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2014

## Test 2095: Case IH Steiger 500

Nebraska Tractor Test Lab

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# NEBRASKA OECD TRACTOR TEST 2095 - SUMMARY 960

## CASE IH STEIGER 500 DIESEL

### 16 SPEED

Chassis Serial numbers ZEF300001 and higher

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption Gal/hr (l/h)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1160 rpm)						
450.22 (335.73)	2101	25.38 (96.07)	0.396 (0.241)	17.74 (3.49)	2.13 (8.06)	
Maximum Power (1 hour)						
507.22 (378.24)	1902	27.21 (103.02)	0.377 (0.229)	18.64 (3.67)	2.32 (8.80)	
Standard Power Take-off Speed (1000 rpm)						
501.03 (373.61)	1811	26.46 (100.17)	0.371 (0.226)	18.93 (3.73)	2.26 (8.55)	

#### VARYING POWER AND FUEL CONSUMPTION

450.22 (335.73)	2101	25.38 (96.07)	0.396 (0.241)	17.74 (3.49)	2.13 (8.06)	Air temperature
390.92 (291.51)	2145	22.79 (86.29)	0.409 (0.249)	17.15 (3.38)	1.88 (7.10)	72°F (22°C)
294.31 (219.47)	2154	18.29 (69.25)	0.436 (0.266)	16.09 (3.17)	1.40 (5.28)	Relative humidity
197.28 (147.11)	2163	13.96 (52.84)	0.497 (0.302)	14.13 (2.78)	0.93 (3.52)	43%
99.40 (74.12)	2176	9.67 (36.60)	0.683 (0.415)	10.28 (2.03)	0.53 (2.00)	Barometer
1.75 (1.31)	2186	5.36 (20.30)	21.469 (13.059)	0.33 (0.06)	0.27 (1.02)	28.98" Hg (98.14 kPa)

Maximum torque - 1646 lb.-ft. (2232 Nm) at 1400 rpm

Maximum torque rise - 46.2%

Torque rise at 1701 engine rpm - 35%

Power increase at 1902 engine rpm - 12.6%

#### DRAWBAR PERFORMANCE

##### 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 Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—5th Gear									
416.19 (310.35)	29049 (129.21)	5.37 (8.64)	2099	3.2	0.427 (0.260)	16.44 (3.24)	204 (95)	67 (19)	28.50 (96.51)
75% of Pull at Maximum Power—5th Gear									
321.87 (240.01)	21756 (96.78)	5.55 (8.93)	2150	2.3	0.444 (0.270)	15.80 (3.11)	196 (91)	73 (23)	28.48 (96.44)
50% of Pull at Maximum Power—5th Gear									
217.48 (162.17)	14509 (64.54)	5.62 (9.04)	2160	1.5	0.498 (0.303)	14.09 (2.78)	183 (84)	74 (23)	28.46 (96.38)
75% of Pull at Reduced Engine Speed—9th Gear									
321.72 (239.90)	21774 (96.85)	5.54 (8.92)	1476	2.3	0.384 (0.234)	18.29 (3.60)	184 (84)	72 (22)	28.48 (96.44)
50% of Pull at Reduced Engine Speed—9th Gear									
217.52 (162.20)	14586 (64.88)	5.59 (9.00)	1477	1.5	0.418 (0.254)	16.80 (3.31)	181 (83)	74 (23)	28.46 (96.38)

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

**Dates of tests:** September 15 to October 2, 2014

**Manufacturer:** CNH Industrial America LLC, 700 State St. Racine, Wi. 53404 USA

**CONSUMABLE Fluids, OIL and TIME:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8434 **Fuel weight** 7.022 lbs/gal (0.842 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil SAE 10W40 API service classification** CJ-4 **Transmission lubricant** Akcel Hy-Tran Ultraction fluid **Hydraulic and axle lubricant** Akcel Hy-Tran Ultraction fluid **Total time engine was operated:** 18.0 hours

**ENGINE: Make** FPT Industrial Diesel **Type** six cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** 000011044 **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 5.315" x 5.906" (135.0 mm x 150.0 mm) **Compression ratio** 16.5 to 1 **Displacement** 786 cu in (12880 ml) **Starting system** 24 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, separate radiators for hydraulic and transmission oil **Fuel filter** two paper elements **Exhaust** DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) with a vertical muffler **Cooling medium temperature control** thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate:** 170.2 - 180.6 lb/h (77.2 - 81.9 kg/h) **High idle:** 2175 - 2225 rpm **Turbo boost:** nominal 21.8 - 24.7 psi (150 - 170 kPa) as measured 23.5 psi (162 kPa)

