 13.78 (2.71) | Relative humidity |
| 44.4 (33.1) | 2268 | 3.95 (14.95) | 0.632 (0.384) | 11.24 (2.21) | 40% |
| 22.3 (16.6) | 2281 | 2.84 (10.76) | 0.906 (0.551) | 7.84 (1.54) | Barometer |
| -- | 2296 | 1.89 (7.17) | -- | -- | 29.7" Hg (100.7 kPa) |

Maximum Torque - 316.1 lb.-ft. (428.6 Nm) at 1120 rpm

Maximum Torque rise - 30.5%

Torque rise at 1800 engine rpm - 21%

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)

FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel lb/hp.hr (kg/kW.h) | Consumption Hp.hr/gal (kW.h/l) | Temp.°F (°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---|--------------------------------|------------------------|---------------------------------|-----------|-------------------------------|--------------------------------------|-------------------------------------|--------------------|-------------------------------|
| Maximum Power—21st(2LA) Gear | | | | | | | | | |
| 98.8 (73.7) | 4870 (21.7) | 7.61 (12.25) | 2008 | 3 | 0.434 (0.264) | 16.34 (3.22) | 189 (87) | 79 (26) | 29.7 (100.6) |
| 75% of Pull at Maximum Power—21st(2LA) Gear | | | | | | | | | |
| 69.6 (51.9) | 3040 (13.5) | 8.58 (13.81) | 2232 | 2 | 0.531 (0.323) | 13.39 (2.64) | 189 (87) | 77 (25) | 30.0 (101.6) |
| 50% of Pull at Maximum Power—21st(2LA) Gear | | | | | | | | | |
| 46.9 (35.0) | 2020 (9.0) | 8.71 (14.03) | 2250 | 1 | 0.654 (0.398) | 10.86 (2.14) | 189 (87) | 77 (25) | 30.0 (101.6) |
| 75% of Pull at Reduced Engine Speed—22nd(2LB) Gear | | | | | | | | | |
| 69.4 (51.8) | 2995 (13.3) | 8.69 (13.99) | 1931 | 1 | 0.467 (0.284) | 15.19 (2.99) | 187 (86) | 77 (25) | 30.0 (101.6) |
| 50% of Pull at Reduced Engine Speed—22nd(2LB) Gear | | | | | | | | | |
| 47.3 (35.3) | 2025 (9.0) | 8.76 (14.09) | 1960 | 1 | 0.564 (0.343) | 12.59 (2.48) | 187 (86) | 77 (25) | 30.0 (101.6) |

Location of Test: Groupement d'Antony, Parc de Touvoie, BP 44 Antony, France 92163

Dates of Test: December 1997 -September, 1999

Manufacturer: AGCO S.A. Z.A.-No.2 BP 60307, Avenue Blaise Pascal, 60026 Beauvais, France

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.853 **Fuel weight** 7.10 lbs/gal (0.851 kg/l) **Oil SAE** 10W30 **API service classification** CD/CE **Transmission and hydraulic lubricant** BP Terrac Extra 10W/30 **Front axle lubricant** API GL5 -SAE 85W140

ENGINE: Make Perkins Diesel **Type** six cylinder vertical with turbocharger **Serial No.** U623839B **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 3.937" x 5.00"(100.0 mm x 127.0 mm) **Compression ratio** 16.0 to 1 **Displacement** 365 cuin (5985 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** 2WD and FWA **Serial No.** E032005 **Tread width** rear 60.6" (1538 mm) to 84.1" (2136 mm) front 2WD - 54.3" (1380 mm) to 91.7" (2330 mm), FWA - 61.7" (1566 mm) to 80.9" (2054 mm) **Wheelbase** 106.3" (2699 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.30 (2.09) second 1.52 (2.45) third 1.80 (2.90) fourth 2.11 (3.39) fifth 2.22 (3.57) sixth 2.59 (4.17) seventh 2.91 (4.69) eighth 3.06 (4.92) ninth 3.41 (5.49) tenth 3.59 (5.77) eleventh 3.94 (6.34) twelfth 4.03 (6.48) thirteenth 4.62 (7.43) fourteenth 4.71 (7.58) fifteenth 4.88 (7.86) sixteenth 5.45 (8.77) seventeenth 5.72 (9.20) eighteenth 6.38 (10.26) nineteenth 6.74 (10.86) twentieth 7.90 (12.71) twenty-first 8.30 (13.36) twenty-second 9.72 (15.64) twenty-third 10.92 (17.58) twenty-fourth 11.45 (18.45) twenty-fifth 12.79 (20.58) twenty-sixth 13.42 (21.60) twenty-seventh 14.78 (23.79) twenty-eighth 15.09 (24.29) twenty-ninth 17.30 (27.84) thirtieth 17.67 (28.43) thirty-first 20.42 (32.86) thirty-second 23.90 (38.46) reverse 1.22 (1.97), 1.44 (2.31), 1.69 (2.72), 1.98 (3.19), 2.08 (3.35), 2.44 (3.93), 2.74 (4.41), 2.88 (4.63), 3.21 (5.17), 3.37 (5.43), 3.71 (5.97), 3.79 (6.10), 4.34 (6.99), 4.44 (7.14), 4.60 (7.40), 4.97 (8.25), 5.13 (8.65), 6.00 (9.65), 6.34 (10.21), 7.43 (11.95), 7.80 (12.56), 9.13 (14.70), 10.27 (16.53),

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged) MAXIMUM POWER IN SELECTED GEARS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel Consumption lb/hp.hr (kg/kW.h) | Consumption Hp.hr/gal (kW.h/l) | Temp. °F(°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|---|--------------------------------------|-------------------------------------|--------------------|-------------------------------|
| 12th(3TC)Gear | | | | | | | | | |
| 94.4 (70.4) | 9690 (43.1) | 3.65 (5.88) | 2135 | 10 | 0.471 (0.287) | 15.08 (2.97) | 189 (87) | 79 (26) | 29.7 (100.6) |
| 13th(4TB)Gear | | | | | | | | | |
| 96.2 (71.7) | 8520 (37.9) | 4.23 (6.81) | 2095 | 7 | 0.457 (0.278) | 15.53 (3.06) | 189 (87) | 79 (26) | 29.7 (100.6) |
| 14th(3TD)Gear | | | | | | | | | |
| 97.5 (72.7) | 8440 (37.5) | 4.33 (6.97) | 2093 | 7 | 0.455 (0.277) | 15.58 (3.07) | 190 (88) | 79 (26) | 29.7 (100.6) |
| 15th(1LA)Gear | | | | | | | | | |
| 96.7 (72.1) | 8150 (36.3) | 4.45 (7.16) | 2069 | 6 | 0.454 (0.276) | 15.63 (3.08) | 189 (87) | 79 (26) | 29.7 (100.6) |
| 16th(4TC) Gear | | | | | | | | | |
| 96.0 (71.6) | 7190 (32.0) | 5.01 (8.06) | 2062 | 5 | 0.457 (0.278) | 15.53 (3.06) | 190 (88) | 79 (26) | 29.7 (100.6) |
| 17th(1LB)Gear | | | | | | | | | |
| 97.2 (72.5) | 6935 (30.8) | 5.26 (8.46) | 2058 | 5 | 0.448 (0.273) | 15.84 (3.12) | 190 (88) | 79 (26) | 29.7 (100.6) |
| 18th(4TD)Gear | | | | | | | | | |
| 96.6 (72.0) | 6140 (27.3) | 5.90 (9.49) | 2054 | 4 | 0.450 (0.274) | 15.78 (3.11) | 192 (89) | 79 (26) | 29.7 (100.6) |
| 19th(1LC)Gear | | | | | | | | | |
| 96.2 (71.7) | 5790 (25.8) | 6.23 (10.03) | 2046 | 4 | 0.453 (0.275) | 15.68 (3.09) | 192 (89) | 79 (26) | 29.7 (100.6) |
| 20th(1LD)Gear | | | | | | | | | |
| 98.3 (73.3) | 4995 (22.2) | 7.38 (11.88) | 2049 | 3 | 0.443 (0.269) | 16.04 (3.16) | 192 (89) | 79 (26) | 29.7 (100.6) |
| 21st(2LA)Gear | | | | | | | | | |
| 98.8 (73.7) | 4870 (21.7) | 7.61 (12.25) | 2008 | 3 | 0.434 (0.264) | 16.34 (3.22) | 189 (87) | 79 (26) | 29.7 (100.6) |
| 22nd(2LB)Gear | | | | | | | | | |
| 98.2 (73.2) | 4260 (18.9) | 8.64 (13.91) | 1980 | 3 | 0.433 (0.263) | 16.40 (3.23) | 189 (87) | 79 (26) | 29.7 (100.6) |
| 23rd(3LA)Gear | | | | | | | | | |
| 98.4 (73.4) | 3795 (16.9) | 9.73 (15.66) | 1972 | 3 | 0.432 (0.263) | 16.45 (3.24) | 190 (88) | 79 (26) | 29.7 (100.6) |

10.79 (17.36), 12.02 (19.35), 12.62 (20.31), 13.90 (22.37), 14.20 (22.85), 16.27 (26.19), 16.62 (26.74), 19.21 (30.91), 22.48 (36.18) **Clutch** multiple wet disc operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1976 engine rpm or 1000 rpm at 2000 engine rpm **Unladen tractor mass** 2WD - 9600 lb (4355 kg), FWA - 10540 lb (4780 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

NOTE: The data on this summary was obtained from OECD reports 1860 & 1861 conducted on the Massey Ferguson 6270 Diesel(2WD and FWA).

Report reissued: Supplemental sales permit for Challenger MT 535 Diesel, July 2003.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **1860 & 1861**, Nebraska Summary 303A, June 23, 2003.

Leonard L. Bashford
Director

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

| TRACTOR SOUND LEVEL WITH CAB | Front Wheel Drive | |
|-------------------------------|-------------------|------------------|
| | 2WD dB(A) | Engaged dB(A) |
| At no load in 14th (3TD) gear | 78.0 | 78.0 |
| Bystander | -- | -- |

Tested Without Ballast

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

Front Wheel Assist

Two 18.4R38; **, 15 (100)
 Two 14.9R28; **, 16 (110)
 22.0 in (560 mm)
 6160 lb (2795 kg)
 4145 lb (1880 kg)
 10305 lb (4675 kg)

2WD

Two 18.4R38; **, 15 (100)
 Two 11.00-16; 8; 36 (250)
 31.5 in (800 mm)
 6140 lb (2785 kg)
 3625 lb (1645 kg)
 9765 lb (4430 kg)

DRAWBAR PERFORMANCE

(Unballasted - 2WD)

FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel lb/hp.hr (kg/kW.h) | Consumption Hp.hr/gal (kW.h/l) | Temp.°F (°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---|--------------------------------|------------------------|---------------------------------|-----------|-------------------------------|--------------------------------------|-------------------------------------|--------------------|-------------------------------|
| Maximum Power—21st(2LA) Gear | | | | | | | | | |
| 99.2 (74.0) | 4960 (22.1) | 7.50 (12.08) | 2019 | 4 | 0.434 (0.264) | 16.34 (3.22) | 189 (87) | 77 (25) | 29.9 (101.4) |
| 75% of Pull at Maximum Power—21st(2LA) Gear | | | | | | | | | |
| 68.8 (51.3) | 3050 (13.6) | 8.46 (13.61) | 2234 | 2 | 0.520 (0.316) | 13.65 (2.69) | 189 (87) | 73 (23) | 29.6 (100.2) |
| 50% of Pull at Maximum Power—21st(2LA) Gear | | | | | | | | | |
| 46.1 (34.4) | 2015 (9.0) | 8.58 (13.80) | 2249 | 1 | 0.625 (0.380) | 11.37 (2.24) | 189 (87) | 73 (23) | 29.6 (100.2) |
| 75% of Pull at Reduced Engine Speed—22nd(2LB) Gear | | | | | | | | | |
| 69.4 (51.8) | 3060 (13.6) | 8.50 (13.68) | 1921 | 3 | 0.460 (0.280) | 15.43 (3.04) | 187 (86) | 73 (23) | 29.6 (100.2) |
| 50% of Pull at Reduced Engine Speed—22nd(2LB) Gear | | | | | | | | | |
| 46.7 (34.8) | 2040 (9.1) | 8.58 (13.81) | 1923 | 2 | 0.553 (0.336) | 12.84 (2.53) | 187 (86) | 73 (23) | 29.6 (100.2) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | |
| 11th(4TA) Gear | | | | | | | | | |
| 77.8 (58.0) | 8455 (37.6) | 3.45 (5.56) | 2214 | 15 | 0.536 (0.326) | 13.25 (2.61) | 189 (87) | 77 (25) | 29.9 (101.4) |
| 12th(3TC) Gear | | | | | | | | | |
| 84.1 (62.7) | 8430 (37.5) | 3.74 (6.02) | 2209 | 10 | 0.504 (0.307) | 14.09 (2.78) | 189 (87) | 77 (25) | 29.9 (101.4) |
| 13th(4TB) Gear | | | | | | | | | |
| 93.2 (69.5) | 8330 (37.1) | 4.20 (6.76) | 2152 | 9 | 0.479 (0.291) | 14.82 (2.92) | 191 (88) | 77 (25) | 29.9 (101.4) |
| 14th(3TD) Gear | | | | | | | | | |
