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January 2004

## Test 1837A: New Holland TC 55DA Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1837A

## NEW HOLLAND TC 55DA DIESEL

### 12 SPEED

#### 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—589 rpm) |      |                 |                  |                 |  |
|--|------|-----------------|------------------|-----------------|--|
| 48.01<br>(35.80)                       | 2700 | 3.95<br>(14.93) | 0.577<br>(0.351) | 12.17<br>(2.40) |  |
| Standard Power Take-off Speed(540 rpm) |      |                 |                  |                 |  |
| 47.80<br>(35.65)                       | 2475 | 3.66<br>(13.87) | 0.538<br>(0.327) | 13.05<br>(2.57) |  |

#### VARYING POWER AND FUEL CONSUMPTION

|                  |      |                 |                   |                 |                      |
|------------------|------|-----------------|-------------------|-----------------|----------------------|
| 48.01<br>(35.80) | 2700 | 3.95<br>(14.93) | 0.577<br>(0.351)  | 12.17<br>(2.40) | Air temperature      |
| 42.46<br>(31.66) | 2801 | 3.50<br>(13.26) | 0.579<br>(0.352)  | 12.12<br>(2.39) | 75°F (24°C)          |
| 32.17<br>(23.99) | 2841 | 2.82<br>(10.68) | 0.616<br>(0.374)  | 11.41<br>(2.25) | Relative humidity    |
| 21.75<br>(16.22) | 2871 | 2.26<br>(8.57)  | 0.731<br>(0.445)  | 9.61<br>(1.89)  | 34%                  |
| 10.88<br>(8.11)  | 2913 | 1.75<br>(6.63)  | 1.130<br>(0.688)  | 6.21<br>(1.22)  | Barometer            |
| 0.61<br>(0.46)   | 2938 | 1.37<br>(5.18)  | 15.732<br>(9.569) | 0.45<br>(0.09)  | 28.84"Hg (97.66 kPa) |

Maximum Torque 122 lb.-ft. (165 Nm) at 1657 rpm  
 Maximum Torque Rise - 30.6%  
 Torque rise at 2203 rpm - 20%

#### TRACTOR SOUND LEVEL WITHOUT CAB

| At no load in 7th (M3) gear | Front Wheel Drive   |                  |
|-----------------------------|---------------------|------------------|
|                             | Disengaged<br>dB(A) | Engaged<br>dB(A) |
| Bystander                   | 89.0                | 89.0             |
|                             | --                  | --               |

#### 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 18.4-24; 8:12 (85)  
 Two 12-16.5; 8:12 (85)  
 17.0 in (405 mm)  
 3035 lb (1377 kg)  
 1825 lb (828 kg)  
 4860 lb (2205 kg)

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

**Dates of Test:** April 29-30, 2004

**Manufacturer:** CNH America LLC, 700 State Street, Racine, Wi. 53404

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8432 Fuel weight 7.021 lbs/gal (0.841 kg/l) Oil SAE 15W40 API service classification CF-4/SG Transmission and hydraulic lubricant New Holland M2C134D fluid Front axle lubricant New Holland M2C134D fluid Total time engine was operated 11.0 hours

**ENGINE: Make** ISM Diesel **Type** four cylinder vertical with turbocharger **Serial No.** 27999 **Crankshaft** lengthwise **Rated engine speed** 2700 **Bore and stroke** 3.307" x 3.937" (84.0 mm x 100.0 mm) **Compression ratio** 22.4 to 1 **Displacement** 135 cu in (2216 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, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** horizontal **Cooling medium temperature control** one thermostat

**ENGINE OPERATING PARAMETERS: Fuel rate:** 25.5 - 28.0 lb/h (11.6 - 12.7 kg/h) **High idle:** 2850 - 2950 rpm **Turbo boost:** nominal 8.0 - 10.1 psi (55 - 70 kPa) as measured 9.4 psi (65 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** HX10016 **Tread width** rear 52.8" (1341 mm) to 76.3" (1939 mm) front 56.4" (1432 mm) **Wheelbase** 74.8" (1900 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.16 (1.86) second 1.56 (2.51) third 2.04 (3.29) fourth 2.62 (4.22) fifth 2.90 (4.67) sixth 3.93 (6.32) seventh 5.15 (8.28) eighth 6.61 (10.63) ninth 8.17 (13.15) tenth 11.06 (17.80) eleventh 14.48 (23.30) twelfth 18.59 (29.91) reverse 1.17 (1.88), 1.58 (2.55), 2.07 (3.33), 2.66 (4.28), 2.94 (4.73), 3.98 (6.41), 5.21 (8.39), 6.69 (10.77), 8.28 (13.32), 11.21 (18.04), 14.68 (23.62), 18.83 (30.31) **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2475 engine rpm **Unladen tractor mass** 4685 lb (2125 kg)

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: I, II

Quick Attach: None

|  |          |              |             |
|--|----------|--------------|-------------|
| Maximum Force Exerted Through Whole Range:                         | 2776 lbs | (12.3 kN)    | Category I  |
|  | 2430 lbs | (10.8 kN)    | Category II |
| i) Opening pressure of relief valve:                               | NA       |              |             |
| Sustained pressure of the open relief valve:                       | 2550 psi | (176 bar)    |             |
| ii) Pump delivery rate at minimum pressure and rated engine speed: | 10.9 GPM | (41.3 l/min) |             |
| iii) Pump delivery rate at maximum                                 |          |              |             |
| hydraulic power:   | 10.7 GPM | (40.5 l/min) |             |
| Delivery pressure:   | 1965 psi | (135 bar)    |             |
| Power:   | 12.3 HP  | (9.1 kW)     |             |

### THREE POINT HITCH PERFORMANCE

|                                     |                |
|-------------------------------------|----------------|
| Observed Maximum Pressure psi.(bar) | 2565(177)      |
| Location:                           | lift cylinder  |
| Hydraulic oil temperature: °F(°C)   | 178(81)        |
| Location:                           | hydraulic sump |
| Category:                           | I, II          |
| Quick attach:                       | none           |

#### Category I

SAE Static Test—System pressure 2320 psi (160 Bar)

|   |           |            |            |            |            |
|---|-----------|------------|------------|------------|------------|
| Hitch point distance to ground level in. (mm) | 8.0 (203) | 14.0 (356) | 20.1 (511) | 25.9 (658) | 32.1 (815) |
| Lift force on frame lb                        | 3832      | 3647       | 3433       | 3180       | 2789       |
| " " " " " " (kN)                              | (17.0)    | (16.2)     | (15.3)     | (14.1)     | (12.4)     |

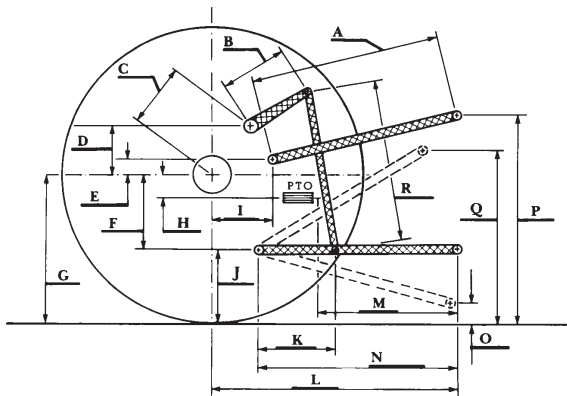
#### Category II

SAE Static Test—System pressure 2320 psi (160 Bar)

|   |           |            |            |            |            |
|---|-----------|------------|------------|------------|------------|
| Hitch point distance to ground level in. (mm) | 8.2 (208) | 15.2 (386) | 22.0 (559) | 29.0 (737) | 35.9 (912) |
| Lift force on frame lb                        | 3439      | 3356       | 3143       | 2892       | 2305       |
| " " " " " " (kN)                              | (15.3)    | (14.9)     | (14.0)     | (12.9)     | (10.3)     |

|   | Category I |     | Category II |      |
|---|------------|-----|-------------|------|
|   | inch       | mm  | inch        | mm   |
| A | 23.1       | 587 | 23.0        | 584  |
| B | 11.8       | 300 | 11.8        | 300  |
| C | 13.5       | 344 | 13.5        | 344  |
| D | 13.5       | 342 | 13.5        | 342  |
| E | 10.3       | 262 | 10.3        | 262  |
| F | 5.2        | 132 | 5.2         | 132  |
| G | 26.0       | 660 | 26.0        | 660  |
| H | 0.5        | 13  | 0.5         | 13   |
| I | 12.2       | 309 | 12.2        | 309  |
| J | 20.8       | 528 | 20.8        | 528  |
| K | 14.2       | 362 | 14.2        | 361  |
| L | 34.6       | 879 | 34.5        | 876  |
| M | 22.9       | 582 | 22.8        | 579  |
| N | 31.5       | 800 | 31.4        | 797  |
| O | 6.6        | 168 | 6.9         | 175  |
| P | 38.9       | 988 | 39.9        | 1013 |
| Q | 34.1       | 865 | 34.5        | 876  |
| R | 21.4       | 543 | 21.4        | 543  |

HITCH DIMENSIONS AS TESTED - NO LOAD



**REPAIRS AND ADJUSTMENTS:** The fuel tank was found to be leaking following the PTO tests.

**NOTE:** The performance results on this report were obtained from tests carried out on the Case IH DX 55 Diesel.

**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 3465 lb (1571 kg) 3 point hitch lift at 24" nor 11.6 GPM (43.9 lpm) hydraulic flow. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 104°F (40°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1837A, November 1, 2004

Leonard L. Bashford  
Director

M.F. Kocher  
V.I. Adamchuk  
W.P. Campbell  
Board of Tractor Test Engineers



New Holland TC55DA Diesel

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