**CHASSIS: Type** four wheel drive with duals **Serial No.** \*ZEF301091\* **Tread width** rear 80.2" (2036 mm) to 153.5" (3900 mm) front 80.2" (2036 mm) to 153.5" (3900 mm) **Wheelbase** 154.0" (3911 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 2.82 (4.54) second 3.40 (5.47) third 4.11 (6.61) fourth 4.95 (7.96) fifth 5.68 (9.14) sixth 6.24 (10.04) seventh 6.84 (11.01) eighth 7.52 (12.10) ninth 8.26 (13.30) tenth 9.08 (14.61) eleventh 9.95 (16.02) twelfth 10.94 (17.60) thirteenth 12.55 (20.21) fourteenth 15.12 (24.34) fifteenth 18.27 (29.40) sixteenth 22.00 (35.41) reverse 4.28 (6.88), 8.61 (13.85) **Clutch** multiple wet disc electrohydraulically operated by foot pedal **Brakes** wet disc hydraulically operated by foot pedal **Steering** hydrostatic and articulated

## DRAWBAR PERFORMANCE AT 2100 ENGINE RPM

### DRAWBAR 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)	D.E.F Consumption lb/hp.hr (kg/kW.h)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
296.84 (221.35)	46073 (204.94)	2.42 (3.89)	2148	14.6	1st Gear 0.503 (0.306)	13.97 (2.75)	0.047 (0.029)	193 (89)	70 (21)	28.59 (96.82)
351.93 (262.43)	45381 (201.86)	2.91 (4.68)	2139	14.3	2nd Gear 0.491 (0.299)	14.30 (2.82)	0.048 (0.029)	205 (96)	70 (21)	28.58 (96.78)
407.27 (303.70)	40500 (180.15)	3.77 (6.07)	2100	6.3	3rd Gear 0.436 (0.265)	16.10 (3.17)	0.045 (0.027)	205 (96)	70 (21)	28.59 (96.82)
413.81 (308.58)	33431 (148.71)	4.64 (7.47)	2099	3.9	4th Gear 0.429 (0.261)	16.37 (3.22)	0.042 (0.026)	203 (95)	71 (21)	28.49 (96.48)
416.19 (310.35)	29049 (129.21)	5.37 (8.64)	2099	3.2	5th Gear 0.427 (0.260)	16.44 (3.24)	0.042 (0.025)	204 (95)	67 (19)	28.50 (96.51)
419.10 (312.52)	26532 (118.02)	5.92 (9.53)	2099	2.8	6th Gear 0.425 (0.259)	16.52 (3.25)	0.042 (0.026)	206 (97)	66 (19)	28.51 (96.55)
417.14 (311.06)	24027 (106.88)	6.51 (10.48)	2099	2.7	7th Gear 0.427 (0.260)	16.45 (3.24)	0.042 (0.026)	204 (95)	67 (20)	28.50 (96.51)
418.70 (312.22)	21919 (97.50)	7.17 (11.53)	2100	2.7	8th Gear 0.425 (0.259)	16.51 (3.25)	0.043 (0.026)	204 (96)	69 (21)	28.61 (96.88)
417.12 (311.04)	19856 (88.32)	7.88 (12.68)	2100	2.5	9th Gear 0.425 (0.259)	16.50 (3.25)	0.041 (0.025)	197 (92)	66 (19)	28.60 (96.85)

**Power take-off** MY 2014 - 1000 rpm at 1998 engine rpm, MY 2015- 1000 rpm at 1811 engine rpm **Unladen tractor mass** 47900 lb (21727 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE:** The performance data on this report applies to tractors with chassis serial numbers ZEF300001 and above.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the primary fuel filter was maintained at 108°F (42°C). 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. **2095**, Nebraska Summary 960, December 19, 2014.

Roger M. Hoy  
Director

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

### TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At no load in 4th gear	73.9
Bystander in 16th gear	86.7

### 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

Four 710/70R42;\*\*\*;8(55)  
Four 710/70R42;\*\*\*;13(90)  
22.0 in (560 mm)  
20000 lb (9072 kg)  
28075 lb(12734 kg)  
48075 lb(21806 kg)

# **DRAWBAR PERFORMANCE AT 1900 RPM** **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)
1st Gear										
298.11 (222.30)	46283 (205.88)	2.42 (3.89)	2148	14.7	0.503 (0.306)	13.97 (2.75)	0.047 (0.029)	193 (89)	70 (21)	28.59 (96.82)
2nd Gear										
352.19 (262.62)	45392 (201.91)	2.91 (4.68)	2140	14.3	0.490 (0.298)	14.32 (2.82)	0.048 (0.029)	206 (97)	70 (21)	28.58 (96.78)
3rd Gear										
421.60 (314.39)	44453 (197.73)	3.56 (5.73)	2039	9.1	0.440 (0.267)	15.97 (3.15)	0.046 (0.028)	206 (96)	71 (22)	28.59 (96.82)
4th Gear										
451.17 (336.44)	41412 (184.21)	4.09 (6.58)	1900	6.6	0.422 (0.257)	16.65 (3.28)	0.041 (0.025)	202 (94)	71 (22)	28.49 (96.48)
5th Gear										
463.16 (345.38)	36148 (160.79)	4.81 (7.73)	1900	4.3	0.412 (0.251)	17.04 (3.36)	0.040 (0.024)	202 (94)	67 (19)	28.50 (96.51)
6th Gear										
467.60 (348.69)	32996 (146.77)	5.32 (8.55)	1900	3.7	0.408 (0.248)	17.20 (3.39)	0.041 (0.025)	207 (97)	66 (19)	28.50 (96.51)
7th Gear										
467.05 (348.28)	29974 (133.33)	5.84 (9.40)	1899	3.4	0.408 (0.248)	17.22 (3.39)	0.040 (0.024)	200 (93)	69 (20)	28.50 (96.51)
8th Gear										
470.20 (350.63)	27380 (121.79)	6.44 (10.36)	1899	3.3	0.405 (0.247)	17.33 (3.41)	0.041 (0.025)	206 (96)	69 (20)	28.61 (96.88)
9th Gear										
466.72 (348.03)	24750 (110.09)	7.08 (11.39)	1899	3.2	0.408 (0.248)	17.21 (3.39)	0.040 (0.025)	205 (96)	68 (20)	28.61 (96.88)
10th Gear										
472.93 (352.66)	22743 (101.16)	7.80 (12.55)	1900	3.1	0.402 (0.244)	17.48 (3.44)	0.039 (0.024)	202 (94)	66 (19)	28.60 (96.85)

## HYDRAULIC PERFORMANCE

CATEGORY: IVN

Quick Attach: yes

OECD Static test

Maximum force exerted through whole range: 19620 lbs (87.3 kN)

### Three outlet sets combined

	Standard pump	High flow pump
i) Sustained pressure of the open relief valve:	2877 psi (198 bar)	3114 psi (215 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	43.8 GPM (165.8 l/min)	59.0 GPM (223.4 l/min)
iii) Pump delivery rate at maximum hydraulic power:	43.3 GPM (163.7 l/min)	56.9 GPM (215.3 l/min)
Delivery pressure:	2526 psi (174 bar)	2719 psi (188 bar)
Power:	63.7 HP (47.5 kW)	90.2 Hp (67.3 kW)

### Single outlet set

ii) Pump delivery rate at minimum pressure and rated engine speed:	42.8 GPM (162.2 l/min)	46.9 GPM (177.4 l/min)
iii) Pump delivery rate at maximum hydraulic power:	42.7 GPM (161.6 l/min)	44.7 GPM (169.2 l/min)
Delivery pressure:	2024 psi (139 bar)	2305 psi (159 bar)
Power:	50.4 HP (37.6 kW)	60.1 Hp (44.8 kW)

## TwinFlow system

### Two outlet sets combined

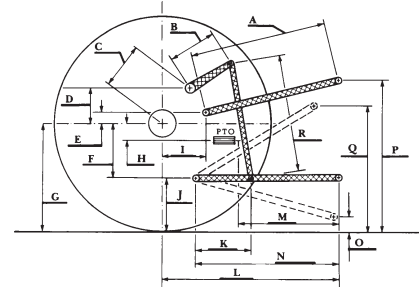
	Standard pump	TwinFlow pump
i) Sustained pressure at compensator cutoff:	2877 psi (198 bar)	2855 psi (197 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	43.8 GPM (165.8 l/min)	57.3 GPM (217.0 l/min)
Combined flow:	101.1 GPM (382.8 l/min)	
iii) Pump delivery rate at maximum hydraulic power:	43.3 GPM (163.7 l/min)	56.4 GPM (213.6 l/min)
Delivery pressure:	2526 psi (174 bar)	2479 psi (171 bar)
Power:	63.7 HP (47.5 kW)	81.6 Hp (60.9 kW)

### Two outlet sets combined

	High flow pump	TwinFlow pump
i) Sustained pressure at compensator cutoff:	2993 psi (206 bar)	2855 psi (197 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	61.0 GPM (230.9 l/min)	57.3 GPM (217.0 l/min)
Combined flow:	118.3 GPM (447.9 l/min)	
iii) Pump delivery rate at maximum hydraulic power:	56.7 GPM (214.7 l/min)	56.4 GPM (213.6 l/min)
Delivery pressure:	2517 psi (174 bar)	2479 psi (171 bar)
Power:	83.3 HP (62.1 kW)	81.6 Hp (60.9 kW)

## HITCH DIMENSIONS AS TESTED - NO LOAD

	inch	mm
A	32.6	827
B	29.9	760
C	23.2	590
D	22.0	558
E	13.5	342
F	13.4	340
G	38.2	970
H	6.4	162
I	22.8	578
J	24.8	630
K	29.0	736
L	56.3	1431
*L'	63.6	1615
M	34.3	871
N	46.5	1181
O	7.9	200
P	48.6	1234
Q	42.2	1072
R	39.8	1010



CASE IH STEIGER 500 Diesel