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# Test 1910A: New Holland TJ480 Diesel 16-Speed

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# NEBRASKA OECD TRACTOR TEST 1910A - SUMMARY 583
# NEW HOLLAND TJ 480 DIESEL
# 16 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—1000 rpm)** | | | | | |
| 429.00 *(319.91)* | 1998 | 25.28 *(95.70)* | 0.413 *(0.251)* | 16.97 *(3.34)* | |
| **Maximum Power (1 Hour)** | | | | | |
| 483.15 *(360.28)* | 1799 | 26.85 *(101.66)* | 0.389 *(0.237)* | 17.99 *(3.54)* | |
| **VARYING POWER AND FUEL CONSUMPTION** | | | | | |
| 429.00 *(319.91)* | 1998 | 25.28 *(95.70)* | 0.413 *(0.251)* | 16.97 *(3.34)* | Air temperature |
| 85% load level not run due to vibration | | | | | 80°F *(27°C)* |
| 3/4 of 85% load level not run due to vibration | | | | | Relative humidity |
| 1/2 of 85% load level not run due to vibration | | | | | 29% |
| 97.18 *(72.47)* | 2138 | 10.57 *(40.02)* | 0.761 *(0.463)* | 9.19 *(1.81)* | Barometer |
| 2.17 *(1.62)* | 2166 | 5.00 *(18.93)* | 16.136 *(9.815)* | 0.43 *(0.09)* | 29.05" Hg *(98.37 kPa)* |

Maximum torque -1629 lb.-ft. *(2208 Nm)* at 1305 rpm
Maximum torque rise - 44.2%
Torque rise at 1601 engine rpm - 34%
Power increase at 1799 engine rpm - 12.6%

## DRAWBAR PERFORMANCE
### FUEL CONSUMPTION CHARACTERISTICS

| Power Hp *(kW)* | Drawbar pull lbs *(kN)* | Speed mph *(km/h)* | Crank-shaft speed rpm | Slip % | Fuel Consumption lb/hp.hr *(kg/kW.h)* | Fuel Consumption Hp.hr/gal *(kW.h/l)* | Temp.°F *(°C)* cool-ing med | Air dry bulb | Barom. inch Hg *(kPa)* |
|---|---|---|---|---|---|---|---|---|---|
| **Maximum Power—4th Gear** | | | | | | | | | |
| 391.15 *(291.68)* | 35158 *(156.39)* | 4.17 *(6.71)* | 1996 | 4.6 | 0.451 *(0.274)* | 15.54 *(3.06)* | 193 *(89)* | 49 *(9)* | 29.05 *(98.37)* |
| **75% of Pull at Maximum Power—4th Gear** | | | | | | | | | |
| 305.85 *(228.07)* | 26418 *(117.51)* | 4.34 *(6.99)* | 2045 | 3.3 | 0.505 *(0.307)* | 13.88 *(2.73)* | 190 *(88)* | 63 *(17)* | 29.03 *(98.31)* |
| **50% of Pull at Maximum Power—4th Gear** | | | | | | | | | |
| 209.29 *(156.07)* | 17630 *(78.42)* | 4.45 *(7.16)* | 2074 | 2.1 | 0.593 *(0.361)* | 11.82 *(2.33)* | 186 *(85)* | 64 *(18)* | 29.03 *(98.31)* |
| **75% of Pull at Reduced Engine Speed—7th Gear** | | | | | | | | | |
| 305.15 *(227.55)* | 26381 *(117.35)* | 4.34 *(6.98)* | 1478 | 3.2 | 0.453 *(0.276)* | 15.47 *(3.05)* | 187 *(86)* | 64 *(18)* | 29.03 *(98.31)* |
| **50% of Pull at Reduced Engine Speed—7th Gear** | | | | | | | | | |
| 209.55 *(156.26)* | 17645 *(78.49)* | 4.45 *(7.17)* | 1500 | 2.0 | 0.486 *(0.296)* | 14.44 *(2.84)* | 184 *(84)* | 65 *(18)* | 29.03 *(98.31)* |

**Location of tests:** Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
**Dates of tests:** September 28 - October 24, 2007

**Manufacturer:** Case Corporation, 700 State Street Racine, Wi. 53404 USA.

**FUEL, OIL and TIME: Fuel** No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8407 **Fuel weight** 7.000 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W40 **API service classification** CI-4 **Transmission and hydraulic lubricant** NH Ambra Hy-Tran Ultra fluid **Front and rear axle lubricant** NH Ambra Hy-Tran Ultra fluid **Total time engine was operated** 20.0 hours

**ENGINE: Make** Cummins Diesel **Type** six cylinder vertical with turbocharger and air to air aftercooler **Serial No.** 79234351 **Crankshaft** lengthwise **Rated engine speed** 2000 **Bore and stroke** 5.394" x 6.654" *(137.0 mm x 169.0 mm)* **Compression ratio** 17.0 to 1 **Displacement** 912 cu in *(14945 ml)* **Starting system** 24 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** one paper element **Fuel cooler** radiator for returned fuel **Muffler** vertical **Cooling medium temperature control** one thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate:** 173.4 - 180.8 lb/h *(78.7 - 82.0 kg/h)* **High idle:** 2135 - 2175 rpm **Turbo boost:** nominal 22.5 - 25.4 psi *(155 - 175 kPa)* as measured 23.6 psi *(163 kPa)*

**CHASSIS: Type** four wheel drive with triples **Serial No.** *Z7F105636* **Tread width** rear 73.6" *(1870 mm)* to 187.6" *(4766 mm)* front 73.6"*(1870 mm)* to 187.6" *(4766 mm)* **Wheelbase** 154.0" *(3911 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 2.54 *(4.08)* second 3.05 *(4.91)* third 3.68 *(5.93)* fourth 4.44 *(7.14)* fifth 5.10 *(8.20)* sixth 5.60 *(9.01)* seventh 6.14 *(9.88)* eighth 6.74 *(10.85)* ninth 7.41 *(11.93)* tenth 8.15 *(13.11)* eleventh 8.93 *(14.37)* twelfth 9.81 *(15.79)* thirteenth 11.27 *(18.13)* fourteenth 13.56 *(21.83)* fifteenth 16.39 *(26.38)* sixteenth 19.73 *(31.75)* reverse 3.84 *(6.18)*, 8.48 *(13.65)* **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** single wet disc hydraulically actuated by foot pedal **Steering** hydrostatic and articulated **Power take-off** 1000 rpm at 1998 engine rpm **Unladen tractor mass** 44470 lb *(20171 kg)*

## DRAWBAR PERFORMANCE at 1800 engine rpm
### MAXIMUM POWER IN SELECTED GEARS

| Power Hp *(kW)* | Drawbar pull lbs *(kN)* | Speed mph *(km/h)* | Crank-shaft speed rpm | Slip % | Fuel Consumption lb/hp.hr *(kg/kW.h)* | Hp.hr/gal *(kW.h/l)* | Temp.°F*(°C)* cool-ing med | Air dry bulb | Barom. inch Hg *(kPa)* |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 3rd Gear | | | | |
| 381.43 *(284.44)* | 44623 *(198.49)* | 3.21 *(5.16)* | 1966 | 10.4 | 0.477 *(0.290)* | 14.70 *(2.90)* | 194 *(90)* | 52 *(11)* | 29.05 *(98.37)* |
| | | | | | 4th Gear | | | | |
| 419.00 *(312.45)* | 43626 *(194.06)* | 3.60 *(5.80)* | 1799 | 8.6 | 0.443 *(0.269)* | 15.85 *(3.12)* | 188 *(86)* | 51 *(11)* | 29.05 *(98.37)* |
| | | | | | 5th Gear | | | | |
| 432.87 *(322.79)* | 37808 *(168.18)* | 4.29 *(6.91)* | 1802 | 5.7 | 0.431 *(0.262)* | 16.29 *(3.21)* | 192 *(89)* | 49 *(9)* | 29.06 *(98.41)* |
| | | | | | 6th Gear | | | | |
| 435.62 *(324.84)* | 34324 *(152.68)* | 4.76 *(7.66)* | 1798 | 4.5 | 0.422 *(0.256)* | 16.63 *(3.28)* | 192 *(89)* | 49 *(9)* | 29.06 *(98.41)* |
| | | | | | 7th Gear | | | | |
| 434.14 *(323.74)* | 31077 *(138.24)* | 5.24 *(8.43)* | 1799 | 4.1 | 0.424 *(0.258)* | 16.53 *(3.26)* | 192 *(89)* | 61 *(16)* | 29.04 *(98.34)* |
| | | | | | 8th Gear | | | | |
| 431.97 *(322.12)* | 27768 *(123.52)* | 5.83 *(9.39)* | 1812 | 3.5 | 0.434 *(0.264)* | 16.17 *(3.19)* | 192 *(89)* | 62 *(17)* | 29.04 *(98.34)* |
| | | | | | 9th Gear | | | | |
| 431.59 *(321.84)* | 25237 *(112.26)* | 6.41 *(10.32)* | 1806 | 3.2 | 0.435 *(0.264)* | 16.13 *(3.18)* | 191 *(88)* | 63 *(17)* | 29.03 *(98.31)* |
| | | | | | 10th Gear | | | | |
| 437.22 *(326.04)* | 23264 *(103.48)* | 7.05 *(11.34)* | 1800 | 2.8 | 0.426 *(0.259)* | 16.44 *(3.24)* | 190 *(88)* | 64 *(18)* | 29.03 *(98.31)* |
| | | | | | 11th Gear | | | | |
| 433.93 *(323.58)* | 20993 *(93.38)* | 7.75 *(12.47)* | 1801 | 2.4 | 0.429 *(0.261)* | 16.34 *(3.22)* | 190 *(88)* | 64 *(18)* | 29.03 *(98.31)* |
| | | | | | 12th Gear | | | | |
| 437.62 *(326.33)* | 19253 *(85.64)* | 8.52 *(13.72)* | 1800 | 2.3 | 0.428 *(0.260)* | 16.39 *(3.23)* | 190 *(88)* | 64 *(18)* | 29.03 *(98.31)* |

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

**Note:** The test results on this Summary were obtained from tests carried out on the Case IH Steiger 480 Diesel.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. The pull in 3rd gear was limited to avoid excessive tractor bouncing. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 110°F *(43°C)*. This tractor did not meet the manufacturer's claim of 75 dB(A) cab sound level. The performance figures on this Summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1910A**, Nebraska Summary 583, February 8, 2008.

Roger M. Hoy
Director

M.F. Kocher
R.E. Yoder
J.A. Smith
Board of Tractor Test Engineers

| TRACTOR SOUND LEVEL WITH DELUXE CAB | dB(A) |
|---|---|
| At no load in 4th gear | 75.2 |
| Bystander in 16th gear | 91.2 |

**TIRES AND WEIGHT** — **Tested without ballast**

| | |
|---|---|
| **Rear tires -** No.,size, ply & psi*(kPa)* | Six 520/85R42;**;14*(95)* |
| **Front tires** - No.,size, ply & psi*(kPa)* | Six 520/85R42;**;15*(105)* |
| **Height of Drawbar** | 21.0 in *(535 mm)* |
| **Static Weight with operator-** Rear | 18840 lb *(8546 kg)* |
| -Front | 25805 lb *(11705 kg)* |
| -Total | 44645 lb *(20251 kg)* |

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: IVN
Quick Attach: yes
Maximum force exerted through whole range: 19620 lbs *(87.3 kN)*

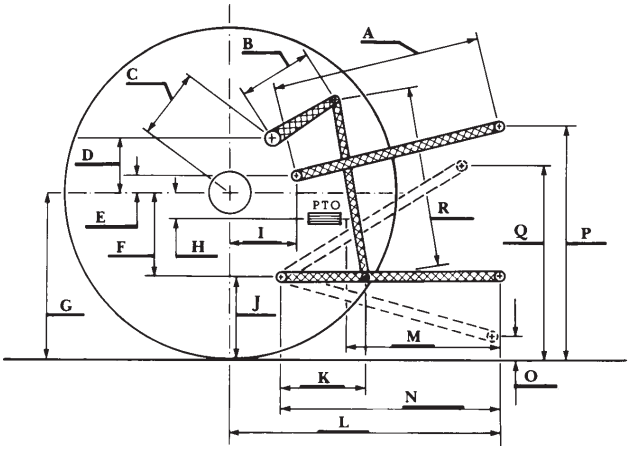
| | Standard pump | High flow pump |
|---|---|---|
| i) Sustained pressure of the open relief valve: | 2880 psi *(199 bar)* | 2990 psi *(206 bar)* |
| ii) Pump delivery rate at minimum pressure and rated engine speed: | 40.6 GPM *(153.7 l/min)* | 55.8 GPM *(211.2 l/min)* |
| iii) Pump delivery rate at maximum hydraulic power: | 37.7 GPM *(142.7 l/min)* | 54.3 GPM *(205.5 l/min)* |
| Delivery pressure: | 2805 psi *(193 bar)* | 2604 psi *(180 bar)* |
| Power: | 61.7 HP *(46.0 kW)* | 82.5 Hp *(61.5 kW)* |

## TwinFlow system

| | Main pump | TwinFlow pump |
|---|---|---|
| i) Sustained pressure at compensator cutoff: | 3026 psi *(208 bar)* | 3041 psi *(210 bar)* |
| ii) Pump delivery rate at minimum pressure and rated engine speed: | 56.6 GPM *(214.2 l/min)* | 37.7 GPM *(142.6 l/min)* |
| Combined flow: | 94.3 GPM *(356.8 l/min)* | |
| iii) Pump delivery rate at maximum hydraulic power: | 55.4 GPM *(209.5 l/min)* | 35.9 GPM *(135.9 l/min)* |
| Delivery pressure: | 2430 psi *(167 bar)* | 2861 psi *(197 bar)* |
| Power: | 78.5 HP *(58.5 kW)* | 59.9 Hp *(44.7 kW)* |

## HITCH DIMENSIONS AS TESTED - NO LOAD

| | inch | *mm* |
|---|---|---|
| A | 32.6 | *827* |
| B | 29.9 | *760* |
| C | 23.2 | *590* |
| D | 22.0 | *558* |
| E | 13.5 | *342* |
| F | 13.4 | *340* |
| G | 38.2 | *970* |
| H | 6.4 | *162* |
| I | 22.8 | *578* |
| J | 24.8 | *630* |
| K | 29.0 | *736* |
| L | 56.3 | *1431* |
| *L' | 63.6 | *1615* |
| M | 34.3 | *871* |
| N | 46.5 | *1181* |
| O | 7.9 | *200* |
| P | 48.6 | *1234* |
| Q | 42.2 | *1072* |
| R | 39.8 | *1010* |





**New Holland TJ 480 Diesel**

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