NEBRASKA TRACTOR TEST 1948
JOHN DEERE 5093E LIMITED DIESEL
12 SPEED

POWER TAKE-OFF PERFORMANCE

<table>
<thead>
<tr>
<th>Power</th>
<th>Crane</th>
<th>Gal/hr</th>
<th>Bhp/hr</th>
<th>Hp.hr/gal</th>
<th>Mean Atmospheric Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td>Crankshaft speed rpm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76.60</td>
<td>2400</td>
<td>4.95</td>
<td>0.454</td>
<td>15.53</td>
<td>7385</td>
</tr>
<tr>
<td>(57.12)</td>
<td>(18.67)</td>
<td>(0.276)</td>
<td>(3.06)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—(PTO speed—538 rpm)

<table>
<thead>
<tr>
<th>Power</th>
<th>Crane</th>
<th>Gal/hr</th>
<th>Bhp/hr</th>
<th>Hp.hr/gal</th>
<th>Mean Atmospheric Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td>Crankshaft speed rpm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76.60</td>
<td>2400</td>
<td>4.95</td>
<td>0.454</td>
<td>15.53</td>
<td>7385</td>
</tr>
<tr>
<td>(57.12)</td>
<td>(18.67)</td>
<td>(0.276)</td>
<td>(3.06)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VARYING POWER AND FUEL CONSUMPTION

<table>
<thead>
<tr>
<th>Power</th>
<th>Crane</th>
<th>Gal/hr</th>
<th>Bhp/hr</th>
<th>Hp.hr/gal</th>
<th>Mean Atmospheric Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td>Crankshaft speed rpm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76.60</td>
<td>2400</td>
<td>4.95</td>
<td>0.454</td>
<td>15.53</td>
<td>7385</td>
</tr>
<tr>
<td>(57.12)</td>
<td>(18.67)</td>
<td>(0.276)</td>
<td>(3.06)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MUFFLER:
John Deere Diesel Type four cylinder vertical with turbocharger *Serial No.* 6450467573438* Crankshaft lengthwise Rated engine speed 2400 Bore and stroke 4.19" x 5.00" (106.4 mm x 127.0 mm) Compression ratio 17.6 to 1 Displacement 276 cu in (4517 ml) Starting system 12 volt Lubrication oil 80W90 Fluid Front axle lubricant engine was operated 15.0 hours

ENGINE OPERATING PARAMETERS: Fuel rate: 34.8 - 38.6 lb/h (15.8 - 17.5 kg/h) High idle: 2600 -2650 rpm Turbo boosting: nominal 10.9 - 13.8 psi (75 - 95 kPa) as measured 12.1 psi (83 kPa)

CHASSIS:
Type: front wheel assist *Serial No.* LV5093E160357 Tread width rear 5.0" (127 mm) to 5.2" (132 mm) front 6.0" (152 mm) to 6.1" (155 mm) Wheelbase 85.7" (2177 mm) Hydraulic control system direct engine drive

Tires and Weight:

Rear Tires—No., size, ply & psi (kPa)
Two 18.4-30;8;12 (85)
Two 12.4-24;8;12 (85)
19.5 in (495 mm)
Height of Drawbar
Static Height
Rear 4480 lb (2032 kg)
Front 3080 lb (1397 kg)
Total 7560 lb (3429 kg)

Tractor Sound Level with Cab

<table>
<thead>
<tr>
<th>No.</th>
<th>Size</th>
<th>Ply</th>
<th>PSI</th>
<th>DBA(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.0</td>
<td></td>
<td></td>
<td>78.9</td>
</tr>
<tr>
<td>2</td>
<td>12.0</td>
<td></td>
<td></td>
<td>79.0</td>
</tr>
<tr>
<td>3</td>
<td>12.0</td>
<td></td>
<td></td>
<td>79.3</td>
</tr>
<tr>
<td>4</td>
<td>12.0</td>
<td></td>
<td></td>
<td>84.5</td>
</tr>
</tbody>
</table>

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832
Manufacturer: John Deere Commercial Products Inc., 700 Horizon South Parkway, Grovetown Ga., USA, 30802

FUEL, OIL AND TIME:
Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°C/15°C) 0.8470 Fuel weight 7.052 lbs/gal (0.845 kg/l) Oil SAE 15W40 API service classification CF/CH-4 Transmission and hydraulic lubricant John Deere Hy-Gard Fluid Front axle lubricant SAE 80W90 API GL-5 Total time engine was operated 15.0 hours
HYDRAULIC PERFORMANCE

CATEGORY: II
Quick Attach: None
OECD Static test
Maximum force exerted through whole range: 3213 lbs (14.3 kN)
i) Sustained pressure of the open relief valve: 2808 psi (194 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:
   16.4 GPM (62.1 l/min)
iii) Pump delivery rate at maximum hydraulic power: 16.4 GPM (62.1 l/min)
   Delivery pressure: 2437 psi (168 bar)
   Power: 23.3 HP (17.4 kW)

THREE POINT HITCH PERFORMANCE

Observed maximum pressure psi (bar)
Location: remote outlet
Hydraulic oil temperature: °F (°C)
Location: pump inlet
Category: II
Quick attach: none

SAE Static Test—System pressure 2520 psi (174 Bar)
Hitch point distance to ground level in. (mm)
Lift force on frame lb (kN)

SAE Test | OECD Test
---|---
inch | mm | inch | mm
A 23.2 | 590 | 24.1 | 613
B 11.0 | 280 | 11.0 | 280
C 14.0 | 356 | 14.0 | 356
D 12.2 | 311 | 12.2 | 311
E 11.2 | 284 | 11.2 | 284
F 6.5 | 165 | 6.5 | 165
G 27.4 | 695 | 27.4 | 695
H 0.2 | 4 | 0.2 | 4
I 15.1 | 384 | 15.1 | 384
J 20.9 | 530 | 20.9 | 530
K 16.7 | 424 | 16.7 | 424
L 39.2 | 996 | 39.2 | 996
M 22.4 | 570 | 22.4 | 570
N 32.9 | 836 | 32.9 | 836
O 8.0 | 203 | 8.0 | 203
P 40.9 | 1040 | 44.9 | 1140
Q 34.0 | 864 | 34.0 | 864
R 20.8 | 527 | 20.8 | 527

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 inlet was maintained at 151°F (66°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1948, July 30, 2009.

Roger M. Hoy  
Director

M.F. Kocher  
V.I. Adamchuk  
J.A. Smith  
Board of Tractor Test Engineers
## Shiftable PTO Performance

### Economy mode
540 PTO rpm @1716 engine rpm

<table>
<thead>
<tr>
<th>Power (HP)</th>
<th>Crank shaft speed rpm</th>
<th>Gal/hr (l/h)</th>
<th>Ib/hp.hr (kg/kW.hr)</th>
<th>Hp.hr/gal (kW.hr/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>65.33 (48.72)</td>
<td>1715</td>
<td>3.64 (13.79)</td>
<td>0.395 (0.239)</td>
<td>17.95 (3.33)</td>
</tr>
<tr>
<td>48.61 (36.25)</td>
<td>1714</td>
<td>2.81 (10.64)</td>
<td>0.408 (0.248)</td>
<td>17.30 (3.41)</td>
</tr>
<tr>
<td>32.36 (24.13)</td>
<td>1713</td>
<td>1.95 (7.40)</td>
<td>0.426 (0.259)</td>
<td>16.56 (3.26)</td>
</tr>
<tr>
<td>16.25 (12.12)</td>
<td>1716</td>
<td>1.17 (4.42)</td>
<td>0.506 (0.308)</td>
<td>13.92 (2.74)</td>
</tr>
<tr>
<td>1.29 (0.96)</td>
<td>1721</td>
<td>0.60 (2.27)</td>
<td>3.282 (1.998)</td>
<td>2.15 (0.42)</td>
</tr>
</tbody>
</table>

### Normal mode
540 PTO rpm @2410 engine rpm

<table>
<thead>
<tr>
<th>Power (HP)</th>
<th>Crank shaft speed rpm</th>
<th>Gal/hr (l/h)</th>
<th>Ib/hp.hr (kg/kW.hr)</th>
<th>Hp.hr/gal (kW.hr/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>76.06 (56.72)</td>
<td>2409</td>
<td>4.97 (18.84)</td>
<td>0.461 (0.281)</td>
<td>15.29 (3.01)</td>
</tr>
<tr>
<td>48.81 (36.39)</td>
<td>2417</td>
<td>3.69 (13.97)</td>
<td>0.533 (0.324)</td>
<td>13.24 (2.61)</td>
</tr>
<tr>
<td>32.38 (24.15)</td>
<td>2408</td>
<td>2.81 (10.63)</td>
<td>0.611 (0.372)</td>
<td>11.54 (2.27)</td>
</tr>
<tr>
<td>16.26 (12.12)</td>
<td>2412</td>
<td>1.93 (7.32)</td>
<td>0.838 (0.510)</td>
<td>8.41 (1.66)</td>
</tr>
<tr>
<td>1.33 (0.99)</td>
<td>2409</td>
<td>1.29 (4.88)</td>
<td>6.860 (4.176)</td>
<td>1.03 (0.20)</td>
</tr>
</tbody>
</table>

---

John Deere 5093E Ltd Diesel
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln