January 2000

Test 1769: White 6410

Nebraska Tractor Test Laboratory Submitted by Larsen Museum
University of Nebraska-Lincoln

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NEBRASKA TRACTOR TEST 1769
WHITE 6410 DIESEL
ALSO AGCO ALLIS 8745 DIESEL(CUMMINS ENGINE)
ALSO AGCO LT70 DIESEL
12 SPEED

Location of Test: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
Dates of Test: March 16-17, 2000
Manufacturer: AGCO Corporation, Duluth Georgia 30096

FUEL, OIL and TIME: Fuel
No. 2 Diesel
Specific gravity converted to 60°/60° F (15°/15°C) 0.8487
Fuel weight 7.067 lbs/gal (0.847 kg/l)
Oil
SAE 15W40 API service classification CE/CF-4
Transmission and hydraulic lubricant
AGCO Power Fluid 821 XL fluid
Total time engine was operated 10.0 hours

ENGINE: Make Cummins Diesel Type four cylinder vertical with turbocharger Serial No. 21299443
Crankshaft lengthwise Rated engine speed 2200 rpm
Bore and stroke 4.016” x 4.724” (102.0 mm x 120.0 mm)
Compression ratio 17.0 to 1
Displacement 239 cu in (3920 ml)
Starting system 12 volt
Lubrication
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 one thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 32.7 - 36.1 lb/h (14.8 - 16.4 kg/h)
High idle: 2350 - 2450 rpm
Turbo boost: nominal 20.0 - 23.5 psi (138 - 162 kPa)
as measured 21.8 psi (150 kPa)

VARYING POWER AND FUEL CONSUMPTION

<table>
<thead>
<tr>
<th>Power, HP (kW)</th>
<th>Crankshaft speed rpm</th>
<th>Gal/hr (l/h)</th>
<th>lb/hr hp (kg/kW.h)</th>
<th>Hr.hp/gal (kW.hr/l)</th>
<th>Mean Atmospheric Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>70.40 (52.50)</td>
<td>2200</td>
<td>4.87</td>
<td>0.489</td>
<td>14.46</td>
<td>Air temperature</td>
</tr>
<tr>
<td>74.89 (55.85)</td>
<td>2000</td>
<td>4.76</td>
<td>0.449</td>
<td>15.74</td>
<td>76°F (24°C)</td>
</tr>
<tr>
<td>75.23 (56.10)</td>
<td>1901</td>
<td>4.63</td>
<td>0.435</td>
<td>16.23</td>
<td>Relative humidity</td>
</tr>
<tr>
<td>31.39 (23.41)</td>
<td>2310</td>
<td>3.01</td>
<td>0.670</td>
<td>10.42</td>
<td>28%</td>
</tr>
<tr>
<td>15.91 (11.86)</td>
<td>2346</td>
<td>2.38</td>
<td>1.056</td>
<td>6.69</td>
<td>Barometer</td>
</tr>
<tr>
<td>1.13 (0.84)</td>
<td>2377</td>
<td>1.74</td>
<td>10.876</td>
<td>0.65</td>
<td>29.12”Hg (98.62kPa)</td>
</tr>
</tbody>
</table>

Maximum Torque 235 lb.-ft. (319 Nm) at 1401 rpm
Maximum Torque Rise: 39.7%
Torque rise at 1802 rpm: 27%

TRACTOR SOUND LEVEL WITH CAB dB(A)
At no load in 6th(3LH) gear 82.3
Bystander --

TIRES AND WEIGHT

Rear Tires
No., size, ply & psi (kPa)
18.4R34;2**;16 (110)

Front Tires
No., size, ply & psi (kPa)
10.00-16; 8; 32 (220)

Height of Drawbar
17.0 in (430 mm)

Static Weight with operator
Rear
3085 lbs (2307 kg)
Front
3065 lbs (1990 kg)
Total
8150 lbs (3697 kg)

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CHASSIS: Type standard Serial No. G08191
Tread width rear 56.1” (1425 mm) to 83.9” (2130 mm)
front 54.0” (1372 mm) to 78.0” (1981 mm)
Wheelbase 96.0” (2438 mm)
Hydraulic control system direct engine drive
Transmission
Nominal travel speeds mph (km/h)
first 1.44 (2.32) second 1.73 (2.79) third 2.16 (3.48) fourth 2.58 (4.16) fifth 3.96 (6.38) sixth 4.77 (7.68) seventh 5.90 (9.49) eighth 7.10 (11.42) ninth 8.85 (14.24) tenth 10.64 (17.13) eleventh 16.22 (26.10) twelfth 19.51 (31.40) reverse 2.16 (3.48) 2.60 (4.19) 8.85 (14.24) 10.64 (17.13)
Clutch multiple wet disc 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 1902 engine rpm or 1000 rpm at 2000 engine rpm
Unladen tractor mass 7975 lb (3617 kg)
THREE POINT HITCH PERFORMANCE (OECD Static Test)

**CATEGORY:** II

**Quick Attach:** None

- **Opening pressure of relief valve:** NA
- **Sustained pressure of the open relief valve:** 3010 psi (207 bar)

**Maximum Force Exerted Through Whole Range:**
- 3348 lbs (14.9 kN)
- 5733 lbs (25.5 kN)

**Pump delivery rate at minimum pressure and rated engine speed:**
- 10.6 GPM (40.1 l/min)
- 18.5 GPM (70.0 l/min)

**Pump delivery rate at maximum hydraulic power:**
- 7.6 GPM (28.8 l/min)
- 14.9 GPM (56.4 l/min)

**Delivery pressure:**
- 2870 psi (198 bar)
- 2830 psi (195 bar)

**Power:**
- 12.7 HP (9.5 kW)
- 24.6 HP (18.3 kW)

**Observed Maximum Pressure psi, (kN)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Hitch cylinder</th>
<th>Hydraulic sump</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic oil temperature: °F (°C)</td>
<td>158 (70)</td>
<td></td>
</tr>
</tbody>
</table>

**SAE Static Test - System pressure 2990 psi (206 Bar)**

| Hitch point distance to ground level in. (mm) | 9.4(239) | 14.9(378) | 21.9(556) | 28.9(729) | 37.4(950) |
| Lift force on frame lb | 4115 | 4500 | 4631 | 4615 | 4743 |

**High lift Option**

| Hitch point distance to ground level in. (mm) | 7.7(196) | 14.7(373) | 21.7(551) | 28.7(729) | 35.7(907) |
| Lift force on frame lb | 6894 | 7421 | 7565 | 7488 | 7425 |

**HITCH DIMENSIONS AS TESTED - NO LOAD**

<table>
<thead>
<tr>
<th>High lift option</th>
<th>inch</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>31.0</td>
<td>788</td>
</tr>
<tr>
<td>B</td>
<td>12.2</td>
<td>310</td>
</tr>
<tr>
<td>C</td>
<td>15.1</td>
<td>384</td>
</tr>
<tr>
<td>D</td>
<td>9.4</td>
<td>240</td>
</tr>
<tr>
<td>E</td>
<td>7.6</td>
<td>192</td>
</tr>
<tr>
<td>F</td>
<td>8.3</td>
<td>210</td>
</tr>
<tr>
<td>G</td>
<td>31.3</td>
<td>795</td>
</tr>
<tr>
<td>H</td>
<td>1.3</td>
<td>32</td>
</tr>
<tr>
<td>I</td>
<td>5.7</td>
<td>145</td>
</tr>
<tr>
<td>J</td>
<td>23.0</td>
<td>585</td>
</tr>
<tr>
<td>K</td>
<td>26.3</td>
<td>667</td>
</tr>
<tr>
<td>L</td>
<td>38.3</td>
<td>972</td>
</tr>
<tr>
<td>M</td>
<td>21.8</td>
<td>552</td>
</tr>
<tr>
<td>N</td>
<td>39.0</td>
<td>991</td>
</tr>
<tr>
<td>O</td>
<td>7.9</td>
<td>200</td>
</tr>
<tr>
<td>P</td>
<td>47.0</td>
<td>1195</td>
</tr>
<tr>
<td>Q</td>
<td>33.5</td>
<td>860</td>
</tr>
<tr>
<td>R</td>
<td>31.6</td>
<td>802</td>
</tr>
</tbody>
</table>

**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. For the maximum power tests, the fuel temperature at the injection pump was maintained at 141°F (61°C).

**Report reissued:** Supplemental permits for AGCO Allis 8745 Diesel(Cummins engine) and AGCO LT 70 Diesel, November, 2001.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1769, November 6, 2001.

Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
G.J. Hoffman
Board of Tractor Test Engineers

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Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director

White 6410 Diesel