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2015

Nebraska Summary: S998 Challenger MT685E

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University of Nebraska-Lincoln, tractortestlab@unl.edu

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SUMMARY OF OECD TEST 2910–NEBRASKA SUMMARY 998
CHALLENGER MT685E DIESEL
TECHSTAR TRANSMISSION

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	D.E.F. Consumption Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption Gal/hr *(l/h)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1065 rpm)						
304.8 *(227.3)*	2097	17.44 *(66.02)*	0.399 *(0.243)*	17.48 *(3.44)*	0.82 *(3.10)*	
Standard Power Take-off Speed (1000 rpm)						
314.7 *(234.7)*	1970	17.54 *(66.38)*	0.388 *(0.236)*	17.95 *(3.54)*	0.83 *(3.15)*	
Maximum Power (1 hour)						
326.4 *(243.4)*	1952	17.53 *(66.34)*	0.375 *(0.228)*	18.62 *(3.67)*	0.76 *(2.88)*	
VARYING POWER AND FUEL CONSUMPTION						
304.8 *(227.3)*	2097	17.44 *(66.02)*	0.399 *(0.243)*	17.48 *(3.44)*	0.82 *(3.10)*	Air temperature
261.2 *(194.8)*	2115	14.93 *(56.52)*	0.399 *(0.243)*	17.49 *(3.45)*	0.61 *(2.30)*	72°F *(22°C)*
197.0 *(146.9)*	2127	11.95 *(45.25)*	0.423 *(0.258)*	16.48 *(3.25)*	0.54 *(2.04)*	Relative humidity
131.9 *(98.4)*	2137	9.08 *(34.39)*	0.481 *(0.292)*	14.52 *(2.86)*	0.29 *(1.11)*	52%
66.2 *(49.4)*	2146	5.73 *(21.70)*	0.603 *(0.367)*	11.56 *(2.28)*	0.10 *(0.67)*	Barometer
---- ----	2155	2.91 *(11.02)*	---- ----	---- ----	---- ----	30.4" Hg *(103.0 kPa)*

Maximum torque - 1050 lb.-ft. *(1424 Nm)* at 1304 rpm
Maximum torque rise - 37.7%
Torque rise at 1690 engine rpm - 28%
Power increase at 1952 engine rpm - 7.1%

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)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—Rabbit 11									
249.8 *(186.3)*	15065 *(67.0)*	6.22 *(10.01)*	2100	6.4	0.476 *(0.289)*	14.53 *(2.86)*	194 *(90)*	52 *(11)*	30.5 *(103.2)*
75% of Pull at Maximum Power—Rabbit 11									
189.2 *(141.1)*	11285 *(50.2)*	6.29 *(10.12)*	2127	5.0	0.512 *(0.312)*	13.49 *(2.66)*	189 *(87)*	54 *(12)*	30.5 *(103.2)*
50% of Pull at Maximum Power—Rabbit 11									
130.9 *(97.6)*	7555 *(33.6)*	6.50 *(10.46)*	2134	2.1	0.579 *(0.352)*	11.93 *(2.35)*	189 *(87)*	54 *(12)*	30.5 *(103.2)*
75% of Pull at Reduced Engine Speed—Rabbit 14									
189.6 *(141.4)*	11285 *(50.2)*	6.30 *(10.14)*	1594	3.4	0.445 *(0.271)*	15.53 *(3.06)*	190 *(88)*	55 *(13)*	30.5 *(103.2)*
50% of Pull at Reduced Engine Speed—Rabbit 14									
129.4 *(96.5)*	7485 *(33.3)*	6.48 *(10.43)*	1599	1.5	0.479 *(0.292)*	14.42 *(2.84)*	189 *(87)*	55 *(13)*	30.5 *(103.2)*

Location of tests: IRSTEA, Centre d'Antony, 1 rue Pierre-Gilles de Gennes CS 10030 Antony, 92163, Cedex, France

Dates of tests: January to April, 2015.

Manufacturer: AGCO S.A.S, 41 Avenue Blaise Pascal, 60000 Beauvais, France

CONSUMABLE FLUIDS: **Fuel** No. 2 Diesel **Specific gravity converted to 60°/60°F** *(15°/15°C)* 0.837 **Fuel weight** 6.98 lbs/gal *(0.836 kg/l)* **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.08 lbs/gal *(1.091 kg/l)* **Oil SAE** 15W40 **API service classification** CJ-4 **Transmission and hydraulic lubricant** Terrac Trantan 9 10W/40 **Front axle lubricant** SAE 85W90 API GL4

ENGINE: Make AGCO Power Diesel **Type** six cylinder vertical with two turbochargers, air to air intercooler and D.E.F(diesel exhaust fluid) technology **Serial No.** 84AWF 944 T06951 **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.** D035901 **Tread width** rear 76.0" *(1930 mm)* to 89.1" *(2262 mm)* front 61.5" *(1560 mm)* to 89.4" *(2268 mm)* **Wheelbase** 121.8" *(3093 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 0-20 *(0-32)*, high range 0-25 *(0-40)* reverse: Low range 0-12 *(0-20)*, high range 0-18 *(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** 1000 rpm at 1970 engine rpm **Unladen tractor mass** 24670 lb *(11190 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)*	Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					Turtle 3				
92.4 *(68.9)*	21875 *(97.3)*	1.58 *(2.55)*	2138	14.7	0.625 *(0.380)*	11.07 *(2.18)*	190 *(88)*	50 *(10)*	30.4 *(102.8)*
					Turtle 5				
155.2 *(115.7)*	21110 *(93.9)*	2.77 *(4.45)*	2130	10.5	0.540 *(0.329)*	12.79 *(2.52)*	190 *(88)*	50 *(10)*	30.4 *(102.8)*
					Turtle 6.5				
193.1 *(144.0)*	20480 *(91.1)*	3.54 *(5.69)*	2120	9.4	0.532 *(0.324)*	12.98 *(2.56)*	187 *(86)*	52 *(11)*	30.4 *(103.0)*
					Turtle 8				
265.7 *(198.1)*	20345 *(90.5)*	4.90 *(7.88)*	1969	7.8	0.455 *(0.277)*	15.18 *(2.99)*	192 *(89)*	54 *(12)*	30.5 *(103.2)*
					Turtle 11				
269.8 *(201.2)*	15670 *(69.7)*	6.46 *(10.39)*	1942	4.9	0.445 *(0.271)*	15.53 *(3.06)*	192 *(90)*	54 *(12)*	30.5 *(103.2)*
					Turtle 14				
260.6 *(194.3)*	11800 *(52.5)*	8.28 *(13.32)*	1945	3.2	0.465 *(0.283)*	14.87 *(2.93)*	196 *(91)*	54 *(12)*	30.5 *(103.2)*
					*Turtle 16				
257.5 *(192.0)*	10185 *(45.3)*	9.48 *(15.26)*	1948	2.6	0.478 *(0.291)*	14.47 *(2.85)*	199 *(93)*	54 *(12)*	30.5 *(103.2)*
					*Turtle 18				
251.7 *(187.7)*	8590 *(38.2)*	10.99 *(17.69)*	1956	2.5	0.504 *(0.306)*	13.72 *(2.70)*	199 *(93)*	54 *(12)*	30.5 *(103.2)*
					Rabbit 8.5				
244.1 *(182.0)*	18885 *(84.0)*	4.85 *(7.80)*	1947	7.0	0.498 *(0.303)*	13.88 *(2.74)*	189 *(87)*	54 *(12)*	30.5 *(103.2)*
					Rabbit 11				
265.8 *(198.2)*	15960 *(71.0)*	6.24 *(10.05)*	1943	4.8	0.455 *(0.277)*	15.18 *(2.99)*	187 *(86)*	54 *(12)*	30.5 *(103.2)*
					Rabbit 14				
266.6 *(198.8)*	11890 *(52.9)*	8.41 *(13.53)*	1942	3.4	0.452 *(0.275)*	15.28 *(3.01)*	196 *(91)*	54 *(12)*	30.5 *(103.2)*
					*Rabbit 16				
269.1 *(200.7)*	10610 *(47.2)*	9.51 *(15.31)*	1955	3.0	0.467 *(0.284)*	14.78 *(2.91)*	196 *(91)*	50 *(10)*	30.2 *(102.4)*
					*Rabbit 18				
266.6 *(198.8)*	9225 *(41.0)*	10.84 *(17.44)*	1950	2.7	0.471 *(0.286)*	14.68 *(2.89)*	198 *(92)*	50 *(10)*	30.2 *(102.4)*
					*Rabbit 21				
255.6 *(190.6)*	7690 *(34.2)*	12.47 *(20.06)*	1923	2.0	0.486 *(0.295)*	14.23 *(2.80)*	203 *(95)*	50 *(10)*	30.2 *(102.4)*

* Boosted mode

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At no load in Turtle - 4.9 mph *(7.9 km/h)* - no load	71.0
Bystander	---

TIRES AND WEIGHT	Tested Without Ballast
Rear Tires - No., size, ply & psi*(kPa)*	Two 710/75R42;***;12*(80)*
Front Tires - No., size, ply & psi*(kPa)*	Two 600/65R34;**;19*(130)*
Height of Drawbar	21.7 in *(550 mm)*
Static Weight with operator - Rear	13615 lb *(6175 kg)*
- Front	11220 lb *(5090 kg)*
- Total	24835 lb*(11265 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: This tractor has an engine control feature that allows the engine to run in a "boosted" mode, increased power level, at travel speeds above 8.7 mph *(14.0 km/h)*.

NOTE 2: The data on this summary was obtained from OECD report 2910 conducted on the Massey Ferguson 8737 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 54 GPM *(205 l/min)* remote flow. 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. **2910,** Nebraska Summary 998, November 23, 2015.

Roger M. Hoy
Director

M.F. Kocher
J.D. Luck
P.J. Jasa
Board of Tractor Test Engineers

HYDRAULIC PERFORMANCE

CATEGORY: III	
Quick Attach: Yes	
OECD Static test	
Maximum force exerted through whole range:	20390 lbs *(90.7 kN)* (at 24" *(610 mm)* behind QA ends)
	22460 lbs *(99.9 kN)* (at QA ends)
i) Sustained pressure at compensator cutoff:	2885 psi *(199 bar)*
	two outlet sets combined
ii) Pump delivery rate at minimum pressure:	53.1 GPM *(201.1 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	47.3 GPM *(179.2 l/min)*
Delivery pressure:	2435 psi *(168 bar)*
Power:	67.3 HP *(50.2 kW)*
	single outlet set
ii) Pump delivery rate at minimum pressure:	35.8 GPM *(135.5 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	33.8 GPM *(127.9 l/min)*
Delivery pressure:	2265 psi *(156 bar)*
Power:	44.6 HP *(33.2 kW)*

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	31.9	*810*
B	14.6	*370*
C	19.1	*484*
D	15.9	*405*
E	8.9	*225*
F	13.0	*330*
G	40.4	*1025*
H	2.4	*60*
I	18.8	*478*
J	27.4	*695*
K	24.7	*628*
L	49.2	*1250*
*L'	53.9	*1370*
M	26.8	*680*
N	39.9	*1014*
O	10.2	*260*
P	50.4	*1280*
Q	38.5	*977*
R	37.4	*950*

*L' to Quick Attach ends

