

NEBRASKA OECD TRACTOR TEST 2086—SUMMARY 935

CASE IH MAGNUM 370 DIESEL CVT TRANSMISSION

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—1124 rpm)						
305.95 (228.15)	2000	16.51 (62.48)	0.378 (0.230)	18.54 (3.65)	1.27 (4.79)	
Standard Power Take-off Speed (1000 rpm)						
351.44 (262.07)	1779	18.44 (69.79)	0.367 (0.223)	19.06 (3.76)	1.26 (4.78)	
Maximum Power (1 hour)						
351.68 (262.25)	1749	18.38 (69.59)	0.366 (0.223)	19.13 (3.77)	1.26 (4.77)	

VARYING POWER AND FUEL CONSUMPTION

305.95 (228.15)	2000	16.51 (62.48)	0.378 (0.230)	18.54 (3.65)	1.27 (4.79)	Air temperature
274.84 (204.95)	2115	15.38 (58.23)	0.392 (0.238)	17.87 (3.52)	1.15 (4.35)	72°F (22°C)
209.15 (155.96)	2143	12.36 (46.79)	0.414 (0.252)	16.92 (3.33)	0.87 (3.31)	Relative humidity
141.94 (105.85)	2178	9.33 (35.31)	0.460 (0.280)	15.22 (3.00)	0.62 (2.34)	68%
71.76 (53.51)	2198	6.28 (23.79)	0.613 (0.373)	11.42 (2.25)	0.37 (1.41)	Barometer
2.05 (1.53)	2216	3.42 (10.88)	11.700 (7.117)	0.60 (0.12)	0.09 (0.33)	28.38" Hg (96.11 kPa)

Maximum torque - 1211 lb.-ft. (1641 Nm) at 1450 rpm
 Maximum torque rise - 50.7%
 Torque rise at 1600 engine rpm - 41%
 Power increase at 1749 engine rpm - 14.9%

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)
Maximum Power—5.2 mph (8.3 km/h)-Manual mode									
255.76 (190.72)	20060 (89.23)	4.78 (7.69)	2000	3.5	0.451 (0.274)	15.53 (3.06)	213 (100)	58 (15)	28.63 (96.95)
75% of Pull at Maximum Power—5.2 mph (8.3 km/h)-Manual mode									
194.73 (145.21)	15090 (67.12)	4.84 (7.79)	2135	2.4	0.479 (0.291)	14.63 (2.88)	210 (99)	70 (21)	28.56 (96.72)
50% of Pull at Maximum Power—5.2 mph (8.3 km/h)-Manual mode									
131.29 (97.90)	10078 (44.83)	4.89 (7.86)	2173	1.5	0.556 (0.338)	12.60 (2.48)	204 (96)	71 (22)	28.55 (96.68)
75% of Pull at Reduced Engine Speed—5.2 mph (8.3 km/h)-Automatic mode									
194.19 (144.81)	15056 (66.97)	4.84 (7.79)	1522	2.4	0.431 (0.262)	16.26 (3.20)	206 (96)	70 (21)	28.56 (96.72)
50% of Pull at Reduced Engine Speed—5.2 mph (8.3 km/h)-Automatic mode									
130.91 (97.62)	10060 (44.75)	4.88 (7.85)	1383	1.5	0.467 (0.284)	14.98 (2.95)	192 (89)	72 (22)	28.54 (96.65)

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

Dates of tests: May 8-13 and July 14, 15- 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)** 0.8410 **Fuel weight** 7.002 lbs/gal (0.839 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 and hydraulic lubricant** Case IH Hy-Tran Ultra fluid **Front axle lubricant** SAE 85W-140 API GL-5 **Total time engine was operated:** 37.5 hours

ENGINE: Make F.P.T. Diesel **Type** six cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment. **Serial No.** *13IH00045588* **Crankshaft** lengthwise **Rated engine speed** 2000 **Bore and stroke** 4.606" x 5.315" (117.0 mm x 135.0 mm) **Compression ratio** 15.9 to 1 **Displacement** 531 cu in (8704 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** two paper elements **Fuel cooler** radiator for pump return fuel **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 113.9 - 118.5 lb/h (51.7 - 53.8 kg/h) **High idle:** 2200-2250 rpm **Turbo boost:** nominal 26.1 - 29.0 psi (180 - 200 kPa) as measured 28.0 psi (193 kPa)

