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Nebraska Summary: S659 Challenger MT675C SCR

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SUMMARY OF OECD TEST 2499—NEBRASKA SUMMARY 659

CHALLENGER MT675C DIESEL TECHSTAR TRANSMISSION E3 SCR ENGINE TECHNOLOGY

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)					
281.2 (209.7)	2200	15.01 (56.82)	0.372 (0.227)	18.73 (3.69)	
Standard Power Take-off Speed(1000 rpm)					
307.0 (228.9)	2035	15.69 (59.39)	0.357 (0.217)	19.56 (3.85)	
Maximum Power (1 hour)					
316.6 (236.1)	1850	15.60 (59.07)	0.343 (0.209)	20.30 (4.00)	

VARYING POWER AND FUEL CONSUMPTION

281.2 (209.7)	2200	15.01 (56.82)	0.372 (0.227)	18.73 (3.69)	Air temperature
241.6 (180.2)	2224	13.11 (49.61)	0.379 (0.230)	18.43 (3.63)	71°F (22°C)
182.0 (135.7)	2234	10.28 (38.92)	0.394 (0.240)	17.70 (3.49)	Relative humidity
121.9 (90.9)	2244	7.63 (28.88)	0.437 (0.266)	15.97 (3.15)	44%
61.2 (45.6)	2252	5.10 (19.32)	0.582 (0.354)	11.98 (2.36)	Barometer
--	2260	2.68 (10.14)	--	--	30.1" Hg (101.9 kPa)

Maximum Torque - 1056 lb.-ft. (1432 Nm) at 1500 rpm
 Maximum Torque Rise - 57.4%
 Torque rise at 1800 engine rpm - 37%
 Power increase at 1850 engine rpm - 12.6%

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 9									
240.7 (179.5)	17340 (77.13)	5.21 (8.38)	2200	1.7	0.435 (0.264)	16.05 (3.16)	174 (79)	61 (16)	29.4 (99.4)
75% of Pull at Maximum Power—Turtle 9									
188.5 (140.6)	12985 (57.76)	5.44 (8.76)	2216	1.2	0.447 (0.272)	15.58 (3.07)	185 (85)	63 (17)	29.4 (99.4)
50% of Pull at Maximum Power—Turtle 9									
127.9 (95.4)	8635 (38.42)	5.56 (8.94)	2234	0.5	0.489 (0.297)	14.26 (2.81)	183 (84)	63 (17)	29.4 (99.4)
75% of Pull at Reduced Engine Speed—Turtle 12									
189.2 (141.1)	13005 (57.85)	5.46 (8.79)	1706	0.8	0.409 (0.249)	17.06 (3.36)	180 (82)	63 (17)	29.3 (99.3)
50% of Pull at Reduced Engine Speed—Turtle 12									
128.1 (95.5)	8620 (38.34)	5.57 (8.96)	1710	0.4	0.439 (0.267)	15.89 (3.13)	181 (83)	63 (17)	29.3 (99.3)

Location of tests: DLG - Test Centre, Technology and Farm inputs, Max-Eyth-Weg 1, D-64823 Gross-Umstadt, Germany

Dates of tests: October 2008 - March, 2009

Manufacturer: AGCO S.A. ZA n2 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) 0.838 Fuel weight 6.97 lbs/gal (0.8359 kg/l) Oil SAE 10W40 API service classification CI4 Transmission and hydraulic lubricant BP STOU 10W/40 Front axle lubricant SAE 85W90 API GL5

ENGINE: Make Sisu Diesel Type six cylinder vertical with turbocharger, air to air intercooler and SCR technology Serial No. T00767 Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 4.370" x 5.709" (111.0 mm x 145.0 mm) Compression ratio 16.7 to 1 Displacement 513 cu in (8419 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 vertical Cooling medium temperature control thermostat and variable speed fan

CHASSIS: Type front wheel assist with duals Serial No. T007901 Tread width rear 60.0" (1525 mm) to 101.8" (2585 mm) front 60.8" (1545 mm) to 89.2" (2265 mm) Wheelbase 122.2" (3105 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 0-17 (0-28), high range 0-25 (0-40) reverse: Low range 0-10 (0-16), high range 0-24 (0-38) 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 2038 engine rpm or 1000 rpm at 2033 engine rpm Unladen tractor mass 25795 lb (11700 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 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 6									
213.6 (159.3)	26680 (118.68)	3.00 (4.83)	2144	14.9	0.494 (0.301)	14.11 (2.78)	161 (72)	55 (13)	29.3 (99.3)
Turtle 7.5									
256.4 (191.2)	27005 (120.13)	3.56 (5.73)	1846	7.5	0.424 (0.258)	16.44 (3.24)	189 (87)	54 (12)	29.3 (99.3)
Turtle 9									
266.1 (198.4)	23060 (102.58)	4.33 (6.96)	1851	4.0	0.411 (0.250)	16.95 (3.34)	176 (80)	55 (13)	29.3 (99.2)
Turtle 11									
267.5 (199.5)	17365 (77.24)	5.78 (9.30)	1852	2.1	0.408 (0.248)	17.11 (3.37)	176 (80)	57 (14)	29.3 (99.2)
Turtle 13									
265.9 (198.3)	14980 (66.64)	6.66 (10.71)	1850	1.6	0.410 (0.250)	17.00 (3.35)	183 (84)	59 (15)	29.3 (99.3)
Turtle 15									
263.2 (196.3)	13030 (57.97)	7.57 (12.19)	1852	1.3	0.415 (0.253)	16.80 (3.31)	185 (85)	57 (14)	29.3 (99.3)
Turtle 17									
261.5 (195.0)	11310 (50.31)	8.67 (13.95)	1855	1.0	0.419 (0.255)	16.65 (3.28)	183 (84)	55 (13)	29.3 (99.3)
Rabbit 11									
263.5 (196.5)	17030 (75.76)	5.80 (9.34)	1851	1.7	0.414 (0.252)	16.85 (3.32)	181 (83)	55 (13)	29.3 (99.3)
Rabbit 13									
266.2 (198.5)	14795 (65.81)	6.75 (10.86)	1851	1.2	0.410 (0.249)	17.02 (3.35)	181 (83)	55 (13)	29.3 (99.3)
Rabbit 15									
267.9 (199.8)	12930 (57.51)	7.77 (12.50)	1853	1.0	0.408 (0.248)	17.11 (3.37)	185 (85)	55 (13)	29.3 (99.3)
Rabbit 17									
267.0 (199.1)	11340 (50.44)	8.83 (14.21)	1854	0.7	0.409 (0.249)	17.06 (3.36)	178 (81)	55 (13)	29.3 (99.3)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: This tractor injects D.E.F. (Diesel exhaust fluid/Urea) into the exhaust system. This rate was measured at a maximum of 3% of the diesel fuel consumption.

NOTE 2: The data on this summary was obtained from OECD report 2499 conducted on the Massey Ferguson 8680 Diesel.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's claim of 15% power bulge. 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. **2499**, Nebraska Summary 659, December 8, 2009.

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 - 4.6 mph (7.5 km/h) - no load	71.0
Bystander	---

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires - No., size, ply & psi(kPa)	Six 480/80R46;***;10(70)	Four 480/80R46;***;9(65)
Ballast - Triples (total)	2955 lb (1340 kg)	None
- Cast Iron (total)	2290 lb (1040 kg)	None
Front Tires - No., size, ply & psi(kPa)	Four 420/90R30;***;10(70)	Two 420/90R30;***;9(60)
Ballast - Duals (total)	1170 lb (530 kg)	None
- Cast Iron (total)	2535 lb (1150 kg)	None
Height of Drawbar	19.5 in (500 mm)	19.5 in (500 mm)
Static Weight with operator - Rear	20305 lb (9210 kg)	15280 lb (6930 kg)
- Front	14605 lb (6625 kg)	10680 lb (4845 kg)
- Total	34910 lb(15835 kg)	25960 lb(11775 kg)

