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January 1998

## Test 1802: Challenger MT 455 Diesel

Nebraska Tractor Test Lab

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# SUMMARY OF OECD TEST 1802-NEBRASKA SUMMARY 278A

## CHALLENGER MT 455 DIESEL

### 12 SPEED

#### POWER TAKE-OFF PERFORMANCE (540 RPM Shaft)

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-625 rpm)</b>					
73.1 (54.5)	2201	5.07 (19.18)	0.485 (0.295)	14.42 (2.84)	
<b>Maximum Power (2 hours)</b>					
75.2 (56.1)	1941	4.74 (17.94)	0.440 (0.268)	15.88 (3.13)	
<b>Standard Power Take-off Speed (540 rpm)</b>					
74.8 (55.8)	1903	4.67 (17.66)	0.435 (0.265)	16.04 (3.16)	

#### VARYING POWER AND FUEL CONSUMPTION

73.1 (54.5)	2201	5.07 (19.18)	0.485 (0.295)	14.42 (2.84)	Air temperature
63.6 (47.4)	2250	4.70 (17.78)	0.517 (0.314)	13.52 (2.66)	82°F (28°C)
48.3 (36.0)	2280	4.01 (15.17)	0.580 (0.353)	12.03 (2.37)	Relative humidity
32.5 (24.2)	2299	3.38 (12.79)	0.727 (0.442)	9.60 (1.89)	34%
16.4 (12.2)	2316	2.63 (9.96)	1.125 (0.684)	6.22 (1.22)	Barometer
--	2333	1.77 (6.69)	--	--	30.1" Hg (101.8 kPa)

Maximum Torque -232.8 lb.-ft. (315.7 Nm) at 1288 rpm  
Maximum Torque Rise -33.5%  
Torque rise at 1800 engine rpm -26%

#### POWER TAKE-OFF PERFORMANCE (1000 RPM Shaft)

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—1098 rpm)</b>					
75.2 (56.1)	2197	5.06 (19.17)	0.471 (0.286)	14.84 (2.92)	
<b>Standard Power Take-off Speed (1001 rpm)</b>					
77.5 (57.8)	2002	4.84 (18.32)	0.436 (0.265)	16.02 (3.16)	
<b>Maximum Power (2 hours)</b>					
77.9 (58.1)	1944	4.76 (18.00)	0.426 (0.259)	16.38 (3.23)	

#### VARYING POWER AND FUEL CONSUMPTION

75.2 (56.1)	2197	5.06 (19.17)	0.471 (0.286)	14.84 (2.92)	Air temperature
65.4 (48.8)	2249	4.70 (17.80)	0.503 (0.306)	13.88 (2.74)	79°F (26°C)
49.6 (37.0)	2278	4.00 (15.16)	0.564 (0.343)	12.39 (2.44)	Relative humidity
33.5 (25.0)	2299	3.38 (12.81)	0.706 (0.429)	9.90 (1.95)	32%
16.9 (12.6)	2316	2.64 (10.00)	1.093 (0.665)	6.39 (1.26)	Barometer
--	2332	1.82 (6.90)	--	--	30.1" Hg (101.8 kPa)

Maximum Torque -241.3 lb.-ft. (327.1 Nm) at 1290 rpm  
Maximum Torque Rise -34.2%  
Torque rise at 1800 engine rpm -26%

**Location of Test:** Silsoe Research Institute, Wrest Park, Silsoe, Bedford, England MK45 4HS

**Dates of Test:** June to November, 1998

**Manufacturer:** AGCO Limited, P.O. Box 62, Banner Lane, Coventry, West Midlands, England CV4 9GF

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.839 **Fuel weight** 6.98 lbs/gal (0.837 kg/l) **Oil** SAE 15W-30 **API service classification** CD **Transmission and hydraulic lubricant** SAE 15W-30 **Front axle lubricant** SAE 15W-30

**ENGINE:** Make Perkins Diesel **Type** four cylinder vertical with turbocharger **Serial No.** U818783C **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 3.937" x 5.00" (100.0 mm x 127.0 mm) **Compression ratio** 17.3 to 1 **Displacement** 243 cu in (3990 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **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** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

**CHASSIS:** **Type** front wheel assist **Serial No.** ABCD24ABXAE11999 **Tread width** rear 60.4" (1535 mm) to 83.9" (2130 mm) front 63.4" (1610 mm) to 75.4" (1915 mm) **Wheelbase** 92.5" (2350 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.37 (2.21) second 1.80 (2.89) third 2.36 (3.80) fourth 3.09 (4.97) fifth 3.88 (6.24) sixth 5.07 (8.16) seventh 6.66 (10.71) eighth 8.71 (14.02) ninth 10.48 (16.86) tenth 13.69 (22.03) eleventh 17.96 (28.91) twelfth 23.53 (37.86) reverse 1.40 (2.25), 1.83 (2.94), 2.40 (3.86), 3.14 (5.06), 3.95 (6.35), 5.16 (8.30), 6.77 (10.90), 8.87 (14.27), 10.65 (17.15), 13.93 (22.41), 18.28 (29.42), 23.94 (38.53) **Clutch** single dry 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** single speed - 540 rpm at 1789 engine rpm, dual speed - 540 rpm at 1902 engine rpm or 1000 rpm at 2000 engine rpm **Unladen tractor mass** 8225 lb (3730 kg)

**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)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—6th (2M) Gear</b>									
63.2 (47.1)	4775 (21.2)	4.96 (7.98)	2202	4.1	0.573 (0.349)	12.18 (2.40)	185 (85)	46 (8)	29.6 (100.3)
<b>75% of Pull at Maximum Power—6th (2M) Gear</b>									
48.9 (36.5)	3565 (15.9)	5.15 (8.28)	2261	3.1	0.648 (0.394)	10.77 (2.12)	185 (85)	46 (8)	29.6 (100.3)
<b>50% of Pull at Maximum Power—6th (2M) Gear</b>									
33.4 (24.9)	2385 (10.6)	5.25 (8.45)	2289	2.2	0.794 (0.483)	8.79 (1.73)	185 (85)	46 (8)	29.6 (100.3)
<b>75% of Pull at Reduced Engine Speed—7th (3M) Gear</b>									
48.9 (36.5)	3565 (15.9)	5.15 (8.28)	1725	3.1	0.523 (0.318)	13.35 (2.63)	182 (83)	45 (7)	29.6 (100.3)
<b>50% of Pull at Reduced Engine Speed—7th (3M) Gear</b>									
33.3 (24.8)	2385 (10.6)	5.24 (8.44)	1742	2.2	0.603 (0.367)	11.57 (2.28)	184 (84)	45 (7)	29.6 (100.3)

**MAXIMUM POWER IN SELECTED GEARS**

<b>1st (1L) Gear</b>									
29.7 (22.2)	8950 (39.8)	1.24 (2.00)	2294	15.0	0.866 (0.527)	8.06 (1.59)	185 (85)	46 (8)	29.6 (100.3)
<b>2nd (2L) Gear</b>									
39.0 (29.1)	8790 (39.1)	1.66 (2.68)	2281	12.4	0.736 (0.448)	9.49 (1.87)	185 (85)	46 (8)	29.6 (100.3)
<b>3rd (3L) Gear</b>									
50.6 (37.7)	8630 (38.4)	2.20 (3.53)	2255	10.8	0.649 (0.395)	10.76 (2.12)	185 (85)	46 (8)	29.6 (100.3)
<b>4th (4L) Gear</b>									
61.4 (45.8)	8070 (35.9)	2.85 (4.59)	2182	8.5	0.583 (0.354)	11.99 (2.36)	185 (85)	46 (8)	29.6 (100.3)
<b>5th (1M) Gear</b>									
65.2 (48.6)	7260 (32.3)	3.37 (5.42)	2004	6.3	0.527 (0.321)	13.25 (2.61)	183 (84)	46 (8)	29.6 (100.3)
<b>6th (2M) Gear</b>									
66.0 (49.2)	5720 (25.4)	4.33 (6.96)	1935	4.7	0.511 (0.311)	13.65 (2.69)	183 (84)	46 (8)	29.6 (100.3)
<b>7th (3M) Gear</b>									
65.4 (48.8)	4250 (18.9)	5.77 (9.28)	1942	3.6	0.517 (0.315)	13.50 (2.66)	183 (84)	48 (9)	29.6 (100.3)
<b>8th (4M) Gear</b>									
64.4 (48.0)	3180 (14.2)	7.59 (12.22)	1936	2.8	0.525 (0.319)	13.30 (2.62)	183 (84)	46 (8)	29.6 (100.3)
<b>9th (1H) Gear</b>									
63.6 (47.4)	2600 (11.6)	9.17 (14.76)	1937	2.3	0.533 (0.324)	13.10 (2.58)	183 (84)	46 (8)	29.6 (100.3)

**TIRES AND WEIGHT**

**Rear Tires**—No., size, ply & psi (kPa)  
**Front Tires**—No., size, ply & psi (kPa)

**Height of Drawbar**

**Static Weight with operator** —Rear  
—Front  
—Total

**Tested Without Ballast**

Two 18.4R34; \*\*, 12(83)  
Two 14.9R24; \*\*, 15(103)

20.7 in (525 mm)  
5010 lb (2272 kg)  
3380 lb (1533 kg)  
8390 lb (3805 kg)

**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 results on this summary were taken from OECD tests conducted under the Code 2 test code procedure.

**NOTE:** The data on this summary was obtained from OECD report 1802 conducted on the Massey Ferguson 4245 Diesel.

**Report reissued:** Supplemental sales permit for Massey Ferguson 4243 Diesel, July, 2000.

**Report reissued:** Supplemental sales permit for Massey Ferguson 4345 Diesel, April, 2002.

**Report reissued:** Supplemental sales permit for Challenger MT 455 Diesel, July 2003.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1802**, Nebraska Summary 278A, July 2, 2003.

Leonard L. Bashford  
Director

M.F. Kocher  
V.I. Adamchuk  
W.P. Campbell  
Board of Tractor Test Engineers

**DRAWBAR PERFORMANCE**  
**(Unballasted - Front Drive Disengaged)**  
**FUEL CONSUMPTION CHARACTERISTICS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption		Temp. °F (°C)		Barom. inch Hg (kPa)
					lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	cool- ing med	Air dry bulb	
<b>Maximum Power—6th (2M) Gear</b>									
63.0 (47.0)	4900 (21.8)	4.82 (7.76)	2198	4.5	0.573 (0.349)	12.18 (2.40)	185 (85)	48 (9)	29.7 (100.5)
<b>75% of Pull at Maximum Power—6th (2M) Gear</b>									
49.2 (36.7)	3665 (16.3)	5.03 (8.10)	2265	3.3	0.644 (0.392)	10.84 (2.13)	185 (85)	50 (10)	29.7 (100.5)
<b>50% of Pull at Maximum Power—6th (2M) Gear</b>									
33.7 (25.1)	2460 (10.9)	5.14 (8.27)	2290	2.3	0.784 (0.477)	8.90 (1.75)	185 (85)	48 (9)	29.7 (100.5)
<b>75% of Pull at Reduced Engine Speed—7th (3M) Gear</b>									
49.2 (36.7)	3665 (16.3)	5.03 (8.10)	1728	3.4	0.517 (0.314)	13.51 (2.66)	183 (84)	54 (12)	29.6 (100.4)
<b>50% of Pull at Reduced Engine Speed—7th (3M) Gear</b>									
33.5 (25.0)	2450 (10.9)	5.13 (8.26)	1744	2.5	0.591 (0.359)	11.83 (2.33)	181 (83)	54 (12)	29.6 (100.4)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
<b>1st (1L) Gear</b>									
21.9 (16.3)	6745 (30.0)	1.22 (1.96)	2302	14.9	1.045 (0.636)	6.68 (1.32)	185 (85)	52 (11)	29.6 (100.4)
<b>2nd (2L) Gear</b>									
29.0 (21.6)	6565 (29.2)	1.66 (2.67)	2290	11.0	0.860 (0.523)	8.12 (1.60)	185 (85)	52 (11)	29.6 (100.4)
<b>3rd (3L) Gear</b>									
38.0 (28.3)	6520 (29.0)	2.18 (3.51)	2276	10.2	0.730 (0.444)	9.57 (1.88)	185 (85)	52 (11)	29.6 (100.4)
<b>4th (4L) Gear</b>									
48.5 (36.2)	6360 (28.3)	2.86 (4.60)	2255	9.4	0.655 (0.399)	10.66 (2.10)	185 (85)	54 (12)	29.6 (100.4)
<b>5th (1M) Gear</b>									
59.5 (44.4)	6315 (28.1)	3.53 (5.68)	2217	9.5	0.598 (0.364)	11.67 (2.30)	185 (85)	52 (11)	29.7 (100.5)
<b>6th (2M) Gear</b>									
64.1 (47.8)	5560 (24.7)	4.32 (6.96)	2009	6.4	0.531 (0.323)	13.15 (2.59)	185 (85)	54 (12)	29.6 (100.4)
<b>7th (3M) Gear</b>									
64.7 (48.3)	4325 (19.2)	5.61 (9.03)	1938	4.0	0.519 (0.316)	13.45 (2.65)	183 (84)	50 (10)	29.7 (100.5)
<b>8th (4M) Gear</b>									
64.0 (47.7)	3215 (14.3)	7.46 (12.01)	1946	2.9	0.526 (0.320)	13.29 (2.62)	183 (84)	50 (10)	29.7 (100.5)
<b>9th (1H) Gear</b>									
63.5 (47.4)	2665 (11.8)	8.94 (14.39)	1933	2.5	0.527 (0.321)	13.25 (2.61)	183 (84)	50 (10)	29.7 (100.5)