CHASSIS: Type front wheel assist with duals **Serial No.** *ZERD01053* **Tread width** rear 64.0" (1626 mm) to 129.0" (3277 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) **Wheelbase** 124.2" (3155 mm) **Hydraulic control system** direct engine drive **Transmission** infinitely variable with four mechanical ranges and automatic shifting between ranges. **Nominal travel speeds mph (km/h)** forward - 0 - 26.1 mph, (0 - 42 km/h) reverse - 0 - 12.4 mph, (0-20 km/h) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 1778 engine rpm **Unladen tractor mass** 30165 lb (13683 kg)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED

MANUAL MODE - 2000 ENGINE RPM
DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS

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	Temp.°F (°C) Air dry bulb	Barom. inch Hg (kPa)	
				3.7 mph (5.9 km/h)					
229.11 (170.85)	28484 (126.70)	3.02 (4.86)	1994	14.1	0.507 (0.308)	13.81 (2.72)	210 (99)	50 (10)	28.65 (97.02)
				4.2 mph (6.8 km/h)					
250.52 (186.81)	24393 (108.50)	3.85 (6.20)	2000	5.3	0.461 (0.280)	15.18 (2.99)	211 (99)	53 (12)	28.65 (96.99)
				4.7 mph (7.6 km/h)					
255.62 (190.62)	22014 (97.92)	4.36 (7.01)	2000	4.1	0.452 (0.275)	15.48 (3.05)	212 (100)	56 (13)	28.63 (96.95)
				5.2 mph (8.3 km/h)					
255.76 (190.72)	20060 (89.23)	4.78 (7.69)	2000	3.5	0.451 (0.274)	15.53 (3.06)	213 (100)	58 (15)	28.63 (96.95)
				5.6 mph (9.0 km/h)					
255.52 (190.54)	18415 (81.91)	5.21 (8.38)	2000	3.2	0.450 (0.274)	15.56 (3.07)	210 (99)	60 (16)	28.63 (96.95)
				6.2 mph (10.0 km/h)					
254.01 (189.41)	16390 (72.90)	5.81 (9.35)	2000	2.8	0.454 (0.276)	15.42 (3.04)	212 (100)	62 (17)	28.62 (96.92)
				6.8 mph (11.0 km/h)					
251.11 (187.25)	14680 (65.30)	6.42 (10.32)	1999	2.4	0.459 (0.279)	15.26 (3.01)	212 (100)	64 (18)	28.61 (96.88)
				7.5 mph (12.0 km/h)					
246.76 (184.01)	13186 (58.65)	7.02 (11.30)	1999	2.1	0.467 (0.284)	14.98 (2.95)	212 (100)	66 (19)	28.60 (96.85)
				8.1 mph (13.0 km/h)					
245.35 (182.95)	12077 (53.72)	7.62 (12.26)	2000	1.9	0.470 (0.286)	14.91 (2.94)	213 (100)	68 (20)	28.59 (96.82)
				8.7 mph (14.0 km/h)					
250.66 (186.91)	11442 (50.89)	8.22 (13.22)	2000	1.7	0.460 (0.280)	15.22 (3.00)	213 (100)	67 (19)	28.59 (96.82)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: This tractor has an engine control feature that allows the engine to run in a "boosted" mode, increased power level, at certain combinations of drawbar loading and remote hydraulic flow.

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 107°F (42°C). This tractor did not meet the manufacturer's remote hydraulic flow claim of 44 GPM (166 l/min) with standard pump. The manufacturer's 3 point hitch lift claim of 17500 lbs (7938 kg), with 105 mm lift cylinders, was not verified. The performance results on this summary were taken from OECD tests conducted under the Code 2 Test Code Procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2086**, Nebraska Summary 935, July 29, 2014.

Roger M. Hoy
Director

M.F. Kocher
S. Pitla
P.J. Jasa
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load at 4.8 mph (7.8 km/h) engine speed 2210 rpm	68.4	68.3
At no load at 4.8 mph (7.8 km/h) engine speed 1080 rpm	67.1	67.0
Bystander		86.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires -No., size, ply & psi (kPa)	Six 520/85R42;**,12(85)	Four 520/85R42;**,12(85)
Ballast - Triples (total)	2060 lb (934 kg)	None
- Cast Iron (total)	5645 lb (2560 kg)	None
Front Tires -No., size, ply & psi (kPa)	Four 420/90R30;**,12(85)	Two 420/90R30;**,23(160)
Ballast - Duals (total)	1140 lb (517 kg)	None
- Cast Iron (total)	500 lb (227 kg)	None
Height of Drawbar	21.0 in (535 mm)	21.0 in (535 mm)
Static Weight with operator - Rear	26525 lb (12031 kg)	19080 lb (8655 kg)
- Front	13160 lb (5969 kg)	11260 lb (5107 kg)
- Total	39685 lb (18000 kg)	30340 lb (13762 kg)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED

AUTOMATIC MODE(Loads based on 2000 engine rpm manual mode performance runs)

DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS

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)
230.48 (171.87)	28309 (125.92)	3.05 (4.91)	1657	8.4	0.455 (0.277)	15.42 (3.04)	213 (100)	57 (14)	28.92 (97.93)
250.79 (187.01)	24427 (108.66)	3.85 (6.20)	1674	4.9	0.434 (0.264)	16.16 (3.18)	213 (101)	57 (14)	28.92 (97.93)
255.91 (190.83)	22054 (98.10)	4.35 (7.00)	1657	3.8	0.425 (0.258)	16.51 (3.25)	207 (97)	61 (16)	28.91 (97.90)
255.93 (190.85)	20082 (89.33)	4.78 (7.69)	1671	3.3	0.425 (0.259)	16.50 (3.25)	212 (100)	63 (17)	28.93 (97.97)
255.75 (190.71)	18435 (82.00)	5.20 (8.37)	1668	3.0	0.429 (0.261)	16.37 (3.22)	212 (100)	64 (18)	28.93 (97.97)
253.95 (189.37)	16409 (72.99)	5.81 (9.34)	1661	2.5	0.430 (0.261)	16.33 (3.22)	213 (100)	67 (19)	28.92 (97.93)
250.49 (186.79)	14670 (65.25)	6.41 (10.31)	1683	2.2	0.432 (0.263)	16.23 (3.20)	212 (100)	67 (20)	28.92 (97.93)
247.02 (184.20)	13220 (58.80)	7.01 (11.28)	1667	1.9	0.423 (0.257)	16.58 (3.27)	208 (98)	69 (21)	28.92 (97.93)
245.93 (183.39)	12129 (53.95)	7.61 (12.24)	1686	1.8	0.423 (0.257)	16.59 (3.27)	213 (100)	69 (21)	28.91 (97.90)
249.56 (186.10)	11415 (50.77)	8.20 (13.20)	1681	1.6	0.422 (0.257)	16.62 (3.27)	212 (100)	71 (22)	28.90 (97.87)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED
MANUAL MODE - 1750 ENGINE RPM
MAXIMUM POWER AT SELECTED TRAVEL SPEED SETTINGS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
					3.7 mph (5.9 km/h)				
229.38 (171.04)	28527 (126.89)	3.02 (4.86)	1992	14.1	0.509 (0.309)	13.76 (2.71)	211 (99)	50 (10)	28.65 (97.02)
					4.2 mph (6.8 km/h)				
261.00 (194.62)	27208 (121.02)	3.60 (5.79)	1913	7.6	0.465 (0.283)	15.07 (2.97)	210 (99)	54 (12)	28.64 (96.99)
					4.7 mph (7.6 km/h)				
274.71 (204.85)	26037 (115.82)	3.96 (6.37)	1858	6.2	0.452 (0.275)	15.50 (3.05)	212 (100)	57 (14)	28.63 (96.95)
					5.2 mph (8.3 km/h)				
284.95 (212.48)	25217 (112.17)	4.24 (6.82)	1812	5.7	0.448 (0.272)	15.64 (3.08)	213 (100)	59 (15)	28.64 (96.99)
					5.6 mph (9.0 km/h)				
290.75 (216.81)	24448 (108.75)	4.46 (7.18)	1750	5.2	0.442 (0.269)	15.85 (3.12)	212 (100)	60 (15)	28.64 (96.99)
					6.2 mph (10.0 km/h)				
293.14 (218.59)	21939 (97.59)	5.01 (8.06)	1750	4.2	0.439 (0.267)	15.95 (3.14)	213 (101)	62 (17)	28.61 (96.88)
					6.8 mph (11.0 km/h)				
293.71 (219.02)	19848 (88.29)	5.55 (8.93)	1750	3.6	0.437 (0.266)	16.04 (3.16)	213 (100)	63 (17)	28.61 (96.88)
					7.5 mph (12.0 km/h)				
290.73 (216.80)	17920 (79.71)	6.08 (9.78)	1749	3.0	0.443 (0.269)	15.82 (3.12)	213 (101)	64 (18)	28.60 (96.85)
					8.1 mph (13.0 km/h)				
293.02 (218.50)	16618 (73.92)	6.61 (10.64)	1750	2.7	0.438 (0.267)	15.98 (3.15)	212 (100)	67 (19)	28.59 (96.82)
					*8.7 mph (14.0 km/h)				
308.36 (229.94)	16225 (72.17)	7.13 (11.47)	1751	2.7	0.434 (0.264)	16.12 (3.18)	217 (103)	68 (20)	28.58 (96.78)
					*9.3 mph (15.0 km/h)				
311.59 (232.35)	15275 (67.94)	7.65 (12.31)	1750	2.5	0.429 (0.261)	16.31 (3.21)	215 (102)	68 (20)	28.58 (96.78)
					*9.9 mph (16.0 km/h)				
313.64 (233.88)	14376 (63.95)	8.18 (13.16)	1752	2.3	0.426 (0.259)	16.44 (3.24)	215 (101)	68 (20)	28.58 (96.78)

