

# NEBRASKA OECD TRACTOR TEST 1862A – SUMMARY 489A

## CHALLENGER MT855B DIESEL

## ALSO CHALLENGER MT855C 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1061 rpm)</b>					
412.25 (307.42)	2100	24.53 (92.86)	0.420 (0.255)	16.81 (3.31)	
<b>Standard Power Take-off Speed - (PTO speed - 1000 rpm)</b>					
444.14 (331.20)	1980	25.62 (96.97)	0.407 (0.247)	17.34 (3.42)	
<b>Maximum Power (1 hour)</b>					
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%  
 Power increase at 1699 engine rpm - 12.8%

#### 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)
<b>Maximum Power—6th Gear</b>									
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)
<b>75% of Pull at Maximum Power—6th Gear</b>									
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)
<b>50% of Pull at Maximum Power—6th Gear</b>									
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)
<b>75% of Pull at Reduced Engine Speed—9th Gear</b>									
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)
<b>50% of Pull at Reduced Engine Speed—9th Gear</b>									
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 dis 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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>3rd Gear</b>									
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)
<b>4th Gear</b>									
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)
<b>5th Gear</b>									
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)
<b>6th Gear</b>									
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)
<b>7th Gear</b>									
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)
<b>8th Gear</b>									
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)
<b>9th Gear</b>									
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)
<b>10th Gear</b>									
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)
<b>11th Gear</b>									
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.

**NOTE:** Report reissued, supplemental for Challenger MT 855C Diesel, July, 2009.

**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. **1862A**, Nebraska Summary 489A, July 17, 2009.

Roger M. Hoy  
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**

	<b>With Ballast</b>	<b>Without Ballast</b>
<b>Track width</b>	30.0 in (760 mm)	30.0 in (760 mm)
<b>Ballast</b> - Cast iron(front end)	4280 lb (1941 kg)	None
- Cast iron(front idlers)	3205 lb (1454 kg)	None
<b>Height of Drawbar</b>	19.5 in (560 mm)	19.0 in (545 mm)
<b>Static Weight with operator</b>	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)	Fuel 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 (115.36)	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)	Fuel Consumption Hp.hr/gal (kW.h/l)	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**

	With Ballast	Without Ballast
<b>Track width</b>	30.0 in (760 mm)	30.0 in (760 mm)
<b>Ballast</b> - Cast iron(front end)	4280 lb (1941 kg)	None
- Cast iron(front idlers)	4605 lb (2089 kg)	None
- Cast iron(side)	600 lb (272 kg)	None
<b>Height of Drawbar</b>	19.5 in (495 mm)	19.0 in (485 mm)
<b>Static Weight with operator</b>	52000 lb(23587 kg)	42515 lb(19285 kg)

## HYDRAULIC PERFORMANCE

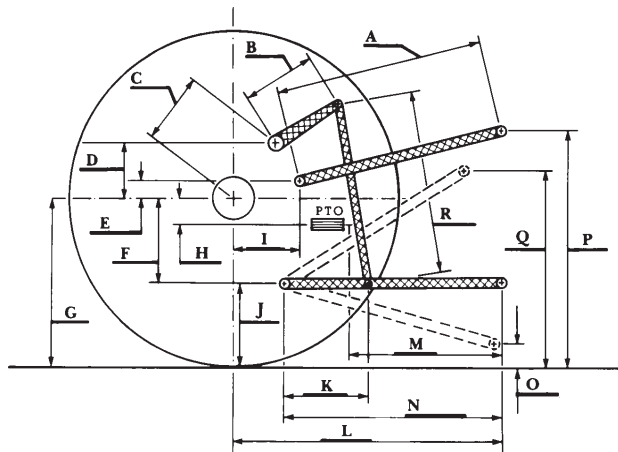
CATEGORY: IVN

Quick Attach: yes

OECD Static test

Maximum force exerted through whole range:	20936 lbs (93.1 kN)	
	<b>Standard pump</b>	<b>High flow pump</b>
	<u>2 inlets - 2 outlets</u>	<u>3 inlets - 3 outlets</u>
i) Sustained pressure at compensator cutoff:	2943 psi (203 bar)	2974 psi (205 bar)
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)
	<u>1 inlet - 1 outlet</u>	<u>1 inlet - 1 outlet</u>
i) Sustained pressure at compensator cutoff:	2850 psi (197 bar)	2864 psi (197 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	37.3 GPM (141.2 l/min)	41.0 GPM (155.2 l/min)
iii) Pump delivery rate at maximum		
hydraulic power:	36.4 GPM (137.8 l/min)	38.8 GPM (146.9 l/min)
Delivery pressure:	2235 psi (154 bar)	2082 psi (144 bar)
Power:	47.5 HP (35.4 kW)	47.1 HP (35.1 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**