<b>TRACTOR SOUND LEVEL WITH CAB</b>	<b>Front Wheel Drive</b>	
	<b>Disengaged dB(A)</b>	<b>Engaged dB(A)</b>
Maximum sound level in 6th(2M) gear	83.0	83.0
Bystander in 12th (4H) gear	85.0	--

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

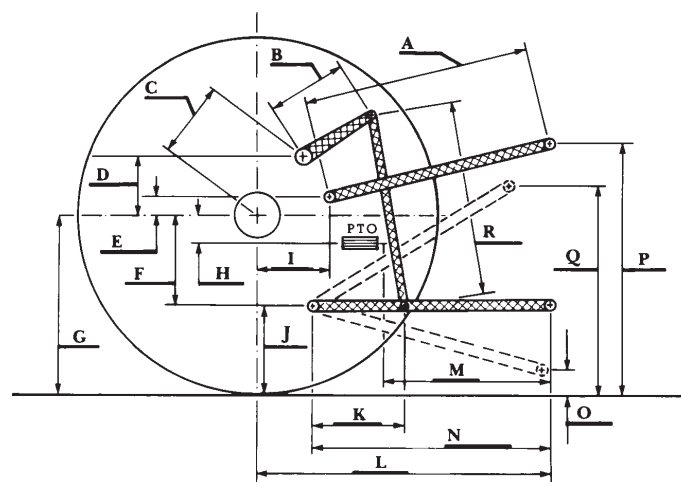
Maximum Force Exerted Through Whole Range: 3665 lbs (16.3 kN)

i) Opening pressure of relief valve: NA  
Sustained pressure of the open relief valve: 3135 psi (216 bar)

ii) Pump delivery rate at minimum pressure: 10.2 GPM (38.8 l/min)

iii) Pump delivery rate at maximum  
hydraulic power: 9.6 GPM (36.3 l/min)  
Delivery pressure: 2755 psi (190 bar)  
Power: 15.4 HP (11.5 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	32.0	815
B	12.2	310
C	12.0	304
D	9.2	233
E	8.1	205
F	8.3	212
G	28.3	720
H	5.4	136
I	7.3	186
J	20.0	508
K	26.6	675
L	38.1	968
M	25.0	635
N	39.4	1000
O	7.8	197
P	44.0	1118
Q	33.3	845
R	30.7	780