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January 1998

## Test 1779: Challenger MT 425 Diesel

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# SUMMARY OF OECD TEST 1779 – NEBRASKA SUMMARY 276A

## CHALLENGER MT 425 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—624 rpm)</b>					
54.8 (40.9)	2200	3.81 (14.44)	0.507 (0.309)	14.37 (2.83)	
<b>Maximum Power (2 hours)</b>					
55.4 (41.3)	2100	3.74 (14.15)	0.492 (0.299)	14.82 (2.92)	
<b>Standard Power Take-off Speed (540 rpm)</b>					
53.4 (39.8)	1903	3.44 (13.03)	0.470 (0.286)	15.50 (3.05)	

#### VARYING POWER AND FUEL CONSUMPTION

54.8 (40.9)	2200	3.81 (14.44)	0.507 (0.309)	14.37 (2.83)	Air temperature
48.0 (35.8)	2267	3.55 (13.43)	0.539 (0.328)	13.53 (2.66)	68°F (20°C)
36.6 (27.3)	2301	3.14 (11.88)	0.625 (0.380)	11.67 (2.30)	Relative humidity
24.5 (18.3)	2323	2.39 (9.03)	0.708 (0.431)	10.29 (2.03)	36%
12.3 (9.2)	2340	1.74 (6.59)	1.032 (0.628)	7.08 (1.39)	Barometer
--	2347	1.25 (4.74)	--	--	29.9" Hg (101.6 kPa)
--			--	--	

Maximum Torque -169.4 lb.-ft. (229.7 Nm) at 1300 rpm  
Maximum Torque Rise -29.4%

Torque rise at 1800 engine rpm -18%

#### 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—1100 rpm)</b>					
56.1 (41.8)	2200	3.81 (14.42)	0.495 (0.301)	14.72 (2.90)	
<b>Maximum Power (2 hours)</b>					
56.9 (42.4)	2104	3.73 (14.13)	0.478 (0.291)	15.23 (3.00)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
55.9 (41.7)	2001	3.57 (13.53)	0.466 (0.284)	15.64 (3.08)	

#### VARYING POWER AND FUEL CONSUMPTION

56.1 (41.8)	2200	3.81 (14.42)	0.495 (0.301)	14.72 (2.90)	Air temperature
49.1 (36.6)	2267	3.54 (13.41)	0.526 (0.320)	13.86 (2.73)	70°F (21°C)
37.3 (27.8)	2302	3.11 (11.77)	0.607 (0.369)	12.00 (2.37)	Relative humidity
25.1 (18.7)	2321	2.41 (9.14)	0.702 (0.427)	10.38 (2.04)	32%
12.7 (9.5)	2335	1.74 (6.58)	0.995 (0.606)	7.33 (1.44)	Barometer
--	2349	1.27 (4.80)	--	--	30.0" Hg (101.6 kPa)
--			--	--	

Maximum Torque -174.7 lb.-ft. (236.9 Nm) at 1303 rpm

Maximum Torque Rise -30.6%

Torque rise at 1800 engine rpm -16%

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

**Dates of Test:** March-June, 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)** 0.875 **Fuel weight** 7.28 lbs/gal (0.873 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 **Serial No.** U839020C **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** 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.** CBAD24BCXAE15999 **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 1.41 (2.27) second 1.85 (2.97) third 2.42 (3.89) fourth 3.17 (5.10) fifth 3.98 (6.40) sixth 5.20 (8.37) seventh 6.82 (10.98) eighth 8.94 (14.38) ninth 10.74 (17.29) tenth 14.04 (22.59) eleventh 18.42 (29.65) twelfth 24.13 (38.83) reverse 1.60 (2.57), 2.08 (3.35), 2.73 (4.40), 3.59 (5.77), 4.50 (7.24), 5.88 (9.46), 7.71 (12.41), 10.10 (16.26), 12.15 (19.55), 15.87 (25.54), 20.83 (33.52), 27.27 (43.90) **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** 7630 lb (3460 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 cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—5th (1M) Gear</b>									
42.5 (31.7)	4090 (18.2)	3.90 (6.27)	2206	4.6	0.600 (0.365)	11.67 (2.30)	189 (87)	73 (23)	29.7 (100.5)
<b>75% of Pull at Maximum Power—5th (1M) Gear</b>									
33.3 (24.8)	3065 (13.6)	4.07 (6.55)	2279	3.5	0.680 (0.414)	10.30 (2.03)	189 (87)	73 (23)	29.7 (100.5)
<b>50% of Pull at Maximum Power—5th (1M) Gear</b>									
22.8 (17.0)	2050 (9.1)	4.17 (6.71)	2310	2.4	0.847 (0.515)	8.27 (1.63)	189 (87)	73 (23)	29.6 (100.4)
<b>75% of Pull at Reduced Engine Speed—6th (2M) Gear</b>									
33.3 (24.8)	3065 (13.6)	4.07 (6.55)	1744	3.5	0.545 (0.332)	12.84 (2.53)	187 (86)	75 (24)	29.6 (100.4)
<b>50% of Pull at Reduced Engine Speed—6th (2M) Gear</b>									
22.7 (16.9)	2040 (9.1)	4.17 (6.71)	1766	2.4	0.624 (0.380)	11.22 (2.21)	185 (85)	73 (23)	29.6 (100.4)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
<b>1st (1L) Gear</b>									
26.3 (19.6)	7680 (34.2)	1.28 (2.07)	2295	15.0	0.816 (0.496)	8.58 (1.69)	189 (87)	77 (25)	29.6 (100.4)
<b>2nd (2L) Gear</b>									
33.9 (25.3)	7600 (33.8)	1.67 (2.69)	2259	13.5	0.707 (0.430)	9.90 (1.95)	189 (87)	75 (24)	29.6 (100.4)
<b>3rd (3L) Gear</b>									
41.4 (30.9)	6945 (30.9)	2.24 (3.61)	2200	9.5	0.620 (0.377)	11.28 (2.22)	189 (87)	75 (24)	29.6 (100.4)
<b>4th (4L) Gear</b>									
42.5 (31.7)	5305 (23.6)	3.00 (4.83)	2169	6.1	0.600 (0.365)	11.67 (2.30)	189 (87)	75 (24)	29.7 (100.5)
<b>5th (1M) Gear</b>									
43.3 (32.3)	4380 (19.5)	3.71 (5.97)	2106	4.9	0.579 (0.352)	12.08 (2.38)	189 (87)	73 (23)	29.7 (100.5)
<b>6th (2M) Gear</b>									
43.2 (32.2)	3315 (14.7)	4.88 (7.86)	2099	3.7	0.582 (0.354)	12.03 (2.37)	189 (87)	73 (23)	29.7 (100.5)
<b>7th (3M) Gear</b>									
42.5 (31.7)	2455 (10.9)	6.49 (10.44)	2103	2.8	0.589 (0.359)	11.88 (2.34)	189 (87)	73 (23)	29.7 (100.5)
<b>8th (4M) Gear</b>									
40.9 (30.5)	1790 (8.0)	8.57 (13.79)	2106	2.1	0.610 (0.371)	11.47 (2.26)	189 (87)	72 (22)	29.7 (100.5)

**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 OCED tests conducted under the Code II test procedure.

**NOTE:** The data on this summary was obtained from OECD report 1779 conducted on the Massey Ferguson 4225 Diesel.

**Report reissued:** Supplemental sales permit for Massey Ferguson 4325 Diesel, April, 2002.

**Report reissued:** Supplemental sales permit for Challenger MT 425 Diesel, July 2003

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1779**, Nebraska Summary 276A , July 2, 2003.

Leonard L. Bashford  
Director

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

**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 18.4R30; \*\*,12(83)  
Two 360/70R24; \*\*,15(103)

19.3 in (490 mm)  
4730 lb (2145 kg)  
3065 lb (1390 kg)  
7795 lb (3535 kg)

**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 lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cooling med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—6th (2M) Gear									
42.5 (31.7)	3175 (14.1)	5.02 (8.08)	2199	4.9	0.605 (0.368)	11.57 (2.28)	189 (87)	70 (21)	29.6 (100.3)
75% of Pull at Maximum Power—6th (2M) Gear									
33.4 (24.9)	2385 (10.6)	5.25 (8.45)	2278	4.0	0.690 (0.419)	10.15 (2.00)	189 (87)	70 (21)	29.6 (100.3)
50% of Pull at Maximum Power—6th (2M) Gear									
23.0 (17.2)	1605 (7.1)	5.37 (8.65)	2313	3.4	0.865 (0.526)	8.10 (1.60)	189 (87)	68 (20)	29.6 (100.3)
75% of Pull at Reduced Engine Speed—7th (3M) Gear									
33.4 (24.9)	2390 (10.6)	5.24 (8.43)	1733	4.0	0.549 (0.334)	12.74 (2.51)	187 (86)	66 (19)	29.6 (100.3)
50% of Pull at Reduced Engine Speed—7th (3M) Gear									
22.9 (17.1)	1595 (7.1)	5.38 (8.65)	1765	3.4	0.641 (0.390)	10.91 (2.15)	187 (86)	66 (19)	29.6 (100.3)
MAXIMUM POWER IN SELECTED GEARS									
1st (1L) Gear									
20.9 (15.6)	6090 (27.1)	1.29 (2.07)	2313	15.0	0.945 (0.575)	7.41 (1.46)	189 (87)	68 (20)	29.6 (100.3)
2nd (2L) Gear									
27.4 (20.4)	5960 (26.5)	1.72 (2.77)	2299	12.1	0.783 (0.476)	8.94 (1.76)	189 (87)	68 (20)	29.6 (100.3)
3rd (3L) Gear									
34.1 (25.4)	5720 (25.5)	2.24 (3.60)	2269	11.8	0.692 (0.421)	10.12 (1.99)	189 (87)	66 (19)	29.6 (100.3)
4th (4L) Gear									
42.4 (31.6)	5420 (24.1)	2.93 (4.71)	2199	9.0	0.618 (0.376)	11.33 (2.23)	189 (87)	66 (19)	29.6 (100.4)
5th (1M) Gear									
43.0 (32.1)	4450 (19.8)	3.62 (5.82)	2109	6.6	0.589 (0.358)	11.89 (2.34)	189 (87)	70 (21)	29.6 (100.3)
6th (2M) Gear									
43.2 (32.2)	3375 (15.0)	4.80 (7.72)	2104	5.0	0.584 (0.355)	11.99 (2.36)	189 (87)	70 (21)	29.6 (100.3)
7th (3M) Gear									
42.6 (31.8)	2515 (11.2)	6.35 (10.22)	2104	4.1	0.599 (0.364)	11.68 (2.30)	189 (87)	68 (20)	29.6 (100.3)
8th (4M) Gear									
40.7 (30.4)	1820 (8.1)	8.39 (13.51)	2110	3.7	0.621 (0.378)	11.27 (2.22)	187 (86)	66 (19)	29.6 (100.4)
9th (1H) Gear									
41.8 (31.2)	1560 (6.9)	10.05 (16.17)	2095	3.3	0.610 (0.371)	11.47 (2.26)	189 (87)	66 (19)	29.6 (100.3)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
Maximum sound level in 5th(1M) gear	84.0	84.0
Bystander in 12th(4H) gear	83.0	--

### 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: 3045 psi (210 bar)

ii) Pump delivery rate at minimum pressure: 10.2 GPM (38.6 l/min)

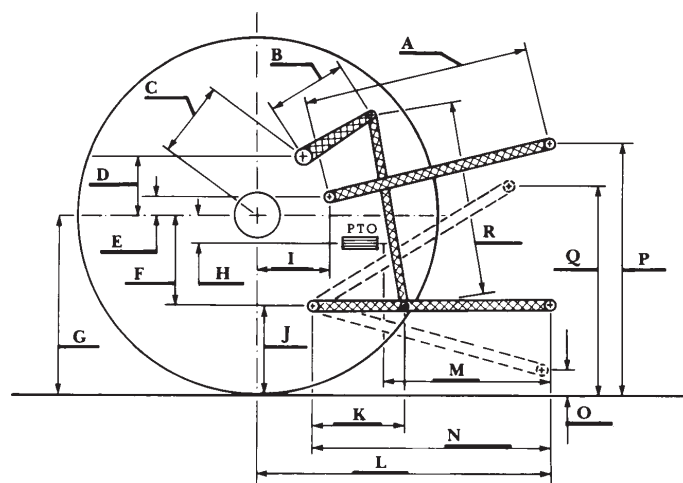
iii) Pump delivery rate at maximum

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