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Nebraska Summary: S646 Challenger MT545B

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SUMMARY OF OECD TEST 2432–NEBRASKA SUMMARY 646

CHALLENGER MT 545B TECHSTAR DIESEL

CONTINUOUSLY VARIABLE TRANSMISSION

Tractor chassis S/N S057010 and higher

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—1081 rpm)					
130.8 (97.6)	2200	8.53 (32.27)	0.464 (0.282)	15.34 (3.02)	
Standard Power Take-off Speed(1000 rpm)					
152.7 (113.9)	2035	9.21 (34.86)	0.429 (0.261)	16.59 (3.27)	
Maximum Power (1 hour)					
156.2 (116.5)	1950	9.13 (34.56)	0.416 (0.253)	17.11 (3.37)	
VARYING POWER AND FUEL CONSUMPTION					
130.8 (97.6)	2200	8.52 (32.27)	0.464 (0.282)	15.34 (3.02)	Air temperature
110.5 (82.4)	2204	7.66 (28.98)	0.493 (0.300)	14.42 (2.84)	75°F (24°C)
83.3 (62.1)	2217	6.19 (23.44)	0.529 (0.322)	13.45 (2.65)	Relative humidity
56.1 (41.8)	2230	4.58 (17.35)	0.582 (0.354)	12.24 (2.41)	47%
28.0 (20.9)	2242	3.02 (11.42)	0.767 (0.467)	9.28 (1.83)	Barometer
--	2245	1.98 (7.51)	--	--	29.6" Hg (100.3 kPa)
--			--	--	
Maximum Torque - 490.5 lb.-ft. (665.1 Nm) at 1401 rpm					
Maximum Torque Rise - 57.1%					
Torque rise at 1750 engine rpm - 45%					

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 med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—Turtle 8									
111.0 (82.8)	8675 (38.6)	4.80 (7.72)	2189	7	0.566 (0.345)	12.57 (2.48)	181 (83)	59 (15)	29.5 (99.8)
75% of Pull at Maximum Power—Turtle 8									
85.8 (64.0)	6520 (29.0)	4.93 (7.94)	2197	5	0.612 (0.372)	11.62 (2.29)	179 (82)	59 (15)	29.5 (99.8)
50% of Pull at Maximum Power—Turtle 8									
58.7 (43.8)	4360 (19.4)	5.05 (8.13)	2206	3	0.670 (0.407)	10.63 (2.09)	181 (83)	59 (15)	29.5 (99.8)
75% of Pull at Reduced Engine Speed—Turtle 9									
85.8 (64.0)	6540 (29.1)	4.92 (7.92)	1981	5	0.561 (0.341)	12.69 (2.50)	181 (83)	57 (14)	29.5 (99.8)
50% of Pull at Reduced Engine Speed—Turtle 9									
58.1 (43.3)	4315 (19.2)	5.05 (8.12)	1998	4	0.609 (0.370)	11.69 (2.30)	178 (81)	57 (14)	29.5 (99.8)

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

Dates of tests: March - May, 2008

Manufacturer: AGCO S.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** 7.11 lbs/gal (0.853 kg/l) **Oil SAE** 15W40 **API service classification** CH4 **Transmission and hydraulic lubricant** BP Terrac Tractan 9 10W/40 **Front axle lubricant** SAE 85W140 API GL-5

