

SUMMARY OF OECD TEST 2977-NEBRASKA SUMMARY 1128

CASE IH FARMALL 110U DIESEL

16 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/kW.h)	Hp.hr/gal (kW.l/l)	Gal/hr (l/h)	
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1145 rpm)						
97.8 (72.9)	2200	5.81 (22.00)	0.415 (0.252)	16.82 (3.31)	0.16 (0.61)	
Standard Power Take-off Speed (1000 rpm)						
99.4 (74.1)	1922	5.57 (21.10)	0.391 (0.238)	17.83 (3.51)	0.10 (0.36)	
Maximum Power (1 hour)						
99.4 (74.1)	1922	5.57 (21.10)	0.391 (0.238)	17.83 (3.51)	0.10 (0.36)	

VARYING POWER AND FUEL CONSUMPTION

97.8 (72.9)	2200	5.81 (22.00)	0.415 (0.252)	16.82 (3.31)	0.16 (0.61)	Air temperature
84.1 (62.7)	2226	5.19 (19.63)	0.431 (0.262)	16.20 (3.19)	0.15 (0.56)	71°F (21°C)
63.4 (47.3)	2239	4.14 (15.66)	0.455 (0.277)	15.33 (3.02)	0.13 (0.48)	Relative humidity
42.5 (31.7)	2255	3.20 (12.10)	0.525 (0.319)	13.30 (2.62)	0.11 (0.42)	43%
21.6 (16.1)	2268	2.29 (8.65)	0.739 (0.450)	9.44 (1.86)	0.08 (0.37)	Barometer
--	2281	1.44 (5.46)	--	--	0.05 (0.20)	29.2" Hg (99.0 kPa)

Maximum torque - 319 lb.-ft. (432 Nm) at 1500 rpm
 Maximum torque rise - 36.2%
 Torque rise at 1800 engine rpm - 21%
 Power increase at 1922 engine rpm - 1.6%

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 lb/hp.hr (kg/kW.h)	Temp. °F (°C) cool- ing med	Barom. inch Hg (kPa)
Power at Rated Engine Speed—6th (6L) Gear							
71.6 (53.4)	5825 (25.9)	4.61 (7.42)	2200	4.0	0.560 (0.341)	12.44 (2.45)	178 (81)
75% of Pull at Rated Engine Speed—6th (6L) Gear							
55.1 (41.1)	4365 (19.4)	4.73 (7.62)	2235	3.0	0.621 (0.377)	11.23 (2.21)	174 (79)
50% of Pull at Rated Engine Speed—6th (6L) Gear							
37.5 (28.0)	2920 (13.0)	4.82 (7.76)	2249	1.8	0.710 (0.432)	9.81 (1.93)	174 (79)
75% of Pull at Reduced Engine Speed—7th (7L) Gear							
54.8 (40.9)	4360 (19.4)	4.72 (7.59)	1826	3.0	0.595 (0.362)	11.73 (2.31)	176 (80)
50% of Pull at Reduced Engine Speed—7th (7L) Gear							
37.5 (28.0)	2920 (13.0)	4.82 (7.75)	1845	1.9	0.652 (0.397)	10.69 (2.11)	172 (78)

Location of tests: Istituto per le Macchine Agricole e Movimento Terra 73, Strada delle Cacce 10135 Torino Italy

Dates of tests: February to March, 2016.

Manufacturer: CNH Europe Holding S.A. 24, Boulevard Royal L-2449 Luxembourg

CONSUMABLE FLUIDS: Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.837 Fuel weight 6.97 lbs/gal (0.835 kg/l) Diesel Exhaust Fluid (DEF) 32% aqueous urea solution DEF weight 9.08 lbs/gal (1.091 kg/l) Oil SAE 15W40 API service classification CJ-4 Transmission and hydraulic lubricant Akcela Nexlore fluid Front axle lubricant Akcela Nexlore fluid

ENGINE: Make FPT Industrial Diesel Type four cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment Serial No. 000128879 Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 3.898" x 4.331" (99.0 mm x 110.0 mm) Compression ratio 17.5 to 1 Displacement 207 cu in (3387 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 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 thermostat and variable speed fan

CHASSIS: Type front wheel assist Serial No. ZFLD02767 Tread width rear 52.0" (1320 mm) to 88.4" (2246 mm) front 53.1" (1350 mm) to 88.6" (2250 mm) Wheelbase 93.7" (2380 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (8) speed operator controlled powershift Nominal travel speeds mph (km/h) first 1.65 (2.65) second 2.02 (3.25) third 2.46 (3.96) fourth 3.02 (4.86) fifth 3.87 (6.23) sixth 4.75 (7.64) seventh 5.79 (9.31) eighth 6.48 (10.43) ninth 7.10 (11.42) tenth 7.91 (12.73) eleventh 9.63 (15.50) twelfth 11.81 (19.01) thirteenth 15.14 (24.37) fourteenth 18.58 (29.90) fifteenth 22.62 (36.40) sixteenth 26.72 (43.00) electronically limited reverse 1.63 (2.62), 2.00 (3.22), 2.44 (3.92), 2.98 (4.80), 3.83 (6.16), 4.70 (7.56), 5.72 (9.20), 6.37 (10.25), 7.02 (11.29), 7.81 (12.57), 9.52 (15.32), 11.35 (18.27) 14.97 (24.09), 18.36 (29.55), 22.36 (35.98), 26.72 (43.00) electronically limited

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(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th(4L) Gear									
64.5 (48.1)	9075 (40.4)	2.67 (4.29)	2212	14.9	0.563 (0.343)	12.37 (2.44)	178 (81)	46 (8)	29.8 (101.0)
5th(5L) Gear									
71.5 (53.3)	8365 (37.2)	3.21 (5.16)	1955	8.2	0.528 (0.321)	13.20 (2.60)	178 (81)	46 (8)	29.8 (101.0)
6th(6L) Gear									
73.0 (54.4)	6880 (30.6)	3.98 (6.40)	1928	5.3	0.522 (0.318)	13.34 (2.63)	176 (80)	46 (8)	29.8 (101.0)
7th(7L) Gear									
70.9 (52.9)	5375 (23.9)	4.95 (7.97)	1923	3.5	0.541 (0.329)	12.89 (2.54)	178 (81)	46 (8)	29.8 (101.0)
8th(1H) Gear									
71.3 (53.2)	4855 (21.6)	5.51 (8.86)	1922	3.2	0.538 (0.327)	12.94 (2.55)	176 (80)	46 (8)	29.8 (101.0)
9th(8L) Gear									
70.3 (52.4)	4320 (19.2)	6.10 (9.82)	1922	2.7	0.540 (0.328)	12.90 (2.54)	178 (81)	46 (8)	29.8 (101.0)
10th(2H) Gear									
70.3 (52.4)	3870 (17.2)	6.81 (10.96)	1922	2.3	0.556 (0.338)	12.54 (2.47)	178 (81)	46 (8)	29.8 (101.0)
11th(3H) Gear									
66.6 (49.7)	2990 (13.3)	8.35 (13.44)	1922	1.6	0.610 (0.371)	11.42 (2.25)	176 (80)	46 (8)	29.8 (101.0)

Clutch wet disc hydraulically actuated by foot pedal
Brakes wet disc hydraulically actuated by two foot pedals that can be locked together
Steering hydrostatic
Power take-off 540 rpm at 1938 engine rpm or 1000 rpm at 1926 engine rpm
Unladen tractor mass 10470 lb (4750 kg)

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 fell 2.4% short of the manufacturer's 21.1 GPM (80 lpm) remote hydraulic flow claim and 8.0% short of the 8084 lbs (3667 kg) three point lift claim at 24" (610 mm) behind the lift hitch balls. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2977**, Nebraska Summary 1128, February 6, 2018.

Roger M. Hoy
Director

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

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 6th(6L) gear	70.9	70.7
Bystander in 16th(8H) gear	--	83.7

Horizontal distance of drawbar hitch point behind rear wheel axis - 37.1" (943 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 540/65R38; **; 12(80)

Two 440/65R28; **; 12(80)

19.0 in (482 mm)

6470 lb (2935 kg)

4165 lb (1890 kg)

10635 lb (4825 kg)

HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range: 7440 lbs (33.1 kN)

i) Sustained pressure of the open relief valve: 2900 psi (200 bar)

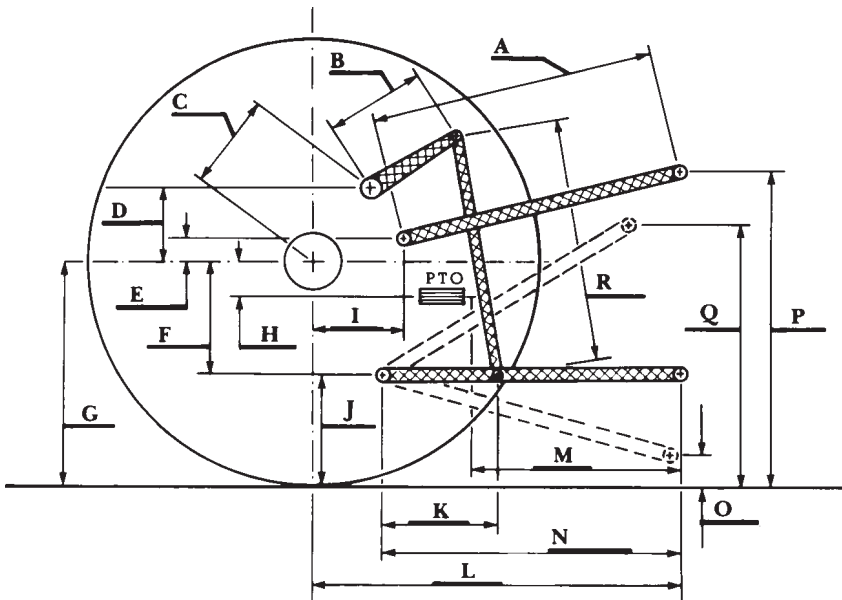
ii) Pump delivery rate at minimum pressure: 20.6 GPM (78.0 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 18.2 GPM (68.9 l/min)

Delivery pressure: 2550 psi (176 bar)

Power: 27.1 HP (20.2 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	28.3	720
B	12.2	310
C	16.9	430
D	16.1	410
E	12.8	325
F	8.3	210
G	31.5	800
H	0.3	8
I	15.2	385
J	23.2	590
K	21.7	550
L	46.3	1176
M	23.0	585
N	38.4	976
O	10.9	276
P	47.2	1200
Q	36.4	925
R	32.3	820

RECOMMENDED CITATION FORMAT:

NTTL.(2017). OECD tractor test 2977 for Case IH Farmall 110U Diesel.

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