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January 1999

Tests 1847 & 1848: Challenger MT 565 Diesel

Nebraska Tractor Test Lab

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SUMMARY OF OECD TESTS 1847 & 1848—NEBRASKA SUMMARY 319A

CHALLENGER MT 565 DIESEL

18 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—1050 rpm) | | | | | |
| 146.2 (109.0) | 2196 | 9.26 (35.07) | 0.450 (0.274) | 15.79 (3.11) | |
| Standard Power Take-off Speed (999 rpm) | | | | | |
| 152.6 (113.7) | 2090 | 9.20 (34.81) | 0.428 (0.260) | 16.59 (3.27) | |
| Maximum Power (2 Hours) | | | | | |
| 155.2 (115.7) | 2004 | 9.06 (34.28) | 0.415 (0.252) | 17.13 (3.37) | |

VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|------------------|------|-----------------|------------------|-----------------|----------------------|
| 146.2 (109.0) | 2196 | 9.26 (35.07) | 0.450 (0.274) | 15.79 (3.11) | Air temperature |
| 125.8 (93.8) | 2249 | 8.44 (31.96) | 0.477 (0.290) | 14.90 (2.93) | 72°F (22°C) |
| 95.9 (71.5) | 2285 | 7.15 (27.07) | 0.529 (0.322) | 13.41 (2.64) | Relative humidity |
| 65.0 (48.5) | 2317 | 5.68 (21.51) | 0.621 (0.378) | 11.44 (2.25) | 60% |
| 32.3 (24.1) | 2342 | 4.27 (16.15) | 0.938 (0.571) | 7.57 (1.49) | Barometer |
| -- | 2360 | 2.80 (10.59) | -- | -- | 30.4" Hg (102.9 kPa) |

Maximum Torque - 493.6 lb.-ft. (669.2 Nm) at 1400 rpm

Maximum Torque Rise - 40.4%

Torque rise at 1780 engine rpm - 27%

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 Consumption lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) med | Temp.°F (°C) cool- ing bulb | Air dry (kPa) | Barom. inch Hg |
|--|--------------------------------|------------------------|---------------------------------|-----------|---|------------------------------|--------------------------------------|---------------------|----------------------|
| Maximum Power—10th Gear | | | | | | | | | |
| 141.1 (105.2) | 9730 (43.3) | 5.44 (8.75) | 1979 | 5 | 0.451 (0.275) | 15.74 (3.10) | 189 (87) | 72 (22) | 29.8 (100.9) |
| 75% of Pull at Maximum Power—10th Gear | | | | | | | | | |
| 107.3 (80.0) | 6345 (28.2) | 6.34 (10.20) | 2261 | 3 | 0.534 (0.325) | 13.30 (2.62) | 187 (86) | 72 (22) | 29.8 (100.9) |
| 50% of Pull at Maximum Power—10th Gear | | | | | | | | | |
| 73.1 (54.5) | 4205 (18.7) | 6.52 (10.49) | 2300 | 2 | 0.640 (0.389) | 11.09 (2.18) | 181 (83) | 72 (22) | 29.8 (100.9) |
| 75% of Pull at Reduced Engine Speed—11th Gear | | | | | | | | | |
| 107.7 (80.3) | 6360 (28.3) | 6.35 (10.22) | 2001 | 3 | 0.487 (0.296) | 14.58 (2.87) | 183 (84) | 72 (22) | 29.8 (100.9) |
| 50% of Pull at Reduced Engine Speed—11th Gear | | | | | | | | | |
| 69.3 (51.7) | 3985 (17.7) | 6.52 (10.50) | 2056 | 3 | 0.573 (0.349) | 12.39 (2.44) | 181 (83) | 72 (22) | 29.8 (100.9) |

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

Dates of Test: February - June, 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** 10W40 **API service classification** CD/CE
Transmission and hydraulic lubricant BP Terrac Extra 10W/30 **Front axle lubricant** API GL5 - SAE 85W140

ENGINE: Make Sisu Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** ZU644841B **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.251" x 4.724" (108.0 mm x 120.0 mm) **Compression ratio** 16.5 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 transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** 2WD & front wheel assist **Serial No.** G 085 10 **Tread width** rear 63.4" (1610 mm) to 74.8" (1900 mm) front: 2WD - 64.8" (1645 mm) to 88.6" (2250 mm), FWA - 63.4" (1630 mm) to 74.8" (2030 mm) **Wheelbase** 117.5" (2985 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 1.50 (2.41) second 1.94 (3.12) third 2.50 (4.02) fourth 2.85 (4.58) fifth 3.23 (5.19) sixth 3.68 (5.91) seventh 4.17 (6.70) eighth 4.75 (7.63) ninth 5.39 (8.66) tenth 6.13 (9.85) eleventh 6.94 (11.16) twelfth 7.91 (12.72) thirteenth 8.96 (14.41) fourteenth 10.21 (16.42) fifteenth 11.57 (18.60) sixteenth 14.94 (24.02) seventeenth 19.27 (30.99) eighteenth 24.89 (40.03) reverse 1.50 (2.41), 2.50 (4.02), 2.85 (4.58), 4.17 (6.70), 4.75 (7.63), 6.94 (11.16), 7.91 (12.72), 11.57 (18.60), 19.27 (30.99) **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 1993 engine rpm or 1000 rpm at 2091 engine rpm **Unladen tractor mass** 2WD - 15390 lb (6980 kg), FWA - 16305 lb (7395 kg)

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) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|---|--------------------------------------|-------------------------------------|--------------------|-------------------------------|
| 83.4 (62.2) | 13945 (62.0) | 2.24 (3.61) | 2276 | 15 | 3rd Gear 0.646 (0.393) | 11.00 (2.17) | 185 (85) | 72 (22) | 29.4 (100.9) |
| 100.3 (74.8) | 13885 (61.8) | 2.71 (4.36) | 2262 | 11 | 4th Gear 0.569 (0.346) | 12.49 (2.46) | 183 (84) | 72 (22) | 29.4 (100.9) |
| 113.0 (84.3) | 13755 (61.2) | 3.08 (4.96) | 2239 | 9 | 5th Gear 0.542 (0.330) | 13.10 (2.58) | 185 (85) | 72 (22) | 29.4 (100.9) |
| 126.9 (94.6) | 13725 (61.1) | 3.47 (5.58) | 2218 | 9 | 6th Gear 0.514 (0.312) | 13.83 (2.72) | 183 (84) | 72 (22) | 29.4 (100.9) |
| 135.6 (101.1) | 13120 (58.4) | 3.88 (6.24) | 2154 | 8 | 7th Gear 0.489 (0.298) | 14.52 (2.86) | 187 (86) | 72 (22) | 29.4 (100.9) |
| 137.6 (102.6) | 11630 (51.7) | 4.44 (7.14) | 2120 | 6 | 8th Gear 0.478 (0.291) | 14.86 (2.93) | 180 (82) | 72 (22) | 29.4 (100.9) |
| 140.1 (104.5) | 10970 (48.8) | 4.79 (7.71) | 2002 | 6 | 9th Gear 0.457 (0.278) | 15.53 (3.06) | 180 (82) | 72 (22) | 29.4 (100.9) |
| 141.1 (105.2) | 9735 (43.3) | 5.44 (8.75) | 1979 | 5 | 10th Gear 0.451 (0.275) | 15.73 (3.10) | 185 (85) | 72 (22) | 29.4 (100.9) |
| 140.8 (105.0) | 8340 (37.1) | 6.33 (10.19) | 2017 | 4 | 11th Gear 0.457 (0.278) | 15.53 (3.06) | 185 (85) | 72 (22) | 29.4 (100.9) |
| 138.8 (103.5) | 7215 (32.1) | 7.21 (11.61) | 2003 | 3 | 12th Gear 0.459 (0.279) | 15.48 (3.05) | 183 (84) | 72 (22) | 29.4 (100.9) |
| 139.7 (104.2) | 6475 (28.8) | 8.09 (13.02) | 2003 | 4 | 13th Gear 0.455 (0.277) | 15.62 (3.08) | 183 (84) | 72 (22) | 29.4 (100.9) |
| 136.7 (101.9) | 5585 (24.8) | 9.18 (14.77) | 1983 | 3 | 14th Gear 0.463 (0.282) | 15.33 (3.02) | 187 (86) | 72 (22) | 29.4 (100.9) |

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 1847 & 1848 conducted on the Massey Ferguson 8240 Diesel(2WD & FWA).

Report reissued: Supplemental sales permit for Challenger MT565 Diesel, July 2003.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **1847 & 1848**, Nebraska Summary 319A, June 23, 2003.

Leonard L. Bashford
Director

W.P. Campbell
M.F. Kocher
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 8th gear | 74.0 | 74.0 |
| Bystander | -- | -- |

Tested Without Ballast

TIRES AND WEIGHT

| | FWA | 2WD |
|--|-------------------------|--------------------------|
| Rear tires - No.,size, ply & psi(kPa) | Two 20.8R42; **,15(100) | Two 20.8R42; **,15(100) |
| Front tires - No.,size, ply & psi(kPa) | Two 16.9R30; **,15(100) | Two 14L-16.1;10; 36(250) |
| Height of Drawbar | 23.2 in (590 mm) | 29.5 in (750 mm) |
| Static Weight with operator-Rear | 10460 lb (4745 kg) | 10650 lb (4830 kg) |
| - Front | 6005 lb (2725 kg) | 4905 lb (2225 kg) |
| - Total | 16465 lb (7470 kg) | 15555 lb (7055 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 Consumption lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Temp.°F cool- ing med | Air dry bulb (°C) | Barom. inch Hg (kPa) |
|--|--------------------------------|------------------------|---------------------------------|-----------|---|-----------------------|--------------------------------|----------------------------|-------------------------------|
| Maximum Power—10th Gear | | | | | | | | | |
| 138.3 (103.1) | 9635 (42.9) | 5.38 (8.66) | 1994 | 6 | 0.460 (0.280) | 15.43 (3.04) | 187 (86) | 63 (17) | 28.8 (97.6) |
| 75% of Pull at Maximum Power—10th Gear | | | | | | | | | |
| 100.4 (74.9) | 6000 (26.7) | 6.28 (10.10) | 2260 | 4 | 0.547 (0.333) | 12.99 (2.56) | 185 (85) | 63 (17) | 28.8 (97.6) |
| 50% of Pull at Maximum Power—10th Gear | | | | | | | | | |
| 69.0 (51.4) | 3990 (17.8) | 6.48 (10.43) | 2306 | 3 | 0.635 (0.386) | 11.18 (2.20) | 181 (83) | 63 (17) | 28.8 (97.6) |
| 75% of Pull at Reduced Engine Speed—11th Gear | | | | | | | | | |
| 100.4 (74.9) | 5965 (26.5) | 6.31 (10.15) | 2009 | 4 | 0.507 (0.308) | 14.01 (2.76) | 183 (84) | 63 (17) | 28.8 (97.6) |
| 50% of Pull at Reduced Engine Speed—11th Gear | | | | | | | | | |
| 69.3 (51.7) | 3985 (17.7) | 6.52 (10.50) | 2056 | 3 | 0.573 (0.349) | 12.39 (2.44) | 181 (83) | 63 (17) | 28.8 (97.6) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | |
| 2nd Gear | | | | | | | | | |
| 60.8 (45.3) | 12915 (57.5) | 1.76 (2.84) | 2314 | 16 | 0.703 (0.428) | 10.10 (1.99) | 187 (86) | 63 (17) | 28.8 (97.6) |
| 3rd Gear | | | | | | | | | |
| 77.5 (57.8) | 12680 (56.4) | 2.29 (3.69) | 2291 | 14 | 0.635 (0.386) | 11.18 (2.20) | 189 (87) | 63 (17) | 28.8 (97.6) |
| 4th Gear | | | | | | | | | |
| 89.2 (66.5) | 12395 (55.1) | 2.70 (4.34) | 2276 | 11 | 0.588 (0.357) | 12.08 (2.38) | 187 (86) | 63 (17) | 28.8 (97.6) |
| 5th Gear | | | | | | | | | |
| 99.6 (74.3) | 12080 (53.7) | 3.09 (4.97) | 2258 | 9 | 0.566 (0.344) | 12.54 (2.47) | 189 (87) | 63 (17) | 28.8 (97.6) |
| 6th Gear | | | | | | | | | |
| 112.8 (84.1) | 12005 (53.4) | 3.52 (5.67) | 2255 | 9 | 0.528 (0.321) | 13.45 (2.65) | 185 (85) | 63 (17) | 28.8 (97.6) |
| 7th Gear | | | | | | | | | |
| 126.9 (94.6) | 11980 (53.3) | 3.97 (6.39) | 2223 | 9 | 0.514 (0.313) | 13.81 (2.72) | 185 (85) | 63 (17) | 28.8 (97.6) |
| 8th Gear | | | | | | | | | |
| 135.2 (100.8) | 11410 (50.8) | 4.44 (7.15) | 2168 | 8 | 0.496 (0.302) | 14.31 (2.82) | 187 (86) | 63 (17) | 28.8 (97.6) |
| 9th Gear | | | | | | | | | |
| 136.0 (101.4) | 10740 (47.8) | 4.75 (7.64) | 2026 | 8 | 0.476 (0.290) | 14.92 (2.94) | 189 (87) | 63 (17) | 28.8 (97.6) |
| 10th Gear | | | | | | | | | |
| 138.3 (103.1) | 9645 (42.9) | 5.38 (8.66) | 1994 | 6 | 0.460 (0.280) | 15.43 (3.04) | 189 (87) | 63 (17) | 28.8 (97.6) |
| 11th Gear | | | | | | | | | |
| 137.3 (102.4) | 8380 (37.3) | 6.14 (9.89) | 1989 | 5 | 0.460 (0.280) | 15.43 (3.04) | 187 (86) | 63 (17) | 28.8 (97.6) |
| 12th Gear | | | | | | | | | |
| 137.7 (102.7) | 7380 (32.8) | 7.00 (11.26) | 1977 | 4 | 0.457 (0.278) | 15.53 (3.06) | 185 (85) | 63 (17) | 28.8 (97.6) |
| 13th Gear | | | | | | | | | |
| 138.0 (102.9) | 6450 (28.7) | 8.02 (12.91) | 1983 | 4 | 0.458 (0.279) | 15.51 (3.06) | 187 (86) | 63 (17) | 28.8 (97.6) |
| 14th Gear | | | | | | | | | |
| 137.6 (102.6) | 5580 (24.8) | 9.25 (14.88) | 1999 | 3 | 0.462 (0.281) | 15.38 (3.03) | 185 (85) | 63 (17) | 28.8 (97.6) |

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: None

Maximum Force Exerted

Through Whole Range: 14760 lbs (65.7 kN)

- i) Opening pressure of relief valve: NA
- Sustained pressure of the open relief valve: 2880 psi (199 bar)
- ii) Pump delivery rate at minimum pressure and rated engine speed: 30.2 GPM (114.3 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 26.1 GPM (98.8 l/min)
- Delivery pressure: 2650 psi (183 bar)
- Power: 40.4 HP (30.1 kW)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi.(bar) 2990 (206)
 Location: lift cylinder
 Hydraulic oil temperature: °F (°C) 148 (64)
 Location: hydraulic sump
 Category: III
 Quick attach: No

SAE Static Test—System pressure 2690 psi (186 Bar)

| Hitch point distance to ground level in. (mm) | 10.0 (254) | 16.0 (406) | 24.0 (610) | 32.0 (813) | 39.7 (1008) |
|---|------------|------------|------------|------------|-------------|
| Lift force on frame lb | 19665 | 18945 | 18621 | 18135 | 17379 |
| " " " " " (kN) | (87.5) | (84.3) | (82.8) | (80.7) | (77.3) |

HITCH DIMENSIONS AS TESTED—NO LOAD

| | SAE TEST | | OECD TEST | |
|---|----------|------|-----------|------|
| | inch | mm | inch | mm |
| A | 30.7 | 781 | 30.7 | 781 |
| B | 15.2 | 385 | 15.2 | 385 |
| C | 20.7 | 527 | 20.7 | 527 |
| D | 17.9 | 455 | 17.9 | 455 |
| E | 10.8 | 275 | 10.8 | 275 |
| F | 12.6 | 320 | 12.6 | 320 |
| G | 34.3 | 870 | 34.3 | 870 |
| H | 1.5 | 39 | 1.5 | 39 |
| I | 17.7 | 450 | 17.7 | 450 |
| J | 21.7 | 550 | 21.7 | 550 |
| K | 21.6 | 548 | 21.6 | 548 |
| L | 49.0 | 1245 | 49.0 | 1245 |
| M | 24.8 | 629 | 24.8 | 629 |
| N | 39.0 | 991 | 39.0 | 991 |
| O | 10.0 | 254 | 10.0 | 254 |
| P | 43.7 | 1110 | 48.6 | 1235 |
| Q | 39.1 | 994 | 39.1 | 994 |
| R | 33.5 | 851 | 33.5 | 851 |