ENGINE: Make Perkins Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** U004188P **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.134" x 5.000" (105.0 mm x 127.0 mm) **Compression ratio** 16.2 to 1 **Displacement** 402 cu in (6596 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** front wheel assist **Serial No.** S171018 **Tread width** rear 61.7" (1566 mm) to 74.6" (1896 mm) front 63.4" (1610 mm) to 78.1" (1984 mm) **Wheelbase** 109.4" (2780 mm) **Hydraulic control system** direct engine drive **Transmission** CVT. A combination of mechanical and hydrostatic sections allow an infinite speed adjustment within the ranges noted. The transmission has two mechanical ranges. **Nominal travel speeds mph (km/h)** forward: Low range 0-18 (0-29), high range 0-25 (0-40) reverse: Low range 0-18 (0-29), high range 0-25 (0-40) **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 2034 engine rpm **Unladen tractor mass** 15750 lb (7145 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)
94.1 (70.2)	13385 (59.5)	2.64 (4.24)	2194	15	Turtle 5 0.601 (0.365)	11.85 (2.33)	178 (81)	46 (8)	29.5 (99.8)
111.0 (82.8)	12915 (57.5)	3.22 (5.19)	2168	12	Turtle 6 0.574 (0.349)	12.40 (2.44)	178 (81)	46 (8)	29.5 (99.8)
120.4 (89.8)	12680 (56.4)	3.56 (5.73)	2053	12	Turtle 7 0.512 (0.311)	13.91 (2.74)	178 (81)	48 (9)	29.5 (99.8)
123.5 (92.1)	11310 (50.3)	4.09 (6.59)	1936	11	Turtle 8 0.535 (0.326)	13.30 (2.62)	181 (83)	54 (12)	29.5 (99.8)
124.8 (93.1)	10050 (44.7)	4.66 (7.50)	1954	9	Turtle 9 0.527 (0.321)	13.50 (2.66)	185 (85)	54 (12)	29.5 (99.8)
127.1 (94.8)	8815 (39.2)	5.41 (8.70)	1954	8	Turtle 10 0.524 (0.319)	13.59 (2.68)	183 (84)	55 (13)	29.5 (99.8)
126.7 (94.5)	7520 (33.4)	6.32 (10.17)	1959	8	Turtle 11 0.521 (0.317)	13.65 (2.69)	187 (86)	55 (13)	29.5 (99.8)
122.8 (91.6)	9825 (43.7)	4.69 (7.55)	2000	10	Rabbit 9 0.537 (0.327)	13.25 (2.61)	181 (83)	59 (15)	29.5 (99.8)
126.2 (94.1)	7645 (34.0)	6.19 (9.96)	1949	8	Rabbit 12 0.519 (0.316)	13.71 (2.70)	183 (84)	59 (15)	29.5 (99.8)
126.6 (94.4)	6620 (29.5)	7.17 (11.54)	1950	5	Rabbit 14 0.519 (0.316)	13.71 (2.70)	181 (83)	59 (15)	29.5 (99.8)
125.8 (93.8)	5290 (23.5)	8.92 (14.36)	1948	5	Rabbit 16 0.515 (0.313)	13.82 (2.72)	183 (84)	59 (15)	29.5 (99.8)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The performance figures on this report apply to tractors with chassis S/N S057010 and higher.

NOTE 2: The data on this summary was obtained from OECD report 2432 conducted on the Massey Ferguson 7480 Diesel.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. The manufacturer's three point lift claim of 10915 lbs (4950 kg) with category III hitch was not verified. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2432**, Nebraska Summary 646, January 14, 2010.

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 7	69.0
Bystander	---

TIRES, BALLAST AND WEIGHT

Rear tires - No.,size, ply & psi(kPa)

Ballast - Duals(total)

- Cast iron(total)

Front tires - No.,size, ply & psi(kPa)

Ballast - Liquid(total)

- Cast Iron(total)

Height of Drawbar

Static Weight with operator- Rear

- Front

- Total

With Ballast

Four 480/80R42; **,15(100)

1610 lb (730 kg)

995 lb (450 kg)

Two 16.9R28; **,15 (100)

None

1345 lb (610 kg)

18.5 in (470 mm)

12545 lb (5690 kg)

7320 lb(3320 kg)

19865 lb(9010 kg)

Without Ballast

Two 480/80R42; **,15(100)

None

None

Two 16.9R28; **,15(100)

None

18.5 in (470 mm)

10360 lb (4700 kg)

5555 lb (2520 kg)

15915 lb (7220 kg)

DRAWBAR PERFORMANCE
(Ballasted - 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)
Turtle 4									
100.3 (74.8)	16635 (74.0)	2.26 (3.64)	2189	15.0	0.612 (0.372)	11.62 (2.29)	181 (83)	48 (9)	29.4 (99.6)
Turtle 5									
112.4 (83.8)	15780 (70.2)	2.67 (4.30)	2170	12.1	0.574 (0.349)	12.40 (2.44)	181 (83)	48 (9)	29.4 (99.6)
Turtle 6									
120.4 (89.8)	15330 (68.2)	2.95 (4.74)	1994	11.8	0.549 (0.334)	12.95 (2.55)	181 (83)	46 (8)	29.4 (99.6)
Turtle 7									
124.4 (92.8)	13060 (58.1)	3.57 (5.74)	1965	8.2	0.526 (0.320)	13.54 (2.67)	183 (84)	48 (9)	29.4 (99.6)
Turtle 8									
126.7 (94.5)	11305 (50.3)	4.20 (6.76)	1959	7.8	0.518 (0.315)	13.76 (2.71)	181 (83)	48 (9)	29.4 (99.6)
Turtle 9									
128.1 (95.5)	10105 (44.9)	4.75 (7.65)	1959	6.2	0.514 (0.312)	13.86 (2.73)	183 (84)	48 (9)	29.4 (99.6)
Turtle 10									
127.7 (95.2)	8970 (39.9)	5.34 (8.59)	1959	5.6	0.510 (0.310)	13.96 (2.75)	185 (85)	46 (8)	29.4 (99.6)
Turtle 11									
126.7 (94.5)	7445 (33.1)	6.38 (10.27)	1949	5.2	0.514 (0.312)	13.86 (2.73)	187 (86)	45 (7)	29.4 (99.6)
Rabbit 9									
122.0 (91.0)	9465 (42.1)	4.83 (7.78)	2012	10.1	0.534 (0.325)	13.34 (2.63)	189 (87)	48 (9)	29.4 (99.6)
Rabbit 12									
125.5 (93.6)	7430 (33.1)	6.34 (10.20)	1948	5.0	0.515 (0.313)	13.82 (2.72)	189 (87)	46 (8)	29.4 (99.6)
Rabbit 14									
126.7 (94.5)	6475 (28.8)	7.34 (11.82)	1955	4.9	0.519 (0.315)	13.73 (2.70)	190 (88)	48 (9)	29.4 (99.6)
Rabbit 16									
125.0 (93.2)	5260 (23.4)	8.91 (14.34)	1955	3.7	0.519 (0.316)	13.71 (2.70)	189 (87)	48 (9)	29.4 (99.6)

HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range: 12630 lbs (56.2 kN)

i) Opening pressure of relief valve: NA

Sustained pressure of the open relief valve: 2900 psi (200 bar)

ii) Pump delivery rate at minimum pressure: 30.2 GPM (114.2 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 25.9 GPM (98.2 l/min)

Delivery pressure: 2395 psi (165 bar)

Power: 36.2 HP (27.0 kW)

THREE POINT HITCH PERFORMANCE - SAE Test

Observed Maximum Pressure psi. (bar)	2900 (200)
Location:	lift cylinder
Hydraulic oil temperature: °F (°C)	158 (70)
Location:	hydraulic sump
Category:	II
Quick attach:	None

System pressure 2610 psi (180 bar)

Hitch point distance to ground level in. (mm)	12.0 (280)	17.7 (419)	23.6 (560)	27.6 (679)	33.5 (825)	38.3 (964)
Lift force on frame lb	14300	14815	15175	15510	15445	14410
" " " " " " (kN)	(63.6)	(65.9)	(67.5)	(69.0)	(68.7)	(64.1)

HITCH DIMENSIONS AS TESTED - NO LOAD

	SAE TEST		OECD TEST	
	inch	mm	inch	mm
A	30.5	775	30.0	763
B	13.4	340	13.4	340
C	13.9	354	13.9	354
D	11.9	303	11.9	303
E	12.9	328	10.9	276
F	10.3	261	10.3	261
G	34.5	875	34.5	875
H	2.4	60	2.4	60
I	13.7	348	14.4	367
J	24.2	614	24.2	614
K	26.2	665	26.2	665
L	45.9	1166	45.9	1166
M	26.4	670	26.4	670
N	40.2	1021	40.2	1021
O	10.8	274	8.4	214
P	43.2	1097	48.2	1224
Q	37.1	942	37.8	959
R	28.7	729	30.5	775

