

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.  
Larsen

---

January 2000

## Test 1783: Case IH STX 375/New Holland TJ 375 Diesel

Follow this and additional works at: <http://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Applied Mechanics Commons](#)

---

"Test 1783: Case IH STX 375/New Holland TJ 375 Diesel" (2000). *Nebraska Tractor Tests*. 239.  
<http://digitalcommons.unl.edu/tractormuseumlit/239>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

# NEBRASKA OECD TRACTOR TEST 1783 - SUMMARY 335

## CASE IH STX 375 DIESEL

### ALSO NEW HOLLAND TJ 375 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1001 rpm)</b>					
337.93 (252.00)	2000	19.07 (72.17)	0.396 (0.241)	17.73 (3.49)	
<b>Maximum Power (2 Hours)</b>					
386.64 (288.32)	1600	19.06 (72.15)	0.346 (0.210)	20.28 (4.00)	
<b>VARYING POWER AND FUEL CONSUMPTION</b>					
337.93 (252.00)	2000	19.07 (72.17)	0.396 (0.241)	17.73 (3.49)	Air temperature
293.69 (219.00)	2042	17.44 (66.03)	0.417 (0.254)	16.84 (3.32)	75°F (24°C)
222.37 (165.82)	2065	14.41 (54.54)	0.455 (0.277)	15.43 (3.04)	Relative humidity
149.15 (111.22)	2079	11.46 (43.37)	0.539 (0.328)	13.02 (2.56)	22%
75.50 (56.30)	2111	8.42 (31.88)	0.783 (0.476)	8.96 (1.77)	Barometer
1.02 (0.76)	2134	5.43 (20.55)	37.472 (22.793)	0.19 (0.04)	29.21" Hg (98.92 kPa)
Maximum Torque - 1325 lb.-ft. (1797 Nm) at 1198 rpm					
Maximum Torque Rise - 49.5%					
Torque rise at 1600 engine rpm - 43%					

#### 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)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—5th Gear</b>									
313.95 (234.12)	23889 (106.26)	4.93 (7.93)	1997	2.89	0.428 (0.260)	16.41 (3.23)	187 (86)	63 (17)	29.08 (98.48)
<b>75% of Pull at Maximum Power—5th Gear</b>									
242.79 (181.05)	17857 (79.43)	5.10 (8.21)	2052	2.16	0.472 (0.287)	14.86 (2.93)	185 (85)	66 (19)	29.05 (98.37)
<b>50% of Pull at Maximum Power—5th Gear</b>									
165.03 (123.06)	11901 (52.94)	5.20 (8.37)	2081	1.61	0.542 (0.330)	12.94 (2.55)	181 (83)	65 (18)	29.05 (98.37)
<b>75% of Pull at Reduced Engine Speed—8th Gear</b>									
243.17 (181.33)	17843 (79.37)	5.11 (8.22)	1555	2.16	0.371 (0.225)	18.93 (3.73)	179 (82)	66 (19)	29.05 (98.37)
<b>50% of Pull at Reduced Engine Speed—8th Gear</b>									
165.54 (123.44)	11903 (52.94)	5.22 (8.39)	1574	1.52	0.411 (0.250)	17.08 (3.36)	179 (82)	64 (18)	29.05 (98.37)

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

**Dates of Test:** October 9 - 18, 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 31.0 hours

**ENGINE:** Make Cummins Diesel Type six cylinder vertical with turbocharger and air to air aftercooler Serial No. 14008620 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: 121.9 - 134.5 lb/h (55.3 - 61.0 kg/h) High idle: 2125 - 2165 rpm Turbo boost: nominal 20.2 - 23.1 psi (139 - 159 kPa) as measured 21.5 psi (148 kPa)

**CHASSIS:** Type four wheel drive with duals Serial No. \*JEE0097542\* 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 2.47 (3.97) second 2.97 (4.78) third 3.59 (5.77) fourth 4.32 (6.96) fifth 4.96 (7.99) sixth 5.45 (8.77) seventh 5.98 (9.62) eighth 6.57 (10.57) ninth 7.22 (11.62) tenth 7.93 (12.76) eleventh 8.69 (13.99) twelfth 9.56 (15.38) thirteenth 10.97 (17.65) fourteenth 13.21 (21.26) fifteenth 15.96 (25.69) sixteenth 19.21 (30.92) reverse 3.73 (6.01), 8.26 (13.29) 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 37610 lb (17060 kg)

**DRAWBAR PERFORMANCE**  
**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. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
1st Gear									
174.85 (130.38)	33658 (149.72)	1.95 (3.14)	1626	5.08	0.451 (0.274)	15.55 (3.06)	182 (83)	66 (19)	29.05 (98.37)
2nd Gear									
226.99 (169.27)	30394 (135.20)	2.80 (4.51)	1924	4.22	0.459 (0.279)	15.29 (3.01)	181 (83)	66 (19)	29.06 (98.41)
3rd Gear									
283.53 (211.42)	31109 (138.38)	3.42 (5.50)	1941	4.30	0.428 (0.260)	16.41 (3.23)	184 (84)	66 (19)	29.06 (98.41)
4th Gear									
333.24 (248.49)	31871 (141.77)	3.92 (6.31)	1854	4.57	0.398 (0.242)	17.65 (3.48)	186 (85)	65 (18)	29.08 (98.48)
5th Gear									
343.37 (256.05)	31708 (141.04)	4.06 (6.54)	1674	4.48	0.378 (0.230)	18.54 (3.65)	189 (87)	64 (18)	29.08 (98.48)
6th Gear									
346.29 (258.23)	30298 (134.77)	4.29 (6.90)	1603	4.04	0.384 (0.234)	18.26 (3.60)	192 (89)	70 (21)	28.98 (98.14)
7th Gear									
346.71 (258.54)	27306 (121.46)	4.76 (7.66)	1604	3.16	0.386 (0.235)	18.16 (3.58)	186 (86)	49 (9)	29.14 (98.68)
8th Gear									
349.43 (260.57)	25047 (111.41)	5.23 (8.42)	1601	2.80	0.381 (0.232)	18.42 (3.63)	187 (86)	52 (11)	29.13 (98.65)
9th Gear									
347.10 (258.83)	22621 (100.62)	5.75 (9.26)	1598	2.53	0.384 (0.234)	18.26 (3.60)	189 (87)	54 (12)	29.12 (98.61)
10th Gear									
352.12 (262.58)	20743 (92.27)	6.37 (10.24)	1607	2.34	0.376 (0.229)	18.66 (3.68)	189 (87)	58 (14)	29.12 (98.61)
11th Gear									
343.40 (256.07)	18376 (81.74)	7.01 (11.28)	1608	1.98	0.390 (0.237)	17.99 (3.54)	190 (88)	61 (16)	29.10 (98.54)
12th Gear									
346.45 (258.35)	16902 (75.18)	7.69 (12.37)	1603	1.89	0.387 (0.235)	18.15 (3.58)	190 (88)	61 (16)	29.10 (98.54)
13th Gear									
340.78 (254.12)	14434 (64.20)	8.85 (14.25)	1603	1.61	0.395 (0.240)	17.76 (3.50)	189 (87)	62 (17)	29.09 (98.51)

**REPAIRS AND ADJUSTMENTS:** Norepairs or adjustments.

**NOTE:** This tractor has a driveline protection system that limits the maximum engine torque in gears 1 through 5.

**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 110°F(43°C). The performance figures on this Summary were taken from a test conducted under the OECD Code II test procedure.

**Report reissued:** Supplemental sales permit for New Holland TJ 375 Diesel, December, 2001.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1783**, Nebraska Summary 335, December 20, 2001.

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 5th gear	77.0
Bystander in 16th gear	88.4

**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**

Four 20.8R42;\*\*,14(95)

Four 20.8R42;\*\*,15(105)

14.5 in (370 mm)

15915 lb (7219 kg)

21870 lb (9920 kg)

37785 lb (17139 kg)

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

CATEGORY: IV

Quick Attach: yes

Maximum Force Exerted

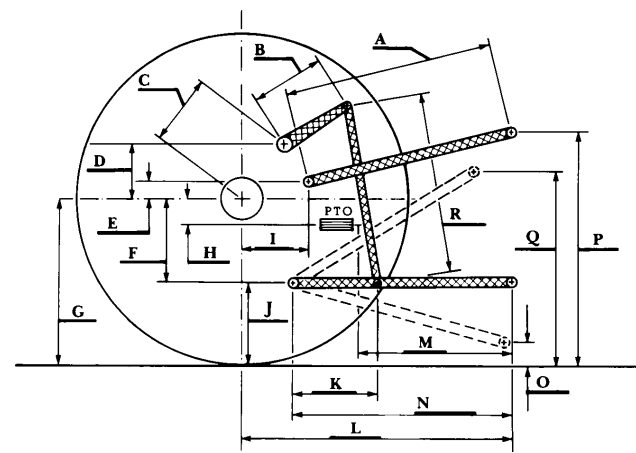
Through Whole Range: 19620 lbs (87.3 kN)

		High flow option
i) Opening pressure of relief valve:	NA	NA
Sustained pressure of the open relief valve:	2870 psi (198 bar)	2900 psi (200 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	40.9 GPM (154.8 l/min)	55.2 GPM (209.0 l/min)
iii) Pump delivery rate at maximum hydraulic power:	34.6 GPM (131.0 l/min)	51.4 GPM (194.6 l/min)
Delivery pressure:	2450 psi (169 bar)	2300 psi (159 bar)
Power:	49.5 HP (36.9 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 375 Diesel

Agricultural Research Division  
 Institute of Agriculture and Natural Resources  
 University of Nebraska-Lincoln  
 Darrell Nelson, Dean and Director