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2008

## Nebraska Summary: S607 Challenger MT575B

Nebraska Tractor Test Laboratory

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# SUMMARY OF OECD TEST 2415–NEBRASKA SUMMARY 607

## CHALLENGER MT575B TECHSTAR DIESEL CONTINUOUSLY VARIABLE TRANSMISSION

### 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—1081 rpm)</b>					
170.7 (127.3)	2201	10.11 (38.28)	0.422 (0.257)	16.88 (3.32)	
<b>Standard Power Take-off Speed(1000 rpm)</b>					
192.6 (143.6)	2035	10.77 (40.77)	0.399 (0.243)	17.84 (3.51)	
<b>Maximum Power (1 hour)</b>					
193.8 (144.6)	1900	10.71 (40.53)	0.394 (0.239)	18.08 (3.56)	

VARYING POWER AND FUEL CONSUMPTION					
170.7 (127.3)	2201	10.11 (38.28)	0.422 (0.257)	16.88 (3.32)	Air temperature
145.4 (108.4)	2205	9.10 (34.45)	0.446 (0.271)	15.97 (3.15)	73°F (23°C)
109.6 (81.7)	2216	7.71 (29.17)	0.501 (0.305)	14.21 (2.80)	Relative humidity
73.5 (54.8)	2230	5.66 (21.43)	0.549 (0.333)	12.99 (2.56)	54%
37.0 (27.6)	2243	3.53 (13.36)	0.680 (0.413)	10.48 (2.06)	Barometer
--	2250	1.97 (7.46)	--	--	30.5" Hg (103.3 kPa)

Maximum torque - 642.7 lb.-ft. (871.4 Nm) at 1300 rpm  
 Maximum torque rise - 57.8%  
 Torque rise at 1800 engine rpm - 41%

### 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 dry med bulb	Barom. inch Hg (kPa)
<b>Maximum Power—Rabbit 12</b>								
109.7 (81.8)	5495 (24.4)	7.49 (12.05)	2199	5	0.560 (0.341)	12.66 (2.50)	176 (80)	41 (5)
<b>75% of Pull at Maximum Power—Rabbit 12</b>								
83.3 (62.1)	4110 (18.3)	7.60 (12.23)	2202	3	0.632 (0.385)	11.22 (2.21)	174 (79)	41 (5)
<b>50% of Pull at Maximum Power—Rabbit 12</b>								
56.9 (42.4)	2765 (12.3)	7.72 (12.42)	2219	2	0.709 (0.431)	10.00 (1.97)	176 (80)	41 (5)
<b>75% of Pull at Reduced Engine Speed—Rabbit 14</b>								
83.4 (62.2)	4120 (18.3)	7.59 (12.21)	1929	3	0.561 (0.341)	12.64 (2.49)	174 (79)	41 (5)
<b>50% of Pull at Reduced Engine Speed—Rabbit 14</b>								
57.4 (42.8)	2780 (12.4)	7.74 (12.45)	1934	2	0.631 (0.384)	11.24 (2.22)	172 (78)	41 (5)

**Location of tests:** Groupement d'Antony, Parc de Touvoie, BP 44 Antony, France 92163

**Dates of tests:** October - November, 2007

**Manufacturer:** AGCOS.A., BP 307, Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL and OIL:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.855  
**Fuel weight** 7.12 lbs/gal (0.853 kg/l) **Oil SAE** 15W40 **API service classification** CH4  
**Transmission and hydraulic lubricant** SAE10W/40 **Front axle lubricant** Gear oil SAE 85W/90

**ENGINE:** Make Caterpillar Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** 66602963 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.134" x 5.00" (105.0 mm x 127.0 mm) **Compression ratio** 16.2 to 1 **Displacement** 402 cu in (6600 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 final drive oil, radiator for transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS:** **Type** front wheel assist **Serial No.** S123 140 **Tread width** rear 60.0" (1524 mm) to 110.0" (2794 mm) front 67.0" (1702 mm) to 74.8" (1900 mm) **Wheelbase** 118.4" (3007 mm) **Hydraulic control system** direct engine drive **Transmission** AGCO CVT. A combination of mechanical and hydrostatic sections are electronically controlled to give the travel speeds shown. The transmission has two mechanical ranges. **Nominal travel speeds mph (km/h)** forward: Low range 0-19 (0-30), high range 0-25 (0-40) reverse: 0-19 (0-30) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2062 engine rpm or 1000 rpm at 2033 engine rpm **Unladen tractor mass** 17595 lb (7980 kg)

