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January 2007

## Test 1902: AGCO LT90A Diesel 16-Speed

Tractor Museum

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# NEBRASKA TRACTOR TEST 1902

## AGCO LT90A 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)					
91.75 (68.42)	2200	5.79 (21.90)	0.441 (0.268)	15.86 (3.12)	
Standard Power Take-off Speed - (1001 rpm)					
93.74 (69.90)	2000	5.45 (20.62)	0.407 (0.247)	17.21 (3.39)	
Maximum Power (1 hour)					
93.74 (69.90)	2000	5.45 (20.62)	0.407 (0.247)	17.21 (3.39)	

#### VARYING POWER AND FUEL CONSUMPTION

91.75 (68.42)	2200	5.79 (21.90)	0.441 (0.268)	15.86 (3.12)	Air temperature
81.19 (60.54)	2288	5.46 (20.66)	0.470 (0.286)	14.88 (2.93)	76°F (25°C)
61.25 (45.67)	2304	4.67 (17.68)	0.534 (0.325)	13.11 (2.58)	Relative humidity
40.70 (30.35)	2330	3.59 (13.57)	0.617 (0.375)	11.35 (2.24)	34%
20.58 (15.35)	2377	2.60 (9.84)	0.884 (0.538)	7.92 (1.56)	Barometer
1.72 (1.28)	2410	1.83 (6.92)	7.439 (4.525)	0.94 (0.19)	29.21"Hg (98.92 kPa)

Maximum torque - 291 lb.-ft. (394 Nm) at 1198 rpm  
Maximum torque rise - 32.6%  
Torque rise at 1803 rpm - 16%  
Power increase at 2000 rpm - 2.2%

TRACTOR SOUND LEVEL WITH CAB	Front wheel drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th (2C) gear	76.7	76.4
Bystander in 16th (4D) gear	--	83.1

#### TIRES AND WEIGHT

**Rear Tires**—No., size, ply & psi (kPa)  
**Front Tires**—No., size, ply & psi (kPa)  
**Height of Drawbar**  
**Static Weight with operator**—Rear  
—Front  
—Total

**Tested without ballast**  
Two 18.4R38; \*\*, 10 (70)  
Two 14.9R28; \*\*, 10 (70)  
21.0 in (535 mm)  
6250 lb (2835 kg)  
4250 lb (1928 kg)  
10500 lb (4763 kg)

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

**Dates of tests:** May 24 - 30, 2007

**Manufacturer:** AGCO Corporation, Duluth Georgia 30096

**FUEL, OIL and TIME:** Fuel No. 2 Diesel  
**Specific gravity converted to 60°/60° F (15°/15°C)** 0.8407  
**Fuel weight** 7.000 lbs/gal (0.839 kg/l)  
**Oil SAE 10W40 API service classification** CH-4  
**Transmission and hydraulic lubricant** AGCO  
Power Fluid 821 XL fluid  
**Front axle lubricant** AGCO 715 gear lube  
**Total time engine was operated** 12.0 hours

**ENGINE: Make** Sisu Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler  
**Serial No.** S08729 **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** 268 cu in (4397 ml)  
**Starting system** 12 volt  
**Lubrication** pressure  
**Air cleaner** one paper element and one polyester felt element  
**Oil filter** one full flow cartridge  
**Oil cooler** engine coolant heat exchanger for crankcase oil  
**Fuel filter** one paper element and water separator  
**Muffler** underhood  
**Exhaust** vertical  
**Cooling medium temperature control** thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS:** **Fuel rate:** 39.7 - 42.1 lb/h (18.0 - 19.1 kg/h)  
**High idle:** 2350 - 2450 rpm  
**Turbo boost:** nominal 16.8 - 19.6 psi (115- 135 kPa) as measured 18.1 psi (125 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** R156012  
**Tread width** rear 56.4" (1432 mm) to 84.1" (2136 mm) front 61.7" (1566 mm) to 80.9" (2054 mm)  
**Wheelbase** 105.3" (2674 mm)  
**Hydraulic control system** direct engine drive  
**Transmission** selective gear fixed ratio with full range operator controlled powershift  
**Nominal travel speeds mph (km/h)** first 1.21 (1.95) second 1.49 (2.40) third 1.82 (2.93) fourth 2.23 (3.60) fifth 2.88 (4.63) sixth 3.54 (5.70) seventh 4.32 (6.95) eighth 5.31 (8.54) ninth 5.85 (9.41) tenth 7.19 (11.57) eleventh 8.77 (14.11) twelfth 10.78 (17.35), thirteenth 13.48 (21.69) fourteenth 16.58 (26.68) fifteenth 20.22 (32.54) sixteenth 24.87 (40.03) reverse 1.21 (1.95), 1.49 (2.40), 1.82 (2.93), 2.23 (3.60), 2.88 (4.63), 3.54 (5.70), 4.32 (6.95), 5.31 (8.54), 5.85 (9.41), 7.19 (11.57), 8.77 (14.11), 10.78 (17.35), 13.48 (21.69), 16.58 (26.68), 20.22 (32.54), 24.87 (40.03)  
**Clutch** multiple wet disc electro-hydraulically operated by foot pedal  
**Brakes** single wet disc hydraulically operated by two foot pedals which can be locked together  
**Steering** hydrostatic  
**Power take-off** 540 rpm at 1980 engine rpm or 1000 rpm at 2000 or 1550 engine rpm  
**Unladen tractor mass** 10325 lb (4683 kg)

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum force exerted through whole range:	7817 lbs (34.8 kN)(66 mm lift cylinders)		9189 lbs (40.9 kN)(75 mm lift cylinders)	
	<u>standard pump</u>		<u>optional pump</u>	
i) Sustained pressure of the open relief valve:	3136 psi	(216 bar)	2879 psi	(190 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	24.1 GPM	(91.2 l/min)	14.5 GPM	(54.9 l/min)
iii) Pump delivery rate at maximum hydraulic power:	22.4 GPM	(84.8 l/min)	13.5 GPM	(51.1 l/min)
Delivery pressure:	2338 psi	(161 bar)	2505 psi	(173 bar)
Power:	30.6 HP	(22.8 kW)	19.7 Hp	(14.7 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)

**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 manufacturer's claims of 26 GPM (100 lpm) (standard pump) nor 15 GPM (57 lpm)(optional pump) hydraulic flow at the remote outlets. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 152°F (67°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1902**, July 30, 2007.

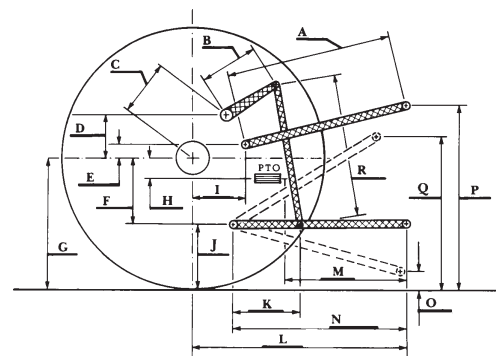
Roger M. Hoy  
Director

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

## 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



HITCH DIMENSIONS AS TESTED - NO LOAD

## Shiftable PTO Performance

### Economy mode

#### 1000 PTO rpm @ 1550 engine rpm

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)
43.74 (32.62)	1548	2.83 (10.71)	0.453 (0.275)	15.47 (3.05)
32.78 (24.45)	1550	2.27 (8.60)	0.485 (0.295)	14.43 (2.84)
21.94 (16.36)	1549	1.73 (6.54)	0.551 (0.335)	12.69 (2.50)
10.87 (8.11)	1552	1.21 (4.60)	0.782 (0.475)	8.96 (1.76)
1.29 (0.96)	1554	0.83 (3.14)	4.495 (2.734)	1.56 (0.31)

### Normal mode

#### 1000 PTO rpm @ 2000 engine rpm

43.79 (32.66)	2000	3.31 (12.55)	0.530 (0.322)	13.21 (2.60)
32.92 (24.55)	2002	2.57 (9.73)	0.547 (0.333)	12.80 (2.52)
21.99 (16.40)	2001	2.09 (7.90)	0.664 (0.404)	10.54 (2.08)
10.76 (8.03)	2010	1.60 (6.06)	1.041 (0.633)	6.73 (1.33)
1.29 (0.96)	2008	1.20 (4.54)	6.510 (3.960)	1.08 (0.21)



**AGCO LT 90A Diesel**