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2016

Nebraska Summary: S1071 Challenger MT545E

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SUMMARY OF OECD TEST 2993–NEBRASKA SUMMARY 1071
CHALLENGER MT545E AUTOPOWER 6 DIESEL
24 SPEED

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)*	Gal/hr *(l/h)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1034 rpm)						
154.1 *(114.9)*	2099	8.83 *(33.44)*	0.400 *(0.243)*	17.45 *(3.44)*	0.64 *(2.41)*	
Standard Power Take-off Speed (1001 rpm)						
161.6 *(120.5)*	2031	9.02 *(34.15)*	0.390 *(0.237)*	17.91 *(3.53)*	0.65 *(2.46)*	
Maximum Power (1 hour)						
165.6 *(123.5)*	1902	8.97 *(33.97)*	0.378 *(0.230)*	18.46 *(3.64)*	0.58 *(2.21)*	
VARYING POWER AND FUEL CONSUMPTION						
154.1 *(114.9)*	2099	8.83 *(33.44)*	0.400 *(0.243)*	17.45 *(3.44)*	0.64 *(2.41)*	Air temperature
132.2 *(98.6)*	2117	7.65 *(28.97)*	0.404 *(0.246)*	17.28 *(3.40)*	0.50 *(1.89)*	68°F *(20°C)*
99.4 *(74.1)*	2125	6.14 *(23.23)*	0.431 *(0.262)*	16.19 *(3.19)*	0.40 *(1.52)*	Relative humidity
66.6 *(49.7)*	2133	4.64 *(17.55)*	0.486 *(0.296)*	14.36 *(2.83)*	0.25 *(0.93)*	67%
33.5 *(25.0)*	2146	3.15 *(11.94)*	0.657 *(0.400)*	10.64 *(2.10)*	0.20 *(0.74)*	Barometer
-- --	2151	2.10 *(7.95)*	-- --	-- --	0.09 *(0.33)*	30.2" Hg *(102.2 kPa)*

Maximum torque - 507 lb.-ft. *(687 Nm)* at 1400 rpm
Maximum torque rise - 31.4%
Torque rise at 1700 engine rpm - 21%
Power increase at 1902 engine rpm - 7.5%

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)*
Power at Rated Engine Speed—12th(3A) Gear									
126.6 *(94.4)*	9350 *(41.6)*	5.08 *(8.17)*	2101	5.0	0.493 *(0.300)*	14.06 *(2.77)*	198 *(92)*	66 *(19)*	30.0 *(101.6)*
75% of Pull at Rated Engine Speed—12th(3A) Gear									
99.0 *(73.8)*	7125 *(31.7)*	5.21 *(8.38)*	2123	3.7	0.532 *(0.323)*	13.06 *(2.57)*	196 *(91)*	66 *(19)*	30.0 *(101.6)*
50% of Pull at Rated Engine Speed—12th(3A) Gear									
65.8 *(49.1)*	4675 *(20.8)*	5.28 *(8.50)*	2132	2.8	0.585 *(0.356)*	11.88 *(2.34)*	196 *(91)*	66 *(19)*	30.0 *(101.6)*
75% of Pull at Reduced Engine Speed—14th(3B) Gear									
99.5 *(74.2)*	7125 *(31.7)*	5.24 *(8.43)*	1773	3.6	0.492 *(0.299)*	14.11 *(2.78)*	199 *(93)*	68 *(20)*	30.0 *(101.6)*
50% of Pull at Reduced Engine Speed—14th(3B) Gear									
66.8 *(49.8)*	4700 *(20.9)*	5.33 *(8.57)*	1776	2.3	0.545 *(0.331)*	12.74 *(2.51)*	198 *(92)*	68 *(20)*	30.0 *(101.6)*

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

Dates of tests: May to August, 2016

Manufacturer: AGCO S.A. BP 307, Avenue Blaise Pascal, 60026 Beauvais, France

CONSUMABLE FLUIDS: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.839 **Fuel weight** 6.98 lbs/gal *(0.837 kg/l)* **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.10 lbs/gal *(1.091 kg/l)* **Oil SAE** 15W40 **API service classification** CJ-4 **Transmission and hydraulic lubricant** BP Terrac Tractan 9 15W/40 **Front axle lubricant** BP Terrac Tractan 9 15W/40

ENGINE: Make AGCO Power Diesel **Type** six cylinder vertical with turbocharger, air to air intercooler and SCR (selective catalyst reduction) exhaust treatment **Serial No.** Z00099 **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 4.252" x 4.724" *(108.0 mm x 120.0 mm)* **Compression ratio** 17.4 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** three paper cartridges **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: Type front wheel assist **Serial No.** B 007901 **Tread width** rear 52.8" *(1340 mm)* to 87.8" *(2230 mm)* front 52.8" *(1340 mm)* to 87.8" *(2230 mm)* **Wheelbase** 113.2" *(2875 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (6) range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 0.96 *(1.55)* second 1.16 *(1.86)* third 1.35 *(2.18)* fourth 1.63 *(2.63)* fifth 1.92 *(3.09)* sixth 2.31 *(3.72)* seventh 2.60 *(4.19)* eighth 3.13 *(5.03)* ninth 3.67 *(5.91)* tenth 4.42 *(7.11)* eleventh 5.19 *(8.36)* twelfth 5.28 *(8.50)* thirteenth 6.25 *(10.06)* fourteenth 6.35 *(10.22)* fifteenth 7.46 *(12.00)* sixteenth 8.97 *(14.44)* seventeenth 10.55 *(16.98)* eighteenth 12.69 *(20.43)* nineteenth 14.00 *(22.53)* twentieth 16.83 *(27.09)* twenty-first 19.75 *(31.79)* twenty-second 23.77 *(38.26)* twenty-third 24.86 *(40.00)* twenty-fourth 24.86 *(40.00)* electronically limited reverse 0.96 *(1.55)*, 1.16 *(1.86)*, 1.35 *(2.18)*, 1.63 *(2.63)*, 1.92 *(3.09)*, 2.31 *(3.72)*, 2.60 *(4.19)*, 3.13 *(5.03)*, 3.67 *(5.91)*, 4.42 *(7.11)*, 5.19 *(8.36)*, 5.28 *(8.50)*, 6.25 *(10.06)*, 6.35 *(10.22)*, 7.46 *(12.00)*, 8.97 *(14.44)* 10.55 *(16.98)*, 12.69 *(20.43)*, 14.00 *(22.53)*, 16.83 *(27.09)*, 19.75 *(31.79)*, 23.77 *(38.26)*, 24.86 *(40.00)*, 24.86 *(40.00)* electronically limited

DRAWBAR PERFORMANCE AT 1900 ENGINE RPM

(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)	Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool-ing med	Air dry bulb	Barom. inch Hg (kPa)
					6th(1F) Gear				
76.3 (56.9)	14075 (62.6)	2.03 (3.27)	2119	13.4	0.606 (0.369)	11.46 (2.26)	187 (86)	66 (19)	30.0 (101.6)
					7th(2A) Gear				
85.7 (63.9)	13780 (61.3)	2.33 (3.75)	2115	12.6	0.566 (0.344)	12.28 (2.42)	189 (87)	66 (19)	30.0 (101.6)
					8th(2B) Gear				
98.7 (73.6)	13510 (60.1)	2.74 (4.41)	2058	12.0	0.524 (0.319)	13.25 (2.61)	189 (87)	66 (19)	30.0 (101.6)
					9th(2C) Gear				
107.7 (80.3)	13085 (58.2)	3.09 (4.97)	1940	10.2	0.503 (0.306)	13.81 (2.72)	189 (87)	66 (19)	30.0 (101.6)
					*10th(2D) Gear				
125.0 (93.2)	12655 (56.3)	3.70 (5.96)	1912	9.5	0.496 (0.302)	14.00 (2.76)	194 (90)	66 (19)	30.0 (101.6)
					*11th(2E) Gear				
134.1 (100.0)	11330 (50.4)	4.44 (7.14)	1912	7.4	0.469 (0.285)	14.82 (2.92)	196 (91)	68 (20)	30.0 (101.5)
					*12th(3A) Gear				
137.9 (102.8)	11355 (50.5)	4.55 (7.33)	1928	7.5	0.456 (0.278)	15.22 (3.00)	198 (92)	66 (19)	30.0 (101.5)
					*13th(2F) Gear				
136.8 (102.0)	9350 (41.6)	5.49 (8.83)	1896	3.9	0.456 (0.278)	15.22 (3.00)	198 (92)	66 (19)	30.0 (101.5)
					*14th(3B) Gear				
138.1 (103.0)	9260 (41.2)	5.59 (9.00)	1895	3.8	0.453 (0.275)	15.33 (3.02)	198 (92)	66 (19)	30.0 (101.6)
					*15th(3C) Gear				
136.9 (102.1)	7800 (34.7)	6.58 (10.59)	1910	3.5	0.457 (0.278)	15.18 (2.99)	199 (93)	68 (20)	30.0 (101.6)
					*16th(3D) Gear				
135.6 (101.1)	6365 (28.3)	7.99 (12.86)	1905	2.1	0.462 (0.281)	15.02 (2.96)	199 (93)	68 (20)	30.0 (101.6)
					*17th(3E) Gear				
132.0 (98.4)	5240 (23.3)	9.45 (15.21)	1900	1.8	0.471 (0.286)	14.75 (2.90)	199 (93)	68 (20)	30.0 (101.6)

* Powerboost mode

TRACTOR SOUND LEVEL WITH CAB	Front wheel drive Engaged dB(A)	Disengaged dB(A)
At no load in 10th (2D) gear	69.0	69.0
Bystander		--

TIRES, BALLAST AND WEIGHT

	Tested without ballast
Rear Tires - No., size, ply & psi(*kPa*)	Two 520/85R38;**;13(*90*)
Front Tires - No., size, ply & psi(*kPa*)	Two 480/70R28;**;15(*100*)
Height of Drawbar	21.7 in (*550 mm*)
Static Weight with operator - Rear	8245 lb (*3740 kg*)
- Front	7120 lb (*3230 kg*)
- Total	15365 lb (*6970 kg*)

Clutch multiple wet disc operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1982 engine rpm or 1000 rpm at 2030 engine rpm **Unladen tractor mass** 15200 lb *(6895 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: This tractor has a power management system that provides an engine power increase when the PTO is engaged and for travel speeds from gear 2D and higher.

NOTE 2: The data on this summary was obtained from OECD report 2993 conducted on the Massey Ferguson 7718 Dyna 6 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 remote flow claims of 29 GPM *(110 l/min)* (multiple outlets), 26.4 GPM *(100 l/min)* (single outlet), nor 3 point lift claim of 8900 lbs *(4035 kg)*. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

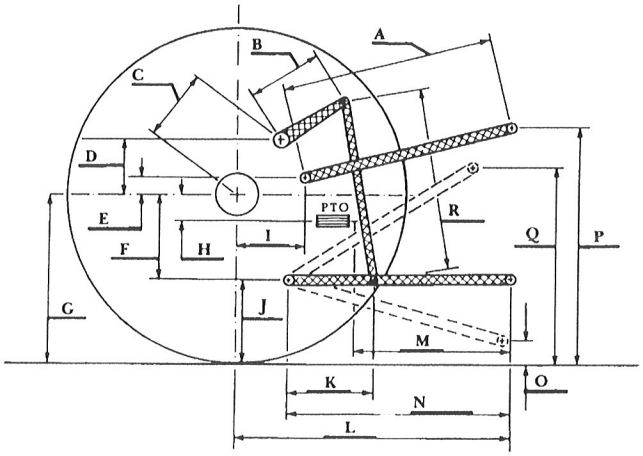
We, the undersigned, certify that this is a true summary of data from OECD Report No. **2993,** Nebraska Summary 1071, January 9, 2017.

Roger M. Hoy
Director

M.F. Kocher
P.J. Jasa
S.K. Pitla
Board of Tractor Test Engineers

HYDRAULIC PERFORMANCE

CATEGORY: III	
Quick Attach: None	
OECD Static test	
Maximum force exerted through whole range:	8630 lbs *(38.4 kN)*
i) Sustained pressure of the open relief valve:	2875 psi *(198 bar)*
	two outlet sets combined
ii) Pump delivery rate at minimum pressure:	25.2 GPM *(95.5 l/min)*
iii) Pump delivery rate at maximum	
hydraulic power:	23.8 GPM *(90.0 l/min)*
Delivery pressure:	2380 psi *(164 bar)*
Power:	33.0 HP *(24.6 kW)*
	single outlet set
ii) Pump delivery rate at minimum pressure:	25.3 GPM *(95.6 l/min)*
iii) Pump delivery rate at maximum	
hydraulic power:	23.9 GPM *(90.5 l/min)*
Delivery pressure:	2160 psi *(149 bar)*
Power:	30.1 HP *(22.5 kW)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	28.7	*730*
B	11.6	*295*
C	13.9	*354*
D	13.0	*330*
E	9.9	*251*
F	11.0	*280*
G	34.4	*875*
H	1.7	*43*
I	15.5	*394*
J	23.4	*595*
K	21.4	*543*
L	43.3	*1101*
M	24.6	*625*
N	37.0	*940*
O	8.9	*226*
P	50.4	*1280*
Q	36.9	*938*
R	30.3	*770*