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January 1999

## Test 1869: Challenger MT 665 Diesel

Nebraska Tractor Test Lab

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# SUMMARY OF OECD TEST 1869—NEBRASKA SUMMARY 321A

## CHALLENGER MT 665 DIESEL

### 18 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—1053 rpm)</b>					
226.5 (168.9)	2200	14.43 (54.64)	0.441 (0.268)	15.69 (3.09)	
<b>Standard Power Take-off Speed (999 rpm)</b>					
231.3 (172.5)	2087	14.14 (53.53)	0.422 (0.257)	16.36 (3.22)	
<b>Maximum Power (2 Hours)</b>					
239.4 (178.5)	1906	13.69 (51.81)	0.395 (0.240)	17.49 (3.45)	

#### VARYING POWER AND FUEL CONSUMPTION

226.5 (168.9)	2200	14.43 (54.64)	0.441 (0.268)	15.69 (3.09)	Air temperature
196.6 (146.6)	2246	13.09 (49.54)	0.460 (0.280)	15.02 (2.96)	68°F (20°C)
150.5 (112.2)	2292	10.79 (40.85)	0.495 (0.301)	13.95 (2.75)	Relative humidity
102.2 (76.2)	2330	8.31 (31.44)	0.562 (0.342)	12.30 (2.42)	33%
51.6 (38.5)	2363	6.01 (22.74)	0.804 (0.489)	8.59 (1.69)	Barometer
--	2395	4.00 (15.15)	--	--	29.6" Hg (100.3 kPa)
--			--	--	

Maximum Torque - 801 lb.-ft. (1086 Nm) at 1306 rpm  
Maximum Torque Rise - 48.1%  
Torque rise at 1800 engine rpm - 28%

#### 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) med	Temp. °F (°C) cool- ing bulb	Air dry (kPa)	Barom. inch Hg
<b>Maximum Power—8th Gear</b>									
183.0 (136.5)	15235 (67.78)	4.51 (7.25)	2202	5.5	0.558 (0.340)	12.52 (2.47)	181 (82)	43 (6)	29.4 (99.5)
<b>75% of Pull at Maximum Power—8th Gear</b>									
143.2 (106.8)	11385 (50.65)	4.72 (7.59)	2268	3.9	0.589 (0.358)	11.88 (2.34)	174 (78)	45 (7)	29.4 (99.5)
<b>50% of Pull at Maximum Power—8th Gear</b>									
97.6 (72.8)	7525 (33.47)	4.87 (7.83)	2313	2.7	0.677 (0.412)	10.32 (2.03)	165 (73)	43 (6)	29.4 (99.5)
<b>75% of Pull at Reduced Engine Speed—9th Gear</b>									
143.4 (106.9)	11445 (50.91)	4.70 (7.56)	2000	3.8	0.522 (0.317)	13.40 (2.64)	172 (76)	46 (8)	29.4 (99.5)
<b>50% of Pull at Reduced Engine Speed—9th Gear</b>									
98.0 (73.1)	7550 (33.58)	4.87 (7.84)	2045	2.6	0.586 (0.357)	11.93 (2.35)	167 (73)	50 (10)	29.4 (99.5)

**Location of Test:** DLG Testing station for Agricultural Equipment, Max - Eyth - Weg 1 D-64823, Gros-Umstadt, Germany

**Dates of Test:** January 1998 - July 1999

**Manufacturer:** AGCO S.A. Z.A.-No.2 BP 60307, Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.830 **Fuel weight** 6.91 lbs/gal (0.828 kg/l) **Oil SAE** 10W40 **API service classification** Mil-L-2104D **Transmission and hydraulic lubricant** BP Terrac Extra 10W/40 **Front axle lubricant** API GL4 - SAE 85W140

**ENGINE:** Make Sisu/Valmet Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** F2124 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.370" x 5.709" (111.0 mm x 145.0 mm) **Compression ratio** 16.0 to 1 **Displacement** 513 cu in (8419 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 **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS:** **Type** front wheel assist **Serial No.** G012043 **Tread width** rear 62.5" (1588 mm) to 77.2" (1960 mm) front 66.4" (1686 mm) to 81.1" (2060 mm) **Wheelbase** 121.1" (3075 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.49 (2.40) second 1.92 (3.09) third 2.49 (4.00) fourth 2.83 (4.56) fifth 3.20 (5.15) sixth 3.65 (5.87) seventh 4.14 (6.67) eighth 4.72 (7.60) ninth 5.34 (8.59) tenth 6.08 (9.79) eleventh 6.91 (11.12) twelfth 7.87 (12.66) thirteenth 8.90 (14.32) fourteenth 10.13 (16.31) fifteenth 11.51 (18.53) sixteenth 14.83 (23.86) seventeenth 19.19 (30.88) eighteenth 24.71 (39.77) reverse 1.49 (2.40), 2.49 (4.00), 2.83 (4.56), 4.14 (6.67), 4.72 (7.60), 6.91 (11.12), 7.87 (12.66), 11.51 (18.53), 19.19 (30.89) **Clutch** multiple wet 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** 540 rpm at 1993 engine rpm or 1000 rpm at 2091 engine rpm **Unladen tractor mass** 21540 lb (9770 kg)

## DRAWBAR PERFORMANCE

### (Unballasted - Front Drive Engaged) 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)
178.6 (133.2)	20925 (93.08)	3.20 (5.15)	2162	11.0	6th Gear 0.570 (0.347)	12.27 (2.42)	171 (77)	43 (6)	29.1 (98.5)
187.7 (140.0)	20605 (91.65)	3.42 (5.50)	2002	9.6	7th Gear 0.524 (0.319)	13.35 (2.63)	176 (80)	39 (4)	29.1 (98.5)
190.3 (141.9)	18825 (83.74)	3.79 (6.10)	1900	8.3	8th Gear 0.505 (0.307)	13.86 (2.73)	181 (83)	41 (5)	29.1 (98.5)
193.8 (144.5)	16530 (73.53)	4.39 (7.03)	1903	6.6	9th Gear 0.496 (0.301)	14.11 (2.78)	181 (83)	43 (6)	29.1 (98.5)
194.3 (144.9)	14515 (64.57)	5.02 (8.08)	1905	5.6	10th Gear 0.494 (0.300)	14.16 (2.79)	181 (83)	41 (5)	29.1 (98.5)
190.4 (142.0)	12410 (55.20)	5.75 (9.26)	1903	4.8	11th Gear 0.503 (0.306)	13.91 (2.74)	181 (83)	45 (7)	29.1 (98.5)
195.4 (145.7)	11080 (49.29)	6.61 (10.64)	1903	3.9	12th Gear 0.491 (0.299)	14.25 (2.81)	183 (84)	66 (19)	29.1 (98.5)
192.6 (143.6)	9615 (42.77)	7.51 (12.09)	1905	3.6	13th Gear 0.497 (0.303)	14.06 (2.77)	180 (82)	52 (11)	29.1 (98.5)
189.5 (141.3)	8250 (36.70)	8.61 (13.86)	1907	3.1	14th Gear 0.506 (0.308)	13.81 (2.72)	180 (82)	49 (9)	29.1 (98.5)

**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 drawbar pull in 6th gear was limited to avoid excessive tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

**NOTE:** The data on this summary was obtained from OECD report 1869 conducted on the Massey Ferguson 8280 Diesel.

**Report reissued:** Supplemental sales permit for Challenger MT 665 Diesel, July, 2003

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1869**, Nebraska Summary **321A**, June 26, 2003.

Leonard L. Bashford  
Director

M.F. Kocher  
W.P. Campbell  
G.J. Hoffman  
Board of Tractor Test Engineers

### TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At no load in 8th gear	77.0
Bystander	--

### 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 650/85R38; \*\*, 12(80)  
Two 600/70R28; \*\*, 12(80)  
23.6 in (600 mm)  
12865 lb (5835 kg)  
8840 lb (4010 kg)  
21705 lb (9845 kg)

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

CATEGORY: III

Quick Attach: None

Maximum Force Exerted

Through Whole Range: 19710 lbs (87.7 kN)

High flow option

i) Opening pressure of relief valve:	NA	NA
Sustained pressure of the open relief valve:	2860 psi (197 bar)	2850 psi (196 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	29.7 GPM (112.4 l/min)	39.3 GPM (148.8 l/min)
iii) Pump delivery rate at maximum hydraulic power:	22.7 GPM (85.9 l/min)	35.9 GPM (135.9 l/min)
Delivery pressure:	2690 psi (185 bar)	2490 psi (172 bar)
Power:	35.6 HP (26.6 kW)	52.2 Hp (38.9 kW)

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar)	3020 (208)
Location:	lift cylinder
Hydraulic oil temperature: °F (°C)	149 (65)
Location:	hydraulic sump
Category:	III
Quick attach:	none

#### SAE Static Test—System pressure 2720 psi (188 Bar)

Hitch point distance to ground level in. (mm)	11.7 (297)	16.0 (406)	24.0 (610)	32.0 (813)	40.0 (1016)
Lift force on frame lb	22635	23229	22302	22860	21726
" " " " " " (kN)	(100.7)	(103.3)	(99.2)	(101.7)	(96.6)

#### HITCH DIMENSIONS AS TESTED—NO LOAD

	SAE TEST		OECD TEST	
	inch	mm	inch	mm
A	28.8	732	29.8	756
B	15.0	380	15.0	380
C	19.4	492	19.4	492
D	17.6	447	17.6	447
E	11.0	280	11.0	280
F	13.0	330	13.0	330
G	36.3	920	34.3	870
H	3.9	100	3.9	100
I	17.6	447	17.6	447
J	23.3	590	21.3	540
K	21.3	540	23.2	590
L	48.2	1225	48.2	1225
M	23.1	588	23.1	588
N	38.4	975	38.4	975
O	11.6	295	9.3	235
P	45.3	1150	48.2	1225
Q	41.5	1054	36.9	937
R	34.0	864	36.0	914

