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2016

## Test 2140: John Deere 5075E Cab

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 2140

## JOHN DEERE 5075E DIESEL

### 12 SPEED

CHASSIS SERIAL NUMBERS EXXXXXXX AND HIGHER

#### POWER TAKE-OFF PERFORMANCE

| Power<br>HP<br>(kW)                    | Crank<br>shaft<br>speed<br>rpm | Gal/hr<br>(l/h) | lb/hp.hr<br>(kg/kW.h) | Hp.hr/gal<br>(kW.h/l) | Mean Atmospheric<br>Conditions   |
|--|--------------------------------|-----------------|-----------------------|-----------------------|--|
| MAXIMUM POWER AND FUEL CONSUMPTION     |                                |                 |                       |                       |  |
| Rated Engine Speed—(PTO speed—545 rpm) |                                |                 |                       |                       |  |
| 61.67<br>(45.99)                       | 2102                           | 4.68<br>(17.73) | 0.532<br>(0.324)      | 13.16<br>(2.59)       | Fuel used during active exhaust<br>regeneration-0.21 gal (0.81 l)<br>(see note 1, p.2) |
| Standard Power Take-off Speed(540 rpm) |                                |                 |                       |                       |  |
| 61.94<br>(46.19)                       | 2083                           | 4.65<br>(17.62) | 0.527<br>(0.320)      | 13.31<br>(2.62)       |  |
| Maximum Power (1 hour)                 |                                |                 |                       |                       |  |
| 63.67<br>(47.48)                       | 1751                           | 4.23<br>(16.02) | 0.466<br>(0.283)      | 15.04<br>(2.96)       |  |

#### VARYING POWER AND FUEL CONSUMPTION

|                  |      |                 |                   |                 |                      |
|------------------|------|-----------------|-------------------|-----------------|----------------------|
| 61.67<br>(45.99) | 2102 | 4.68<br>(17.73) | 0.532<br>(0.324)  | 13.16<br>(2.59) | Air temperature      |
| 53.56<br>(39.94) | 2146 | 4.34<br>(16.41) | 0.567<br>(0.345)  | 12.35<br>(2.43) | 73°F (23°C)          |
| 40.84<br>(30.46) | 2182 | 3.75<br>(14.18) | 0.643<br>(0.391)  | 10.90<br>(2.15) | Relative humidity    |
| 27.44<br>(20.46) | 2200 | 3.24<br>(12.27) | 0.828<br>(0.504)  | 8.47<br>(1.67)  | 17%                  |
| 13.64<br>(10.17) | 2200 | 2.49<br>(9.41)  | 1.278<br>(0.777)  | 5.49<br>(1.08)  | Barometer            |
| 1.06<br>(0.79)   | 2200 | 1.77<br>(6.71)  | 11.781<br>(7.166) | 0.59<br>(0.12)  | 28.72"Hg (97.25 kPa) |

Maximum torque 207 lb.-ft. (281 Nm) at 1250 rpm  
Maximum torque rise - 34.7%  
Torque rise at 1682 engine rpm - 28%  
Power increase at 1751 engine rpm - 3%

#### TRACTOR SOUND LEVEL WITH CAB

|                                       | Front Wheel Drive<br>Engaged | Disengaged<br>dB(A) |
|---------------------------------------|------------------------------|---------------------|
| At no load in 7th(B3) gear            | 78.3                         | 78.3                |
| Transport speed-no load-12th(C4) gear |                              | 81.9                |
| Bystander in 12th(C4) gear            |                              | 82.1                |

#### 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 16.9-28; 6; 12 (85)  
Two 9.5-24; 6; 20 (140)  
17.5 in (445 mm)  
4195 lb (1903 kg)  
2900 lb (1315 kg)  
7095 lb (3218 kg)

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

**Dates of tests:** April 7 - 15, 2016

**Manufacturer:** John Deere Commercial Products  
Inc., Grovetown Operations, P.O. Box 15458  
Augusta Ga. USA, 30919-1458

**FUEL, OIL and TIME:** Fuel No. 2 Diesel  
Specific gravity converted to 60°/60°F (15°/15°C)  
0.8417 Fuel weight 7.008 lbs/gal (0.840 kg/l) Oil  
SAE 15W-40 API service classification CJ-4  
Transmission and hydraulic lubricant John  
Deere Hy-Gard fluid Front axle lubricant John  
Deere Hy-Gard fluid Total time engine was  
operated: 11.5 hours

**ENGINE:** Make John Deere Diesel Type three  
cylinder vertical with turbocharger and air to air  
intercooler Serial No. \*PY3029H028207\*  
Crankshaft lengthwise Rated engine speed 2100  
Bore and stroke 4.19" x 4.33" (106.5 mm x 110.0  
mm) Compression ratio 17.8 to 1 Displacement  
179 cu in (2938 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 Fuel filter one paper element Fuel  
cooler radiator for pump return fuel Exhaust  
regenerative aftertreatment system consisting of  
DOC (diesel oxidation catalyst) and DPF (diesel  
particulate filter) integrated within an underhood  
muffler with vertical exhaust Cooling medium  
temperature control one thermostat

**ENGINE OPERATING PARAMETERS:** Fuel  
rate: 30.0 - 32.9 lb/h (13.6 - 14.9 kg/h) High idle:  
2190 - 2210 rpm Turbo boost: nominal 15.9 -  
19.6 psi (110 - 135 kPa) as measured 18.3 psi (126  
kPa)

**CHASSIS:** Type front wheel assist Serial No.  
\*1PY5075EHEY145017\* Tread width rear 55.8"  
(1417 mm) to 71.7" (1821 mm) front 52.8" (1340  
mm) to 75.0" (1905 mm) Wheelbase 80.7" (2050  
mm) Hydraulic control system direct engine drive  
Transmission selective gear fixed ratio Nominal  
travel speeds mph (km/h) first 0.98 (1.57) second  
1.32 (2.13) third 1.79 (2.88) fourth 2.37 (3.82)  
fifth 2.81 (4.53) sixth 3.81 (6.13) seventh 5.15  
(8.29) eighth 6.84 (11.00) ninth 8.14 (13.10) tenth  
11.02 (17.73) eleventh 14.89 (23.97) twelfth 19.77  
(31.81) reverse 1.06 (1.71), 1.44 (2.32), 1.95 (3.14),  
2.58 (4.16), 3.07 (4.94), 4.16 (6.69), 5.62 (9.04),  
7.46 (12.00), 8.88 (14.29) 12.02 (19.35), 16.25  
(26.15), 21.56 (34.70) Clutch single dry disc  
operated by foot pedal Brakes single wet disc  
hydraulically actuated by two foot pedals which  
can be locked together Steering hydrostatic Power  
take-off 540 rpm at 2083 engine rpm Unladen  
tractor mass 6920 lb (3139 kg)

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick attach: None

OECD Static test

Maximum force exerted through whole range: 3591 lbs (16.0 kN)

i) Sustained pressure of the open relief valve: 3038 psi (209 bar)

ii) Pump delivery rate at minimum pressure and rated engine speed: 11.4 GPM (43.0 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 10.6 GPM (40.0 l/min)

Delivery pressure: 2498 psi (172 bar)

Power: 15.4 HP (11.5 kW)

## THREE POINT HITCH PERFORMANCE

Observed maximum pressure psi.(bar) 2796(193)

Location: remote outlet

Hydraulic oil temperature: °F(°C) 185(85)

Location: hydraulic sump

Category: II

Quick attach: none

### SAE Static Test—System pressure 2480 psi (171 Bar)

|  |          |           |           |           |           |
|--|----------|-----------|-----------|-----------|-----------|
| Hitch point distance to ground level in.(mm) | 8.0(203) | 15.0(381) | 22.0(559) | 29.0(737) | 36.0(914) |
| Lift force on frame lb                       | 6633     | 5486      | 5067      | 4734      | 3978      |
| " " " " " " (kN)                             | (29.5)   | (24.4)    | (22.5)    | (21.1)    | (17.7)    |

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE 1.** The manufacturer declares that the average time between active regenerations is 50 hours.

**NOTE 2:** The performance data on this report applies to tractors with chassis serial numbers that end with EXXXXXXX and higher.

**NOTE 3.** The performance values on this report apply to 5075E models equipped with a cab.

**REMARKS:** The observed remote system pressure of 3038 psi (209 bar) exceeded the manufacturer's tolerance of 2900 psi (200 bar). All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures.

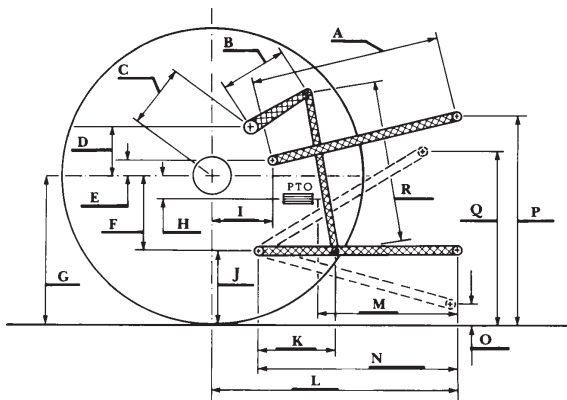
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2140**, May 16, 2016.

Roger M. Hoy  
Director

M.F. Kocher  
J.D. Luck  
P.J. Jasa  
Board of Tractor Test Engineers

|   | SAE Test |     | OECD Test |      |
|---|----------|-----|-----------|------|
|   | inch     | mm  | inch      | mm   |
| A | 23.3     | 590 | 23.5      | 597  |
| B | 11.0     | 280 | 11.0      | 280  |
| C | 14.0     | 355 | 14.0      | 355  |
| D | 12.2     | 310 | 12.2      | 310  |
| E | 11.1     | 282 | 11.1      | 282  |
| F | 6.5      | 166 | 6.5       | 166  |
| G | 26.4     | 670 | 26.4      | 670  |
| H | 0.2      | 4   | 0.2       | 4    |
| I | 15.1     | 384 | 15.1      | 384  |
| J | 19.9     | 504 | 19.9      | 504  |
| K | 16.1     | 409 | 16.1      | 409  |
| L | 38.8     | 985 | 38.8      | 985  |
| M | 22.0     | 559 | 22.0      | 559  |
| N | 32.5     | 825 | 32.5      | 825  |
| O | 8.0      | 203 | 8.0       | 203  |
| P | 38.9     | 987 | 43.9      | 1114 |
| Q | 32.5     | 825 | 32.5      | 825  |
| R | 21.2     | 540 | 21.2      | 540  |

### HITCH DIMENSIONS AS TESTED - NO LOAD



## Shiftable PTO Performance

### Economy mode

540 PTO rpm @ 1587 engine rpm

| Power<br>HP<br>(kW) | Crank<br>shaft<br>speed<br>rpm | Gal/hr<br>(l/h) | lb/hp.hr<br>(kg/kW.h) | Hp.hr/gal<br>(kW.h/l) |
|---------------------|--------------------------------|-----------------|-----------------------|-----------------------|
| 61.66<br>(45.98)    | 1589                           | 4.00<br>(15.16) | 0.455<br>(0.277)      | 15.40<br>(3.03)       |
| 45.97<br>(34.28)    | 1581                           | 3.25<br>(12.32) | 0.496<br>(0.302)      | 14.13<br>(2.78)       |
| 30.85<br>(23.01)    | 1592                           | 2.44<br>(9.24)  | 0.554<br>(0.337)      | 12.64<br>(2.49)       |
| 15.34<br>(11.44)    | 1588                           | 1.54<br>(5.83)  | 0.704<br>(0.428)      | 9.96<br>(1.96)        |
| 0.67<br>(0.50)      | 1586                           | 0.94<br>(3.57)  | 9.830<br>(5.980)      | 0.71<br>(0.14)        |

### Normal mode

540 PTO rpm @ 2083 engine rpm

| Power<br>HP<br>(kW) | Crank<br>shaft<br>speed<br>rpm | Gal/hr<br>(l/h) | lb/hp.hr<br>(kg/kW.h) | Hp.hr/gal<br>(kW.h/l) |
|---------------------|--------------------------------|-----------------|-----------------------|-----------------------|
| 61.49<br>(45.85)    | 2083                           | 4.67<br>(17.64) | 0.531<br>(0.323)      | 13.19<br>(2.60)       |
| 46.00<br>(34.30)    | 2076                           | 3.93<br>(14.87) | 0.599<br>(0.364)      | 11.71<br>(2.31)       |
| 31.00<br>(23.12)    | 2085                           | 3.31<br>(12.53) | 0.748<br>(0.455)      | 9.36<br>(1.84)        |
| 15.28<br>(11.40)    | 2079                           | 2.43<br>(9.20)  | 1.114<br>(0.678)      | 6.29<br>(1.24)        |
| 0.65<br>(0.48)      | 2083                           | 1.59<br>(6.04)  | 17.290<br>(10.517)    | 0.41<br>(0.08)        |



**John Deere 5075E Diesel**

Institute of Agriculture and Natural Resources  
University of Nebraska–Lincoln