January 2001

Test 1792: Massey Ferguson 2210 Diesel 15-Speed

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

NEBRASKA TRACTOR TEST 1792
MASSEY FERGUSON 2210 DIESEL
15 SPEED

Location of Test: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska, 68583-0832

Dates of Test: May 17-18, 2001

Manufacturer: AGCO Corporation,4205 River Green Parkway, Duluth Ga. 30096-2568 USA

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 599 rpm)					
47.47 *(35.40)*	2300	3.10 *(11.72)*	0.458 *(0.279)*	15.33 *(3.02)*	
Standard Power Take-off Speed (540 rpm)					
46.29 *(34.52)*	2072	2.91 *(11.00)*	0.441 *(0.268)*	15.93 *(3.14)*	
VARYING POWER AND FUEL CONSUMPTION					
47.47 *(35.40)*	2300	3.10 *(11.72)*	0.458 *(0.279)*	15.33 *(3.02)*	Air temperature
42.01 *(31.33)*	2400	2.78 *(10.50)*	0.464 *(0.282)*	15.14 *(2.98)*	78°F *(26°C)*
31.91 *(23.79)*	2430	2.22 *(8.40)*	0.489 *(0.297)*	14.37 *(2.83)*	Relative humidity
21.56 *(54.89)*	2448	1.79 *(6.78)*	0.584 *(0.355)*	12.02 *(2.37)*	53%
10.66 *(7.95)*	2456	1.32 *(5.01)*	0.872 *(0.531)*	8.06 *(1.59)*	Barometer
0.61 *(0.46)*	2464	0.94 *(3.56)*	10.799 *(6.569)*	0.65 *(0.13)*	28.94" Hg *(98.00 kPa)*

Maximum Torque - 123 lb.-ft. *(167 Nm)* at 1699 rpm
Maximum Torque Rise - 13.6%
Torque rise at 1800 engine rpm - 12%

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
At no load in 8th (3M) gear	84.9	84.9
Bystander	--	--

TIRES AND WEIGHT	Tested Without Ballast
Rear tires - No.,size, ply & psi*(kPa)*	Two 14.9R30; **;16*(110)*
Front tires - No.,size, ply & psi*(kPa)*	Two 12.4R20; **;20*(140)*
Height of Drawbar	17.0 in *(430 mm)*
Static Weight with operator- Rear	3240 lb *(1469 kg)*
- Front	2460 lb *(1116 kg)*
- Total	5700 lb *(2585 kg)*

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8349 **Fuel weight** 7.027 lbs/gal *(0.842 kg/l)* **Oil SAE** 15W40 **API service classification** CD/CF-4 **Transmission and hydraulic lubricant** AGCO Power fluid 821 XL **Front axle lubricant** AGCO Gear Lube 715 **Total time engine was operated** 8.0 hours

ENGINE: Make Perkins Diesel **Type** three cylinder vertical **Serial No.** CP80906 U351954G **Crankshaft** lengthwise **Rated engine speed** 2300 **Bore and stroke** 3.74" x 5.00"*(95.0 mm x 127.0 mm)* **Compression ratio** 17.3 to 1 **Displacement** 165 cu in *(2700 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 21.2 - 22.0 lb/h *(9.6 -10.0 kg/h)* **High idle:** 2410 - 2510 rpm

CHASSIS: Type front wheel assist **Serial No.** *DCZM K38543 **Tread width** rear 57.0" *(1448 mm)* to 72.8" *(1848 mm)* front 56.4"*(1432 mm)* to 66.8"*(1696 mm)* **Wheelbase** 79.0"(*2006 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.01 *(1.62)* second 1.34 *(2.16)* third 1.92 *(3.09)* fourth 2.56 *(4.12)* fifth 2.68 *(4.32)* sixth 3.41 (*5.48)* seventh 3.59 *(5.78)* eighth 5.13 *(8.25)* ninth 6.83 *(11.00)* tenth 7.32 *(11.78)* eleventh 9.10 *(14.64)* twelfth 9.81 *(15.78)* thirteenth 13.99*(22.51)* fourteenth 18.65 *(30.02)* fifteenth 24.84 *(39.97)* reverse 1.01 *(1.63)*, 1.36 *(2.19)*, 1.94 *(3.12)*, 2.58*(4.16)*, 2.71*(4.36)*, 3.44*(5.54)*, 3.64 *(5.85)*, 5.18*(8.34)*, 6.91*(11.12)*, 7.39 *(11.90)*, 9.20 *(14.80)*, 9.91 *(15.95)*, 14.14 *(22.75)*, 18.85 *(30.34)*, 25.10 *(40.40)* **Clutch** single dry 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 2070 engine rpm **Unladen tractor mass** 5525 lb *(2506 kg)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II
Quick Attach: None

Maximum Force Exerted		with 2 lift assist cylinders
Through Whole Range:	2574 lbs *(11.4 kN)*	4266 lbs *(19.0 kN)* (at the frame)
	3838 lbs *(17.1 kN)*	6430 lbs *(28.6 kN)* (at the hitch points)
i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	2630 psi *(181 bar)*	
ii) Pump delivery rate at minimum pressure and rated engine speed:	13.4 GPM *(50.7 l/min)*	
iii) Pump delivery rate at maximum hydraulic power:	12.5 GPM *(47.3 l/min)*	
Delivery pressure:	2400 psi *(165 bar)*	
Power:	17.5 HP *(13.1 kW)*	

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. *(bar)*	2720 *(187)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	164 *(73)*
Location:	hydraulic sump
Category:	II
Quick attach:	none

SAE Static Test System pressure 2450 psi *(169 Bar)*

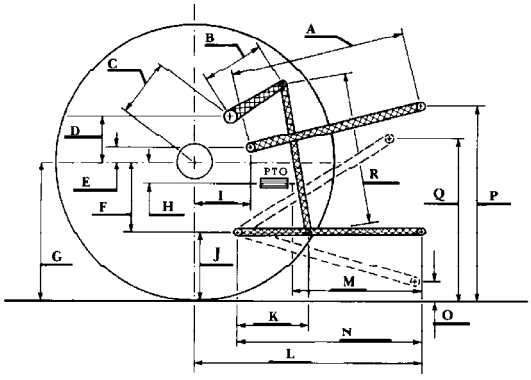
Hitch point distance to ground level in. *(mm)*	7.7 *(195)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	35.0 *(889)*
Lift force on frame lb	4509	4248	3902	3384	3119
" " " " " " *(kN)*	*(20.1)*	*(18.9)*	*(17.4)*	*(15.1)*	*(13.9)*

with 2 lift assist cylinders

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	35.0 *(889)*
Lift force on frame lb	7713	7002	6372	5612	4964
" " " " " " *(kN)*	*(34.3)*	*(31.1)*	*(28.3)*	*(25.0)*	*(22.1)*

	SAE TEST		OECD TEST	
	inch	*mm*	inch	*mm*
A	22.6	*575*	23.3	*590*
B	9.4	*240*	9.4	*240*
C	11.5	*293*	11.5	*293*
D	10.4	*264*	10.4	*264*
E	11.7	*296*	11.7	*296*
F	7.3	*185*	7.3	*185*
G	26.2	*665*	26.2	*665*
H	0.8	*20*	0.8	*20*
I	10.9	*278*	10.9	*278*
J	18.9	*480*	18.9	*480*
K	14.6	*370*	14.6	*370*
L	34.6	*879*	34.6	*879*
M	21.0	*533*	21.0	*533*
N	29.9	*760*	29.9	*760*
O	8.0	*205*	8.0	*205*
P	36.6	*930*	41.6	*1055*
Q	32.5	*825*	32.5	*825*
R	20.2	*515*	20.2	*515*

HITCH DIMENSIONS AS TESTED NO LOAD



REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor did not meet the manufactures claims of 49 PTO Hp nor lift at lower links of 4628 lbs *(2100 kg)*, optionally 7487 lbs *(3400 kg)*. For the maximum power tests the fuel temperature at the injection pump inlet was maintained at 139°F *(59°C)*.

We, the undersigned, certify that this is a true and correct report of Official Tractor Test No. **1792**, June 11, 2001.

Brent T. Sampson
Test Engineer

L.L. Bashford
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Board of Tractor Test Engineers

Massey Ferguson 2210

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