

January 2000

Test 1784: Case IH STX 440/Case IH STX 450/ New Holland TJ 450 Diesel

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NEBRASKA OECD TRACTOR TEST 1784 - SUMMARY 336

CASE IH STX 440 DIESEL

ALSO CASE IH STX 450 DIESEL

ALSO NEW HOLLAND TJ 450 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—1001 rpm) | | | | | |
| 400.64 (298.76) | 2000 | 22.12 (83.73) | 0.387 (0.236) | 18.11 (3.57) | |
| Maximum Power (2 Hours) | | | | | |
| 454.23 (338.72) | 1700 | 22.80 (86.30) | 0.352 (0.214) | 19.92 (3.92) | |
| VARYING POWER AND FUEL CONSUMPTION | | | | | |
| 400.64 (298.76) | 2000 | 22.12 (83.73) | 0.387 (0.236) | 18.11 (3.57) | Air temperature |
| 347.69 (259.27) | 2044 | 20.09 (76.06) | 0.406 (0.247) | 17.30 (3.41) | 74°F(23°C) |
| 264.58 (197.30) | 2071 | 16.42 (62.15) | 0.435 (0.265) | 16.12 (3.17) | Relative humidity |
| 178.63 (133.21) | 2098 | 12.78 (48.39) | 0.502 (0.305) | 13.97 (2.75) | 36% |
| 90.29 (67.33) | 2127 | 9.02 (34.15) | 0.701 (0.426) | 10.01 (1.97) | Barometer |
| 1.03 (0.77) | 2155 | 5.52 (19.26) | 37.710 (22.938) | 0.20 (0.04) | 28.98" Hg(98.14 kPa) |
| Maximum Torque -1598 lb.-ft. (2166 Nm) at 1100 rpm | | | | | |
| Maximum Torque Rise -51.7% | | | | | |
| Torque rise at 1600 engine rpm -42% | | | | | |

DRAWBAR PERFORMANCE (Unballasted) 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) | Hp.hr/gal (kW.h/l) | Temp.°F (°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---|--------------------------------|------------------------|---------------------------------|-----------|---|-----------------------|-------------------------------------|--------------------|-------------------------------|
| Maximum Power—4th Gear | | | | | | | | | |
| 371.35 (276.92) | 32685 (145.39) | 4.26 (6.86) | 1998 | 4.08 | 0.412 (0.251) | 17.03 (3.36) | 187 (86) | 56 (13) | 29.03 (98.31) |
| 75% of Pull at Maximum Power—4th Gear | | | | | | | | | |
| 288.92 (215.45) | 24447 (108.75) | 4.43 (7.13) | 2055 | 3.20 | 0.450 (0.274) | 15.58 (3.07) | 185 (85) | 74 (23) | 29.00 (98.21) |
| 50% of Pull at Maximum Power—4th Gear | | | | | | | | | |
| 197.96 (147.62) | 16308 (72.54) | 4.55 (7.33) | 2087 | 1.94 | 0.511 (0.311) | 13.73 (2.70) | 181 (83) | 73 (23) | 29.00 (98.21) |
| 75% of Pull at Reduced Engine Speed—7th Gear | | | | | | | | | |
| 289.21 (215.67) | 24452 (108.77) | 4.44 (7.14) | 1487 | 3.20 | 0.373 (0.227) | 18.80 (3.70) | 182 (83) | 74 (23) | 29.00 (98.21) |
| 50% of Pull at Reduced Engine Speed—7th Gear | | | | | | | | | |
| 198.22 (147.81) | 16256 (72.31) | 4.57 (7.36) | 1516 | 1.94 | 0.397 (0.242) | 17.67 (3.48) | 180 (82) | 73 (23) | 29.00 (98.21) |

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

Dates of Test: October 11 - 19, 2000

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) 0.8427 Fuel weight 7.017 lbs/gal (0.841 kg/l) Oil SAE 15W40 API service classification CH-4 Transmission and hydraulic lubricant Case Hy-Tran Ultra fluid Front and rear axle lubricant Case Hy-Tran Ultra fluid Total time engine was operated 29.5 hours

ENGINE: Make Cummins Diesel Type six cylinder vertical with turbocharger and air to air aftercooler Serial No. 14008617 Crankshaft lengthwise Rated engine speed 2000 Bore and stroke 5.394" x 6.654" (137.0 mm x 169.0 mm) Compression ratio 16.5 to 1 Displacement 912 cu in (14945 ml) Starting system 12 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: 141.6 - 156.1 lb/h (64.2 - 70.8 kg/h) High idle: 2125 - 2165 rpm Turbo boost: nominal 21.2 - 24.1 psi (146 - 166 kPa) as measured 22.5 psi (155 kPa)

CHASSIS: Type four wheel drive with duals Serial No. *JEE0097535* Tread width rear 75.0" (1905 mm) to 129.0" (3277 mm) front 75.0"(1905 mm) to 129.0" (3277 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 2.49 (4.00) second 3.00 (4.82) third 3.62 (5.82) fourth 4.36 (7.01) fifth 5.00 (8.05) sixth 5.50 (8.85) seventh 6.03 (9.70) eighth 6.62 (10.65) ninth 7.28 (11.71) tenth 8.00 (12.87) eleventh 8.77 (14.11) twelfth 9.63 (15.50) thirteenth 11.06 (17.80) fourteenth 13.31 (21.43) fifteenth 16.09 (25.89) sixteenth 19.37 (31.17) reverse 3.77 (6.06), 8.33 (13.40) 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 39325 lb (17837 kg)

DRAWBAR PERFORMANCE (Unballasted)
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) | Temp. ^o F(°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) | |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|--|---|--------------------|-------------------------------|------------------|
| | | | | | 2nd Gear | | | | |
| 306.93 (228.88) | 40035 (178.08) | 2.87 (4.63) | 2036 | 7.70 | 0.462 (0.281) | 15.19 (2.99) | 183 (84) | 52 (11) | 29.04 (98.34) |
| | | | | | 3rd Gear | | | | |
| 359.86 (268.35) | 39482 (175.62) | 3.42 (5.50) | 1999 | 7.46 | 0.420 (0.256) | 16.70 (3.29) | 186 (86) | 54 (12) | 29.04 (98.34) |
| | | | | | 4th Gear | | | | |
| 397.55 (296.46) | 38619 (171.79) | 3.86 (6.21) | 1855 | 6.47 | 0.392 (0.239) | 17.89 (3.52) | 187 (86) | 57 (14) | 29.03 (98.31) |
| | | | | | 5th Gear | | | | |
| 408.80 (304.84) | 37481 (166.72) | 4.09 (6.58) | 1701 | 5.80 | 0.392 (0.239) | 17.88 (3.52) | 189 (87) | 58 (14) | 29.03 (98.31) |
| | | | | | 6th Gear | | | | |
| 414.48 (309.08) | 34272 (152.45) | 4.54 (7.30) | 1698 | 4.95 | 0.384 (0.234) | 18.26 (3.60) | 190 (88) | 63 (17) | 29.03 (98.31) |
| | | | | | 7th Gear | | | | |
| 411.15 (306.60) | 30711 (136.61) | 5.02 (8.08) | 1701 | 4.08 | 0.387 (0.235) | 18.14 (3.57) | 192 (89) | 65 (18) | 29.03 (98.31) |
| | | | | | 8th Gear | | | | |
| 413.87 (308.62) | 28027 (124.67) | 5.54 (8.91) | 1697 | 3.47 | 0.382 (0.232) | 18.36 (3.62) | 190 (88) | 70 (21) | 29.03 (98.31) |
| | | | | | 9th Gear | | | | |
| 409.22 (305.15) | 25171 (111.97) | 6.10 (9.81) | 1693 | 3.29 | 0.389 (0.236) | 18.06 (3.56) | 193 (89) | 71 (22) | 29.03 (98.31) |
| | | | | | 10th Gear | | | | |
| 413.66 (308.46) | 23047 (102.52) | 6.73 (10.83) | 1695 | 2.84 | 0.387 (0.235) | 18.15 (3.58) | 192 (89) | 72 (22) | 29.03 (98.31) |
| | | | | | 11th Gear | | | | |
| 403.23 (300.69) | 20371 (90.61) | 7.42 (11.95) | 1700 | 2.48 | 0.396 (0.241) | 17.74 (3.49) | 193 (89) | 73 (23) | 29.01 (98.24) |
| | | | | | 12th Gear | | | | |
| 416.01 (310.22) | 19114 (85.02) | 8.16 (13.14) | 1698 | 2.30 | 0.386 (0.235) | 18.16 (3.58) | 189 (87) | 73 (23) | 29.01 (98.24) |

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

Note: This tractor has a driveline protection system that limits the maximum engine torque in gears 1 through 4.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. The pull in 2nd gear (unballasted tractor) was limited to avoid excessive tractor bouncing. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 113°F (45°C). The performance figures on this Summary were taken from a test conducted under the OECD Code II test procedure.

Report reissued: Supplemental sales permits for Case IH STX 450 Diesel and New Holland TJ 450 Diesel, January, 2002.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1784**, Nebraska Summary 336, January 8, 2002.

Brent T. Sampson
Test Engineer

L.L. Bashford
M.F. Kocher
V.I. Adamchuk
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB

| | dB(A) |
|------------------------|-------|
| At no load in 4th gear | 78.2 |
| Bystander in 16th gear | 89.4 |

TIRES, BALLAST AND WEIGHT

| | With Ballast | Without Ballast |
|--|---------------------------|---------------------------|
| Rear tires - No., size, ply & psi(kPa) | Four 20.8R42; **,17 (115) | Four 20.8R42; **,15 (105) |
| Ballast - Liquid(total) | None | None |
| - Cast Iron(total) | 3385 lb (1535 kg) | None |
| Front tires - No., size, ply & psi(kPa) | Four 20.8R42; **,18 (125) | Four 20.8R42; **,16 (110) |
| Ballast - Liquid(total) | None | None |
| - Cast Iron(total) | 1675 lb (760 kg) | None |
| Height of Drawbar | 15.0 in (380 mm) | 15.0 in (380 mm) |
| Static Weight with operator -Rear | 19425 lb (8811 kg) | 16690 lb (7571 kg) |
| - Front | 25135 lb (11401 kg) | 22810 lb (10346 kg) |
| - Total | 44560 lb (20212 kg) | 39500 lb (17917 kg) |

DRAWBAR PERFORMANCE (Ballasted)
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) | Consumption Hp.hr/gal (kW.h/l) | Temp. ^o F(°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|---|--------------------------------------|---|--------------------|-------------------------------|
| 3rd Gear | | | | | | | | | |
| 346.55 (258.42) | 44525 (198.06) | 2.92 (4.70) | 1705 | 7.30 | 0.387 (0.236) | 18.12 (3.57) | 186 (86) | 60 (16) | 28.99 (98.17) |
| 4th Gear | | | | | | | | | |
| 408.41 (304.55) | 41711 (185.54) | 3.67 (5.91) | 1754 | 5.47 | 0.390 (0.237) | 17.98 (3.54) | 190 (88) | 63 (17) | 28.99 (98.17) |
| 5th Gear | | | | | | | | | |
| 409.84 (305.62) | 37073 (164.91) | 4.15 (6.67) | 1703 | 4.61 | 0.389 (0.237) | 18.02 (3.55) | 191 (88) | 65 (18) | 28.98 (98.14) |
| 6th Gear | | | | | | | | | |
| 413.45 (308.31) | 33850 (150.57) | 4.58 (7.37) | 1703 | 4.00 | 0.386 (0.235) | 18.17 (3.58) | 192 (89) | 67 (19) | 28.97 (98.10) |
| 7th Gear | | | | | | | | | |
| 409.51 (305.37) | 30359 (135.04) | 5.06 (8.14) | 1705 | 3.48 | 0.387 (0.236) | 18.11 (3.57) | 192 (89) | 68 (20) | 28.97 (98.10) |
| 8th Gear | | | | | | | | | |
| 414.72 (309.25) | 27876 (124.00) | 5.58 (8.98) | 1705 | 3.21 | 0.382 (0.232) | 18.36 (3.62) | 192 (89) | 69 (21) | 28.97 (98.10) |
| 9th Gear | | | | | | | | | |
| 409.72 (305.53) | 25015 (111.27) | 6.14 (9.88) | 1701 | 2.85 | 0.393 (0.239) | 17.87 (3.52) | 193 (89) | 70 (21) | 28.96 (98.07) |
| 10th Gear | | | | | | | | | |
| 413.58 (308.41) | 22918 (101.94) | 6.77 (10.89) | 1701 | 2.40 | 0.385 (0.234) | 18.21 (3.59) | 189 (87) | 74 (23) | 28.96 (98.07) |
| 11th Gear | | | | | | | | | |
| 405.44 (302.34) | 20471 (91.06) | 7.43 (11.95) | 1698 | 2.31 | 0.397 (0.241) | 17.69 (3.49) | 194 (90) | 76 (24) | 28.96 (98.07) |
| 12th Gear | | | | | | | | | |
| 414.84 (309.34) | 18979 (84.42) | 8.20 (13.19) | 1703 | 1.95 | 0.388 (0.236) | 18.08 (3.56) | 193 (89) | 78 (26) | 28.95 (98.04) |

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: IVN

Quick Attach: yes

Maximum Force Exerted

Through Whole Range: 19620 lbs (87.3 kN)

High flow option

i) Opening pressure of relief valve: NA
 Sustained pressure of the open relief valve: 2880 psi (199 bar) 2900 psi (200 bar)

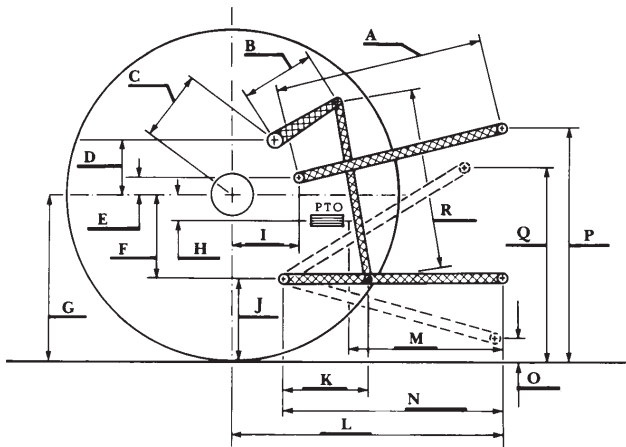
ii) Pump delivery rate at minimum pressure and rated engine speed: 41.0 GPM (155.2 l/min) 55.2 GPM (209.0 l/min)

iii) Pump delivery rate at maximum hydraulic power: 35.6 GPM (134.8 l/min) 51.4 GPM (194.6 l/min)
 Delivery pressure: 2450 psi (169 bar) 2300 psi (159 bar)
 Power: 50.9 HP (37.9 kW) 69.0 Hp (51.4 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 |

*L' to Quick Attach ends



Case IH STX 440 Diesel

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 University of Nebraska-Lincoln
 Darrell Nelson, Dean and Director