## DRAWBAR PERFORMANCE

### (Unballasted - Front Drive Engaged) MAXIMUM POWER AT SELECTED SPEEDS

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)
104.2 (77.7)	15400 (68.5)	2.54 (4.08)	2200	15.3	Turtle 3 0.607 (0.369)		174 (79)	37 (3)	30.1 (101.9)
118.7 (88.5)	15150 (67.4)	2.94 (4.73)	2188	11.4	Turtle 4 0.557 (0.339)		169 (76)	37 (3)	30.1 (101.9)
150.1 (111.9)	14795 (65.8)	3.80 (6.12)	2182	10.4	Turtle 5 0.506 (0.308)		181 (83)	37 (3)	30.1 (101.9)
159.6 (119.0)	14455 (64.3)	4.14 (6.66)	2005	10.6	Turtle 6 0.483 (0.294)		181 (83)	37 (3)	30.1 (101.9)
163.9 (122.2)	13535 (60.2)	4.54 (7.31)	1927	7.9	Turtle 8 0.471 (0.287)		178 (81)	39 (4)	30.1 (101.9)
164.5 (122.7)	12770 (56.8)	4.83 (7.77)	1910	8.3	Turtle 9 0.470 (0.286)		201 (94)	39 (4)	30.1 (101.9)
164.3 (122.5)	11490 (51.1)	5.36 (8.63)	1906	7.7	Turtle 10 0.470 (0.286)		181 (83)	39 (4)	30.1 (101.9)
164.7 (122.8)	10160 (45.2)	6.08 (9.79)	1905	6.1	Turtle 12 0.465 (0.283)		187 (86)	39 (4)	30.1 (101.9)
162.9 (121.5)	8125 (36.1)	7.52 (12.10)	1900	5.7	Turtle 14 0.472 (0.287)		187 (86)	39 (4)	30.1 (101.9)
162.5 (121.2)	9605 (42.7)	6.34 (10.21)	1905	7.6	Rabbit 12 0.472 (0.287)		183 (84)	39 (4)	30.1 (101.9)
164.4 (122.6)	8245 (36.7)	7.48 (12.03)	1903	6.9	Rabbit 14 0.470 (0.286)		187 (86)	39 (4)	30.1 (101.9)
163.2 (121.7)	7460 (33.2)	8.20 (13.20)	1897	6.1	Rabbit 16 0.469 (0.285)		185 (85)	39 (4)	30.1 (101.9)

**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 figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2415**, Nebraska Summary 607, September 2, 2008.

Roger M. Hoy  
Director

M.F. Kocher  
V.I. Adamchuk  
J.A. Smith  
Board of Tractor Test Engineers

### TRACTOR SOUND LEVEL WITH CAB

**dB(A)**

At no load in Turtle range-4.6mph(7.5 km/h)	68.0
Bystander in Rabbit range	--

### TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b> - No., size, ply & psi(kPa)	Four 480/80R46;**,17(120)	Two 480/80R46;**,17(120)
<b>Ballast</b> - Duals (total)	2080 lb (945 kg)	None
- Cast Iron (total)	1985 lb (900 kg)	None
<b>Front Tires</b> - No., size, ply & psi(kPa)	Two 16.9R30;**,20(140)	Two 16.9R30;**,16(110)
<b>Ballast</b> - Liquid (total)	None	None
- Cast Iron (total)	1190 lb (540 kg)	None
<b>Height of Drawbar</b>	22.0 in (560 mm)	22.0 in (560 mm)
<b>Static Weight with operator</b> - Rear	13825 lb (6270 kg)	10570 lb (4795 kg)
- Front	9190 lb (4170 kg)	7180 lb (3260 kg)
- Total	23015 lb (10440 kg)	17760 lb (8055 kg)

