

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

January 1998

Test 1899: Case IH CX 100/C 100 Diesel

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 1899: Case IH CX 100/C 100 Diesel" (1998). *Nebraska Tractor Tests*. 195.

<https://digitalcommons.unl.edu/tractormuseumlit/195>

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.

SUMMARY OF OECD TEST 1899—NEBRASKA SUMMARY 329

CASE IH CX 100 DIESEL

ALSO CASE IH C100 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-1100 rpm)					
86.2 (64.3)	2200	5.66 (21.44)	0.458 (0.279)	15.23 (3.00)	
Standard Power Take-off Speed (1000 rpm)					
87.2 (65.0)	2000	5.35 (20.27)	0.428 (0.261)	16.28 (3.21)	
VARYING POWER AND FUEL CONSUMPTION					
86.2 (64.3)	2200	5.66 (21.44)	0.458 (0.279)	15.23 (3.00)	Air temperature
75.5 (56.3)	2264	5.23 (19.81)	0.484 (0.294)	14.42 (2.84)	73°F (23°C)
57.4 (42.8)	2294	4.40 (16.64)	0.535 (0.325)	13.05 (2.57)	Relative humidity
38.5 (28.7)	2312	3.59 (13.58)	0.649 (0.395)	10.75 (2.12)	33%
19.4 (14.5)	2328	2.73 (10.32)	0.980 (0.596)	7.12 (1.40)	Barometer
--	2353	1.59 (6.01)	--	--	29.7" Hg (100.5 kPa)
--			--	--	

Maximum Torque - 268 lb.-ft. (364 Nm) at 1400 rpm

Maximum Torque Rise -30.4%

Torque rise at 1800 engine rpm - 22%

DRAWBAR PERFORMANCE

(Unballasted-Front Drive Engaged)

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—6th (3LoDD) Gear									
74.0 (55.2)	7005 (31.16)	3.96 (6.38)	2202	5.0	0.538 (0.327)	13.10 (2.58)	185 (85)	59 (15)	29.4 (99.5)
75% of Pull at Maximum Power—6th (3LoDD) Gear									
58.2 (43.4)	5255 (23.38)	4.15 (6.68)	2270	3.5	0.611 (0.372)	11.51 (2.27)	181 (83)	63 (17)	29.4 (99.5)
50% of Pull at Maximum Power—6th (3LoDD) Gear									
39.8 (29.7)	3510 (15.61)	4.26 (6.85)	2301	2.4	0.722 (0.439)	9.75 (1.92)	180 (82)	64 (18)	29.4 (99.5)
75% of Pull at Reduced Engine Speed—7th (1HiTA) Gear									
58.2 (43.4)	5260 (23.40)	4.15 (6.68)	1904	3.4	0.493 (0.300)	14.26 (2.81)	181 (83)	66 (19)	29.4 (99.5)
50% of Pull at Reduced Engine Speed—7th (1HiTA) Gear									
39.8 (29.7)	3495 (15.55)	4.27 (6.88)	1936	2.3	0.587 (0.357)	11.98 (2.36)	180 (82)	66 (19)	29.4 (99.5)

Location of Test: DLG Testing Station for Agricultural Machinery Max - Eyth - Weg 1, D-64823 Gros-Umstadt, Germany

Dates of Test: August - September, 1998

Manufacturer: Case United Kingdom Limited, Doncaster, DN2 4PG, England

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.838 **Fuel weight** 6.98 lbs/gal (0.836 kg/l) **Oil** SAE 15W-40 **API service classification** CF-4 **Transmission and hydraulic lubricant** Case Hy-Tran Plus fluid **Front axle lubricant** SAE 85W-140 gear oil

ENGINE: Make Perkins Diesel **Type** four cylinder vertical with turbocharger **Serial No.** AQU877813D **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 3.74" x 5.00" (95.0 mm x 127.0 mm) **Compression ratio** 17.25 to 1 **Displacement** 243 cu in (3990 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 **Fuel cooler** radiator for pump return fuel **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** front wheel assist **Serial No.** JJE 100 2375 **Tread width** rear 55.9" (1420 mm) to 75.7" (1922 mm) front 53.7" (1364 mm) to 76.0" (1930 mm) **Wheel base** 92.8" (2356 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.32 (2.12) second 1.59 (2.56) third 2.32 (3.73) fourth 2.80 (4.50) fifth 3.44 (5.53) sixth 4.14 (6.67) seventh 4.94 (7.95) eighth 5.39 (8.67) ninth 5.96 (9.59) tenth 6.50 (10.46) eleventh 8.70 (14.00) twelfth 10.49 (16.88) thirteenth 12.89 (20.75) fourteenth 15.55 (25.02) fifteenth 20.21 (32.52) sixteenth 24.37 (39.22) reverse 1.44 (2.31), 2.53 (4.07), 3.75 (6.04), 5.39 (8.67), 5.88 (9.46), 9.49 (15.28), 14.06 (22.63), 22.05 (35.48) **Clutch** multiple dry disc hydraulically operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1994 engine rpm and 1000 rpm at 2000 engine rpm **Unladen tractor mass** 8280 lb (3760 kg)

DRAWBAR PERFORMANCE
(Unballasted – Front Drive Engaged)
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 cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th (2LoDD) Gear									
61.8 (46.1)	9160 (40.74)	2.53 (4.07)	2231	11.4	0.613 (0.373)	11.47 (2.26)	187 (86)	70 (21)	29.4 (99.5)
5th (3LoTA) Gear									
70.5 (52.5)	9115 (40.56)	2.90 (4.66)	2080	11.0	0.568 (0.345)	12.39 (2.44)	185 (85)	68 (20)	29.4 (99.5)
6th (3LoDD) Gear									
74.8 (55.8)	7835 (34.85)	3.58 (5.76)	2007	6.2	0.502 (0.305)	14.01 (2.76)	185 (85)	66 (19)	29.4 (99.5)
7th (1HiTA) Gear									
73.8 (55.0)	6410 (28.51)	4.32 (6.95)	2002	4.6	0.510 (0.310)	13.81 (2.72)	183 (84)	70 (21)	29.4 (99.5)
8th (4LoTA) Gear									
72.5 (54.1)	5750 (25.57)	4.73 (7.61)	1999	4.0	0.519 (0.316)	13.55 (2.67)	185 (85)	70 (21)	29.4 (99.5)
9th (1HiDD) Gear									
74.0 (55.2)	5305 (23.61)	5.23 (8.42)	1997	3.7	0.508 (0.309)	13.86 (2.73)	185 (85)	70 (21)	29.4 (99.5)
10th (4LoDD) Gear									
71.6 (53.4)	4685 (20.84)	5.73 (9.22)	1995	3.1	0.525 (0.319)	13.40 (2.64)	185 (85)	72 (22)	29.4 (99.5)
11th (2HiTA) Gear									
74.0 (55.2)	3575 (15.91)	7.76 (12.48)	1998	2.3	0.508 (0.309)	13.86 (2.73)	183 (84)	63 (17)	29.4 (99.5)
12th (2HiDD) Gear									
69.8 (52.1)	2770 (12.32)	9.45 (15.21)	2006	1.8	0.535 (0.326)	13.14 (2.59)	183 (84)	66 (19)	29.4 (99.5)

NOTE: The Case IH C 100 Diesel varies from the Case IH CX 100 Diesel by chassis design and transmission options.

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's claims of 34% torque rise, Cab sound level of 73.0 dB(A), nor 3 point lift capacity of 3665 lbs. or 5097 lbs. with optional boost cylinder. The pull in 4th(2LoDD) gear was limited to avoid excessive tractor bouncing. The performance results on this summary were taken from OECD tests conducted under the Code II Test Code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1899**, Nebraska Summary 329, November 27,2000.

Brent T. Sampson
Test Engineer

L.L. Bashford
M.F. Kocher
R.D. Grisso, Jr
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
Maximum Sound Level	79.0	79.0
At no load in 7th(1HiTA) gear	75.5	76.5
Bystander	–	–

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th(1HiTA) gear	86.5	86.0
Bystander	–	–

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 18.4R34;**, 12 (80)
Two 13.6R24;**, 12 (80)
15.7 in (400 mm)
5115 lb (2320 kg)
3340 lb (1515 kg)
8455 lb (3835 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

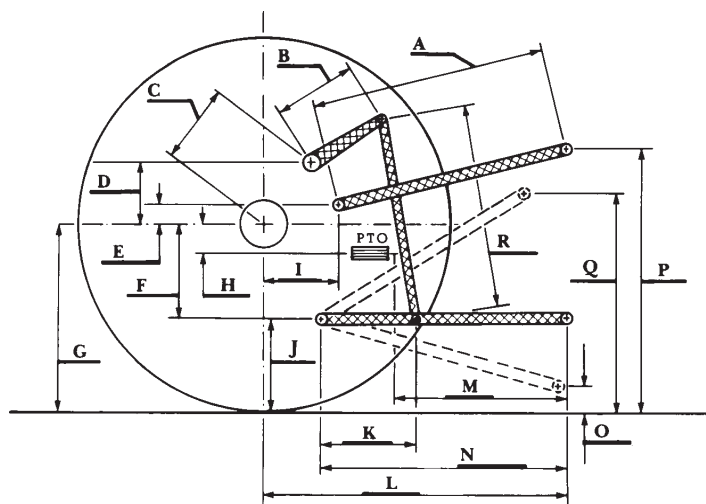
Quick Attach: None

Maximum Force Exerted Through Whole Range: 2610 lbs (11.30 kN)
 4000 lbs (17.80 kN) (with boost cylinder)

i) Opening pressure of relief valve: NA
 Sustained pressure of the open relief valve: 2555 psi (176 bar)

ii) Pump delivery rate at minimum pressure: 17.0 GPM (64.4 l/min)

iii) Pump delivery rate at maximum
 hydraulic power: 13.8 GPM (52.2 l/min)
 Delivery pressure: 2320 psi (160 bar)
 Power: 18.7 HP (13.9 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	28.2	716
B	11.7	298
C	11.6	295
D	11.3	288
E	7.9	200
F	6.7	170
G	30.3	770
H	4.8	122
I	11.8	300
J	23.6	600
K	21.7	550
L	38.4	975
M	21.3	540
N	32.0	814
O	7.9	200
P	47.6	1210
Q	34.1	865
R	29.5	750