

# SUMMARY OF OECD TEST 2716-NEBRASKA SUMMARY 872

## CHALLENGER MT645D DIESEL

### TECHSTAR TRANSMISSION

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption		Mean Atmospheric Conditions
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Gal/hr (l/h)	
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>						
<b>Rated Engine Speed—(PTO speed—1067 rpm)</b>						
215.9 (161.0)	2100	12.24 (46.35)	0.398 (0.242)	17.65 (3.48)	0.72 (2.73)	
<b>Standard Power Take-off Speed (1000 rpm)</b>						
250.0 (186.4)	1968	13.41 (50.76)	0.376 (0.229)	18.66 (3.68)	0.85 (3.23)	
<b>Maximum Power (1 hour)</b>						
250.8 (187.0)	1950	13.45 (50.90)	0.376 (0.229)	18.66 (3.68)	0.82 (3.12)	
<b>VARYING POWER AND FUEL CONSUMPTION</b>						
215.9 (161.0)	2100	12.24 (46.35)	0.398 (0.242)	17.65 (3.48)	0.72 (2.73)	Air temperature
185.3 (138.2)	2120	10.72 (40.57)	0.406 (0.247)	17.29 (3.41)	0.60 (2.28)	70°F (21°C)
139.7 (104.2)	2128	8.58 (32.48)	0.432 (0.263)	16.27 (3.20)	0.46 (1.76)	Relative humidity
93.3 (69.6)	2136	6.49 (24.58)	0.488 (0.297)	14.40 (2.84)	0.33 (1.25)	19%
46.8 (34.9)	2145	4.51 (17.09)	0.678 (0.412)	10.37 (2.04)	0.19 (0.72)	Barometer
----	2151	2.71 (10.24)	----	----	0.05 (0.20)	30.2" Hg (102.4 kPa)
Maximum torque - 819 lb.-ft. (1110 Nm) at 1500 rpm Maximum torque rise - 51.6% Torque rise at 1700 engine rpm - 39% Power increase at 1950 engine rpm - 16.1%						

#### 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)
<b>Maximum Power—Turtle 7.5</b>									
170.7 (127.3)	13870 (61.69)	4.62 (7.43)	2103	3.3	0.471 (0.286)	14.84 (2.92)	156 (69)	52 (11)	29.7 (100.6)
<b>75% of Pull at Maximum Power—Turtle 7.5</b>									
131.2 (97.8)	10420 (46.35)	4.72 (7.59)	2122	2.5	0.507 (0.308)	13.78 (2.71)	162 (72)	54 (12)	29.7 (100.6)
<b>50% of Pull at Maximum Power—Turtle 7.5</b>									
89.3 (66.6)	6940 (30.87)	4.83 (7.77)	2131	1.6	0.581 (0.353)	12.00 (2.36)	160 (71)	54 (12)	29.7 (100.6)
<b>75% of Pull at Reduced Engine Speed—Turtle 9</b>									
131.4 (98.0)	10410 (46.30)	4.73 (7.62)	1773	2.3	0.458 (0.278)	15.25 (3.00)	158 (70)	52 (11)	29.7 (100.6)
<b>50% of Pull at Reduced Engine Speed—Turtle 9</b>									
89.2 (66.5)	6925 (30.79)	4.83 (7.77)	1780	1.4	0.499 (0.303)	13.98 (2.75)	151 (66)	54 (12)	29.7 (100.6)

