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2009

Test 1947: John Deere 5083E Ltd. Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1947

JOHN DEERE 5083E LIMITED DIESEL

12 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—538 rpm) | | | | | |
|--|------|-----------------|------------------|-----------------|--|
| 65.90 (49.14) | 2400 | 4.46 (16.88) | 0.477 (0.290) | 14.78 (2.91) | |
| Maximum Power - (1 hour) | | | | | |
| 69.30 (51.68) | 2200 | 4.26 (16.12) | 0.433 (0.264) | 16.27 (3.21) | |

VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|------------------|------|-----------------|------------------|-----------------|--------------------|
| 65.90 (49.14) | 2400 | 4.46 (16.88) | 0.477 (0.290) | 14.78 (2.91) | Air temperature |
| 59.92 (44.68) | 2566 | 4.53 (17.16) | 0.534 (0.325) | 13.22 (2.60) | 76°F (24°C) |
| 45.29 (33.77) | 2585 | 3.84 (14.53) | 0.597 (0.363) | 11.80 (2.33) | Relative humidity |
| 30.30 (22.60) | 2603 | 3.21 (12.16) | 0.747 (0.455) | 9.43 (1.86) | 13% |
| 15.35 (11.45) | 2620 | 2.37 (8.96) | 1.087 (0.661) | 6.49 (1.28) | Barometer |
| 1.39 (1.04) | 2633 | 1.63 (6.18) | 8.283 (5.038) | 0.85 (0.17) | 28.9"Hg (98.1 kPa) |

Maximum Torque 204 lb.-ft. (276 Nm) at 1499 rpm
Maximum Torque Rise -41.3%
Torque rise at 1900 rpm -26%
Power increase at 2200 rpm -5%

TRACTOR SOUND LEVEL WITH CAB

| | Front Wheel Drive Engaged dB(A) | Disengaged dB(A) |
|----------------------------|---------------------------------------|---------------------|
| At no load in 6th(B2) gear | 80.5 | 80.5 |
| Transport in 12th(C4) gear | | 80.8 |
| Bystander in 12th(C4) gear | | 84.4 |

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 16.9-30;6;12 (85)
Two 11.2-24;8;16 (110)
16.5 in (420 mm)
4335 lb (1966 kg)
3040 lb (1379 kg)
7375 lb (3345 kg)

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

Dates of tests: March 24-April 16, 2009

Manufacturer: John Deere Commercial Products Inc., 700 Horizon South Parkway, Grovetown Ga. USA, 30813

FUEL, OIL and TIME: Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/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 21.0 hours

ENGINE: Make John Deere Diesel Type four cylinder vertical with turbocharger Serial No. *PE4045T738248* 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 pressure Air cleaner one paper element and one polyester felt element Oil filter one full flow cartridge Oil cooler radiator for transmission and hydraulic oil Fuel filter one paper element and sediment bowl Muffler underhood Exhaust vertical Cooling medium temperature control one thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 30.9 - 34.2 lb/h (14.0 - 15.5 kg/h) High idle: 2600 - 2650 rpm Turbo boost: nominal 9.4 - 12.3 psi (65 - 85 kPa) as measured 10.7 psi (74 kPa)

CHASSIS: Type front wheel assist Serial No. *LV5083E160536* Tread width rear 54.8" (1417 mm) to 71.7" (1820 mm) front 52.8" (1340 mm) to 75.0" (1904 mm) Wheelbase 85.7" (2177 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio Nominal travel speeds mph (km/h) first 1.01 (1.63) second 1.37 (2.21) third 1.88 (3.02) fourth 2.52 (4.05) fifth 2.91 (4.69) sixth 3.96 (6.38) seventh 5.41 (8.71) eighth 7.25 (11.67) ninth 8.43 (13.56) tenth 11.46 (18.45) eleventh 15.65 (25.19) twelfth 20.96 (33.74) reverse 1.10 (1.77), 1.50 (2.42), 2.05 (3.30), 2.7 (4.42), 3.18 (5.12), 4.32 (6.96), 5.90 (9.50), 7.91 (12.73), 9.19 (14.79), 12.51 (20.13), 17.08 (27.48), 22.87 (36.81) Clutch single 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 2410 engine rpm or 540 rpm at 1716 engine rpm Unladen tractor mass 7200 lb (3265 kg)

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: | 2807 psi | (194 bar) |
| ii) Pump delivery rate at minimum pressure and rated engine speed: | 16.1 GPM | (60.9 l/min) |
| iii) Pump delivery rate at maximum hydraulic power: | 16.4 GPM | (62.1 l/min) |
| Delivery pressure: | 2431 psi | (168 bar) |
| Power: | 23.3 HP | (17.3 kW) |

THREE POINT HITCH PERFORMANCE

| | |
|-------------------------------------|---------------|
| Observed maximum pressure psi.(bar) | 2830(195) |
| Location: | remote outlet |
| Hydraulic oil temperature: °F(°C) | 148(64) |
| 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) | 8.0(203) | 15.0(381) | 22.0(559) | 29.0(737) | 36.0(914) |
| Lift force on frame lb | 4694 | 4829 | 4685 | 4266 | 3596 |
| " " " " " "(kN) | (20.9) | (21.5) | (20.8) | (19.0) | (16.0) |

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 147°F (64°C).

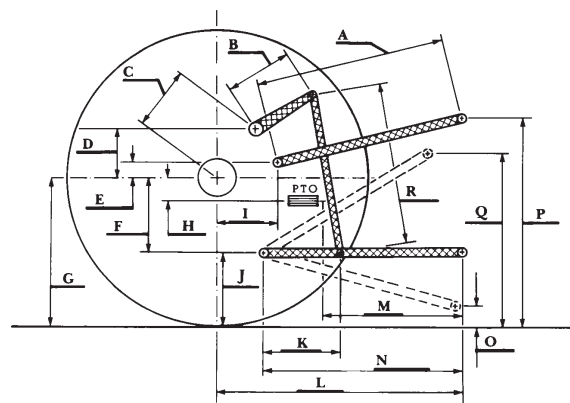
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1947, July 30, 2009.

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 | 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 |

HITCH DIMENSIONS AS TESTED - NO LOAD



Economy mode
540 PTO rpm @ 1716 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) |
|---------------------|--------------------------------|-----------------|-----------------------|-----------------------|
| 46.91 (34.98) | 1715 | 2.55 (9.65) | 0.383 (0.233) | 18.42 (3.63) |
| 35.23 (26.27) | 1710 | 2.13 (8.08) | 0.427 (0.260) | 16.52 (3.25) |
| 23.52 (17.54) | 1711 | 1.61 (6.09) | 0.482 (0.293) | 14.63 (2.88) |
| 11.85 (8.84) | 1712 | 1.05 (3.99) | 0.627 (0.381) | 11.25 (2.21) |
| 1.30 (0.97) | 1713 | 0.68 (2.56) | 3.658 (2.225) | 1.93 (0.38) |

Normal mode
540 PTO rpm @ 2410 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) |
|---------------------|--------------------------------|-----------------|-----------------------|-----------------------|
| 47.92 (35.74) | 2414 | 3.60 (13.63) | 0.530 (0.322) | 13.32 (2.62) |
| 35.79 (26.69) | 2417 | 3.16 (11.97) | 0.623 (0.379) | 11.32 (2.23) |
| 23.78 (17.74) | 2414 | 2.41 (9.14) | 0.716 (0.435) | 9.85 (1.94) |
| 11.92 (8.89) | 2408 | 1.52 (5.76) | 0.900 (0.548) | 7.83 (1.54) |
| 1.32 (0.98) | 2409 | 0.96 (3.63) | 5.113 (3.110) | 1.38 (0.27) |



John Deere 5083E Ltd Diesel