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

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

2009

Nebraska Summary: S692 AGCO LT85A

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: S692 AGCO LT85A" (2009). *Nebraska Tractor Tests*. 3172.
https://digitalcommons.unl.edu/tractormuseumlit/3172

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 2514–NEBRASKA SUMMARY 692
AGCO LT85A DIESEL
16 SPEED

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—1100 rpm)					
96.2 *(71.7)*	2200	6.00 *(22.70)*	0.444 *(0.270)*	16.04 *(3.16)*	
Standard Power Take-off Speed(1000 rpm)					
110.1 *(82.1)*	2000	6.10 *(23.10)*	0.394 *(0.240)*	18.05 *(3.56)*	
Maximum Power (1 hour)					
110.1 *(82.1)*	2000	6.10 *(23.10)*	0.394 *(0.240)*	18.05 *(3.56)*	
VARYING POWER AND FUEL CONSUMPTION					
96.2 *(71.7)*	2200	6.00 *(22.70)*	0.444 *(0.270)*	16.04 *(3.16)*	Air temperature
82.9 *(61.8)*	2215	5.19 *(19.66)*	0.446 *(0.271)*	15.95 *(3.14)*	70°F *(21°C)*
61.7 *(46.0)*	2223	4.20 *(15.88)*	0.484 *(0.294)*	14.71 *(2.90)*	Relative humidity
41.2 *(30.7)*	2230	3.09 *(11.69)*	0.534 *(0.325)*	13.34 *(2.63)*	35%
20.8 *(15.5)*	2242	2.09 *(7.91)*	0.714 *(0.434)*	9.97 *(1.96)*	Barometer
-- --	2249	1.35 *(5.11)*	-- --	-- --	29.5" Hg *(100.0 kPa)*

Maximum torque - 346.4 lb.-ft. *(501.3 Nm)* at 1100 rpm
Maximum torque rise - 61.1%
Torque rise at 1750 engine rpm - 39%

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—9th(3A) Gear									
74.0 *(55.2)*	4400 *(19.6)*	6.31 *(10.15)*	2199	2.9	0.518 *(0.315)*	13.71 *(2.70)*	189 *(87)*	50 *(10)*	30.0 *(101.7)*
75% of Pull at Maximum Power—9th(3A) Gear									
55.8 *(41.6)*	3295 *(14.7)*	6.35 *(10.22)*	2207	2.5	0.571 *(0.348)*	12.43 *(2.45)*	187 *(86)*	50 *(10)*	30.0 *(101.7)*
50% of Pull at Maximum Power—9th(3A) Gear									
38.0 *(28.3)*	2210 *(9.8)*	6.44 *(10.37)*	2209	1.2	0.639 *(0.389)*	11.12 *(2.19)*	187 *(86)*	50 *(10)*	30.0 *(101.7)*
75% of Pull at Reduced Engine Speed—10th(3B) Gear									
55.5 *(41.4)*	3290 *(14.6)*	6.33 *(10.19)*	1784	2.4	0.455 *(0.277)*	15.58 *(3.07)*	185 *(85)*	50 *(10)*	30.0 *(101.7)*
50% of Pull at Reduced Engine Speed—10th(3B) Gear									
37.5 *(28.0)*	2195 *(9.8)*	6.41 *(10.31)*	1790	1.2	0.501 *(0.305)*	14.16 *(2.79)*	185 *(85)*	50 *(10)*	30.0 *(101.7)*

Location of tests: Groupement d'Antony, Parc de Touvoie, BP 44 Antony, Cedex, France 92163
Dates of tests: February to March, 2009

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 fluid **Front axle lubricant** API GL5 - SAE 85W140

ENGINE: Make Sisu Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler **Serial No.** P07427 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.252" x 4.724" *(108.0 mm x 120.0 mm)* **Compression ratio** 17.4 to 1 **Displacement** 268 cu in *(4397 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.** T249078 **Tread width** rear 53.4" *(1357 mm)* to 76.9" *(1954 mm)* front 52.4" *(1332 mm)* to 68.6" *(1743 mm)* **Wheelbase** 97.0" *(2464 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 1.32 *(2.12)* second 1.62 *(2.60)* third 1.97 *(3.17)* fourth 2.43 *(3.91)* fifth 3.11 *(5.01)* sixth 3.83 *(6.17)* seventh 4.68 *(7.53)* eighth 5.75 *(9.26)* ninth 6.33 *(10.19)* tenth 7.79 *(12.53)* eleventh 9.50 *(15.29)* twelfth 11.68 *(18.80)* thirteenth 13.54 *(21.79)* fourteenth 16.65 *(26.80)* fifteenth 20.31 *(32.69)* sixteenth 24.99 *(40.21)* reverse 1.32 *(2.12)*, 1.62 *(2.60)*, 1.97 *(3.17)*, 2.43 *(3.91)*, 3.11 *(5.01)*, 3.83 *(6.17)*, 4.68 *(7.53)*, 5.75 *(9.26)*, 6.33 *(10.19)*, 7.79 *(12.53)*, 9.50 *(15.29)*, 11.68 *(18.80)*, 13.54 *(21.79)*, 16.65 *(26.80)*, 20.31 *(32.69)*, 24.99 *(40.21)* **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 1980 engine rpm or 1000 rpm at 2000 engine rpm **Unladen tractor mass** 10605 lb *(4810 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)*
				1st(1A) Gear					
31.8 *(23.7)*	10450 *(46.5)*	1.14 *(1.84)*	2213	15.2	0.803 *(0.488)*	8.85 *(1.74)*	185 *(85)*	55 *(13)*	30.0 *(101.7)*
				2nd(1B)Gear					
39.2 *(29.2)*	10440 *(46.4)*	1.41 *(2.26)*	2203	14.7	0.721 *(0.439)*	9.85 *(1.94)*	183 *(84)*	55 *(13)*	30.0 *(101.7)*
				3rd(1C) Gear					
47.7 *(35.6)*	10365 *(46.1)*	1.73 *(2.78)*	2197	14.6	0.675 *(0.410)*	10.53 *(2.07)*	185 *(85)*	52 *(11)*	30.0 *(101.7)*
				4th(1D)Gear					
59.0 *(44.0)*	10340 *(46.0)*	2.14 *(3.44)*	2197	13.5	0.631 *(0.384)*	11.26 *(2.22)*	185 *(85)*	52 *(11)*	30.0 *(101.7)*
				5th(2A)Gear					
73.6 *(54.9)*	10025 *(44.6)*	2.75 *(4.43)*	2108	10.1	0.517 *(0.314)*	13.73 *(2.70)*	187 *(86)*	50 *(10)*	30.0 *(101.7)*
				6th (2B) Gear					
81.1 *(60.5)*	9175 *(40.8)*	3.31 *(5.33)*	1999	7.6	0.491 *(0.298)*	14.47 *(2.85)*	189 *(87)*	50 *(10)*	30.0 *(101.7)*
				7th(2C)Gear					
84.5 *(63.0)*	7710 *(34.3)*	4.11 *(6.62)*	2002	5.8	0.465 *(0.283)*	15.25 *(3.00)*	187 *(86)*	50 *(10)*	30.0 *(101.7)*
				8th(2D)Gear					
84.8 *(63.2)*	6185 *(27.5)*	5.14 *(8.27)*	1998	4.4	0.471 *(0.286)*	15.09 *(2.97)*	187 *(86)*	50 *(10)*	30.0 *(101.7)*
				9th(3A)Gear					
96.2 *(71.7)*	6365 *(28.3)*	5.67 *(9.12)*	2000	4.8	0.457 *(0.278)*	15.53 *(3.06)*	189 *(87)*	50 *(10)*	30.0 *(101.7)*
				10th (3B) Gear					
95.9 *(71.5)*	5145 *(22.9)*	6.99 *(11.25)*	2002	4.0	0.459 *(0.279)*	15.46 *(3.04)*	189 *(87)*	50 *(10)*	30.0 *(101.7)*
				11th (3C) Gear					
96.8 *(72.2)*	4300 *(19.1)*	8.44 *(13.59)*	2002	3.9	0.455 *(0.277)*	15.58 *(3.07)*	189 *(87)*	50 *(10)*	30.0 *(101.7)*
				12th(3D) Gear					
93.3 *(69.6)*	3360 *(14.9)*	10.41 *(16.76)*	2004	3.1	0.469 *(0.285)*	15.14 *(2.98)*	191 *(88)*	52 *(11)*	30.0 *(101.7)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Disengaged dB(A)	Engaged dB(A)
At no load in 7th (2C) gear	71.4	71.1
Bystander	--	--

TIRES AND WEIGHT

	Tested without ballast
Rear tires - No.,size, ply & psi*(kPa)*	Two 18.4R38; **;15*(100)*
Front tires - No.,size, ply & psi*(kPa)*	Two 380/85R28; **;15*(100)*
Height of Drawbar	22.4 in *(570 mm)*
Static Weight with operator- Rear	6405 lb *(2905 kg)*
- Front	4385 lb *(1990 kg)*
- Total	10790 lb *(4895 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

NOTE 1: The engine on this tractor is electronically controlled to give 2 power levels. A "boosted" level is available when the PTO is engaged, tractor stationary, and when the tractor is operated in ranges 3 and 4.

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 26 GPM *(100 lpm)* hydraulic flow at the remote outlets. 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. **2514**, Nebraska Summary 692, February 2, 2010.

Roger M. Hoy
Director

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

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Disengaged)

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)*
				2nd(1B) Gear					
29.9 *(22.3)*	8035 *(35.8)*	1.40 *(2.25)*	2208	15.5	0.823 *(0.501)*	8.62 *(1.70)*	183 *(84)*	52 *(11)*	30.1 *(101.9)*
				3rd(1C) Gear					
37.0 *(27.6)*	7950 *(35.4)*	1.75 *(2.81)*	2206	13.8	0.742 *(0.451)*	9.57 *(1.88)*	185 *(85)*	52 *(11)*	30.1 *(101.9)*
				4th(1D) Gear					
45.6 *(34.0)*	7935 *(35.3)*	2.16 *(3.47)*	2203	12.6	0.694 *(0.422)*	10.22 *(2.01)*	180 *(82)*	52 *(11)*	30.1 *(101.9)*
				5th(2A) Gear					
59.4 *(44.3)*	7800 *(34.7)*	2.86 *(4.60)*	2196	9.7	0.587 *(0.357)*	12.08 *(2.38)*	187 *(86)*	52 *(11)*	30.1 *(101.9)*
				6th (2B) Gear					
70.3 *(52.4)*	7565 *(33.6)*	3.48 *(5.60)*	2156	9.1	0.550 *(0.334)*	12.90 *(2.54)*	187 *(86)*	52 *(11)*	30.1 *(101.9)*
				7th(2C) Gear					
79.5 *(59.3)*	7555 *(33.6)*	3.95 *(6.35)*	2004	8.9	0.499 *(0.303)*	14.22 *(2.80)*	189 *(87)*	52 *(11)*	30.1 *(101.9)*
				8th(2D) Gear					
81.4 *(60.7)*	6080 *(27.0)*	5.02 *(8.08)*	2002	5.8	0.490 *(0.298)*	14.47 *(2.85)*	187 *(86)*	52 *(11)*	30.1 *(101.9)*
				9th(3A) Gear					
94.3 *(70.3)*	6435 *(28.6)*	5.49 *(8.84)*	2000	6.0	0.471 *(0.287)*	15.02 *(2.96)*	189 *(87)*	52 *(11)*	30.1 *(101.9)*
				10th (3B) Gear					
94.4 *(70.4)*	5195 *(23.1)*	6.82 *(10.97)*	1998	5.3	0.466 *(0.284)*	15.21 *(3.00)*	189 *(87)*	52 *(11)*	30.1 *(101.9)*
				11th (3C) Gear					
95.9 *(71.5)*	4275 *(19.0)*	8.41 *(13.54)*	1999	4.0	0.458 *(0.279)*	15.48 *(3.05)*	189 *(87)*	52 *(11)*	30.1 *(101.9)*
				12th (3D) Gear					
92.9 *(69.3)*	3340 *(14.9)*	10.44 *(16.81)*	2003	3.5	0.474 *(0.288)*	14.97 *(2.95)*	190 *(88)*	52 *(11)*	30.1 *(101.9)*

TIRES AND WEIGHT

	Tested without ballast
Rear tires - No.,size, ply & psi(*kPa)*	Two 18.4R38; **;15(*100)*
Front tires - No.,size, ply & psi(*kPa)*	Two 380/85R28; **;15(*100)*
Height of Drawbar	33.5 in *(850 mm)*
Static Weight with operator- Rear	6405 lb *(2905 kg)*
- Front	4385 lb *(1990 kg)*
- Total	10790 lb *(4895 kg)*

HYDRAULIC PERFORMANCE

CATEGORY: II
Quick Attach: None
OECD Static test
Maximum force exerted through whole range: 7817 lbs *(34.8 kN)*(66 mm lift cylinders)
9189 lbs *(40.9 kN)*(75 mm lift cylinders)

	Open center system		Closed center system
	100 l/min pump	57 l/min pump	110 l/min pump
i) Sustained pressure of the open relief valve:	3136 psi *(216 bar)*	2785 psi *(192 bar)*	2848 psi *(196 bar)*
ii) Pump delivery rate at minimum pressure:	24.1 GPM *(91.2 l/min)*	16.2 GPM *(61.3 l/min)*	29.8 GPM *(112.7 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	22.4 GPM *(84.8 l/min)*	14.2 GPM *(53.7 l/min)*	24.2 GPM *(91.6 l/min)*
Delivery pressure:	2338 psi *(161 bar)*	2450 psi *(169 bar)*	2708 psi *(187 bar)*
Power:	30.6 HP *(22.8 kW)*	20.2 Hp *(15.1 kW)*	38.2 hp *(28.5 kW)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. *(bar)*	2770 *(191)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	152 *(67)*
Location:	hydraulic valve
Category:	II
Quick attach:	none

66 mm lift cylinders

SAE Static Test—System pressure 2490 psi *(172 Bar)*

Hitch point distance to ground level in. *(mm)*	9.9 *(251)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	36.0 *(914)*
Lift force on frame lb	15561	12897	11745	10314	9126
" " " " " " *(kN)*	*(69.2)*	*(57.4)*	*(51.0)*	*(45.9)*	*(40.6)*

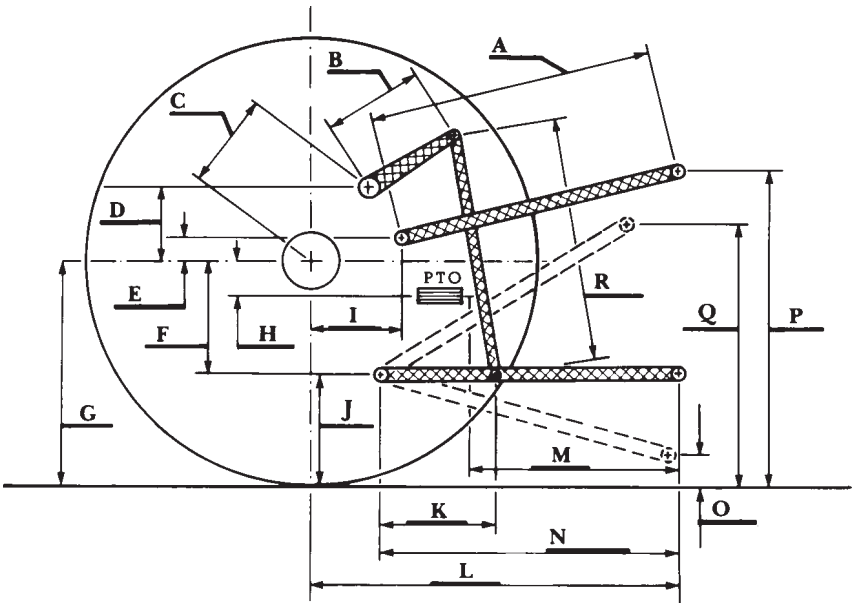
75 mm lift cylinders

SAE Static Test—System pressure 2490 psi *(172 Bar)*

Hitch point distance to ground level in. *(mm)*	10.2 *(259)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	36.0 *(914)*
Lift force on frame lb	18747	15849	14310	12789	11421
" " " " " " *(kN)*	*(83.4)*	*(70.5)*	*(63.7)*	*(56.9)*	*(50.8)*

HITCH DIMENSIONS AS TESTED—NO LOAD

	SAE test		OECD test	
	inch	*mm*	inch	*mm*
A	24.8	*629*	24.8	*629*
B	11.6	*295*	11.6	*295*
C	13.9	*353*	13.9	*353*
D	13.0	*330*	13.0	*330*
E	7.9	*200*	7.9	*200*
F	10.2	*260*	10.2	*260*
G	30.3	*770*	30.3	*770*
H	1.4	*35*	1.4	*35*
I	16.2	*413*	16.2	*413*
J	20.1	*510*	20.1	*510*
K	24.2	*615*	24.2	*615*
L	41.2	*1046*	41.2	*1046*
M	23.5	*596*	23.5	*596*
N	37.2	*946*	37.2	*946*
O	8.0	*203*	8.0	*203*
P	40.2	*1020*	44.1	*1120*
Q	33.5	*850*	33.5	*850*
R	29.0	*737*	29.0	*737*



Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln