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January 2005

Test 1862: Challenger MT855B Diesel

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1862 – SUMMARY 489

CHALLENGER MT855B DIESEL

16 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—1061 rpm)					
412.25 (307.42)	2100	24.53 (92.86)	0.420 (0.255)	16.81 (3.31)	
Standard Power Take-off Speed - (PTO speed - 1000 rpm)					
444.14 (331.20)	1980	25.62 (96.97)	0.407 (0.247)	17.34 (3.42)	
Maximum Power (1 hour)					
465.26 (346.95)	1699	25.33 (95.90)	0.384 (0.234)	18.36 (3.62)	

VARYING POWER AND FUEL CONSUMPTION

412.25 (307.42)	2100	24.53 (92.86)	0.420 (0.255)	16.81 (3.31)	Air temperature
366.68 (273.43)	2197	23.94 (90.62)	0.460 (0.280)	15.32 (3.02)	75°F (24°C)
274.99 (205.06)	2199	20.71 (78.38)	0.531 (0.323)	13.28 (2.62)	Relative humidity
183.45 (136.80)	2199	17.13 (64.85)	0.658 (0.401)	10.71 (2.11)	51%
90.91 (67.79)	2199	11.35 (42.95)	0.880 (0.535)	8.01 (1.58)	Barometer
2.06 (1.54)	2199	6.92 (26.20)	23.661 (14.393)	0.30 (0.06)	28.91" Hg (97.90 kPa)

Maximum Torque - 1585 lb.-ft. (2149 Nm) at 1449 rpm

Maximum Torque Rise - 53.8%

Torque rise at 1700 engine rpm - 39%

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—6th Gear									
358.14 (267.07)	30181 (134.25)	4.45 (7.16)	2098	3.16	0.471 (0.286)	14.98 (2.95)	188 (87)	70 (21)	28.94 (98.00)
75% of Pull at Maximum Power—6th Gear									
286.55 (213.68)	22610 (100.57)	4.75 (7.65)	2197	1.26	0.546 (0.332)	12.92 (2.54)	187 (86)	67 (19)	28.89 (97.83)
50% of Pull at Maximum Power—6th Gear									
192.49 (143.54)	15051 (66.95)	4.80 (7.72)	2198	0.37	0.662 (0.403)	10.65 (2.10)	186 (86)	73 (23)	28.90 (97.87)
75% of Pull at Reduced Engine Speed—9th Gear									
285.98 (213.26)	22406 (99.67)	4.79 (7.70)	1550	1.22	0.465 (0.283)	15.16 (2.99)	188 (87)	71 (22)	28.90 (97.87)
50% of Pull at Reduced Engine Speed—9th Gear									
192.34 (143.43)	14977 (66.62)	4.82 (7.75)	1546	0.39	0.508 (0.309)	13.87 (2.73)	187 (86)	77 (25)	28.92 (97.93)

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

Dates of tests: October 6 - 21, 2005

Manufacturer: AGCO Corporation, 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)** 0.8468
Fuel weight 7.051 lbs/gal (0.845 kg/l) **Oil SAE** 10W-30 **API service classification** CI-4
Transmission and hydraulic lubricant AGCO Trandraulic 821 XL fluid **Total time engine was operated:** 54.0 hours

ENGINE: Make Caterpillar **Diesel Type** six cylinder vertical with turbocharger and air to air aftercooler **Serial No.** *JAS00101* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 5.402" x 6.752" (137.2 mm x 171.5 mm) **Compression ratio** 16.5 to 1 **Displacement** 928 cu in (15213 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:** 167.7 - 178.2 lb/h (76.1 - 80.8 kg/h) **High idle:** 2175 - 2225 rpm **Turbo boost:** nominal 21.8 - 26.1 psi (150 - 180 kPa) as measured 23.8 psi (164 kPa)

CHASSIS: Type tracklayer-rubber tracked **Serial No.** *AGCMT855CBCC60740* **Track width** 100.0" (2540 mm) to 120.0" (3048 mm) **Length of track on ground** 124.3" (3157 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** 41800 lb (18960 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)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
3rd Gear									
285.62 (212.98)	41964 (186.67)	2.55 (4.11)	2192	9.50	0.590 (0.359)	11.96 (2.36)	186 (86)	53 (12)	28.92 (97.93)
4th Gear									
330.97 (246.80)	38798 (172.58)	3.20 (5.15)	2099	6.70	0.520 (0.316)	13.56 (2.67)	187 (86)	54 (12)	28.92 (97.93)
5th Gear									
348.65 (259.99)	33485 (148.95)	3.90 (6.28)	2098	4.40	0.492 (0.299)	14.32 (2.82)	187 (86)	68 (20)	28.96 (98.07)
6th Gear									
358.14 (267.07)	30181 (134.25)	4.45 (7.16)	2098	3.16	0.471 (0.286)	14.98 (2.95)	188 (87)	70 (21)	28.94 (98.00)
7th Gear									
354.57 (264.40)	26121 (116.19)	5.09 (8.19)	2105	2.12	0.478 (0.291)	14.74 (2.90)	188 (87)	70 (21)	28.94 (98.00)
8th Gear									
358.68 (267.46)	23419 (104.17)	5.74 (9.24)	2098	1.64	0.476 (0.290)	14.80 (2.92)	188 (87)	72 (22)	28.94 (98.00)
9th Gear									
351.54 (262.14)	20231 (89.99)	6.52 (10.49)	2101	0.82	0.489 (0.297)	14.43 (2.84)	188 (87)	63 (17)	28.89 (97.83)
10th Gear									
352.78 (263.07)	17974 (79.95)	7.36 (11.85)	2102	0.51	0.485 (0.295)	14.53 (2.86)	188 (87)	74 (23)	28.92 (97.93)
11th Gear									
338.16 (252.16)	15261 (67.89)	8.31 (13.37)	2100	0.38	0.515 (0.314)	13.68 (2.69)	188 (87)	75 (24)	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. For the maximum power tests the fuel temperature at the injection pump inlet was maintained at 111°F(44°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. **1862**, Nebraska Summary 489, January 27, 2006.

Leonard L. Bashford
Director

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

TRACTOR SOUND LEVEL WITH CAB

dB(A)

At no load in 6th gear	76.5
Bystander	--

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Track width	30.0 in (760 mm)	30.0 in (760 mm)
Ballast - Cast iron(front end)	4280 lb (1941 kg)	None
- Cast iron(front idlers)	3205 lb (1454 kg)	None
Height of Drawbar	19.5 in (560 mm)	19.0 in (545 mm)
Static Weight with operator	50000 lb(22679 kg)	42515 lb(19284 kg)

DRAWBAR PERFORMANCE
(Unballasted at 1700 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									
287.27 (214.22)	42402 (188.61)	2.54 (4.09)	2192	9.94	0.595 (0.362)	11.86 (2.34)	186 (86)	57 (14)	28.89 (97.83)
4th Gear									
335.24 (249.99)	40778 (181.39)	3.08 (4.96)	2071	8.86	0.520 (0.316)	13.57 (2.67)	187 (86)	54 (12)	28.92 (97.93)
5th Gear									
363.00 (270.69)	38505 (171.28)	3.54 (5.69)	1982	8.35	0.492 (0.299)	14.34 (2.82)	188 (87)	69 (21)	28.95 (98.04)
6th Gear									
382.82 (285.47)	36949 (164.36)	3.89 (6.25)	1909	7.12	0.465 (0.283)	15.15 (2.98)	188 (87)	71 (22)	28.94 (98.00)
7th Gear									
387.20 (288.74)	36111 (160.63)	4.02 (6.47)	1735	6.23	0.461 (0.280)	15.30 (3.01)	189 (87)	71 (22)	28.94 (98.00)
8th Gear									
402.01 (299.78)	33318 (148.21)	4.52 (7.28)	1701	4.48	0.446 (0.271)	15.81 (3.11)	190 (88)	73 (23)	28.93 (97.97)
9th Gear									
401.79 (299.62)	29176 (129.78)	5.16 (8.31)	1699	2.94	0.445 (0.271)	15.85 (3.12)	190 (88)	73 (23)	28.93 (97.97)
10th Gear									
406.36 (303.02)	25979 (115.56)	5.87 (9.44)	1698	1.89	0.439 (0.267)	16.06 (3.16)	189 (87)	75 (24)	28.92 (97.93)
11th Gear									
399.14 (297.64)	22507 (100.12)	6.65 (10.70)	1701	1.56	0.451 (0.274)	15.65 (3.08)	190 (88)	76 (24)	28.91 (97.90)
12th Gear									
401.87 (299.68)	20012 (89.02)	7.53 (12.12)	1696	0.68	0.447 (0.272)	15.78 (3.11)	190 (88)	78 (26)	28.90 (97.87)
13th Gear									
398.66 (297.28)	16606 (73.87)	9.00 (14.49)	1696	0.44	0.449 (0.273)	15.72 (3.10)	190 (88)	77 (25)	28.90 (97.87)

DRAWBAR PERFORMANCE
(Ballasted at 1700 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)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
3rd Gear									
318.76 (237.70)	48922 (217.62)	2.44 (3.93)	2118	10.47	0.544 (0.331)	12.96 (2.55)	187 (86)	59 (15)	28.70 (97.19)
4th Gear									
364.86 (272.07)	46865 (208.46)	2.92 (4.70)	1946	8.30	0.503 (0.306)	14.02 (2.76)	188 (87)	60 (16)	28.71 (97.22)
5th Gear									
388.11 (289.41)	45051 (200.40)	3.23 (5.20)	1782	6.99	0.469 (0.285)	15.05 (2.96)	188 (87)	61 (16)	28.72 (97.26)
6th Gear									
400.41 (298.58)	42738 (190.11)	3.51 (5.65)	1700	5.80	0.450 (0.273)	15.68 (3.09)	189 (87)	62 (17)	28.73 (97.29)
7th Gear									
403.66 (301.01)	37391 (166.32)	4.05 (6.52)	1701	3.78	0.444 (0.270)	15.90 (3.13)	189 (87)	64 (18)	28.73 (97.29)
8th Gear									
409.59 (305.43)	33352 (148.36)	4.61 (7.41)	1699	2.75	0.438 (0.267)	16.09 (3.17)	189 (87)	66 (19)	28.74 (97.33)
9th Gear									
407.59 (303.94)	29250 (130.11)	5.23 (8.41)	1700	1.83	0.439 (0.267)	16.06 (3.16)	189 (87)	68 (20)	28.75 (97.36)
10th Gear									
409.35 (305.25)	25956 (115.46)	5.91 (9.52)	1699	1.25	0.437 (0.266)	16.12 (3.18)	190 (88)	69 (21)	28.75 (97.36)
11th Gear									
402.57 (300.20)	22509 (100.13)	6.71 (10.79)	1701	0.90	0.446 (0.271)	15.80 (3.11)	190 (88)	70 (21)	28.76 (97.39)
12th Gear									
399.35 (297.79)	19851 (88.30)	7.54 (12.14)	1695	0.61	0.453 (0.276)	15.56 (3.06)	189 (87)	72 (22)	28.76 (97.39)
13th Gear									
399.79 (298.12)	16624 (73.95)	9.02 (14.51)	1697	0.39	0.453 (0.276)	15.56 (3.06)	190 (88)	75 (24)	28.78 (97.46)

DRAWBAR PERFORMANCE
(Ballasted to 52000 lbs at 1700 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)	Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
2nd Gear									
273.46 (203.92)	50864 (226.25)	2.02 (3.24)	2199	10.01	0.600 (0.365)	11.75 (2.31)	186 (86)	57 (14)	28.75 (97.36)
3rd Gear									
328.79 (245.18)	49177 (218.75)	2.51 (4.03)	2122	8.36	0.521 (0.317)	13.52 (2.66)	187 (86)	59 (15)	28.74 (97.33)
4th Gear									
370.31 (276.14)	47215 (210.02)	2.94 (4.73)	1939	7.29	0.490 (0.298)	14.39 (2.83)	188 (87)	61 (16)	28.74 (97.33)
5th Gear									
389.82 (290.69)	46147 (205.27)	3.17 (5.10)	1745	6.82	0.461 (0.281)	15.28 (3.01)	188 (87)	63 (17)	28.73 (97.29)
6th Gear									
402.80 (300.37)	42742 (190.13)	3.53 (5.69)	1700	5.27	0.445 (0.271)	15.84 (3.12)	189 (87)	64 (18)	28.73 (97.29)
7th Gear									
404.43 (301.59)	37366 (166.21)	4.06 (6.53)	1699	3.58	0.443 (0.269)	15.93 (3.14)	189 (87)	65 (18)	28.72 (97.26)
8th Gear									
410.73 (306.28)	33358 (148.38)	4.62 (7.43)	1699	2.67	0.435 (0.264)	16.22 (3.20)	189 (87)	67 (19)	28.72 (97.26)
9th Gear									
406.14 (302.86)	29126 (129.56)	5.23 (8.42)	1699	1.80	0.439 (0.267)	16.04 (3.16)	189 (87)	69 (21)	28.71 (97.22)
10th Gear									
409.17 (305.12)	25905 (115.23)	5.92 (9.53)	1698	1.15	0.436 (0.265)	16.17 (3.19)	190 (88)	71 (22)	28.71 (97.22)
11th Gear									
401.12 (299.12)	22422 (99.74)	6.71 (10.80)	1698	0.97	0.444 (0.270)	15.89 (3.13)	190 (88)	73 (23)	28.71 (97.22)
12th Gear									
400.19 (298.42)	19849 (88.29)	7.56 (12.17)	1697	0.60	0.450 (0.274)	15.66 (3.08)	190 (88)	75 (24)	28.70 (97.19)
13th Gear									
397.42 (296.36)	16466 (73.24)	9.05 (14.57)	1702	0.43	0.463 (0.281)	15.24 (3.00)	190 (88)	77 (25)	28.70 (97.19)

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

30.0 in (760 mm)

4280 lb (1941 kg)

4605 lb (2089 kg)

600 lb (272 kg)

19.5 in (495 mm)

52000 lb(23587 kg)

Without Ballast

30.0 in (760 mm)

None

None

None

19.0 in (485 mm)

42515 lb(19285 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: IVN

Quick Attach: yes

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

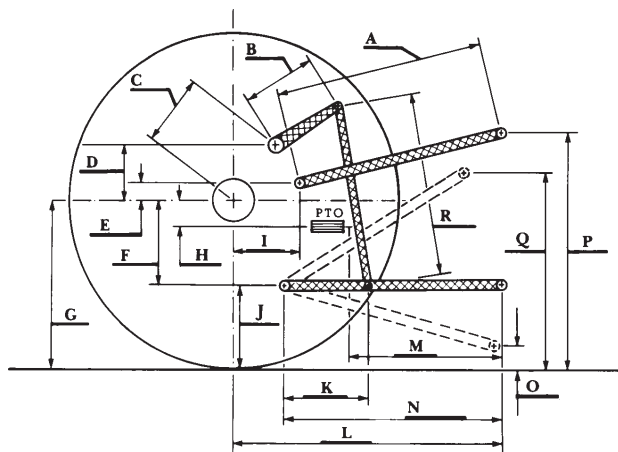
i) Opening pressure of relief valve: NA

Sustained pressure at compensator cutoff: 2943 psi (203 bar)

High flow option

ii) Pump delivery rate at minimum pressure and rated engine speed:	44.5 GPM (168.5 l/min)	59.0 GPM (223.3 l/min)
iii) Pump delivery rate at maximum hydraulic power:	43.0 GPM (162.8 l/min)	57.1 GPM (216.1 l/min)
Delivery pressure:	2692 psi (186 bar)	2479 psi (171 bar)
Power:	67.5 HP (50.4 kW)	82.6 HP (61.6 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 MT855B DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln