

Tractor Test and Power Museum, The Lester F. Larsen

UNL Larsen Tractor Museum Archives

University of Nebraska - Lincoln

Year 2007

Test 1910: Case-IH Steiger 480 and STX
480 Diesel 16-Speed

Tractor Museum
University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

NEBRASKA OECD TRACTOR TEST 1910 - SUMMARY 578

CASE IH STEIGER 480 DIESEL ALSO CASE IH STX 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)	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 Akcela Hy-Tran Ultra fluid Front and rear axle lubricant Akcela 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)	Temp. ^o 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.

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). The manufacturer's claim of 75 dB(A) cab sound level, with Luxury cab, was not verified. 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. **1910**, Nebraska Summary 578, 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

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

Six 520/85R42; **; 14(95)
Six 520/85R42; **; 15(105)
21.0 in (535 mm)
18840 lb (8546 kg)
25805 lb (11705 kg)
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

i) Sustained pressure at compensator cutoff:

Main pump
3026 psi (208 bar)

TwinFlow pump
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)

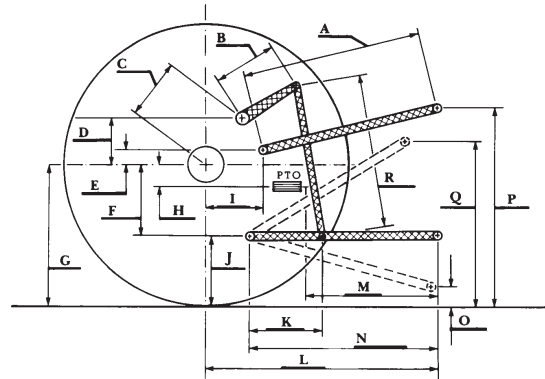
59.9 Hp (44.7 kW)

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

*L' to Quick Attach ends



Case IH STEIGER 480 Diesel

Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln