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2009

Test 1859A: Challenger MT755C

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1859A—SUMMARY 486A

CHALLENGER MT755B DIESEL

ALSO CHALLENGER MT755C 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)					
245.61 (183.15)	2100	14.54 (55.03)	0.417 (0.254)	16.90 (3.33)	
Standard Power Take-off Speed - (PTO speed - 1000 rpm)					
277.64 (207.04)	1980	15.86 (60.04)	0.403 (0.245)	17.51 (3.45)	
Maximum Power (1 hour)					
315.96 (235.61)	1701	17.27 (65.38)	0.385 (0.234)	18.29 (3.60)	

VARYING POWER AND FUEL CONSUMPTION

245.61 (183.15)	2100	14.54 (55.03)	0.417 (0.254)	16.90 (3.33)	Air temperature
214.55 (159.99)	2166	13.69 (51.81)	0.450 (0.274)	15.68 (3.09)	75°F (24°C)
163.89 (121.21)	2199	11.73 (44.40)	0.505 (0.307)	13.97 (2.75)	Relative humidity
109.32 (81.52)	2199	9.40 (35.59)	0.606 (0.369)	11.63 (2.29)	51%
53.68 (40.03)	2199	6.37 (24.11)	0.836 (0.509)	8.43 (1.66)	Barometer
2.11 (1.58)	2199	3.47 (13.15)	11.593 (7.051)	0.61 (0.12)	29.05" Hg (98.37 kPa)

Maximum Torque - 1037 lb.-ft. (1405 Nm) at 1201 rpm

Maximum Torque Rise - 68.7%

Torque rise at 1700 engine rpm - 59%

Power increase at 1701 engine rpm - 28.6%

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 cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—6th Gear									
213.58 (159.27)	18170 (80.82)	4.41 (7.09)	2102	2.54	0.476 (0.290)	14.80 (2.92)	173 (78)	62 (17)	29.06 (98.41)
75% of Pull at Maximum Power—6th Gear									
169.09 (126.09)	13607 (60.53)	4.66 (7.50)	2197	1.40	0.542 (0.330)	13.02 (2.56)	172 (78)	61 (16)	29.04 (98.34)
50% of Pull at Maximum Power—6th Gear									
113.39 (84.56)	9058 (40.29)	4.69 (7.56)	2195	0.60	0.667 (0.406)	10.57 (2.08)	171 (77)	61 (16)	29.03 (98.31)
75% of Pull at Reduced Engine Speed—9th Gear									
168.98 (126.01)	13600 (60.50)	4.66 (7.50)	1539	1.42	0.478 (0.291)	14.75 (2.91)	173 (78)	61 (16)	29.04 (98.34)
50% of Pull at Reduced Engine Speed—9th Gear									
113.97 (84.99)	9066 (40.33)	4.71 (7.59)	1544	0.58	0.548 (0.334)	12.86 (2.53)	171 (77)	62 (17)	29.03 (98.31)

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

Dates of tests: October 25 - November 2, 2005
Hydraulic performance - high flow pump - July 10, 2009

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: 22.5 hours

ENGINE: Make Caterpillar Diesel Type six cylinder vertical with turbocharger and air to air aftercooler Serial No. *JLW00100* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 4.409" x 5.866" (112.0 mm x 149.0 mm) Compression ratio 17.1 to 1 Displacement 537 cu in (8810 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 and water separator Muffler vertical Cooling medium temperature control 1 thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 101.7 - 113.0 lb/h (46.1 - 51.3 kg/h) High idle: 2175 - 2225 rpm Turbo boost: nominal 22.5 - 26.8 psi (155 - 185 kPa) as measured 23.4 psi (161 kPa)

CHASSIS: Type tracklayer-rubber tracked Serial No. *AGCMT755KALM60732* Track width 88.0" (2235 mm) to 119.5" (3035 mm) Length of track on ground 102.4" (2600 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 1.66 (2.67) second 2.11 (3.40) third 2.66 (4.28) fourth 3.38 (5.44) fifth 4.03 (6.49) sixth 4.54 (7.31) seventh 5.12 (8.24) eighth 5.76 (9.27) ninth 6.48 (10.43) tenth 7.29 (11.73) eleventh 8.22 (13.23) twelfth 9.26 (14.90) thirteenth 11.02 (17.73) fourteenth 14.00 (22.53) fifteenth 17.72 (28.52) sixteenth 24.64 (39.65) at 2300 rpm, reverse 1.33 (2.14), 3.22 (5.18), 3.63 (5.84), 8.82 (14.19) 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 30195 lb (13696 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									
187.54 (139.85)	29422 (130.88)	2.39 (3.85)	2142	11.27	0.549 (0.334)	12.85 (2.53)	171 (77)	50 (10)	29.08 (98.48)
4th Gear									
200.49 (149.50)	23360 (103.91)	3.22 (5.18)	2102	4.56	0.506 (0.308)	13.92 (2.74)	173 (78)	54 (12)	29.08 (98.48)
5th Gear									
211.15 (157.45)	20403 (90.76)	3.88 (6.25)	2101	3.31	0.483 (0.294)	14.61 (2.88)	173 (78)	58 (14)	29.07 (98.44)
6th Gear									
213.58 (159.27)	18170 (80.82)	4.41 (7.09)	2102	2.54	0.476 (0.290)	14.80 (2.92)	173 (78)	62 (17)	29.06 (98.41)
7th Gear									
210.71 (157.13)	15814 (70.34)	5.00 (8.04)	2098	1.84	0.479 (0.291)	14.73 (2.90)	173 (78)	65 (18)	29.05 (98.37)
8th Gear									
212.43 (158.41)	14084 (62.65)	5.66 (9.10)	2100	1.41	0.474 (0.288)	14.88 (2.93)	174 (79)	66 (19)	29.03 (98.31)
9th Gear									
206.72 (154.15)	12184 (54.20)	6.36 (10.24)	2096	1.15	0.495 (0.301)	14.25 (2.81)	171 (77)	52 (11)	29.07 (98.44)
10th Gear									
208.31 (155.34)	10851 (48.27)	7.20 (11.59)	2099	0.80	0.495 (0.301)	14.24 (2.81)	172 (78)	53 (12)	29.06 (98.41)
11th Gear									
197.92 (147.59)	9132 (40.62)	8.13 (13.08)	2096	0.54	0.517 (0.314)	13.65 (2.69)	174 (79)	54 (12)	29.05 (98.37)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: Report reissued, supplemental for Challenger MT 755C 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. 1859A, Nebraska Summary 486A, July 30, 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	75.7
Bystander	--

TIRES, BALLAST AND WEIGHT	With Ballast	Without Ballast
Track width	25.0 in(635 mm)	25.0 in(635 mm)
Ballast - Cast iron(front end)	None	None
- Cast iron(front idlers)	630 lb (286 kg)	None
Height of Drawbar	18.5 in (470 mm)	18.5 in (470 mm)
Static Weight with operator	31000 lb(14061 kg)	30370 lb(13776 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)	Temp. °F(°C) cool- ing med	Barom. inch Hg (kPa)		
187.32 (139.69)	29381 (130.69)	2.39 (3.85)	2142	11.28	3rd Gear 0.548 (0.333)	12.86 (2.53)	170 (77)	50 (10)	29.08 (98.48)
213.84 (159.46)	26668 (118.62)	3.01 (4.84)	2020	7.16	4th Gear 0.503 (0.306)	14.00 (2.76)	174 (79)	55 (13)	29.08 (98.48)
235.55 (175.65)	25420 (113.07)	3.47 (5.59)	1943	6.30	5th Gear 0.476 (0.290)	14.81 (2.92)	174 (79)	60 (16)	29.07 (98.44)
247.05 (184.23)	24982 (111.13)	3.71 (5.97)	1836	5.88	6th Gear 0.465 (0.283)	15.17 (2.99)	174 (79)	64 (18)	29.05 (98.37)
255.12 (190.24)	23555 (104.78)	4.06 (6.54)	1764	4.96	7th Gear 0.458 (0.278)	15.40 (3.03)	175 (79)	65 (18)	29.04 (98.34)
260.52 (194.27)	21934 (97.57)	4.45 (7.17)	1701	4.06	8th Gear 0.450 (0.274)	15.68 (3.09)	175 (79)	67 (19)	29.02 (98.27)
262.36 (195.64)	19423 (86.40)	5.07 (8.15)	1702	3.01	9th Gear 0.453 (0.276)	15.57 (3.07)	173 (78)	53 (12)	29.06 (98.41)
266.29 (198.57)	17440 (77.58)	5.73 (9.21)	1699	2.48	10th Gear 0.441 (0.268)	16.00 (3.15)	174 (79)	54 (12)	29.05 (98.37)
260.51 (194.27)	14964 (66.56)	6.53 (10.51)	1702	1.60	11th Gear 0.450 (0.274)	15.67 (3.09)	175 (80)	55 (13)	29.05 (98.37)
262.59 (195.81)	13361 (59.43)	7.37 (11.86)	1703	1.32	12th Gear 0.453 (0.275)	15.58 (3.07)	176 (80)	57 (14)	29.04 (98.34)
262.98 (196.10)	11208 (49.85)	8.80 (14.16)	1697	0.84	13th Gear 0.450 (0.274)	15.67 (3.09)	177 (80)	59 (15)	29.04 (98.34)

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								
188.48 (140.55)	30267 (134.63)	2.34 (3.76)	2108	12.35	0.543 (0.330)	12.99 (2.56)	171 (77)	28.86 (97.73)
4th Gear								
215.48 (160.69)	28418 (126.41)	2.84 (4.58)	1967	10.25	0.513 (0.312)	13.75 (2.71)	171 (77)	28.86 (97.73)
5th Gear								
238.49 (177.84)	26713 (118.83)	3.35 (5.39)	1899	7.94	0.476 (0.290)	14.81 (2.92)	173 (78)	28.87 (97.77)
6th Gear								
248.32 (185.17)	25641 (114.06)	3.63 (5.84)	1811	6.91	0.467 (0.284)	15.11 (2.98)	173 (78)	28.87 (97.77)
7th Gear								
256.04 (190.93)	24057 (107.01)	3.99 (6.42)	1740	5.62	0.462 (0.281)	15.26 (3.01)	173 (78)	28.88 (97.80)
8th Gear								
262.03 (195.40)	22011 (97.91)	4.46 (7.18)	1710	4.42	0.448 (0.272)	15.74 (3.10)	174 (79)	28.88 (97.80)
9th Gear								
261.34 (194.88)	19323 (85.95)	5.07 (8.16)	1703	3.10	0.450 (0.274)	15.67 (3.09)	175 (80)	28.88 (97.80)
10th Gear								
265.63 (198.08)	17354 (77.19)	5.74 (9.24)	1701	2.36	0.444 (0.270)	15.89 (3.13)	176 (80)	28.89 (97.83)
11th Gear								
260.77 (194.46)	15001 (66.73)	6.52 (10.49)	1700	1.61	0.452 (0.275)	15.62 (3.08)	177 (81)	28.89 (97.83)
12th Gear								
262.05 (195.41)	13344 (59.36)	7.36 (11.85)	1698	1.25	0.450 (0.274)	15.65 (3.08)	178 (81)	28.90 (97.87)
13th Gear								
262.21 (195.53)	11152 (49.61)	8.82 (14.19)	1698	0.72	0.449 (0.273)	15.69 (3.09)	178 (81)	28.90 (97.87)

HYDRAULIC PERFORMANCE

CATEGORY: III

Quick Attach: yes

OECD Static test

Maximum force exerted through whole range:

17263 lbs (76.8 kN)

Standard pump

High flow pump

2 inlets - 2 outlets

3 inlets - 3 outlets

i) Sustained pressure at compensator cutoff:

2968 psi (205 bar)

2854 psi (197 bar)

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

44.5 GPM (168.5 l/min)

59.4 GPM (168.5 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

43.2 GPM (163.5 l/min)

56.9 GPM (215.4 l/min)

Delivery pressure:

2734 psi (189 bar)

2797 psi (193 bar)

Power:

68.9 HP (51.4 kW)

92.8 HP (69.2 kW)

i) Sustained pressure at compensator cutoff:

2884 psi (199 bar)

2854 psi (197 bar)

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

42.2 GPM (159.7 l/min)

39.9 GPM (151.0 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

41.2 GPM (156.0 l/min)

37.8 GPM (143.3 l/min)

Delivery pressure:

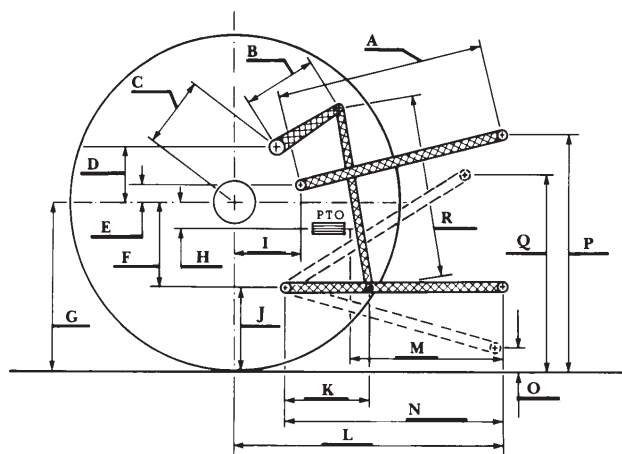
2149 psi (148 bar)

2325 psi (160 bar)

Power:

51.7 HP (38.5 kW)

51.3 HP (38.3 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	27.6	702
B	21.7	550
C	23.5	596
D	23.0	583
E	11.4	290
F	11.8	300
G	33.4	849
H	1.3	34
I	16.7	425
J	21.6	549
K	27.1	688
L	48.4	1230
*L'	52.2	1325
M	27.9	709
N	39.6	1005
O	9.0	230
P	48.6	1234
Q	40.2	1022
R	42.5	1079

*L' to Quick Attach ends



CHALLENGER MT755B DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln