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Nebraska Summary: S650 Massey Ferguson 8670

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SUMMARY OF OECD TEST 2498–NEBRASKA SUMMARY 650
MASSEY FERGUSON 8670 DIESEL
DYNA VT 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)					
257.1 *(191.7)*	2200	13.73 *(51.96)*	0.372 *(0.227)*	18.73 *(3.69)*	
Standard Power Take-off Speed(1000 rpm)					
281.1 *(209.6)*	2035	14.44 *(54.65)*	0.358 *(0.218)*	19.46 *(3.83)*	
Maximum Power (1 hour)					
290.3 *(216.5)*	1850	14.40 *(54.50)*	0.346 *(0.210)*	20.16 *(3.97)*	
VARYING POWER AND FUEL CONSUMPTION					
257.1 *(191.7)*	2200	13.73 *(51.96)*	0.372 *(0.227)*	18.73 *(3.69)*	Air temperature
220.9 *(164.7)*	2224	12.14 *(45.94)*	0.383 *(0.233)*	18.20 *(3.59)*	70°F *(21°C)*
166.4 *(124.1)*	2234	9.56 *(36.20)*	0.401 *(0.244)*	17.41 *(3.43)*	Relative humidity
111.3 *(83.0)*	2242	7.17 *(27.16)*	0.449 *(0.273)*	15.53 *(3.06)*	52%
55.9 *(41.7)*	2252	4.90 *(18.54)*	0.611 *(0.372)*	11.42 *(2.25)*	Barometer
-- --	2260	2.69 *(10.20)*	-- --	-- --	29.8" Hg *(101.0 kPa)*

Maximum Torque - 961 lb.-ft. *(1303 Nm)* at 1500 rpm
Maximum Torque Rise - 56.6%
Torque rise at 1800 engine rpm - 37%
Power increase at 1850 engine rpm - 12.9%

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 7.5									
218.5 *(162.9)*	17490 *(77.80)*	4.68 *(7.54)*	2201	2.5	0.437 *(0.266)*	15.94 *(3.14)*	172 *(78)*	57 *(14)*	29.5 *(99.9)*
75% of Pull at Maximum Power—Turtle 7.5									
167.2 *(124.7)*	13125 *(58.38)*	4.78 *(7.69)*	2223	1.9	0.453 *(0.276)*	15.38 *(3.03)*	185 *(85)*	59 *(15)*	29.5 *(99.9)*
50% of Pull at Maximum Power—Turtle 7.5									
111.8 *(83.4)*	8725 *(38.80)*	4.81 *(7.74)*	2235	1.3	0.512 *(0.311)*	13.62 *(2.68)*	174 *(79)*	59 *(15)*	29.5 *(99.9)*
75% of Pull at Reduced Engine Speed—Turtle 9									
166.8 *(124.4)*	13115 *(58.35)*	4.77 *(7.68)*	1910	1.8	0.425 *(0.259)*	16.40 *(3.23)*	165 *(74)*	61 *(16)*	29.5 *(99.8)*
50% of Pull at Reduced Engine Speed—Turtle 9									
112.8 *(84.1)*	8745 *(38.90)*	4.84 *(7.78)*	1913	1.5	0.471 *(0.286)*	14.82 *(2.92)*	165 *(74)*	61 *(16)*	29.5 *(99.8)*

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

Dates of tests: October 2008 - January, 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 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 6				
206.9 *(154.3)*	26965 *(119.95)*	2.88 *(4.63)*	2057	14.9	0.486 *(0.295)*	14.37 *(2.83)*	167 *(75)*	50 *(10)*	29.5 *(100.0)*
					Turtle 7.5				
240.4 *(179.3)*	24585 *(109.36)*	3.67 *(5.90)*	1850	7.1	0.420 *(0.256)*	16.60 *(3.27)*	165 *(74)*	50 *(10)*	29.5 *(100.0)*
					Turtle 9				
246.1 *(183.5)*	21105 *(93.88)*	4.37 *(7.04)*	1850	4.2	0.410 *(0.250)*	17.00 *(3.35)*	172 *(78)*	50 *(10)*	29.5 *(100.0)*
					Turtle 11				
247.2 *(184.3)*	15870 *(70.60)*	5.84 *(9.40)*	1851	2.5	0.408 *(0.249)*	17.06 *(3.36)*	165 *(74)*	50 *(10)*	29.5 *(100.0)*
					Turtle 13				
245.7 *(183.2)*	13665 *(60.79)*	6.74 *(10.85)*	1852	2.1	0.411 *(0.250)*	16.95 *(3.34)*	163 *(73)*	50 *(10)*	29.5 *(100.0)*
					Turtle 15				
242.2 *(180.6)*	11815 *(52.55)*	7.69 *(12.37)*	1850	1.8	0.417 *(0.254)*	16.74 *(3.30)*	171 *(77)*	50 *(10)*	29.5 *(100.0)*
					Turtle 17				
239.3 *(178.5)*	10285 *(45.76)*	8.72 *(14.04)*	1853	1.7	0.422 *(0.257)*	16.54 *(3.26)*	181 *(83)*	50 *(10)*	29.5 *(100.0)*
					Rabbit 9				
232.1 *(173.1)*	20485 *(91.12)*	4.25 *(6.84)*	1851	3.8	0.435 *(0.264)*	16.05 *(3.16)*	160 *(71)*	55 *(13)*	29.5 *(100.0)*
					Rabbit 11				
243.1 *(181.3)*	15625 *(69.50)*	5.83 *(9.39)*	1851	2.2	0.414 *(0.252)*	16.85 *(3.32)*	169 *(76)*	55 *(13)*	29.5 *(100.0)*
					Rabbit 13				
245.5 *(183.1)*	13505 *(60.08)*	6.82 *(10.97)*	1851	2.0	0.410 *(0.250)*	17.00 *(3.35)*	171 *(77)*	54 *(12)*	29.5 *(100.0)*
					Rabbit 15				
246.1 *(183.5)*	11770 *(52.35)*	7.84 *(12.62)*	1852	1.5	0.410 *(0.249)*	17.06 *(3.36)*	172 *(78)*	54 *(12)*	29.5 *(99.9)*
					Rabbit 17				
244.3 *(182.2)*	10290 *(45.77)*	8.90 *(14.33)*	1852	1.4	0.413 *(0.251)*	16.90 *(3.33)*	172 *(78)*	54 *(12)*	29.5 *(99.9)*

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 performance figures on this report are the result of replacing the electronic engine control module of the Massey Ferguson 8680 with the Massey Ferguson 8670 module.

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. **2498,** Nebraska Summary 650, 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)	735 lb *(335 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)	1400 lb *(635 kg)*	None
Height of Drawbar	19.5 in (*500 mm)*	19.5 in (*500 mm)*
Static Weight with operator - Rear	18760 lb *(8510 kg)*	15280 lb *(6930 kg)*
- Front	13460 lb *(6105 kg)*	10680 lb *(4845 kg)*
- Total	32220 lb(*14615 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)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—Turtle 7.5									
215.4 *(160.6)*	17445 *(77.59)*	4.63 *(7.45)*	2197	2.2	0.446 *(0.271)*	15.63 *(3.08)*	160 *(71)*	32 *(0)*	29.6 *(100.4)*
75% of Pull at Maximum Power—Turtle 7.5									
165.6 *(123.5)*	13105 *(58.29)*	4.74 *(7.63)*	2222	1.7	0.471 *(0.286)*	14.82 *(2.92)*	160 *(71)*	34 *(1)*	29.7 *(100.5)*
50% of Pull at Maximum Power—Turtle 7.5									
111.7 *(83.3)*	8715 *(38.76)*	4.81 *(7.74)*	2233	1.2	0.528 *(0.321)*	13.20 *(2.60)*	145 *(63)*	34 *(1)*	29.7 *(100.5)*
75% of Pull at Reduced Engine Speed—Turtle 9									
165.3 *(123.3)*	13080 *(58.19)*	4.74 *(7.63)*	1782	1.6	0.423 *(0.258)*	16.48 *(3.25)*	140 *(60)*	34 *(1)*	29.7 *(100.5)*
50% of Pull at Reduced Engine Speed—Turtle 9									
112.0 *(83.5)*	8710 *(38.75)*	4.82 *(7.76)*	1789	1.1	0.469 *(0.285)*	14.87 *(2.93)*	142 *(61)*	34 *(1)*	29.7 *(100.5)*

MAXIMUM POWER AT SELECTED SPEEDS

Turtle 5									
213.0 *(158.8)*	34130 *(151.82)*	2.34 *(3.77)*	1861	15.0	0.469 *(0.286)*	14.86 *(2.93)*	147 *(64)*	32 *(0)*	29.6 *(100.4)*
Turtle 6									
238.6 *(177.9)*	29050 *(129.22)*	3.08 *(4.95)*	1850	6.3	0.422 *(0.257)*	16.54 *(3.26)*	171 *(77)*	37 *(3)*	29.6 *(100.2)*
Turtle 7.5									
244.3 *(182.2)*	24950 *(110.98)*	3.67 *(5.91)*	1850	4.2	0.413 *(0.251)*	16.95 *(3.34)*	174 *(79)*	37 *(3)*	29.6 *(100.2)*
Turtle 9									
246.7 *(184.0)*	19475 *(86.62)*	4.75 *(7.65)*	1851	2.7	0.408 *(0.248)*	17.11 *(3.37)*	169 *(76)*	37 *(3)*	29.6 *(100.2)*
Turtle 11									
242.6 *(180.9)*	15675 *(69.72)*	5.80 *(9.34)*	1851	1.7	0.415 *(0.253)*	16.79 *(3.31)*	165 *(74)*	37 *(3)*	29.6 *(100.2)*
Turtle 13									
239.7 *(178.8)*	13270 *(59.03)*	6.77 *(10.90)*	1852	1.4	0.420 *(0.256)*	16.60 *(3.27)*	165 *(74)*	37 *(3)*	29.6 *(100.2)*
Turtle 15									
235.8 *(175.9)*	11345 *(50.46)*	7.80 *(12.55)*	1851	1.3	0.427 *(0.260)*	16.34 *(3.22)*	172 *(78)*	36 *(2)*	29.6 *(100.2)*
Turtle 17									
232.5 *(173.4)*	9745 *(43.34)*	8.95 *(14.40)*	1850	1.2	0.433 *(0.264)*	16.09 *(3.17)*	165 *(74)*	36 *(2)*	29.6 *(100.2)*
Rabbit 11									
240.2 *(179.1)*	15465 *(68.79)*	5.82 *(9.37)*	1852	1.9	0.419 *(0.255)*	16.65 *(3.28)*	172 *(78)*	37 *(3)*	29.6 *(100.2)*
Rabbit 13									
241.2 *(179.9)*	13265 *(59.01)*	6.82 *(10.97)*	1853	1.7	0.418 *(0.254)*	16.70 *(3.29)*	176 *(80)*	36 *(2)*	29.6 *(100.2)*
Rabbit 15									
240.3 *(179.2)*	11295 *(50.25)*	7.98 *(12.84)*	1853	1.4	0.419 *(0.255)*	16.65 *(3.28)*	174 *(79)*	36 *(2)*	29.6 *(100.2)*
Rabbit 17									
238.4 *(177.8)*	10055 *(44.72)*	8.89 *(14.31)*	1855	1.3	0.423 *(0.257)*	16.50 *(3.25)*	167 *(75)*	36 *(2)*	29.6 *(100.2)*

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*