DRAWBAR PERFORMANCE
(Ballasted - 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)	Temp. °F (°C)	Barom. inch Hg (kPa)		
Maximum Power—Turtle 7.5									
235.5 (175.6)	18620 (82.83)	4.74 (7.63)	2200	1.7	0.446 (0.271)	15.63 (3.08)	180 (82)	59 (15)	29.4 (99.6)
75% of Pull at Maximum Power—Turtle 7.5									
180.4 (134.5)	13950 (62.06)	4.85 (7.80)	2222	1.0	0.461 (0.281)	15.13 (2.98)	176 (80)	59 (15)	29.4 (99.6)
50% of Pull at Maximum Power—Turtle 7.5									
122.2 (91.1)	9315 (41.44)	4.92 (7.91)	2233	0.4	0.509 (0.309)	13.71 (2.70)	171 (77)	57 (14)	29.4 (99.6)
75% of Pull at Reduced Engine Speed—Turtle 9									
181.6 (135.4)	13980 (62.18)	4.87 (7.84)	1903	0.9	0.427 (0.260)	16.34 (3.22)	169 (76)	57 (14)	29.4 (99.6)
50% of Pull at Reduced Engine Speed—Turtle 9									
122.3 (91.2)	9295 (41.34)	4.94 (7.94)	1909	0.2	0.469 (0.286)	14.86 (2.93)	167 (75)	57 (14)	29.4 (99.6)
MAXIMUM POWER AT SELECTED SPEEDS									
Turtle 5									
221.3 (165.0)	36320 (161.56)	2.29 (3.68)	1834	15.2	0.491 (0.299)	14.21 (2.80)	185 (85)	48 (9)	28.9 (97.9)
Turtle 6									
252.6 (188.4)	30920 (137.53)	3.06 (4.93)	1850	5.2	0.431 (0.262)	16.19 (3.19)	182 (83)	46 (8)	28.9 (97.9)
Turtle 7.5									
259.2 (193.3)	24595 (109.40)	3.95 (6.36)	1850	2.8	0.420 (0.256)	16.60 (3.27)	190 (88)	61 (16)	29.4 (99.5)
Turtle 9									
266.2 (198.5)	21820 (97.06)	4.57 (7.36)	1851	2.4	0.410 (0.249)	17.01 (3.35)	180 (82)	55 (13)	29.5 (99.8)
Turtle 11									
261.4 (194.9)	16495 (73.37)	5.94 (9.56)	1851	1.6	0.418 (0.254)	16.67 (3.29)	174 (79)	57 (14)	29.5 (99.8)
Turtle 13									
260.6 (194.3)	14225 (63.28)	6.87 (11.05)	1852	0.9	0.419 (0.254)	16.66 (3.28)	189 (87)	57 (14)	29.4 (99.5)
Turtle 15									
256.7 (191.4)	12430 (55.29)	7.74 (12.46)	1853	0.6	0.424 (0.258)	16.45 (3.24)	185 (85)	57 (14)	29.4 (99.5)
Turtle 17									
253.2 (188.8)	10815 (48.10)	8.78 (14.13)	1854	0.5	0.431 (0.262)	16.19 (3.19)	183 (84)	57 (14)	29.4 (99.5)
Rabbit 11									
251.8 (187.8)	15950 (70.94)	5.92 (9.53)	1852	1.3	0.433 (0.264)	16.09 (3.17)	178 (81)	46 (8)	28.9 (97.9)
Rabbit 13									
252.4 (188.2)	13680 (60.85)	6.92 (11.14)	1852	1.1	0.432 (0.263)	16.14 (3.18)	183 (84)	48 (9)	28.9 (97.9)
Rabbit 15									
252.0 (187.9)	11750 (52.27)	8.04 (12.94)	1852	0.8	0.432 (0.263)	16.14 (3.18)	185 (85)	45 (7)	28.9 (97.9)
Rabbit 17									
250.5 (186.8)	10540 (46.89)	8.91 (14.34)	1854	0.8	0.435 (0.265)	16.04 (3.16)	183 (84)	46 (8)	28.9 (97.9)

HYDRAULIC PERFORMANCE

CATEGORY: IVN

Quick Attach: No

OECD Static test

Maximum force exerted through whole range: 24590 lbs (109.4 kN)

i) Sustained pressure at compensator cutoff: 3190 psi (220 bar)
three outlet sets combined

ii) Pump delivery rate at minimum pressure and rated engine speed: 51.0 GPM (193.2 l/min)

iii) Pump delivery rate at maximum hydraulic power: 46.8 GPM (177.1 l/min)

Delivery pressure: 2770 psi (191 bar)

Power: 75.6 HP (56.4 kW)

single outlet set

ii) Pump delivery rate at minimum pressure and rated engine speed: 27.9 GPM (105.5 l/min)

iii) Pump delivery rate at maximum hydraulic power: 26.1 GPM (98.9 l/min)

Delivery pressure: 2655 psi (183 bar)

Power: 40.5 HP (30.2 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	35.8	910
B	14.6	370
C	19.1	484
D	15.9	405
E	15.6	395
F	13.0	330
G	36.4	925
H	2.0	50
I	16.5	420
J	23.4	595
K	28.7	730
L	52.4	1330
M	29.8	757
N	42.9	1090
O	9.1	230
P	50.4	1280
Q	38.7	983
R	37.0	940

