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2003

## Nebraska Summary: S320 Challenger MT 655

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# SUMMARY OF OECD TEST 1770-NEBRASKA SUMMARY 320A CHALLENGER MT 655 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—1052 rpm)</b>					
205.4 (153.2)	2200	13.09 (49.56)	0.441 (0.268)	15.68 (3.09)	
<b>Standard Power Take-off Speed (1001 rpm)</b>					
212.3 (158.3)	2093	12.89 (48.78)	0.420 (0.255)	16.47 (3.24)	
<b>Maximum Power (2 Hours)</b>					
216.7 (161.6)	1900	12.42 (47.02)	0.396 (0.241)	17.45 (3.44)	

## VARYING POWER AND FUEL CONSUMPTION

205.4 (153.2)	2200	13.09 (49.56)	0.441 (0.268)	15.68 (3.09)	Air temperature
177.6 (132.4)	2237	11.74 (44.43)	0.457 (0.278)	15.13 (2.98)	72°F (24°C)
134.8 (100.5)	2264	9.66 (36.55)	0.495 (0.301)	13.96 (2.75)	Relative humidity
90.8 (67.7)	2285	7.51 (28.43)	0.572 (0.348)	12.09 (2.38)	33%
45.9 (34.2)	2310	5.44 (20.57)	0.819 (0.498)	8.44 (1.66)	Barometer
--	2337	3.54 (13.40)	--	--	29.4" Hg (99.5 kPa)

Maximum Torque - 710 lb.-ft. (963 Nm) at 1400 rpm

Maximum Torque Rise - 45.0%

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—10th Gear</b>									
165.1 (123.1)	10500 (46.71)	5.90 (9.49)	2199	3.1	0.552 (0.336)	12.54 (2.47)	181 (83)	82 (28)	29.6 (100.1)
<b>75% of Pull at Maximum Power—10th Gear</b>									
127.9 (95.4)	7895 (35.11)	6.08 (9.78)	2243	2.1	0.603 (0.367)	11.47 (2.26)	174 (79)	86 (30)	29.6 (100.1)
<b>50% of Pull at Maximum Power—10th Gear</b>									
86.8 (64.8)	5255 (23.38)	6.20 (9.97)	2269	1.5	0.714 (0.434)	9.70 (1.91)	165 (74)	81 (27)	29.6 (100.1)
<b>75% of Pull at Reduced Engine Speed—11th Gear</b>									
127.7 (95.2)	7860 (34.97)	6.09 (9.80)	1981	2.4	0.538 (0.327)	12.89 (2.54)	172 (78)	77 (25)	29.6 (100.1)
<b>50% of Pull at Reduced Engine Speed—11th Gear</b>									
87.4 (65.1)	5250 (23.36)	6.24 (10.04)	2010	1.6	0.617 (0.376)	11.22 (2.21)	167 (75)	75 (24)	29.6 (100.1)

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

**Dates of Test:** April - May, 1998

**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** 20W40 **API service classification** CD/CE **Transmission and hydraulic lubricant** BP Terrac Extra 10W/30 **Front axle lubricant** API GL5 - SAE 85W140

**ENGINE:** Make Sisu/Valmet Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** G08405 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.370" x 5.709" (111.0 mm x 145.0 mm) **Compression ratio** 16.5 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.** G021110 **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** 21595 lb (9795 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)
<b>6th Gear</b>									
159.3 (118.8)	20765 (92.38)	2.88 (4.63)	1954	11.3	0.546 (0.332)	12.69 (2.50)	183 (84)	70 (21)	28.6 (96.9)
<b>7th Gear</b>									
167.9 (125.2)	18980 (84.42)	3.32 (5.34)	1902	7.7	0.509 (0.310)	13.60 (2.68)	187 (86)	72 (22)	28.6 (96.9)
<b>8th Gear</b>									
168.2 (125.4)	16320 (72.59)	3.86 (6.22)	1902	5.5	0.511 (0.311)	13.55 (2.67)	180 (82)	68 (20)	28.6 (96.9)
<b>9th Gear</b>									
173.8 (129.6)	14790 (65.80)	4.41 (7.09)	1903	4.9	0.496 (0.302)	13.96 (2.75)	176 (80)	77 (25)	28.6 (96.9)
<b>10th Gear</b>									
175.7 (131.0)	13055 (58.08)	5.05 (8.12)	1901	4.1	0.491 (0.299)	14.11 (2.78)	174 (79)	82 (28)	28.6 (96.9)
<b>11th Gear</b>									
170.7 (127.3)	11105 (49.40)	5.76 (9.28)	1897	3.5	0.501 (0.305)	13.81 (2.72)	183 (84)	81 (27)	29.6 (100.1)
<b>12th Gear</b>									
173.8 (129.6)	9845 (43.80)	6.62 (10.65)	1900	3.0	0.493 (0.300)	14.06 (2.77)	181 (83)	75 (24)	29.6 (100.1)
<b>13th Gear</b>									
173.1 (129.1)	8655 (38.51)	7.50 (12.07)	1896	2.4	0.496 (0.302)	13.96 (2.75)	174 (79)	81 (27)	29.6 (100.1)
<b>14th Gear</b>									
168.3 (125.5)	7345 (32.67)	8.59 (13.83)	1903	2.4	0.509 (0.309)	13.62 (2.68)	180 (82)	81 (27)	29.6 (100.1)

**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 1770 conducted on the Massey Ferguson 8270 Diesel.

**Report reissued.** Supplemental sales permit for Challenger MT 655 Diesel, July 2003.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1770**, Nebraska Summary **320A**, June 26, 2003.

Leonard L. Bashford  
 Director

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

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At no load in 8th gear	76.0
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)  
 12875 lb (5840 kg)  
 8885 lb (4030 kg)  
 21760 lb (9870 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

