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2016

Test 2158: Case IH Farmall 130A

Nebraska Tractor Test Laboratory

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NEBRASKA OECD TRACTOR TEST 2158—SUMMARY 1039

CASE IH FARMALL 130A 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.h/l)	Gal/hr (l/h)	
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—630 rpm)						
115.68 (86.26)	2202	6.90 (26.11)	0.418 (0.254)	16.77 (3.30)	0.47 (1.76)	
Maximum Power (1 hour)						
117.69 (87.76)	2051	6.73 (25.47)	0.401 (0.244)	17.49 (3.45)	0.41 (1.54)	
Standard Power Take-off Speed (540 rpm)						
115.25 (85.94)	1890	6.36 (24.07)	0.387 (0.235)	18.13 (3.57)	0.39 (1.47)	

VARYING POWER AND FUEL CONSUMPTION

115.68 (86.26)	2202	6.90 (26.11)	0.418 (0.254)	16.77 (3.30)	0.47 (1.76)	Air temperature
99.91 (74.50)	2239	6.21 (23.49)	0.435 (0.265)	16.10 (3.17)	0.38 (1.45)	76°F (24°C)
76.07 (56.72)	2270	5.18 (19.63)	0.478 (0.291)	14.67 (2.89)	0.30 (1.14)	Relative humidity
51.36 (38.30)	2301	4.12 (15.58)	0.562 (0.342)	12.48 (2.46)	0.21 (0.79)	53%
25.94 (19.34)	2329	2.94 (11.13)	0.795 (0.483)	8.82 (1.74)	0.09 (0.34)	Barometer
1.06 (0.79)	2353	2.16 (8.18)	14.326 (8.714)	0.49 (0.10)	0.10 (0.37)	28.95" Hg (98.05 kPa)

Maximum torque - 396 lb.-ft. (537 Nm) at 1302 rpm

Maximum torque rise - 43.5%

Torque rise at 1761 engine rpm - 24%

Power increase at 2051 engine rpm - 1.7%

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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing dry med bulb	Barom. inch Hg (kPa)
Power at Rated Engine Speed—9th (H1T) Gear								
94.17 (70.22)	7269 (32.33)	4.86 (7.82)	2200	11.0	0.511 (0.311)	13.73 (2.70)	0.041 (0.025)	183 (84)
75% of Pull at Rated Engine Speed—9th (H1T) Gear								
76.24 (56.85)	5483 (24.39)	5.21 (8.38)	2253	6.7	0.528 (0.321)	13.28 (2.62)	0.039 (0.024)	183 (84)
50% of Pull at Rated Engine Speed—9th (H1T) Gear								
53.41 (39.82)	3681 (16.37)	5.44 (8.75)	2288	4.1	0.598 (0.364)	11.72 (2.31)	0.043 (0.026)	184 (84)
75% of Pull at Reduced Engine Speed—11th (H2T) Gear								
76.14 (56.78)	5477 (24.36)	5.22 (8.39)	1461	6.6	0.441 (0.268)	15.90 (3.13)	0.041 (0.025)	182 (83)
50% of Pull at Reduced Engine Speed—11th (H2T) Gear								
53.20 (39.67)	3713 (16.52)	5.37 (8.64)	1465	4.1	0.460 (0.280)	15.23 (3.00)	0.045 (0.028)	181 (83)

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

Dates of tests: September 2 to October 3, 2016

Manufacturer: CNH De Mexico, Queretaro Mexico

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8418 **Fuel weight** 7.009 lbs/gal (0.840 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, hydraulic and front axle lubricant** Case IH Akcela Nexplore fluid **Total time engine was operated** 19.5 hours

ENGINE: Make F.P.T NEF Diesel **Type** Four cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment. **Serial No.** 001387401 **Crankshaft lengthwise Rated engine speed** 2200 **Bore and stroke** 4.094" x 5.197" (104.0 mm x 132.0 mm) **Compression ratio** 17.0 to 1 **Displacement** 274 cu in (4485 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

ENGINE OPERATING PARAMETERS: Fuel rate: 45.0 - 48.7 lb/h (20.4 - 22.1 kg/h) **High idle:** 2325 - 2375 rpm **Turbo boost:** nominal 18.5- 19.5 psi (128 - 135 kPa) as measured 19.2 psi (132 kPa)

CHASSIS: Type front wheel assist **Serial No.** CT00676M **Tread width** rear 64.0" (1625 mm) to 78.0" (1981 mm) front 64.0" (1625 mm) to 86.0" (2184 mm) **Wheelbase** 103.5" (2630 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 1.45 (2.33) second 1.77 (2.85) third 2.22 (3.58) fourth 2.73 (4.39) fifth 3.02 (4.86) sixth 3.70 (5.96) seventh 4.19 (6.75) eighth 5.15 (8.28) ninth 5.33 (8.58) tenth 6.54 (10.52) eleventh 8.21 (13.22) twelfth 10.01 (16.20) thirteenth 11.15 (17.94) fourteenth 13.66 (21.99) fifteenth 15.49 (24.92) sixteenth 18.98 (30.54) reverse 1.83 (2.95), 2.82 (4.54), 3.83 (6.16), 5.32 (8.56), 6.76 (10.88), 10.41 (16.75), 14.13 (22.74), 19.62 (31.58) **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 1890 engine rpm or 1000 rpm at 2049 engine rpm **Unladen tractor mass** 10665 lb (4838 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)	Hp.hr/gal (kW.h/l)	D.E.F Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
7th (L4T) Gear										
86.43 (64.45)	8790 (39.10)	3.69 (5.94)	2221	14.9	0.537 (0.327)	13.05 (2.57)	0.038 (0.023)	183 (84)	79 (26)	28.67 (97.09)
8th (L4R) Gear										
94.30 (70.32)	7599 (33.80)	4.66 (7.49)	2200	11.6	0.509 (0.310)	13.77 (2.71)	0.045 (0.027)	184 (84)	80 (27)	28.61 (96.88)
9th (H1T) Gear										
94.17 (70.22)	7269 (32.33)	4.86 (7.82)	2200	11.0	0.511 (0.311)	13.73 (2.70)	0.041 (0.025)	183 (84)	82 (28)	28.62 (96.92)
10th(H1R) Gear										
99.09 (73.89)	6049 (26.91)	6.15 (9.89)	2200	8.3	0.485 (0.295)	14.45 (2.85)	0.039 (0.024)	184 (84)	84 (29)	28.61 (96.88)
11th (H2T) Gear										
98.08 (73.14)	4611 (20.51)	7.98 (12.84)	2201	5.1	0.486 (0.296)	14.41 (2.84)	0.040 (0.024)	184 (84)	74 (24)	28.69 (97.16)
12th (H2R) Gear										
99.82 (74.43)	3788 (16.85)	9.88 (15.90)	2199	4.2	0.479 (0.292)	14.63 (2.88)	0.036 (0.022)	184 (84)	74 (24)	28.68 (97.12)

UNBALLASTED - FRONT DRIVE ENGAGED-2050 ENGINE RPM

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)	D.E.F Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
7th (L4T) Gear										
86.55 (64.54)	8796 (39.13)	3.69 (5.94)	2222	14.9	0.538 (0.327)	13.02 (2.57)	0.034 (0.021)	183 (84)	79 (26)	28.68 (97.12)
8th (L4R) Gear										
94.73 (70.64)	7883 (35.06)	4.51 (7.26)	2153	12.5	0.507 (0.309)	13.81 (2.72)	0.040 (0.024)	183 (84)	81 (27)	28.62 (96.92)
9th (H1T) Gear										
94.73 (70.64)	7662 (34.08)	4.64 (7.47)	2127	12.1	0.507 (0.308)	13.83 (2.73)	0.041 (0.025)	183 (84)	83 (28)	28.61 (96.88)
10th(H1R) Gear										
99.36 (74.09)	6585 (29.29)	5.66 (9.11)	2050	9.2	0.474 (0.289)	14.78 (2.91)	0.038 (0.023)	183 (84)	84 (29)	28.60 (96.85)
11th (H2T) Gear										
100.21 (74.72)	5092 (22.65)	7.38 (11.88)	2050	5.8	0.469 (0.285)	14.96 (2.95)	0.037 (0.023)	183 (84)	74 (24)	28.68 (97.12)
12th(H2R) Gear										
99.37 (74.10)	4056 (18.04)	9.19 (14.79)	2051	4.3	0.472 (0.287)	14.84 (2.92)	0.038 (0.023)	183 (84)	74 (24)	28.68 (97.12)

REPAIRS AND ADJUSTMENTS: The hydraulic pump was replaced before the hydraulic performance tests.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. The manufacturer's 3 point lift claim of 7326 lb (3323 kg) was not met when tested by OECD Code 2 standards. 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 and correct report of official Tractor Test No. **2158**, Nebraska Summary 1039, March 3, 2017.

Roger M. Hoy
 Director

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

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 8th (4LR) gear	81.4	81.1
Bystander in 16th (4HR) gear		86.6

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 18.4-38;8;16(110)
 Two 14.9-28;6;16(110)
 23.0 in (585 mm)
 6500 lb (2948 kg)
 4340 lb (1969 kg)
 10840 lb (4917 kg)

The 3 point lift performance figures listed below are from tests conducted on the New Holland TS6030 Diesel

HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

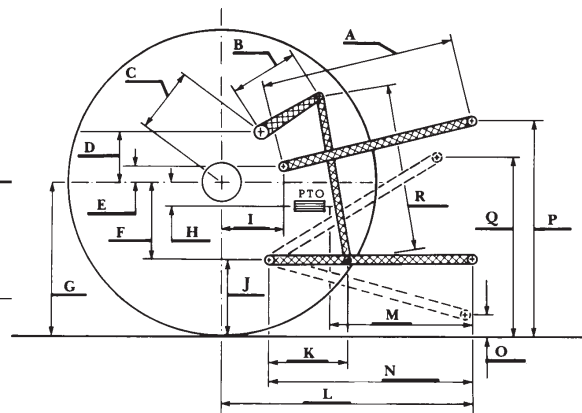
OECD Static test

Maximum force exerted through whole range: 6174 lbs (27.46 kN) (2 external lift cylinders)

	<u>Two pump system</u> <u>two outlet sets combined</u>
i) Sustained pressure of the open relief valve:	2746 psi (189 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	22.4 GPM (84.8 l/min)
iii) Pump delivery rate at maximum hydraulic power:	20.5 GPM (77.7 l/min)
Delivery pressure:	2131 psi (147 bar)
Power:	25.5 HP (19.0 kW)
	<u>single outlet set</u>
i) Sustained pressure of the open relief valve:	2743 psi (189 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	21.7 GPM (82.3 l/min)
iii) Pump delivery rate at maximum hydraulic power:	19.8 GPM (74.9 l/min)
Delivery pressure:	2042 psi (141 bar)
Power:	23.6 HP (17.6 kW)

THREE POINT HITCH PERFORMANCE (SAE Static test)

Observed maximum pressure psi. (bar)	2480 (171)
Location:	lift cylinder
Hydraulic oil temperature: °F (°C)	145 (63)
Location:	pump inlet
Category:	II
Quick attach:	none
<u>Two external lift cylinders</u>	
System pressure 2210 psi (152 Bar)	
Hitch point distance to ground level in. (mm)	8.0 (203) 15.0 (381) 22.0 (559) 29.0 (737) 36.0 (914)
Lift force on frame lb	9270 8622 8199 8361 7326
" " " " " (kN)	(41.2) (38.4) (36.5) (37.2) (32.6)



HITCH DIMENSIONS AS TESTED—NO LOAD

	SAE Test		OECD Test	
	inch	mm	inch	mm
A	27.7	705	28.5	724
B	9.8	250	9.8	250
C	14.1	357	14.1	357
D	13.5	342	13.5	342
E	8.1	205	8.1	205
F	9.0	229	9.0	229
G	30.3	770	30.3	770
H	0.4	10	0.4	10
I	12.7	323	12.7	323
J	21.3	541	21.3	541
K	18.1	460	18.1	460
L	40.8	1037	40.8	1037
M	22.9	581	22.9	581
N	36.6	930	36.6	930
O	8.0	203	8.0	203
P	40.3	1024	45.3	1151
Q	34.0	864	34.0	864
R	32.5	826	32.5	826



CASE IH FARMALL 130A DIESEL

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