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2012

## Test 2052A: Case IH Farmall 120A

Nebraska Tractor Test Lab

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# NEBRASKA OECD TRACTOR TEST 2052A—SUMMARY 865A

## CASE IH FARMALL 120A DIESEL

### 8 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1074 rpm)</b>					
97.27 (72.53)	2200	7.15 (27.07)	0.515 (0.313)	13.60 (2.68)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
101.23 (75.49)	2049	6.93 (26.22)	0.480 (0.292)	14.61 (2.88)	
<b>Maximum Power (1 hour)</b>					
104.48 (77.91)	1651	6.34 (23.99)	0.425 (0.259)	16.49 (3.25)	

#### VARYING POWER AND FUEL CONSUMPTION

97.27 (72.53)	2200	7.15 (27.07)	0.515 (0.313)	13.60 (2.68)	Air temperature
87.70 (65.40)	2338	6.77 (25.61)	0.541 (0.329)	12.96 (2.55)	73°F (23°C)
66.40 (49.51)	2353	5.26 (19.89)	0.555 (0.337)	12.63 (2.49)	Relative humidity
44.60 (33.26)	2373	3.81 (14.43)	0.599 (0.364)	11.70 (2.31)	33%
22.50 (16.78)	2390	2.84 (10.77)	0.886 (0.539)	7.91 (1.56)	Barometer
1.40 (1.04)	2429	2.02 (7.66)	10.136 (6.165)	0.69 (0.14)	28.51 Hg (96.54 kPa)

Maximum torque - 414 lb.-ft. (561 Nm) at 1149 rpm

Maximum torque rise - 78.1%

Torque rise at 1760 engine rpm - 33%

Power increase at 1651 engine rpm - 7.4%

#### 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)
<b>Maximum Power—5th (H1) Gear</b>									
86.67 (64.63)	5650 (25.13)	5.75 (9.25)	2201	8.9	0.583 (0.355)	12.01 (2.37)	184 (84)	48 (9)	29.00 (98.21)
<b>75% of Pull at Maximum Power—5th (H1) Gear</b>									
71.69 (53.46)	4230 (18.82)	6.36 (10.23)	2366	6.5	0.625 (0.380)	11.22 (2.21)	185 (85)	62 (17)	28.95 (98.04)
<b>50% of Pull at Maximum Power—5th (H1) Gear</b>									
48.50 (36.16)	2803 (12.47)	6.49 (10.44)	2363	4.4	0.640 (0.389)	10.95 (2.16)	184 (84)	62 (17)	28.95 (98.04)
<b>75% of Pull at Reduced Engine Speed—6th (H2) Gear</b>									
71.85 (53.58)	4192 (18.65)	6.43 (10.35)	1551	6.3	0.456 (0.277)	15.40 (3.03)	181 (83)	62 (17)	28.95 (98.04)
<b>50% of Pull at Reduced Engine Speed—6th (H2) Gear</b>									
48.94 (36.49)	2783 (12.38)	6.59 (10.61)	1560	4.3	0.493 (0.300)	14.24 (2.80)	180 (82)	62 (17)	28.95 (98.04)

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

**Dates of tests:** December 3-6, 2012

**Manufacturer:** CNH De Mexico, Queretaro Mexico

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8417 Fuel weight 7.008 lbs/gal (0.840 kg/l) Oil SAE 15W40 API service classification CI-4 Transmission and hydraulic lubricant Case IH Akcela Nexlore fluid Front axle lubricant Case IH Akcela Nexlore fluid Total time engine was operated 14.0 hours

**ENGINE:** Make F.P.T NEF series Diesel Type four cylinder vertical with turbocharger and air to air intercooler Serial No. 979333 Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 4.094" x 5.197" (104.0 mm x 132.0 mm) Compression ratio 17.5 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 Muffler vertical Cooling medium temperature control one thermostat

**ENGINE OPERATING PARAMETERS:** Fuel rate: 47.2 - 50.2 lb/h (21.4 - 22.8 kg/h) High idle: 2350 - 2450 rpm Turbo boost: nominal 12.3- 15.2 psi (85 - 105 kPa) as measured 18.1 psi (125 kPa)

**CHASSIS:** Type front wheel assist Serial No. NH000454M Tread width rear 64.0" (1626 mm) to 80.0" (2032 mm) front 64.0" (1626 mm) to 80.0" (2032 mm) Wheelbase 99.2" (2520 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio Nominal travel speeds mph (km/h) first 1.67 (2.68) second 2.56 (4.12) third 3.48 (5.60) fourth 4.83 (7.77) fifth 6.14 (9.88) sixth 9.45 (15.21) seventh 12.83 (20.65) eighth 17.82 (28.68) reverse 1.72 (2.77), 2.65 (4.26), 3.60 (5.79), 5.00 (8.04), 6.35 (10.22), 9.77 (15.73), 13.27 (21.36), 18.43 (29.66) 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 9740 lb (4418 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)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd(L3)Gear									
67.10 (50.03)	7698 (34.24)	3.27 (5.26)	2361	14.9	0.695 (0.423)	10.09 (1.99)	185 (85)	56 (13)	28.97 (98.10)
4th(L4)Gear									
81.73 (60.95)	7057 (31.39)	4.34 (6.98)	2200	12.7	0.615 (0.374)	11.39 (2.24)	184 (84)	53 (12)	28.98 (98.14)
5th(H1)Gear									
86.67 (64.63)	5650 (25.13)	5.75 (9.25)	2201	8.9	0.583 (0.355)	12.01 (2.37)	184 (84)	48 (9)	29.00 (98.21)
6th(H2)Gear									
87.14 (64.98)	3540 (15.74)	9.23 (14.85)	2200	5.2	0.580 (0.353)	12.09 (2.38)	183 (84)	51 (11)	28.99 (98.17)

## **UNBALLASTED - FRONT DRIVE ENGAGED-1650 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)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd(L3)Gear									
67.38 (50.24)	7720 (34.34)	3.28 (5.27)	2362	14.9	0.691 (0.420)	10.15 (2.00)	185 (85)	55 (13)	28.97 (98.10)
4th(L4)Gear									
81.88 (61.05)	7073 (31.46)	4.34 (6.98)	2200	12.7	0.617 (0.375)	11.37 (2.24)	184 (84)	53 (12)	28.98 (98.13)
5th(H1)Gear									
87.47 (65.23)	6948 (30.90)	4.73 (7.60)	1875	12.3	0.538 (0.327)	13.03 (2.57)	182 (83)	50 (10)	28.99 (98.17)
6th(H2)Gear									
93.04 (69.38)	5195 (23.11)	6.72 (10.81)	1650	8.0	0.487 (0.296)	14.40 (2.84)	180 (82)	52 (11)	28.98 (98.13)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 4th (4L) gear	80.3	80.3
Bystander in 8th (4H) gear		88.3

## **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 18.4-34;8;16(110)  
Two 14.9-24;8;16(110)  
24.0 in (610 mm)  
5900 lb (2676 kg)  
4015 lb (1821 kg)  
9915 lb (4497 kg)

**NOTE:** The performance results on this report were obtained from tests carried out on the New Holland TS6.120 Diesel.

**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. This tractor did not meet the manufacturer's implement flow claim of 22 GPM (83 L/min). For the maximum power tests the fuel temperature at the fuel pump return was maintained at 158°F (70°C). The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2052A**, Nebraska Summary 865A, December 21, 2012.

Roger M. Hoy  
Director

M.R. Riley  
P.J. Jasa  
J.D. Luck  
Board of Tractor Test Engineers

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

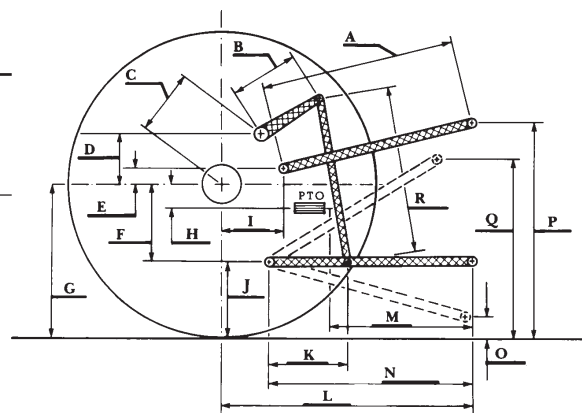
OECD Static test

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:	2413 psi (166 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	20.2 GPM (76.5 l/min)
iii) Pump delivery rate at maximum hydraulic power:	17.4 GPM (65.9 l/min)
Delivery pressure:	1725 psi (119 bar)
Power:	17.5 HP (13.1 kW)
	<u>single outlet set</u>
i) Sustained pressure of the open relief valve:	2431 psi (168 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	16.4 GPM (61.9 l/min)
iii) Pump delivery rate at maximum hydraulic power:	15.5 GPM (58.7 l/min)
Delivery pressure:	1773 psi (122 bar)
Power:	16.0 HP (12.0 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
<b>Two external lift cylinders</b>	
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 120A DIESEL**

Institute of Agriculture and Natural Resources  
University of Nebraska–Lincoln