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

**Dates of tests:** January - March 2012.

**Manufacturer:** AGCO S.A. ZA, n2, BP 60307, Avenue Blaise Pascal, 60026 Beauvais, Cedex, France

**CONSUMABLE FLUIDS:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.843 Fuel weight 7.04 lbs/gal (0.842 kg/l) Diesel Exhaust Fluid (DEF) 32% aqueous urea solution DEF weight 9.10 lbs/gal (1.093 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 D.E.F (diesel exhaust fluid) technology Serial No. W423 Crankshaft lengthwise Rated engine speed 2100 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 Serial No. V319022 Tread width rear 72.8" (1850 mm) to 74.8" (1900 mm) front 70.9" (1800 mm) to 76.8" (1950 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 0-18 (0-30), high range 0-25 (0-40) reverse: Low range 0-12 (0-19), high range 0-12 (0-39) 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 1000 rpm at 1970 engine rpm Unladen tractor mass 25200 lb (11430 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 5									
175.7 (131.0)	25705 (114.33)	2.56 (4.13)	1970	15.3	0.520 (0.316)	13.42 (2.64)	162 (72)	52 (11)	29.7 (100.6)
Turtle 6									
201.0 (149.9)	22475 (99.98)	3.35 (5.40)	1943	6.6	0.461 (0.281)	15.21 (3.00)	163 (73)	52 (11)	29.7 (100.6)
Turtle 7.5									
207.5 (154.7)	18255 (81.20)	4.26 (6.86)	1952	4.8	0.448 (0.272)	15.59 (3.07)	162 (72)	50 (10)	29.7 (100.6)
Turtle 9									
207.2 (154.5)	15575 (69.27)	4.99 (8.03)	1950	3.8	0.443 (0.270)	15.78 (3.11)	169 (76)	52 (11)	29.7 (100.6)
Turtle 11									
204.8 (152.7)	12315 (54.77)	6.24 (10.04)	1950	3.0	0.455 (0.277)	15.38 (3.03)	172 (78)	50 (10)	29.7 (100.6)
Turtle 13									
201.2 (150.0)	10315 (45.89)	7.31 (11.76)	1951	2.5	0.452 (0.275)	15.48 (3.05)	172 (78)	52 (11)	29.7 (100.6)
Turtle 15									
196.5 (146.5)	8665 (38.54)	8.50 (13.68)	1955	2.1	0.464 (0.282)	15.08 (2.97)	174 (79)	50 (10)	29.7 (100.6)
Turtle 17									
194.2 (144.8)	7555 (33.61)	9.64 (15.51)	1953	1.9	0.466 (0.283)	14.99 (2.95)	181 (83)	50 (10)	29.7 (100.6)
Rabbit 9									
193.0 (143.9)	14220 (63.26)	5.09 (8.19)	1950	3.4	0.484 (0.294)	14.44 (2.84)	160 (71)	50 (10)	29.7 (100.6)
Rabbit 11									
201.6 (150.3)	12095 (53.80)	6.25 (10.06)	1950	2.9	0.461 (0.280)	15.15 (2.98)	163 (73)	50 (10)	29.7 (100.6)
Rabbit 13									
200.9 (149.8)	10340 (46.00)	7.29 (11.73)	1952	2.3	0.459 (0.279)	15.23 (3.00)	165 (74)	50 (10)	29.7 (100.6)
Rabbit 15									
197.9 (147.6)	8605 (38.29)	8.62 (13.88)	1953	2.1	0.463 (0.281)	15.10 (2.97)	172 (78)	50 (10)	29.7 (100.6)
Rabbit 17									
196.7 (146.7)	7670 (34.12)	9.62 (15.48)	1953	1.8	0.462 (0.281)	15.13 (2.98)	174 (79)	50 (10)	29.7 (100.6)
Rabbit 19									
194.7 (145.2)	6815 (30.32)	10.71 (17.24)	1957	1.5	0.465 (0.282)	15.04 (2.96)	174 (79)	50 (10)	29.7 (100.6)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE:** The data on this summary was obtained from OECD report 2716 conducted on the Massey Ferguson 8650 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 3 point lift claim of 22760 lbs (10323 kg). 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. **2716**, Nebraska Summary 872, January 30, 2013.

Roger M. Hoy  
Director

M.R. Riley  
P.J. Jasa  
J.D. Luck  
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 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 710/75R42;\*\*\*;12(80)  
Two 600/65R34;\*\*\*;12(80)  
22.2 in (565 mm)  
14100 lb (6395 kg)  
11265 lb (5110 kg)  
25365 lb(11505 kg)

## HYDRAULIC PERFORMANCE

CATEGORY: III

Quick Attach: No, Yes

OECD Static test

Maximum force exerted through whole range: 17850 lbs (79.4 kN) (claw type lower links)  
20345 lbs (90.5 kN) (Quick hitch)

i) Sustained pressure at compensator cutoff: 2755 psi (190 bar)  
**two outlet sets combined**

ii) Pump delivery rate at minimum pressure: 46.2 GPM (174.9 l/min)

iii) Pump delivery rate at maximum  
hydraulic power: 37.9 GPM (143.6 l/min)  
Delivery pressure: 2380 psi (164 bar)  
Power: 52.6 HP (39.3 kW)

**single outlet set**

ii) Pump delivery rate at minimum pressure: 28.9 GPM (109.3 l/min)

iii) Pump delivery rate at maximum  
hydraulic power: 26.1 GPM (103.2 l/min)  
Delivery pressure: 2290 psi (158 bar)  
Power: 34.9 HP (27.2 kW)

### HITCH DIMENSIONS AS TESTED—NO LOAD

	Claw lower links		Quick Hitch	
	inch	mm	inch	mm
A	31.9	810	31.9	810
B	14.6	370	14.6	370
C	19.1	484	19.1	484
D	15.9	405	15.9	405
E	12.4	315	12.4	315
F	13.0	330	13.0	330
G	40.4	1025	40.4	1025
H	2.0	50	2.0	50
I	17.7	450	17.7	450
J	27.4	695	27.4	695
K	24.8	630	24.8	630
L	52.4	1330	52.4	1330
*L'	--	--	56.3	1430
M	29.8	757	33.7	857
N	42.9	1090	42.9	1090
O	9.1	230	9.8	250
P	54.3	1380	50.4	1280
Q	41.5	1055	41.2	1046
R	37.0	940	37.0	940

\*L' to Quick Attach ends

