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January 2003

Test 1824: Challenger MT845 Diesel

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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NEBRASKA OECD TRACTOR TEST 1824-SUMMARY 401

CHALLENGER MT845 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)					
337.75 (251.86)	2100	18.62 (70.49)	0.385 (0.234)	18.14 (3.57)	
Standard Power Take-off Speed - (PTO speed - 1000 rpm)					
365.34 (272.43)	1980	19.35 (73.26)	0.370 (0.225)	18.88 (3.72)	
Maximum Power (2 hours)					
393.14 (293.16)	1700	20.07 (75.96)	0.356 (0.217)	19.59 (3.86)	

VARYING POWER AND FUEL CONSUMPTION

337.75 (251.86)	2100	18.62 (70.49)	0.385 (0.234)	18.14 (3.57)	Air temperature
300.15 (223.82)	2195	17.27 (65.39)	0.402 (0.244)	17.38 (3.42)	75°F (24°C)
225.03 (167.80)	2197	13.79 (52.21)	0.428 (0.260)	16.32 (3.21)	Relative humidity
150.05 (111.90)	2197	10.83 (40.99)	0.504 (0.306)	13.86 (2.73)	58%
75.03 (55.95)	2197	7.43 (28.14)	0.692 (0.421)	10.09 (1.99)	Barometer
2.11 (1.58)	2197	4.38 (16.59)	14.479 (8.807)	0.48 (0.09)	28.78" Hg (97.46 kPa)

Maximum Torque - 1326 lb.-ft. (1797 Nm) at 1400 rpm

Maximum Torque Rise - 57.0%

Torque rise at 1701 engine rpm - 44%

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	°C Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—6th Gear									
297.93 (222.17)	25006 (111.23)	4.47 (7.19)	2096	2.20	0.444 (0.270)	15.72 (3.10)	187 (86)	60 (16)	28.75 (97.36)
75% of Pull at Maximum Power—6th Gear									
237.33 (176.98)	18755 (83.42)	4.75 (7.64)	2199	1.11	0.477 (0.290)	14.63 (2.88)	187 (86)	55 (13)	28.89 (97.83)
50% of Pull at Maximum Power—6th Gear									
158.87 (118.47)	12496 (55.58)	4.77 (7.67)	2199	0.71	0.548 (0.333)	12.74 (2.51)	186 (85)	59 (15)	28.89 (97.83)
75% of Pull at Reduced Engine Speed—9th Gear									
237.24 (176.91)	18773 (83.51)	4.74 (7.63)	1539	1.11	0.424 (0.258)	16.47 (3.24)	188 (87)	57 (14)	28.89 (97.83)
50% of Pull at Reduced Engine Speed—9th Gear									
158.95 (118.53)	12511 (55.65)	4.76 (7.67)	1539	0.63	0.464 (0.282)	15.06 (2.97)	186 (86)	61 (16)	28.92 (97.93)

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

Dates of Test: April 23-May 13, 2003

Manufacturer: AGCO Corp, 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) 0.8386
Fuel weight 6.982 lbs/gal (0.837 kg/l)
Oil SAE 10W-30 API service classification CH-4
Transmission and hydraulic lubricant Caterpillar MTO fluid
Total time engine was operated: 29.0 hours

ENGINE: Make Caterpillar Diesel **Type** six cylinder vertical with turbocharger and air to air aftercooler
Serial No. JAC00384*
Crankshaft lengthwise
Rated engine speed 2100
Bore and stroke 5.118" x 5.906" (130.0 mm x 150.0 mm)
Compression ratio 16.0 to 1
Displacement 729 cu in (11946 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 1 thermostat

ENGINE OPERATING PARAMETERS: **Fuel rate:** 122.3 - 135.1 lb/h (55.5 - 61.3 kg/h)
High idle: 2175 - 2225 rpm
Turbo boost: nominal 19.7 - 22.6 psi (136 - 156 kPa) as measured 20.6 psi (142 kPa)

CHASSIS: Type tracklayer-rubber tracked
Serial No. AGCMT845TBPP30375*
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 41660 lb (18897 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)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd Gear									
251.55 (187.58)	38250 (170.14)	2.47 (3.97)	2164	11.01	0.519 (0.316)	13.45 (2.65)	187 (86)	55 (13)	28.30 (95.84)
4th Gear									
278.55 (207.71)	32298 (143.67)	3.23 (5.20)	2095	5.20	0.477 (0.290)	14.64 (2.88)	186 (86)	53 (12)	28.89 (97.83)
5th Gear									
292.75 (218.30)	27887 (124.05)	3.94 (6.34)	2100	3.35	0.453 (0.276)	15.41 (3.04)	187 (86)	62 (17)	28.76 (97.39)
6th Gear									
297.93 (222.17)	25006 (111.23)	4.47 (7.19)	2096	2.20	0.444 (0.270)	15.72 (3.10)	187 (86)	60 (16)	28.75 (97.36)
7th Gear									
295.61 (220.44)	21776 (96.86)	5.09 (8.19)	2098	1.42	0.444 (0.270)	15.73 (3.10)	187 (86)	59 (15)	28.75 (97.36)
8th Gear									
295.17 (220.11)	19219 (85.49)	5.76 (9.27)	2100	1.03	0.447 (0.272)	15.62 (3.08)	188 (86)	56 (13)	28.75 (97.36)
9th Gear									
290.78 (216.83)	16821 (74.82)	6.48 (10.43)	2099	0.87	0.451 (0.274)	15.49 (3.05)	187 (86)	64 (18)	28.76 (97.39)
10th Gear									
290.48 (216.61)	14903 (66.29)	7.31 (11.76)	2099	0.63	0.454 (0.276)	15.37 (3.03)	187 (86)	64 (18)	28.76 (97.39)
11th Gear									
279.39 (208.34)	12695 (56.47)	8.25 (13.28)	2099	0.55	0.473 (0.287)	14.77 (2.91)	187 (86)	64 (18)	28.76 (97.39)

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 99°F(37°C). The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1824**, Nebraska Summary 401, June 12, 2003.

Leonard L. Bashford
Director

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

TRACTOR SOUND LEVEL WITH CAB

dB(A)

At no load in 6th gear	73.6
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)	3580 lb (1624 kg)	None
- Cast iron(front idlers)	4185 lb (1898 kg)	None
Height of Drawbar	22.5 in (560 mm)	21.5 in (545 mm)
Static Weight with operator	49600 lb(22498 kg)	41835 lb(18976 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									
256.00 (190.90)	38871 (172.91)	2.47 (3.97)	2160	10.81	0.515 (0.313)	13.56 (2.67)	186 (86)	55 (13)	28.30 (95.84)
4th Gear									
285.93 (213.22)	35288 (156.97)	3.04 (4.89)	2014	7.12	0.472 (0.287)	14.80 (2.91)	187 (86)	53 (12)	28.89 (97.83)
5th Gear									
316.86 (236.29)	34088 (151.63)	3.49 (5.61)	1922	6.35	0.437 (0.266)	15.96 (3.14)	188 (86)	54 (12)	28.89 (97.83)
6th Gear									
328.05 (244.63)	32365 (143.97)	3.80 (6.12)	1846	5.56	0.425 (0.258)	16.45 (3.24)	188 (86)	54 (12)	28.89 (97.83)
7th Gear									
329.97 (246.06)	31054 (138.13)	3.98 (6.41)	1702	4.98	0.423 (0.258)	16.49 (3.25)	188 (86)	63 (17)	28.76 (97.39)
8th Gear									
336.70 (251.08)	27605 (122.79)	4.57 (7.36)	1705	3.20	0.414 (0.252)	16.87 (3.32)	188 (86)	61 (16)	28.75 (97.36)
9th Gear									
336.93 (251.25)	24315 (108.16)	5.20 (8.36)	1703	2.05	0.412 (0.251)	16.94 (3.34)	188 (86)	60 (16)	28.75 (97.36)
10th Gear									
340.32 (253.78)	21706 (96.55)	5.88 (9.46)	1699	1.42	0.410 (0.249)	17.05 (3.36)	189 (87)	57 (14)	28.75 (97.36)
11th Gear									
334.88 (249.72)	18841 (83.81)	6.67 (10.73)	1703	1.03	0.420 (0.256)	16.61 (3.27)	189 (87)	63 (17)	28.76 (97.39)
12th Gear									
335.37 (250.09)	16772 (74.60)	7.50 (12.07)	1699	0.87	0.419 (0.255)	16.66 (3.28)	189 (87)	64 (18)	28.76 (97.39)
13th Gear									
331.83 (247.45)	13884 (61.76)	8.96 (14.42)	1701	0.55	0.424 (0.258)	16.48 (3.25)	189 (87)	64 (18)	28.76 (97.39)

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)
2nd Gear									
257.72 (192.18)	49703 (221.09)	1.94 (3.13)	2167	11.57	0.507 (0.308)	13.78 (2.71)	186 (85)	53 (12)	28.50 (96.51)
3rd Gear									
289.11 (215.59)	46413 (206.46)	2.34 (3.76)	2008	9.44	0.471 (0.286)	14.82 (2.92)	187 (86)	53 (12)	28.50 (96.51)
4th Gear									
317.99 (237.13)	43186 (192.10)	2.76 (4.44)	1821	6.98	0.442 (0.269)	15.80 (3.11)	188 (87)	54 (12)	28.51 (96.55)
5th Gear									
335.83 (250.43)	39375 (175.15)	3.20 (5.15)	1739	5.27	0.416 (0.253)	16.79 (3.31)	189 (87)	55 (13)	28.52 (96.58)
6th Gear									
342.44 (255.36)	35959 (159.95)	3.57 (5.75)	1704	4.09	0.410 (0.250)	17.02 (3.35)	188 (87)	56 (13)	28.53 (96.61)
7th Gear									
340.36 (253.80)	31257 (139.04)	4.08 (6.57)	1702	2.73	0.408 (0.248)	17.11 (3.37)	188 (87)	57 (14)	28.54 (96.65)
8th Gear									
344.51 (256.90)	27950 (124.33)	4.62 (7.44)	1698	1.87	0.402 (0.245)	17.35 (3.42)	188 (87)	58 (14)	28.55 (96.68)
9th Gear									
341.23 (254.46)	24448 (108.75)	5.23 (8.42)	1701	1.48	0.407 (0.248)	17.14 (3.38)	188 (87)	59 (15)	28.57 (96.75)
10th Gear									
342.40 (255.33)	21713 (96.58)	5.91 (9.52)	1702	1.17	0.408 (0.248)	17.13 (3.37)	188 (87)	60 (16)	28.58 (96.78)
11th Gear									
334.15 (249.18)	18760 (83.45)	6.68 (10.75)	1701	0.93	0.420 (0.256)	16.62 (3.27)	188 (87)	60 (16)	28.59 (96.82)
12th Gear									
333.16 (248.43)	16626 (73.95)	7.51 (12.09)	1698	0.85	0.420 (0.256)	16.61 (3.27)	188 (87)	61 (16)	28.60 (96.85)
13th Gear									
333.13 (248.41)	13919 (61.91)	8.98 (14.44)	1701	0.69	0.423 (0.257)	16.53 (3.26)	188 (87)	62 (17)	28.60 (96.85)

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: 2900 psi (200 bar)

High flow option

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

44.1 GPM (166.9 l/min) 58.8 GPM (222.5 l/min)

at 2200 engine rpm:

46.1 GPM (174.5 l/min) 60.9 GPM (230.5 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

42.6 GPM (161.3 l/min) 54.6 GPM (206.8 l/min)

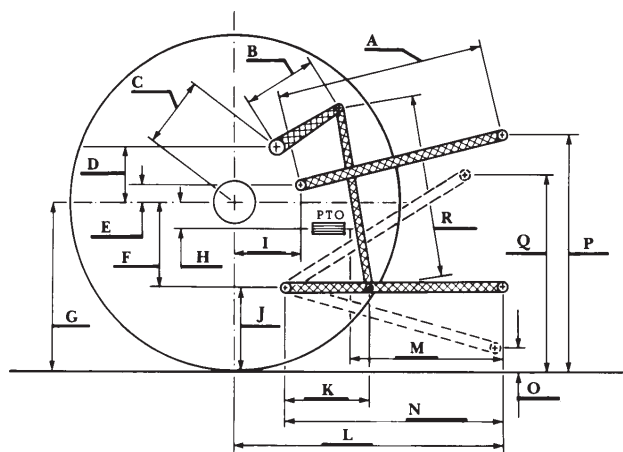
Delivery pressure:

2600 psi (179 bar) 2674 psi (184 bar)

Power:

64.6 HP (48.2 kW) 85.2 HP (63.5 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 MT845 DIESEL

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Darrell Nelson, Dean and Director