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January 2005

Test 1847: Challenger MT865B Diesel

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1847-SUMMARY 479

CHALLENGER MT865B DIESEL

16 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft 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—1061 rpm)					
455.61 (339.75)	2099	25.98 (98.33)	0.401 (0.244)	17.54 (3.46)	
Standard Power Take-off Speed - (PTO speed - 1000 rpm)					
502.23 (374.51)	1980	27.56 (104.34)	0.386 (0.235)	18.22 (3.59)	
Maximum Power (1 hour)					
543.77 (405.49)	1750	28.68 (108.59)	0.371 (0.225)	18.96 (3.73)	

VARYING POWER AND FUEL CONSUMPTION

455.61 (339.75)	2099	25.98 (98.33)	0.401 (0.244)	17.54 (3.46)	Air temperature
404.16 (301.38)	2190	24.97 (94.51)	0.434 (0.264)	16.19 (3.19)	75°F (24°C)
304.61 (227.15)	2199	21.04 (79.64)	0.485 (0.295)	14.48 (2.85)	Relative humidity
203.18 (151.51)	2199	17.08 (64.66)	0.591 (0.359)	11.89 (2.34)	37%
101.17 (75.44)	2199	12.78 (48.39)	0.888 (0.540)	7.91 (1.56)	Barometer
2.12 (1.58)	2199	7.53 (28.51)	25.008 (15.212)	0.28 (0.06)	28.74" Hg (97.33 kPa)

Maximum Torque - 1835 lb.-ft. (2488 Nm) at 1251 rpm

Maximum Torque Rise - 60.9%

Torque rise at 1700 engine rpm - 44%

DRAWBAR PERFORMANCE (Unballasted)

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 (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—8th Gear									
391.12 (291.66)	25745 (114.52)	5.70 (9.17)	2107	2.22	0.466 (0.283)	15.09 (2.97)	174 (79)	60 (16)	29.05 (98.37)
75% of Pull at Maximum Power—8th Gear									
311.86 (232.55)	19421 (86.39)	6.02 (9.69)	2199	1.07	0.508 (0.309)	13.82 (2.72)	176 (80)	65 (18)	28.51 (96.55)
50% of Pull at Maximum Power—8th Gear									
208.29 (155.32)	12911 (57.43)	6.05 (9.74)	2200	0.60	0.608 (0.370)	11.56 (2.28)	173 (78)	65 (18)	28.51 (96.55)
75% of Pull at Reduced Engine Speed—11th Gear									
310.82 (231.78)	19428 (86.42)	6.00 (9.66)	1534	0.90	0.462 (0.281)	15.21 (3.00)	180 (82)	65 (18)	28.51 (96.55)
50% of Pull at Reduced Engine Speed—11th Gear									
207.02 (154.37)	12895 (57.36)	6.02 (9.69)	1534	0.58	0.519 (0.316)	13.53 (2.67)	174 (79)	65 (18)	28.51 (96.55)

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

Dates of test: April 8 - May 3, 2005

Manufacturer: AGCO Corp, 4205 River Green
Parkway, Duluth Ga 30096

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8437
Fuel weight 7.025 lbs/gal (0.842 kg/l) **Oil SAE** 10W-30 **API service classification** CI-4
Transmission and hydraulic lubricant AGCO 821 XL fluid **Total time engine was operated:** 43.5 hours

ENGINE: Make Caterpillar **Diesel Type** six cylinder vertical with turbocharger and air to air aftercooler **Serial No.** *EJG00102* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 5.709" x 7.205" (145.0 mm x 183.0 mm) **Compression ratio** 16.5 to 1 **Displacement** 1105 cu in (18130 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** two paper elements and water separator **Fuel cooler** radiator for returned fuel **Muffler** vertical **Cooling medium temperature control** 2 thermostats

ENGINE OPERATING PARAMETERS: Fuel rate: 177.3 - 187.0 lb/h (80.4 - 84.8 kg/h) **High idle:** 2175 - 2225 rpm **Turbo boost:** nominal 18.9 - 21.8 psi (130 - 150 kPa) as measured 20.4 psi (141 kPa)

CHASSIS: Type track layer-rubber tracked **Serial No.** *AGCMT865ABDS60889* **Track width** 100.0" (2540 mm) to 128.0" (3250 mm) **Length of track on ground** 122.4" (3110 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled power shift **Nominal travel speeds mph (km/h)** first 1.67 (2.69) second 2.13 (3.43) third 2.68 (4.31) fourth 3.41 (5.48) fifth 4.06 (6.54) sixth 4.58 (7.37) seventh 5.16 (8.31) eighth 5.80 (9.34) ninth 6.53 (10.51) tenth 7.34 (11.82) eleventh 8.29 (13.34) twelfth 9.33 (15.02) thirteenth 11.10 (17.87) fourteenth 14.11 (22.71) fifteenth 17.86 (28.75) sixteenth 24.86 (40.00) at 2300 rpm, reverse 1.34 (2.16), 3.24 (5.22), 3.66 (5.89), 8.89 (14.30) **Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically actuated foot pedal **Steering** electro-hydraulic differential steering controlled by steering wheel **Power take-off** 1000 rpm at 1980 engine rpm **Unladen tractor mass** 44140 lb (20021 kg)

DRAWBAR PERFORMANCE

Unballasted at 2100 RPM

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)
4th Gear									
337.28 (251.51)	41871 (186.25)	3.02 (4.86)	2113	11.98	0.528 (0.321)	13.31 (2.62)	170 (77)	45 (7)	29.06 (98.41)
5th Gear									
378.49 (282.24)	37468 (166.67)	3.79 (6.10)	2102	6.75	0.474 (0.288)	14.81 (2.92)	171 (77)	53 (12)	29.06 (98.41)
6th Gear									
386.13 (287.94)	33298 (148.12)	4.35 (7.00)	2102	5.02	0.471 (0.286)	14.93 (2.94)	174 (79)	61 (16)	28.92 (97.93)
7th Gear									
387.50 (288.96)	29052 (129.23)	5.00 (8.05)	2100	3.04	0.472 (0.287)	14.88 (2.93)	173 (78)	59 (15)	29.05 (98.37)
8th Gear									
391.12 (291.66)	25745 (114.52)	5.70 (9.17)	2107	2.21	0.466 (0.283)	15.09 (2.97)	174 (79)	60 (16)	29.05 (98.37)
9th Gear									
386.40 (288.14)	22463 (99.92)	6.45 (10.38)	2103	1.33	0.466 (0.283)	15.08 (2.97)	171 (77)	52 (11)	28.90 (97.87)
10th Gear									
386.02 (287.85)	19908 (88.55)	7.27 (11.70)	2102	1.17	0.467 (0.284)	15.03 (2.96)	171 (77)	52 (11)	28.90 (97.87)
11th Gear									
373.42 (278.46)	17067 (75.92)	8.20 (13.20)	2096	0.77	0.483 (0.294)	14.54 (2.86)	172 (78)	52 (11)	28.91 (97.90)

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. The standard pump remote flow claim of 43.5 GPM (164.7 l/min) was not tested for verification. For the maximum power tests the fuel temperature at the injection pump inlet was maintained at 114°F (46°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. **1847**, Nebraska Summary 479, June 17, 2005.

Leonard L. Bashford
Director

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

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At no load in 6th gear	76.7
Bystander	--

TIRES, BALLAST AND WEIGHT	With Ballast	Without Ballast
Track width	36.0 in (915 mm)	36.0 in (915 mm)
Ballast - Cast iron(front)	4280 lb (1941 kg)	None
- Cast iron(front idlers)	1415 lb (642 kg)	None
Height of Drawbar	19.5 in (495 mm)	19.0 in (485 mm)
Static Weight with operator	50000 lb(22679 kg)	44305 lb(20096 kg)

DRAWBAR PERFORMANCE
(Unballasted at 1750 RPM)
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)
342.60 (255.48)	42025 (186.94)	3.06 (4.92)	2110	10.78	4th Gear 0.528 (0.321)	13.32 (2.62)	169 (76)	45 (7)	29.06 (98.41)
385.01 (287.10)	40307 (179.29)	3.58 (5.76)	2053	9.76	5th Gear 0.513 (0.312)	13.69 (2.70)	172 (78)	50 (10)	29.06 (98.41)
410.70 (306.26)	39191 (174.33)	3.93 (6.32)	1986	9.10	6th Gear 0.475 (0.289)	14.80 (2.92)	176 (80)	61 (16)	29.05 (98.37)
437.90 (326.54)	38310 (170.41)	4.29 (6.90)	1893	7.81	7th Gear 0.450 (0.274)	15.62 (3.08)	177 (80)	59 (15)	29.05 (98.37)
458.71 (342.06)	36266 (161.32)	4.74 (7.63)	1831	6.51	8th Gear 0.447 (0.272)	15.73 (3.10)	177 (81)	60 (16)	29.05 (98.37)
462.72 (345.05)	32710 (145.50)	5.30 (8.54)	1790	4.65	9th Gear 0.434 (0.264)	16.19 (3.19)	178 (81)	62 (17)	29.04 (98.34)
474.87 (354.11)	29954 (133.24)	5.95 (9.57)	1753	3.08	10th Gear 0.418 (0.254)	16.80 (3.31)	177 (80)	57 (14)	28.92 (97.93)
470.33 (350.73)	25985 (115.19)	6.79 (10.92)	1753	1.93	11th Gear 0.420 (0.256)	16.72 (3.29)	176 (80)	52 (11)	28.91 (97.90)
469.67 (350.23)	22978 (102.21)	7.67 (12.34)	1749	1.37	12th Gear 0.421 (0.256)	16.70 (3.29)	176 (80)	53 (12)	28.91 (97.90)
470.83 (351.10)	19192 (85.37)	9.20 (14.81)	1753	0.89	13th Gear 0.421 (0.256)	16.71 (3.29)	177 (81)	55 (13)	28.91 (97.90)

DRAWBAR PERFORMANCE
(Ballasted to 50000 lbs at 1750 RPM)
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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd Gear									
313.20 (233.55)	48508 (215.77)	2.42 (3.90)	2169	12.78	0.600 (0.365)	11.71 (2.31)	176 (80)	62 (17)	28.74 (97.33)
4th Gear									
376.92 (281.07)	45916 (204.24)	3.08 (4.95)	2074	8.71	0.503 (0.306)	13.98 (2.75)	177 (80)	63 (17)	28.74 (97.33)
5th Gear									
418.71 (312.23)	44783 (199.20)	3.51 (5.64)	1980	8.47	0.473 (0.288)	14.84 (2.92)	178 (81)	64 (18)	28.73 (97.29)
6th Gear									
442.69 (330.12)	43298 (192.60)	3.83 (6.17)	1904	7.58	0.460 (0.280)	15.28 (3.01)	180 (82)	64 (18)	28.73 (97.29)
7th Gear									
458.91 (342.21)	41101 (182.83)	4.19 (6.74)	1814	6.15	0.446 (0.271)	15.76 (3.10)	180 (82)	64 (18)	28.73 (97.29)
8th Gear									
470.78 (351.06)	38246 (170.13)	4.62 (7.43)	1752	4.78	0.426 (0.259)	16.50 (3.25)	181 (83)	65 (18)	28.73 (97.29)
9th Gear									
474.00 (353.46)	33540 (149.19)	5.30 (8.53)	1754	2.88	0.428 (0.260)	16.43 (3.24)	183 (84)	73 (23)	29.02 (98.27)
10th Gear									
477.01 (355.70)	29809 (132.60)	6.00 (9.66)	1749	2.05	0.430 (0.262)	16.34 (3.22)	182 (83)	66 (19)	29.05 (98.37)
11th Gear									
470.59 (350.92)	25871 (115.08)	6.82 (10.98)	1751	1.33	0.434 (0.264)	16.18 (3.19)	182 (83)	68 (20)	29.05 (98.37)
12th Gear									
468.78 (349.57)	22843 (101.61)	7.70 (12.39)	1747	0.96	0.433 (0.263)	16.22 (3.20)	183 (84)	70 (21)	29.04 (98.34)
13th Gear									
465.14 (346.85)	18923 (84.17)	9.22 (14.83)	1751	0.59	0.434 (0.264)	16.20 (3.19)	184 (84)	72 (22)	29.02 (98.27)

DRAWBAR PERFORMANCE
(Ballasted to 56000 lbs at 1750 RPM)
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)
3rd Gear									
333.40 (248.61)	52307 (232.68)	2.39 (3.85)	2133	12.52	0.540 (0.329)	13.00 (2.56)	174 (79)	57 (14)	28.80 (97.53)
4th Gear									
386.06 (287.89)	47612 (211.79)	3.04 (4.89)	2043	8.48	0.496 (0.302)	14.15 (2.79)	179 (82)	71 (22)	28.63 (96.95)
5th Gear									
433.74 (323.44)	46908 (208.66)	3.47 (5.58)	1936	7.54	0.467 (0.284)	15.05 (2.97)	180 (82)	70 (21)	28.63 (96.95)
6th Gear									
457.35 (341.05)	45361 (201.77)	3.78 (6.08)	1855	6.54	0.457 (0.278)	15.37 (3.03)	182 (83)	70 (21)	28.67 (97.09)
7th Gear									
464.17 (346.13)	42528 (189.17)	4.09 (6.59)	1750	4.90	0.440 (0.268)	15.96 (3.14)	182 (84)	70 (21)	28.67 (97.09)
8th Gear									
476.03 (354.98)	37995 (169.01)	4.70 (7.56)	1752	3.18	0.429 (0.261)	16.39 (3.23)	183 (84)	70 (21)	28.68 (97.12)
9th Gear									
473.77 (353.29)	33341 (148.31)	5.33 (8.58)	1747	2.09	0.430 (0.261)	16.35 (3.22)	182 (83)	66 (19)	28.69 (97.16)
10th Gear									
477.20 (355.85)	29643 (131.86)	6.04 (9.72)	1748	1.48	0.430 (0.262)	16.34 (3.22)	182 (83)	67 (19)	28.68 (97.12)
11th Gear									
467.42 (348.56)	25571 (113.75)	6.85 (11.03)	1752	1.14	0.437 (0.266)	16.08 (3.17)	182 (84)	68 (20)	28.68 (97.12)
12th Gear									
467.01 (348.25)	22668 (100.83)	7.73 (12.43)	1749	0.82	0.437 (0.266)	16.08 (3.17)	182 (83)	68 (20)	28.68 (97.12)
13th Gear									
462.11 (344.60)	18788 (83.57)	9.22 (14.84)	1750	0.56	0.437 (0.266)	16.07 (3.17)	183 (84)	69 (21)	28.68 (97.12)

TIRES, BALLAST AND WEIGHT

Track width

Ballast - Cast iron(front end)
- Cast iron(front idlers)
- Cast iron(side)

Height of Drawbar

Static Weight with operator

With Ballast

36.0 in (915 mm)
4280 lb (1942 kg)
4500 lb (2041 kg)
2915 lb (1322 kg)
20.0 in (510 mm)
56000 lb(25401 kg)

Without Ballast

36.0 in (915 mm)
None
None
None
19.0 in (485 mm)
44305 lb(20096 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: IVN

Quick Attach: yes

Maximum force exerted through whole range: 20936 lbs (93.1 kN)

i) Opening pressure of relief valve: NA

Sustained pressure at compensator cutoff: 2908 psi (200 bar)

High flow option

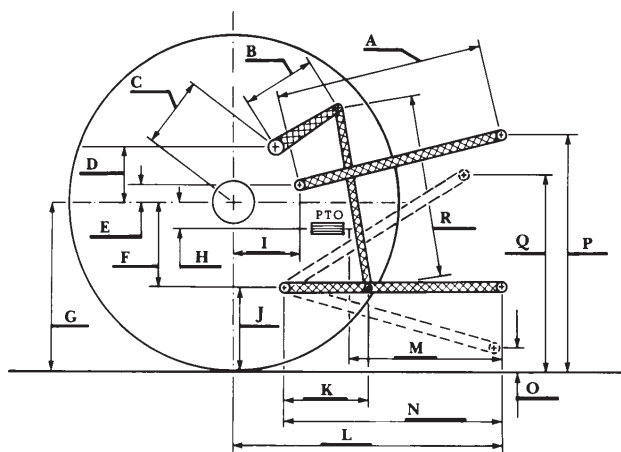
ii) Pump delivery rate at minimum pressure and rated engine speed: 59.0 GPM (223.3 l/min)

iii) Pump delivery rate at maximum hydraulic power: 56.7 GPM (214.6 l/min)

Delivery pressure: 2426 psi (167 bar)

Power: 80.3 Hp (59.8 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	30.2	768
B	21.7	550
C	41.4	1051
D	39.4	1000
E	12.4	315
F	11.8	300
G	35.0	890
H	0.4	10
I	23.0	585
J	23.2	590
K	29.0	737
L	53.9	1369
*L'	60.4	1534
M	26.6	676
N	36.6	929
O	9.0	230
P	50.2	1275
Q	46.5	1181
R	55.9	1421

*L' to Quick Attach ends



CHALLENGER MT865B DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln