University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

2007

Nebraska Summary: S613 Massey Ferguson 7485

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

Follow this and additional works at: https://digitalcommons.unl.edu/tractormuseumlit

 Part of the Energy Systems Commons, History of Science, Technology, and Medicine Commons, Other Mechanical Engineering Commons, Physical Sciences and Mathematics Commons, Science and Mathematics Education Commons, and the United States History Commons

Nebraska Tractor Test Lab, "Nebraska Summary: S613 Massey Ferguson 7485" (2007). *Nebraska Tractor Tests*. 2927.
https://digitalcommons.unl.edu/tractormuseumlit/2927

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

SUMMARY OF OECD TEST 2419–NEBRASKA SUMMARY 613
MASSEY FERGUSON 7485 DYNAVT DIESEL
INFINITELY VARIABLE TRANSMISSION
Tractor chassis S/N R174044 and higher

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)					
145.5 *(108.5)*	2200	8.63 *(32.65)*	0.422 *(0.257)*	16.86 *(3.32)*	
Standard Power Take-off Speed(1000 rpm)					
168.7 *(125.8)*	2034	9.26 *(35.05)*	0.391 *(0.238)*	18.22 *(3.59)*	
Maximum Power (1 hour)					
171.9 *(128.2)*	2000	9.34 *(35.36)*	0.386 *(0.235)*	18.41 *(3.63)*	
VARYING POWER AND FUEL CONSUMPTION					
145.5 *(108.5)*	2200	8.63 *(32.65)*	0.422 *(0.257)*	16.86 *(3.32)*	Air temperature
124.8 *(93.1)*	2220	7.74 *(29.30)*	0.442 *(0.269)*	16.12 *(3.18)*	70°F *(21°C)*
93.9 *(70.0)*	2226	6.23 *(23.56)*	0.472 *(0.287)*	15.08 *(2.97)*	Relative humidity
62.9 *(46.9)*	2238	4.64 *(17.56)*	0.526 *(0.320)*	13.55 *(2.67)*	69%
31.6 *(23.5)*	2245	3.15 *(11.92)*	0.710 *(0.432)*	10.03 *(1.98)*	Barometer
-- --	2253	1.89 *(7.16)*	-- --	-- --	29.9" Hg *(101.2 kPa)*

Maximum Torque - 562.9 lb.-ft. *(763.2 Nm)* at 1400 rpm
Maximum Torque Rise - 62.1%
Torque rise at 1750 engine rpm - 47%

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)*
Maximum Power—Rabbit 9									
109.8 *(81.9)*	7320 *(32.6)*	5.63 *(9.06)*	2200	3.5	0.552 *(0.336)*	12.87 *(2.54)*	190 *(88)*	72 *(22)*	29.7 *(100.5)*
75% of Pull at Maximum Power—Rabbit 9									
85.3 *(63.6)*	5560 *(24.7)*	5.75 *(9.26)*	2210	3.1	0.595 *(0.361)*	11.94 *(2.35)*	189 *(87)*	72 *(22)*	29.7 *(100.5)*
50% of Pull at Maximum Power—Rabbit 9									
57.5 *(42.9)*	3650 *(16.2)*	5.91 *(9.50)*	2212	3.0	0.669 *(0.407)*	10.61 *(2.09)*	183 *(84)*	72 *(22)*	29.7 *(100.5)*
75% of Pull at Reduced Engine Speed—Rabbit 10									
84.8 *(63.3)*	5540 *(24.6)*	5.74 *(9.24)*	1719	2.4	0.500 *(0.304)*	14.21 *(2.80)*	181 *(83)*	73 *(23)*	29.6 *(100.4)*
50% of Pull at Reduced Engine Speed—Rabbit 10									
57.4 *(42.8)*	3665 *(16.3)*	5.87 *(9.44)*	1665	3.0	0.551 *(0.335)*	12.89 *(2.54)*	183 *(84)*	73 *(23)*	29.6 *(100.4)*

Location of tests: Groupement d'Antony, Parc de Touvoie, BP 44 Antony, France 92163

Dates of tests: June - September, 2007
Sound tests: June 24, 2008 Nebraska Tractor Test Laboratory, Lincoln Ne.

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

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.855 **Fuel weight** 7.12 lbs/gal *(0.853 kg/l)* **Oil SAE** 15W40 **API service classification** CH4 **Transmission and hydraulic lubricant** BP Terrac Tractan 9 10W/40 **Front axle lubricant** SAE 85W140 API GL-5

ENGINE: Make Sisu Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** T06951 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.252" x 4.724"*(108.0 mm x 120.0 mm)* **Compression ratio** 18.5 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** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: Type front wheel assist **Serial No.** S131034 **Tread width** rear 63.1" *(1604 mm)* to 70.8" *(1798 mm)* front 67.0" *(1702 mm)* to 75.4" *(1915 mm)* **Wheelbase** 118.4" *(3007 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 0-19 *(0-30)*, high range 0-25 *(0-40)* reverse: 0-19 *(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** 540 rpm at 1998 engine rpm or 1000 rpm at 2033 engine rpm **Unladen tractor mass** 16600 lb *(7530 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 3				
92.4 *(68.9)*	14120 *(62.8)*	2.45 *(3.95)*	2202	12.7	0.595 *(0.362)*	11.93 *(2.35)*	181 *(83)*	66 *(19)*	29.7 *(100.7)*
					Turtle 4				
102.6 *(76.5)*	14095 *(62.7)*	2.73 *(4.39)*	2208	12.5	0.578 *(0.351)*	12.30 *(2.42)*	185 *(85)*	68 *(20)*	29.7 *(100.6)*
					Turtle 5				
116.8 *(87.1)*	13400 *(59.6)*	3.27 *(5.26)*	2156	10.7	0.536 *(0.326)*	13.25 *(2.61)*	187 *(86)*	68 *(20)*	29.7 *(100.6)*
					Turtle 6				
130.5 *(97.3)*	13330 *(59.3)*	3.67 *(5.90)*	2040	11.8	0.505 *(0.307)*	14.06 *(2.77)*	187 *(86)*	70 *(21)*	29.7 *(100.6)*
					Turtle 7				
136.4 *(101.7)*	11805 *(52.5)*	4.33 *(6.97)*	2002	7.5	0.486 *(0.295)*	14.62 *(2.88)*	187 *(87)*	70 *(21)*	29.7 *(100.6)*
					Turtle 8				
137.6 *(102.6)*	10225 *(45.5)*	5.05 *(8.12)*	2004	5.1	0.481 *(0.292)*	14.77 *(2.91)*	186 *(86)*	70 *(21)*	29.7 *(100.6)*
					Turtle 9				
137.7 *(102.7)*	8785 *(39.1)*	5.88 *(9.46)*	2005	2.8	0.479 *(0.292)*	14.81 *(2.92)*	192 *(89)*	72 *(22)*	29.7 *(100.6)*
					*Turtle 10				
136.7 *(101.9)*	7585 *(33.7)*	6.76 *(10.87)*	2004	3.7	0.484 *(0.294)*	14.67 *(2.89)*	192 *(89)*	72 *(22)*	29.7 *(100.6)*
					*Turtle 11				
136.1 *(101.5)*	6925 *(30.8)*	7.37 *(11.86)*	1953	3.5	0.479 *(0.292)*	14.81 *(2.92)*	192 *(89)*	72 *(22)*	29.7 *(100.6)*
					Rabbit 9				
134.0 *(99.9)*	10170 *(45.2)*	4.94 *(7.95)*	2004	5.8	0.491 *(0.299)*	14.47 *(2.85)*	187 *(87)*	72 *(22)*	29.7 *(100.5)*
					Rabbit 10				
136.8 *(102.0)*	7755 *(34.5)*	6.62 *(10.66)*	2003	3.4	0.481 *(0.293)*	14.76 *(2.91)*	187 *(87)*	72 *(22)*	29.6 *(100.4)*
					*Rabbit 11				
135.0 *(100.7)*	6720 *(29.9)*	7.53 *(12.11)*	2000	4.1	0.489 *(0.297)*	14.52 *(2.86)*	190 *(88)*	73 *(23)*	29.6 *(100.4)*
					*Rabbit 12				
135.3 *(100.9)*	5910 *(26.3)*	8.59 *(13.82)*	1999	4.4	0.489 *(0.298)*	14.52 *(2.86)*	190 *(88)*	73 *(23)*	29.6 *(100.4)*

* Front Drive disengaged

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: The performance figures on this report apply to tractors with chassis S/N R174044 and higher.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. The manufacturer's claim of 39 GPM*(150 lpm)* remote hydraulic flow was not verified. 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. **2419,** Nebraska Summary 613,November 24, 2008.

Roger M. Hoy
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 480/80R46; **;9 *(60)*	Two 520/85R42;**;15*(100)*
Ballast - Duals(total)	2190 lb *(993 kg)*	None
- Liquid(total)	None	None
Front tires - No.,size, ply & psi*(kPa)*	Two 420/90R30;**;15 *(100)*	Two 16.9R30;**;15*(100)*
Ballast - Liquid(total)	None	None
- Cast Iron(total)	1700 lb *(770 kg)*	None
Height of Drawbar	22.4 in *(570 mm)*	22.4 in *(570 mm)*
Static Weight with operator- Rear	11995 lb (*5440 kg)*	10000 lb *(4535 kg)*
- Front	8925 lb(*4050 kg)*	6765 lb *(3070 kg)*
- Total	20920 lb(*9490 kg)*	16765 lb *(7605 kg)*

DRAWBAR PERFORMANCE

(Ballasted - 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 cool-ing med	*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
					Turtle 2				
99.9 *(74.5)*	19490 *(86.7)*	1.92 *(3.09)*	2207	11.7	0.600 *(0.365)*	11.83 *(2.33)*	189 *(87)*	66 *(19)*	29.8 *(101.1)*
					Turtle 3				
117.5 *(87.6)*	18860 *(83.9)*	2.34 *(3.76)*	2137	10.8	0.548 *(0.333)*	12.95 *(2.55)*	190 *(88)*	66 *(19)*	29.8 *(101.1)*
					Turtle 4				
135.4 *(101.0)*	17490 *(77.8)*	2.90 *(4.67)*	2000	8.2	0.489 *(0.297)*	14.52 *(2.86)*	189 *(87)*	66 *(19)*	29.8 *(101.1)*
					Turtle 5				
137.1 *(102.2)*	16165 *(71.9)*	3.18 *(5.12)*	1998	7.3	0.486 *(0.295)*	14.62 *(2.88)*	187 *(86)*	68 *(20)*	29.8 *(101.1)*
					Turtle 6				
137.3 *(102.4)*	13825 *(61.5)*	3.72 *(5.99)*	2005	6.5	0.486 *(0.295)*	14.62 *(2.88)*	190 *(88)*	68 *(20)*	29.8 *(101.1)*
					Turtle 7				
137.1 *(102.2)*	12250 *(54.5)*	4.20 *(6.75)*	1997	5.5	0.486 *(0.295)*	14.62 *(2.88)*	190 *(88)*	68 *(20)*	29.8 *(101.1)*
					Turtle 8				
135.8 *(101.3)*	9915 *(44.1)*	5.14 *(8.27)*	2013	3.2	0.491 *(0.298)*	14.48 *(2.85)*	187 *(86)*	70 *(21)*	29.8 *(101.1)*
					Turtle 9				
136.1 *(101.5)*	8890 *(39.5)*	5.74 *(9.24)*	2001	4.1	0.487 *(0.296)*	14.58 *(2.87)*	192 *(89)*	70 *(21)*	29.8 *(101.1)*
					Turtle 10				
134.4 *(100.2)*	7575 *(33.7)*	6.65 *(10.70)*	2003	2.4	0.495 *(0.301)*	14.33 *(2.82)*	192 *(89)*	72 *(22)*	29.8 *(101.1)*
					*Turtle 11				
130.2 *(97.1)*	6245 *(27.8)*	7.82 *(12.58)*	2002	3.8	0.510 *(0.310)*	13.92 *(2.74)*	189 *(87)*	72 *(22)*	29.8 *(101.1)*
					Rabbit 9				
131.2 *(97.8)*	8635 *(38.4)*	5.70 *(9.18)*	2001	2.1	0.503 *(0.306)*	14.11 *(2.78)*	190 *(88)*	73 *(23)*	29.8 *(101.1)*
					Rabbit 10				
129.5 *(96.6)*	7010 *(31.2)*	6.93 *(11.15)*	1997	4.1	0.507 *(0.308)*	14.01 *(2.76)*	187 *(87)*	73 *(23)*	29.8 *(101.1)*
					Rabbit 11				
130.6 *(97.4)*	6025 *(26.8)*	8.13 *(13.09)*	2000	1.9	0.506 *(0.308)*	14.05 *(2.77)*	185 *(85)*	73 *(23)*	29.8 *(101.1)*
					*Rabbit 12				
129.3 *(96.4)*	5415 *(24.1)*	8.95 *(14.40)*	2002	2.4	0.509 *(0.310)*	13.93 *(2.75)*	183 *(84)*	73 *(23)*	29.8 *(101.1)*

* Front Drive disengaged

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
At no load at 5.2 mph *(8.4 km/h)* (engine 1200 rpm)	62.0	60.4
At no load at 5.2 mph *(8.4 km/h)* (engine 2250 rpm)	66.5	66.2
Bystander in Rabbit range		82.3

HYDRAULIC PERFORMANCE

CATEGORY: II	
Quick Attach: None	
OECD Static test	
Maximum force exerted through whole range:	13915 lbs *(61.9 kN)*
i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	2900 psi *(200 bar)*
ii) Pump delivery rate at minimum pressure:	30.5 GPM *(115.6 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	29.3 GPM *(111.0 l/min)*
Delivery pressure:	2265 psi *(156 bar)*
Power:	38.7 HP *(28.9 kW)*

THREE POINT HITCH PERFORMANCE - SAE Test

Observed Maximum Pressure psi. *(bar)*	2900 *(200)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	158 *(70)*
Location:	hydraulic sump
Category:	II
Quick attach:	None

System pressure 2610 psi *(180 bar)*

Hitch point distance to ground level in. *(mm)*	12.0 *(306)*	17.7 *(450)*	23.6 *(600)*	27.6 *(700)*	33.5 *(850)*	38.3 *(974)*
Lift force on frame lb	16545	16590	16930	17175	17065	16140
" " " " " " *(kN)*	*(73.6)*	*(73.8)*	*(75.3)*	*(76.4)*	*(75.9)*	*(71.8)*

HITCH DIMENSIONS AS TESTED - NO LOAD

	SAE TEST inch	SAE TEST *mm*	OECD TEST inch	OECD TEST *mm*
A	29.7	*754*	30.7	*780*
B	14.0	*355*	14.0	*355*
C	14.4	*365*	14.4	*365*
D	12.0	*305*	12.0	*305*
E	12.6	*321*	10.9	*276*
F	10.9	*276*	10.9	*276*
G	36.4	*925*	36.4	*925*
H	2.4	*60*	2.4	*60*
I	15.0	*380*	15.6	*397*
J	25.5	*649*	25.5	*649*
K	26.2	*665*	26.2	*665*
L	47.6	*1210*	47.6	*1210*
M	27.0	*685*	27.0	*685*
N	40.6	*1030*	40.6	*1030*
O	12.0	*306*	7.8	*199*
P	44.6	*1132*	49.6	*1259*
Q	38.3	*974*	39.6	*1006*
R	28.7	*729*	30.7	*780*

