

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

2016

Nebraska Summary: S1134 Case-IH Farmall 110C

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, "Nebraska Summary: S1134 Case-IH Farmall 110C" (2016). *Nebraska Tractor Tests*. 3383.

<https://digitalcommons.unl.edu/tractormuseumlit/3383>

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 3006-NEBRASKA SUMMARY 1134
CASE IH FARMALL 110C DIESEL
12 SPEED**

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption		Mean Atmospheric Conditions
		Gal/hr (l/h)	lb/hp.hr (kg/kWh)	Hp.hr/gal (kW/hl)	Gal/hr (l/h)	
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—634 rpm)						
87.6 (65.3)	2298	5.77 (21.86)	0.460 (0.280)	15.18 (2.99)	0.19 (0.72)	
Standard Power Take-off Speed (540 rpm)						
95.9 (71.5)	1958	5.42 (20.53)	0.395 (0.240)	17.68 (3.49)	0.13 (0.48)	
Maximum Power (1 hour)						
96.0 (71.6)	1896	5.39 (20.39)	0.393 (0.239)	17.80 (3.51)	0.12 (0.45)	

VARYING POWER AND FUEL CONSUMPTION

87.6 (65.3)	2298	5.77 (21.86)	0.460 (0.280)	15.18 (2.99)	0.19 (0.72)	Air temperature
75.2 (56.1)	2320	5.04 (19.08)	0.469 (0.285)	14.92 (2.94)	0.17 (0.66)	72°F (22°C)
56.9 (42.4)	2342	4.24 (16.04)	0.520 (0.317)	13.44 (2.65)	0.15 (0.57)	Relative humidity
38.4 (28.6)	2364	3.41 (12.89)	0.621 (0.378)	11.26 (2.22)	0.12 (0.45)	60%
19.3 (14.4)	2385	2.56 (9.68)	0.926 (0.563)	7.55 (1.49)	0.11 (0.42)	Barometer
---	2407	1.90 (7.21)	---	---	0.07 (0.28)	28.4" Hg (96.5 kPa)

Maximum torque - 313 lb.-ft. (425 Nm) at 1497 rpm
Maximum torque rise - 56.4%
Torque rise at 1850 engine rpm - 36%
Power increase at 1896 engine rpm - 9.6%

**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		D.E.F. Consumption lb/hp.hr (kg/kWh)	Temp. °F(°C)		Barom. inch Hg (kPa)
					lb/hp.hr (kg/kWh)	Hp.hr/gal (kW/hl)		cool- ing med	Air dry bulb	
Power at Rated Engine Speed—8th (4M) Gear										
73.4 (54.7)	4545 (20.23)	6.05 (9.73)	2301	6.5	0.482 (0.293)	14.52 (2.86)	0.026 (0.016)	205 (96)	73 (23)	30.1 (102.0)
75% of Pull at Rated Engine Speed—8th (4M) Gear										
56.6 (42.2)	3410 (15.17)	6.22 (10.01)	2325	4.9	0.572 (0.348)	12.23 (2.41)	0.026 (0.016)	203 (95)	73 (23)	30.1 (102.0)
50% of Pull at Rated Engine Speed—8th (4M) Gear										
38.9 (29.0)	2275 (10.12)	6.41 (10.31)	2343	3.0	0.735 (0.447)	9.51 (1.87)	0.033 (0.020)	205 (96)	73 (23)	30.1 (102.0)
75% of Pull at Reduced Engine Speed—9th (1H) Gear										
56.6 (42.2)	3410 (15.17)	6.22 (10.01)	1863	4.8	0.522 (0.317)	13.40 (2.64)	0.023 (0.014)	205 (96)	75 (24)	30.1 (102.0)
50% of Pull at Reduced Engine Speed—9th (1H) Gear										
38.9 (29.0)	2275 (10.12)	6.41 (10.31)	1888	3.1	0.668 (0.406)	10.48 (2.06)	0.030 (0.018)	207 (97)	75 (24)	30.1 (102.0)

Location of tests: Alma Mater Studiorum, University Di Bologna, Via Gandolfi, 19-40057, Cadriano, Bologna, Italy
Dates of tests: April, 2016

Manufacturer: CNH Industrial Italia S.p.A, viale delle, Nazioni 55, 41122 - Modena, Italy

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.840 **Fuel weight** 6.99 lbs/gal (0.838 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil** SAE 10W30 **API service classification** CJ-4 **Transmission and hydraulic lubricant** Akcela Nexplore fluid **Front axle lubricant** Akcela Nexplore fluid

ENGINE: Make F.P.T Industrial Diesel **Type** Four cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** 302006 **Crankshaft** lengthwise **Rated engine speed** 2300 **Bore and stroke** 3.898" x 4.331" (99.0 mm x 110.0 mm) **Compression ratio** 17.0 to 1 **Displacement** 207 cu in (3387 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 **Exhaust** DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) integrated within a vertical muffler **Cooling medium temperature control** one thermostat and variable speed fan

CHASSIS: Type front wheel assist **Serial No.** ZFLF 02817 **Tread width** rear 52.6" (1337mm) to 76.3" (1937 mm) front 48.6" (1235 mm) to 76.7" (1947 mm) **Wheelbase** 90.0" (2285 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 0.60 (0.97) second 0.92 (1.48) third 1.35 (2.17) fourth 1.87 (3.01) fifth 2.08 (3.34) sixth 3.18 (5.11) seventh 4.65 (7.48) eighth 6.45 (10.38) ninth 7.99 (12.86) tenth 12.22 (19.67) eleventh 17.90 (28.80) twelfth 24.84 (39.97) reverse 0.60 (0.97), 0.92 (1.48), 1.34 (2.16), 1.86 (3.00), 2.07 (3.33), 3.16 (5.09), 4.64 (7.46), 6.43 (10.35), 7.97 (12.82), 12.19 (19.61), 17.85 (28.72), 24.77 (39.86) **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1957 engine rpm or 1000 rpm at 2125 engine rpm **Unladen tractor mass** 8255 lb (3745 kg)

**DRAWBAR PERFORMANCE AT 1950 ENGINE RPM
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/kWh)	Consumption Hp.hr/gal (kW/hl)	D.E.F Consumption lb/hp.hr (kg/kWh)	Temp. °F/°C cool- mg dry	Air dry bulb	Barom. Hg (kPa)
6th (2M) Gear										
50.6 (37.7)	6895 (30.67)	2.75 (4.43)	2343	15.0	0.576 (0.351)	12.13 (2.39)	0.028 (0.017)	207 (97)	75 (24)	30.1 (102.0)
7th (3M) Gear										
68.3 (50.9)	6230 (27.71)	4.11 (6.61)	2300	12.0	0.518 (0.315)	13.50 (2.66)	0.025 (0.015)	207 (97)	77 (25)	30.1 (102.0)
8th (4M) Gear										
76.3 (56.9)	5810 (25.84)	4.93 (7.93)	1950	10.3	0.497 (0.303)	14.06 (2.77)	0.023 (0.014)	207 (97)	77 (25)	30.1 (102.0)
9th (1H) Gear										
80.2 (59.8)	4750 (21.12)	6.33 (10.19)	1957	7.1	0.475 (0.289)	14.72 (2.90)	0.021 (0.013)	205 (96)	75 (24)	30.1 (102.0)
10th (2H) Gear										
80.0 (59.7)	2995 (13.32)	10.02 (16.13)	1956	4.1	0.477 (0.290)	14.66 (2.89)	0.013 (0.013)	205 (96)	75 (24)	30.1 (102.0)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: The performance results on this report were obtained from tests carried out on the New Holland T4.110 Diesel.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. The manufacturer's 3 point lift capacity claim of 7351 lbs (3334 kg), with optional lift cylinders, was not verified. The performance results on this summary were taken from tests conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **3006**, Nebraska Summary 1134, December 14, 2017.

Roger M. Hoy
Director

M.F. Kocher
J.D. Luck
S.K. Pitla
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th (3M) gear	77.4	77.4
Bystander	---	---

Horizontal distance of drawbar hitch point behind rear wheel axis - 34.8 in (885 mm)

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 460/85R34; **; 23 (160)
Two 380/85R24; **; 23 (160)
21.0 in (535 mm)
5050 lb (2290 kg)
3370 lb (1530 kg)
8420 lb (3820 kg)

HYDRAULIC PERFORMANCE

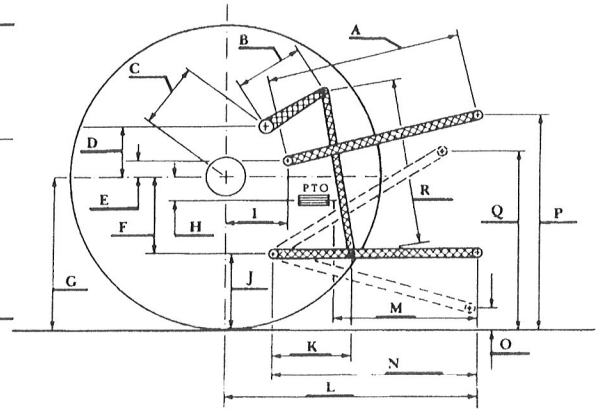
CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range: 5760 lbs (25.6 kN)

- | | |
|---|-----------------------|
| i) Sustained pressure with relief valve open: | 2990 psi (206 bar) |
| ii) Pump delivery rate at minimum pressure: | 17.1 GPM (65.0 l/min) |
| iii) Pump delivery rate at maximum | |
| hydraulic power: | 14.7 GPM (55.7 l/min) |
| Delivery pressure: | 2670 psi (184 bar) |
| Power: | 22.9 hp (17.1 kW) |



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	28.7	730
B	10.0	255
C	13.8	351
D	12.7	323
E	11.8	300
F	7.4	189
G	30.5	775
H	0.6	16
I	13.0	330
J	23.1	586
K	19.7	500
L	42.1	1070
M	23.2	590
N	36.0	915
O	16.3	415
P	47.1	1196
Q	40.9	1038
R	24.2	615

RECOMMENDED CITATION FORMAT:

NTTL.(2017). OECD tractor test 3006 for Case IH Farmall 110C Diesel.

Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from <http://tractortestlab.unl.edu>