**DRAWBAR PERFORMANCE**  
**(Ballasted - Front Drive Engaged)**  
**MAXIMUM POWER AT SELECTED SPEEDS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel 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)
99.9 (74.5)	19770 (88.0)	1.90 (3.05)	2186	14.5	Turtle 2 0.629 (0.383)	11.27 (2.22)	178 (81)	43 (6)	29.9 (101.3)
137.6 (102.6)	19535 (86.9)	2.64 (4.25)	2174	14.0	Turtle 3 0.557 (0.339)	12.74 (2.51)	183 (84)	43 (6)	29.9 (101.3)
146.3 (109.1)	18645 (82.9)	2.94 (4.74)	2127	11.9	Turtle 4 0.523 (0.318)	13.55 (2.67)	181 (83)	43 (6)	29.9 (101.3)
159.4 (118.9)	16445 (73.16)	3.64 (5.86)	1977	8.2	Turtle 5 0.485 (0.295)	14.61 (2.88)	183 (84)	41 (5)	29.9 (101.3)
160.0 (119.3)	15420 (68.6)	3.89 (6.26)	1912	7.2	Turtle 6 0.480 (0.292)	14.77 (2.91)	183 (84)	41 (5)	29.9 (101.3)
161.5 (120.4)	13580 (60.4)	4.46 (7.17)	1902	8.2	Turtle 8 0.478 (0.291)	14.82 (2.92)	183 (84)	45 (7)	29.9 (101.3)
162.0 (120.8)	12340 (54.9)	4.92 (7.92)	1910	6.2	Turtle 9 0.473 (0.288)	14.97 (2.95)	183 (84)	41 (5)	29.9 (101.3)
160.3 (119.5)	10890 (48.4)	5.52 (8.88)	1901	6.6	Turtle 10 0.478 (0.291)	14.82 (2.92)	189 (87)	41 (5)	29.9 (101.3)
161.2 (120.2)	9610 (42.8)	6.29 (10.12)	1908	5.5	Turtle 12 0.478 (0.291)	14.82 (2.92)	187 (86)	45 (7)	29.9 (101.3)
157.2 (117.3)	7605 (33.8)	7.75 (12.48)	1905	5.9	Turtle 14 0.483 (0.294)	14.66 (2.89)	190 (88)	43 (6)	29.9 (101.3)
157.3 (117.3)	9510 (42.3)	6.20 (9.97)	1901	7.9	Rabbit 12 0.487 (0.296)	14.57 (2.87)	185 (85)	43 (6)	29.9 (101.3)
160.4 (119.6)	8260 (36.7)	7.28 (11.72)	1900	5.9	Rabbit 14 0.477 (0.290)	14.87 (2.93)	189 (87)	43 (6)	29.9 (101.3)
159.0 (118.6)	6990 (31.1)	8.53 (13.72)	1906	4.1	Rabbit 16 0.482 (0.293)	14.72 (2.90)	189 (87)	45 (7)	29.9 (101.3)

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

CATEGORY: III

Quick Attach: None

Maximum force exerted through whole range: 13915 lbs (61.9 kN)

i) Opening pressure of relief valve: NA

Sustained pressure of the open relief valve: 2930 psi (202 bar)

one coupler set      two outlet sets combined

ii) Pump delivery rate at minimum pressure: 26.5 GPM (100.3 l/min) 31.0 GPM (117.4 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 23.7 GPM (89.8 l/min) 28.5 GPM (107.8 l/min)

Delivery pressure: 2175 psi (150 bar) 2335 psi (161 bar)

Power: 30.1 HP (22.5 kW) 38.8 HP (28.9 kW)

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar)	2930 (202)
Location:	lift cylinders
Hydraulic oil temperature: °F (°C)	158 (70)
Location:	hydraulic sump
Category:	II
Quick attach:	No

SAE Static Test—System pressure 2640 psi (182 Bar)

Hitch point distance to ground level in. (mm)	11.9 (302)	17.7 (450)	23.6 (600)	33.5 (850)	38.7 (984)
Lift force on frame lb	17400	16750	16950	17040	15870
" " " " " " (kN)	(77.4)	(74.5)	(75.4)	(75.8)	(70.6)

### HITCH DIMENSIONS AS TESTED - NO LOAD

	SAE test		OECD test	
	inch	mm	inch	mm
A	29.5	750	28.9	735
B	14.0	355	14.0	355
C	14.4	365	14.4	365
D	7.9	200	7.9	200
E	12.6	321	10.9	276
F	10.9	276	10.9	276
G	36.4	925	36.4	925
H	2.4	60	2.4	60
I	15.0	380	15.6	397
J	25.5	649	25.5	649
K	26.2	665	26.2	665
L	47.6	1210	47.6	1210
M	26.9	684	26.9	684
N	40.6	1030	40.6	1030
O	11.9	302	7.8	198
P	44.6	1133	52.5	1334
Q	38.7	984	38.5	977
R	28.5	725	30.5	775