*Engine in power boost mode

DRAWBAR PERFORMANCE
BALLASTED- FRONT DRIVE ENGAGED - 1750 RPM
MAXIMUM POWER AT SELECTED TRAVEL SPEED SETTINGS

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)
206.91 (154.29)	38377 (170.71)	2.03 (3.26)	1975	14.2	0.573 (0.348)	12.23 (2.41)	194 (90)	51 (11)	28.93 (97.97)
250.84 (187.05)	36507 (162.39)	2.58 (4.15)	1880	7.7	0.492 (0.299)	14.23 (2.80)	200 (93)	52 (11)	28.95 (98.04)
280.84 (209.42)	34972 (155.56)	3.02 (4.85)	1797	5.9	0.458 (0.279)	15.28 (3.01)	214 (101)	53 (12)	28.95 (98.04)
284.77 (212.35)	31523 (140.22)	3.39 (5.46)	1750	4.1	0.450 (0.274)	15.55 (3.06)	212 (100)	54 (12)	28.97 (98.10)
292.92 (218.43)	28749 (127.88)	3.82 (6.15)	1750	3.2	0.439 (0.267)	15.94 (3.14)	213 (100)	55 (13)	28.98 (98.14)
295.50 (220.35)	26438 (117.60)	4.19 (6.74)	1750	2.8	0.436 (0.265)	16.06 (3.16)	213 (100)	57 (14)	28.98 (98.14)
296.43 (221.05)	24376 (108.43)	4.56 (7.34)	1750	2.4	0.434 (0.264)	16.14 (3.18)	213 (100)	57 (14)	28.99 (98.17)
296.92 (221.41)	21898 (97.41)	5.09 (8.18)	1750	2.1	0.432 (0.263)	16.21 (3.19)	214 (101)	57 (14)	28.99 (98.17)
294.90 (219.90)	19719 (87.71)	5.61 (9.03)	1750	1.8	0.434 (0.264)	16.13 (3.18)	213 (101)	57 (14)	28.99 (98.17)
290.86 (216.89)	17788 (79.12)	6.13 (9.87)	1750	1.6	0.441 (0.268)	15.89 (3.13)	216 (102)	57 (14)	28.98 (98.14)
293.66 (218.98)	16545 (73.59)	6.66 (10.71)	1751	1.5	0.436 (0.265)	16.06 (3.16)	214 (101)	57 (14)	28.98 (98.14)
296.25 (220.91)	15483 (68.87)	7.18 (11.55)	1751	1.4	0.432 (0.263)	16.21 (3.19)	215 (101)	57 (14)	28.98 (98.14)
311.60 (232.36)	15197 (67.60)	7.69 (12.38)	1751	1.3	0.429 (0.261)	16.32 (3.21)	217 (103)	59 (15)	28.98 (98.14)
312.55 (233.06)	14279 (63.52)	8.21 (13.20)	1750	1.2	0.429 (0.261)	16.33 (3.22)	217 (103)	59 (15)	28.97 (98.10)

*Engine in power boost mode

HYDRAULIC PERFORMANCE

CATEGORY: 4N			
Quick Attach: Yes			
OECD Static test			
Maximum force exerted through whole range:	19559 lbs (87.0 kN) (2 x 115 mm cylinders)		
	Standard pump	High flow pump	
	<u>three outlet sets combined</u>		
i) Sustained pressure at compensator cutoff:	2967 psi (205 bar) 2899 psi (200 bar)		
ii) Pump delivery rate at minimum pressure and rated engine speed:	41.6 GPM (157.4 l/min) 60.0 GPM (226.9 l/min)		
iii) Pump delivery rate at maximum hydraulic power:	40.2 GPM (152.2 l/min) 59.7 GPM (226.0 l/min)		
Delivery pressure:	2840 psi (196 bar) 2569 psi (177 bar)		
Power:	66.6 HP (49.7 kW) 89.5 hp (66.7 kW)		
	<u>single outlet set</u>		
i) Sustained pressure at compensator cutoff:	2960 psi (204 bar) 2890 psi (199 bar)		
ii) Pump delivery rate at minimum pressure and rated engine speed:	41.6 GPM (157.3 l/min) 44.9 GPM (170.0 l/min)		
iii) Pump delivery rate at maximum hydraulic power:	42.9 GPM (162.6 l/min) 38.7 GPM (146.6 l/min)		
Delivery pressure:	2327 psi (160 bar) 2170 psi (150 bar)		
Power:	58.3 HP (43.5 kW) 49.0 hp (36.6 kW)		

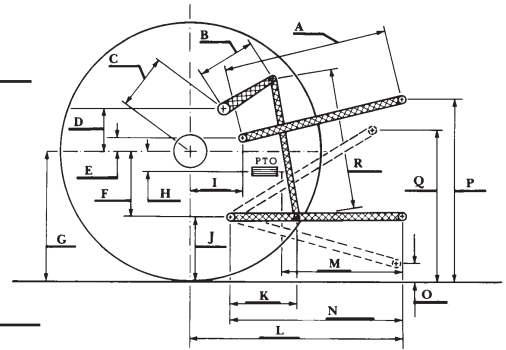
HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	24.0	610
B	20.5	520
C	22.9	581
D	20.7	525
E	10.5	266
F	15.7	400
G	36.6	930
H	3.5	90
I	20.9	530
J	20.9	530
K	30.2	768
L	51.0	1295
*L'	58.1	1475
M	25.0	636
N	43.1	1095
O	9.0	230
P	48.4	1230
Q	37.4	951
R	39.6	1005

*L' to Quick Attach ends

TwinFlow system

	Main pump	TwinFlow pump
i) Sustained pressure at compensator cutoff:	3090 psi (213 bar)	2935 psi (202 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	43.6 GPM (164.9 l/min)	33.5 GPM (126.7 l/min)
Combined flow:	77.1 GPM (291.6 l/min)	
iii) Pump delivery rate at maximum hydraulic power:	36.3 GPM (137.4 l/min)	34.5 GPM (130.7 l/min)
Delivery pressure:	2797 psi (193 bar)	2764 psi (191 bar)
Power:	59.2 HP (44.1 kW)	55.7 Hp (41.5 kW)



CASE IH MAGNUM 370 DIESEL