| 93.5 (69.7) | 8185 (36.4) | 4.28 (6.89) | 2142 | 9 | 0.476 (0.290) | 14.91 (2.94) | 191 (88) | 77 (25) | 29.9 (101.4) |
| 15th(1LA) Gear | | | | | | | | | |
| 95.2 (71.0) | 8255 (36.7) | 4.32 (6.96) | 2084 | 9 | 0.463 (0.282) | 15.33 (3.02) | 189 (87) | 77 (25) | 29.9 (101.4) |
| 16th(4TC) Gear | | | | | | | | | |
| 96.0 (71.6) | 7395 (32.9) | 4.87 (7.83) | 2045 | 7 | 0.451 (0.275) | 15.74 (3.10) | 187 (86) | 77 (25) | 29.9 (101.4) |
| 17th(1LB) Gear | | | | | | | | | |
| 97.2 (72.5) | 7105 (31.6) | 5.13 (8.26) | 2062 | 7 | 0.444 (0.270) | 15.99 (3.15) | 191 (88) | 77 (25) | 29.9 (101.4) |
| 18th(4TD) Gear | | | | | | | | | |
| 97.2 (72.5) | 6390 (28.4) | 5.70 (9.18) | 2027 | 6 | 0.457 (0.278) | 15.53 (3.06) | 187 (86) | 77 (25) | 29.9 (101.4) |
| 19th(1LC) Gear | | | | | | | | | |
| 97.5 (72.7) | 6005 (26.7) | 6.09 (9.80) | 2036 | 5 | 0.446 (0.271) | 15.94 (3.14) | 189 (87) | 77 (25) | 29.9 (101.4) |
| 20th(1LD) Gear | | | | | | | | | |
| 99.0 (73.8) | 5210 (23.2) | 7.13 (11.47) | 2025 | 5 | 0.444 (0.270) | 15.99 (3.15) | 189 (87) | 77 (25) | 29.9 (101.4) |
| 21st(2LA) Gear | | | | | | | | | |
| 99.2 (74.0) | 4960 (22.1) | 7.50 (12.08) | 2019 | 4 | 0.434 (0.264) | 16.34 (3.22) | 191 (88) | 77 (25) | 29.9 (101.4) |
| 22nd(2LB) Gear | | | | | | | | | |
| 99.1 (73.9) | 4285 (19.1) | 8.67 (13.95) | 1982 | 3 | 0.425 (0.259) | 16.70 (3.29) | 191 (88) | 77 (25) | 29.9 (101.4) |
| 23rd(3LA) Gear | | | | | | | | | |
| 98.3 (73.3) | 3710 (16.5) | 9.94 (16.00) | 2013 | 3 | 0.432 (0.263) | 16.42 (3.24) | 191 (88) | 77 (25) | 29.9 (101.4) |

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range: 7362 lbs (32.7 kN)

i) Opening pressure of relief valve: NA

Sustained pressure of the open relief valve: 2890 psi (199 bar)

ii) Pump delivery rate at minimum pressure and rated engine speed:

29.4 GPM (111.3 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 26.0 GPM (98.8 l/min)

Delivery pressure: 2700 psi (186 bar)

Power: 41.0 HP (30.5 kW)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar)

2840 (196)

Location:

lift cylinder

Hydraulic oil temperature: °F (°C)

149 (65)

Location:

hydraulic sump

Category:

II

Quick attach:

none

SAE Static Test—System pressure 2555 psi (176 Bar)

Hitch point distance to ground level in. (mm) 7.9 (201) 14.9 (378) 21.9 (556) 28.9 (734) 35.9 (912)

Lift force on frame lb 10211 9940 9603 9171 8145

" " " " " " (kN) (45.4) (44.2) (42.7) (40.8) (36.2)

HITCH DIMENSIONS AS TESTED—NO LOAD

| | inch | mm |
|---|------|------|
| A | 26.9 | 683 |
| B | 11.6 | 295 |
| C | 13.9 | 354 |
| D | 13.0 | 330 |
| E | 7.9 | 200 |
| F | 10.2 | 260 |
| G | 32.3 | 820 |
| H | 1.7 | 43 |
| I | 15.0 | 382 |
| J | 22.1 | 560 |
| K | 21.7 | 550 |
| L | 40.9 | 1040 |
| M | 24.2 | 615 |
| N | 37.0 | 940 |
| O | 7.9 | 200 |
| P | 46.1 | 1170 |
| Q | 36.1 | 918 |
| R | 28.3 | 719 |

