January 2005

Nebraska Summary 543: DT240A Diesel

Nebraska Tractor Test Lab
University of Nebraska-Lincoln, tractortestlab@unl.edu

SUMMARY OF OECD TEST 2324–NEBRASKA SUMMARY 543
AGCO DT 240A DIESEL
POWERMAXX TRANSMISSION

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)					
246.3 *(183.7)*	2199	15.34 *(58.07)*	0.433 *(0.263)*	16.05 *(3.16)*	
Standard Power Take-off Speed(1000 rpm)					
265.5 *(198.0)*	2034	15.49 *(58.63)*	0.405 *(0.247)*	17.15 *(3.38)*	
Maximum Power (2 hours)					
267.7 *(199.6)*	2001	15.44 *(58.43)*	0.400 *(0.244)*	17.36 *(3.42)*	
VARYING POWER AND FUEL CONSUMPTION					
246.3 *(183.7)*	2199	15.34 *(58.07)*	0.433 *(0.263)*	16.05 *(3.16)*	Air temperature
219.1 *(163.4)*	2303	15.06 *(56.99)*	0.477 *(0.290)*	14.57 *(2.87)*	68°F *(20°C)*
165.5 *(123.4)*	2315	11.67 *(44.16)*	0.491 *(0.298)*	14.16 *(2.79)*	Relative humidity
110.5 *(82.4)*	2327	8.35 *(31.60)*	0.524 *(0.319)*	13.24 *(2.61)*	33%
55.5 *(41.4)*	2341	5.29 *(20.02)*	0.662 *(0.403)*	10.50 *(2.07)*	Barometer
-- --	2350	3.15 *(11.92)*	-- --	-- --	29.4" Hg *(99.4 kPa)*

Maximum Torque - 814 lb.-ft. *(1103 Nm)* at 1202 rpm
Maximum Torque Rise - 38.4%
Torque rise at 1800 engine rpm - 27%

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 cool-ing med	*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—Turtle									
210.9 *(157.3)*	16215 *(72.13)*	4.88 *(7.85)*	2200	6.0	0.510 *(0.310)*	13.60 *(2.68)*	185 *(85)*	79 *(26)*	29.6 *(100.3)*
75% of Pull at Maximum Power—Turtle									
169.6 *(126.5)*	12165 *(54.12)*	5.23 *(8.42)*	2300	3.9	0.580 *(0.353)*	11.98 *(2.36)*	189 *(87)*	81 *(27)*	29.6 *(100.3)*
50% of Pull at Maximum Power—Turtle									
116.4 *(86.8)*	8100 *(36.03)*	5.39 *(8.67)*	2316	2.4	0.596 *(0.363)*	11.66 *(2.30)*	190 *(88)*	79 *(26)*	29.6 *(100.3)*
75% of Pull at Reduced Engine Speed—Turtle									
169.0 *(126.1)*	12155 *(54.06)*	5.22 *(8.39)*	2044	3.9	0.478 *(0.291)*	14.52 *(2.86)*	189 *(87)*	79 *(26)*	29.6 *(100.2)*
50% of Pull at Reduced Engine Speed—Turtle									
115.7 *(86.3)*	8105 *(36.06)*	5.35 *(8.61)*	2054	2.7	0.523 *(0.318)*	13.30 *(2.62)*	190 *(88)*	79 *(26)*	29.6 *(100.3)*

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

Dates of tests: May - July, 2005

Manufacturer: AGCO S.A. 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)*** 0.835 **Fuel weight** 6.95 lbs/gal *(0.8328 kg/l)* **Oil SAE** 10W40 **API service classification** CH4 **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 and air to air intercooler **Serial No.** P08256 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.370" x 5.709" *(111.0 mm x 145.0 mm)* **Compression ratio** 17.5 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.** N167999 **Tread width** rear 66.9" *(1699 mm)* to 91.6" *(2326 mm)* front 72.5" *(1692 mm)* to 78.6" *(2116 mm)* **Wheelbase** 121.1" *(3075 mm)* **Hydraulic control system** direct engine drive **Transmission** AGCO CVT. A combination of mechanical and hydrostatic sections are electronically controlled to give the travel speeds shown. 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 - 11 *(0 - 18)*, high range 0 - 12 *(0 - 19)* **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 1588 engine rpm or 1000 rpm at 2033 engine rpm **Unladen tractor mass** 20370 lb *(9240 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)*	Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					Turtle				
204.1 *(152.2)*	20670 *(91.94)*	3.70 *(5.96)*	2051	14.5	0.531 *(0.323)*	13.10 *(2.58)*	190 *(88)*	73 *(23)*	29.5 *(99.8)*
					Turtle				
222.6 *(166.0)*	18820 *(83.72)*	4.44 *(7.14)*	2005	7.9	0.485 *(0.295)*	14.31 *(2.82)*	187 *(86)*	73 *(23)*	29.5 *(99.8)*
					Turtle				
223.9 *(167.0)*	16920 *(75.26)*	4.96 *(7.99)*	2000	6.4	0.480 *(0.292)*	14.47 *(2.85)*	194 *(90)*	81 *(27)*	29.5 *(99.8)*
					Turtle				
224.9 *(167.7)*	14520 *(64.58)*	5.81 *(9.35)*	2000	4.9	0.480 *(0.292)*	14.47 *(2.85)*	196 *(91)*	81 *(27)*	29.5 *(99.8)*
					Turtle				
225.2 *(167.9)*	12775 *(56.82)*	6.61 *(10.64)*	2001	4.0	0.478 *(0.291)*	14.52 *(2.86)*	198 *(92)*	81 *(27)*	29.5 *(99.8)*
					Turtle				
224.0 *(167.0)*	11335 *(50.43)*	7.41 *(11.92)*	2002	3.4	0.480 *(0.292)*	14.47 *(2.85)*	198 *(92)*	79 *(26)*	29.5 *(99.8)*
					Turtle				
221.8 *(165.4)*	9675 *(43.04)*	8.60 *(13.83)*	1998	2.7	0.487 *(0.296)*	14.26 *(2.81)*	196 *(91)*	79 *(26)*	29.5 *(99.8)*
					Rabbit				
217.9 *(162.5)*	17540 *(78.03)*	4.66 *(7.50)*	2001	6.5	0.494 *(0.300)*	14.07 *(2.77)*	185 *(85)*	72 *(22)*	29.5 *(99.9)*
					Rabbit				
215.5 *(160.7)*	15635 *(69.55)*	5.17 *(8.32)*	2001	5.5	0.497 *(0.302)*	13.98 *(2.75)*	189 *(87)*	84 *(29)*	29.5 *(99.9)*
					Rabbit				
217.8 *(162.4)*	14025 *(62.38)*	5.82 *(9.37)*	2001	4.7	0.492 *(0.299)*	14.12 *(2.78)*	194 *(90)*	84 *(29)*	29.5 *(99.8)*
					Rabbit				
220.7 *(164.6)*	12695 *(56.48)*	6.52 *(10.49)*	2003	4.2	0.485 *(0.295)*	14.31 *(2.82)*	192 *(89)*	86 *(30)*	29.5 *(99.8)*
					Rabbit				
221.3 *(165.0)*	11295 *(50.25)*	7.35 *(11.82)*	2001	3.4	0.484 *(0.294)*	14.37 *(2.83)*	194 *(90)*	90 *(32)*	29.5 *(99.9)*
					Rabbit				
222.2 *(165.7)*	10065 *(44.78)*	8.28 *(13.32)*	2003	2.8	0.484 *(0.294)*	14.37 *(2.83)*	196 *(91)*	88 *(31)*	29.5 *(99.8)*
					Rabbit				
222.7 *(166.0)*	8825 *(39.26)*	9.46 *(15.23)*	2003	2.2	0.483 *(0.294)*	14.41 *(2.84)*	198 *(92)*	88 *(31)*	29.5 *(99.8)*
					Rabbit				
222.2 *(165.7)*	8060 *(35.85)*	10.34 *(16.64)*	2005	2.0	0.485 *(0.295)*	14.31 *(2.82)*	196 *(91)*	88 *(31)*	29.5 *(99.8)*

Note: The data on this summary was obtained from OECD report 2324 conducted on the Massey Ferguson 8480 Diesel.

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

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 39.0 GPM *(147 lpm)* flow at the remote outlets. 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. **2324,** Nebraska Summary 543, June 16, 2006.

Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
J.A. Smith
Board of Tractor Test Engineers

TIRES, BALLAST AND WEIGHT	**With Ballast**	**Without Ballast**
Rear tires - No.,size, ply & psi*(kPa)*	Four 520/85R46; **;11 *(70)*	Two 650/85R38;***;12*(80)*
Ballast - Duals(total)	2390 lb *(1084 kg)*	None
- Cast iron(total)	5120 lb *(2322 kg)*	None
Front tires - No.,size, ply & psi*(kPa)*	Four 480/70R34; **;12 *(80)*	Two 600/70R28;***;12*(80)*
Ballast - Duals(total)	1245 lb *(565 kg)*	None
- Cast Iron(total)	2600 lb *(1179 kg)*	None
Height of Drawbar	20.5 in *(520 mm)*	20.5 in *(520 mm)*
Static Weight with operator- Rear	19445 lb *(8820 kg)*	12630 lb *(5730 kg)*
- Front	12445 lb *(5645 kg)*	7905 lb *(3585 kg)*
- Total	31890 lb*(14465 kg)*	20535 lb *(9315 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)*	Hp.hr/gal *(kW.h/l)*	Temp.°F cool-ing med	*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—Turtle									
201.8 *(150.5)*	18035 *(80.22)*	4.20 *(6.75)*	2201	5.1	0.537 *(0.327)*	12.94 *(2.55)*	194 *(90)*	84 *(29)*	29.6 *(100.3)*
75% of Pull at Maximum Power—Turtle									
161.7 *(120.6)*	13520 *(60.15)*	4.49 *(7.22)*	2299	3.9	0.614 *(0.373)*	11.32 *(2.23)*	190 *(88)*	86 *(30)*	29.6 *(100.3)*
50% of Pull at Maximum Power—Turtle									
110.1 *(82.1)*	9010 *(40.07)*	4.58 *(7.38)*	2313	2.4	0.702 *(0.427)*	9.90 *(1.95)*	190 *(88)*	84 *(29)*	29.6 *(100.3)*
75% of Pull at Reduced Engine Speed—Turtle									
162.1 *(120.9)*	13520 *(60.15)*	4.50 *(7.23)*	2032	3.8	0.492 *(0.300)*	14.11 *(2.78)*	190 *(88)*	84 *(30)*	29.6 *(100.3)*
50% of Pull at Reduced Engine Speed—Turtle									
109.3 *(81.5)*	8990 *(39.98)*	4.56 *(7.34)*	2043	3.2	0.539 *(0.328)*	12.89 *(2.54)*	190 *(88)*	84 *(30)*	29.6 *(100.3)*
MAXIMUM POWER IN SELECTED GEARS									
192.0 *(143.2)*	28755 *(127.90)*	2.50 *(4.03)*	2076	15.2	Turtle 0.562 *(0.342)*	12.38 *(2.44)*	189 *(87)*	81 *(27)*	29.6 *(100.3)*
210.8 *(157.2)*	26770 *(119.07)*	2.95 *(4.75)*	2001	10.1	Turtle 0.513 *(0.312)*	13.55 *(2.67)*	190 *(88)*	79 *(26)*	29.6 *(100.4)*
217.5 *(162.2)*	24585 *(109.37)*	3.32 *(5.34)*	2001	8.0	Turtle 0.496 *(0.302)*	14.01 *(2.76)*	187 *(86)*	77 *(25)*	29.6 *(100.4)*
220.9 *(164.7)*	21640 *(96.26)*	3.83 *(6.16)*	2001	6.3	Turtle 0.487 *(0.296)*	14.26 *(2.81)*	185 *(85)*	72 *(22)*	29.6 *(100.4)*
219.3 *(163.5)*	19420 *(86.38)*	4.23 *(6.82)*	2001	5.6	Turtle 0.491 *(0.299)*	14.16 *(2.79)*	196 *(91)*	81 *(27)*	29.7 *(100.6)*
220.1 *(164.1)*	16480 *(73.31)*	5.01 *(8.06)*	2001	4.6	Turtle 0.489 *(0.298)*	14.20 *(2.80)*	194 *(90)*	82 *(28)*	29.7 *(100.6)*
219.1 *(163.4)*	14285 *(63.54)*	5.75 *(9.26)*	2001	3.9	Turtle 0.491 *(0.298)*	14.16 *(2.79)*	197 *(92)*	82 *(28)*	29.7 *(100.6)*
216.4 *(161.4)*	12140 *(54.00)*	6.69 *(10.76)*	1999	2.8	Turtle 0.498 *(0.303)*	13.96 *(2.75)*	197 *(92)*	84 *(29)*	29.7 *(100.6)*
214.2 *(159.7)*	10660 *(47.41)*	7.54 *(12.13)*	2002	2.8	Turtle 0.505 *(0.307)*	13.76 *(2.71)*	201 *(94)*	82 *(28)*	29.7 *(100.6)*
210.7 *(157.1)*	9270 *(41.24)*	8.52 *(13.72)*	2001	2.0	Turtle 0.510 *(0.310)*	13.62 *(2.68)*	190 *(88)*	86 *(30)*	29.6 *(100.4)*
208.9 *(155.8)*	19055 *(84.77)*	4.11 *(6.62)*	2007	5.1	Rabbit 0.517 *(0.314)*	13.45 *(2.65)*	190 *(88)*	79 *(26)*	29.7 *(100.6)*
210.7 *(157.1)*	17260 *(76.78)*	4.58 *(7.37)*	2001	4.8	Rabbit 0.509 *(0.310)*	13.65 *(2.69)*	185 *(85)*	75 *(24)*	29.7 *(100.7)*
215.5 *(160.7)*	15490 *(68.91)*	5.22 *(8.39)*	2000	3.9	Rabbit 0.500 *(0.304)*	13.91 *(2.74)*	189 *(87)*	72 *(22)*	29.7 *(100.6)*
217.1 *(161.9)*	13835 *(61.54)*	5.88 *(9.47)*	2000	3.9	Rabbit 0.494 *(0.301)*	14.06 *(2.77)*	192 *(89)*	75 *(24)*	29.7 *(100.7)*
217.6 *(162.3)*	12620 *(56.14)*	6.47 *(10.41)*	1995	3.1	Rabbit 0.494 *(0.301)*	14.06 *(2.77)*	192 *(89)*	72 *(22)*	29.7 *(100.7)*
216.7 *(161.6)*	10905 *(48.50)*	7.45 *(12.00)*	2001	2.6	Rabbit 0.496 *(0.302)*	14.01 *(2.76)*	192 *(89)*	75 *(24)*	29.7 *(100.6)*
216.3 *(161.3)*	9835 *(43.76)*	8.25 *(13.27)*	2004	2.4	Rabbit 0.500 *(0.304)*	13.91 *(2.74)*	194 *(90)*	73 *(23)*	29.7 *(100.6)*
214.6 *(160.0)*	8710 *(38.74)*	9.24 *(14.87)*	2002	2.1	Rabbit 0.504 *(0.307)*	13.79 *(2.72)*	194 *(90)*	75 *(24)*	29.7 *(100.6)*

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At no load in Turtle - 4.6 mph *(7.5 km/h)* - no load	70.0
Bystander	---

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III	
Quick Attach: None	
Maximum force exerted through whole range:	14648 lbs *(65.2 kN)*
i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	2875 psi *(192 bar)*
ii) Pump delivery rate at minimum pressure:	36.9 GPM *(139.8 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	35.0 GPM *(132.5 l/min)*
Delivery pressure:	2335 psi *(161 bar)*
Power:	47.7 HP *(35.6 kW)*

THREE POINT HITCH PERFORMANCE SAE Test

Observed Maximum Pressure psi. *(bar)*	2800 *(193)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	150 *(66)*
Location:	hydraulic sump
Category:	III
Quick attach:	None

SAE Static Test—System pressure 2520 psi *(174 Bar)*

Hitch point distance to ground level in. *(mm)*	8.2 *(208)*	16.1 *(409)*	24.1 *(612)*	32.1 *(815)*	40.0 *(1016)*
Lift force on frame lb	16994	18242	18320	18191	16921
" " " " " " *(kN)*	*(75.6)*	*(81.1)*	*(81.5)*	*(80.9)*	*(75.3)*

	OECD test inch	OECD test *mm*	SAE test inch	SAE test *mm*
A	31.9	*809*	30.4	*773*
B	14.2	*360*	14.2	*360*
C	17.7	*449*	17.7	*449*
D	15.4	*390*	15.4	*390*
E	11.8	*300*	8.9	*225*
F	13.0	*330*	13.0	*330*
G	36.2	*920*	36.2	*920*
H	3.4	*85*	3.4	*85*
I	15.7	*400*	18.7	*475*
J	23.2	*590*	23.2	*590*
K	26.8	*680*	26.8	*680*
L	50.4	*1281*	50.4	*1281*
M	27.9	*709*	27.9	*709*
N	41.1	*1045*	41.1	*1045*
O	9.0	*230*	8.0	*203*
P	50.2	*1275*	45.2	*1150*
Q	39.3	*999*	38.5	*978*
R	34.3	*872*	34.8	*886*