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2017

Tractor Test 2175: Claas Xerion 5000 CVT

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 2175 - SUMMARY 1089

CLAAS XERION 5000 DIESEL

CONTINUOUSLY VARIABLE 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—1098 rpm)						
445.84 (332.46)	1899	24.71 (93.54)	0.388 (0.236)	18.04 (3.55)	0.82 (3.11)	
Standard Power Take-off Speed (1000 rpm)						
474.61 (353.92)	1729	25.05 (94.82)	0.370 (0.225)	18.95 (3.73)	0.82 (3.09)	
Maximum Power (1 hour)						
478.23 (356.62)	1650	24.86 (94.12)	0.364 (0.221)	19.23 (3.79)	0.79 (2.98)	
VARYING POWER AND FUEL CONSUMPTION						
445.84 (332.46)	1899	24.71 (93.54)	0.388 (0.236)	18.04 (3.55)	0.82 (3.11)	Air temperature
379.98 (283.35)	1902	20.92 (79.17)	0.385 (0.234)	18.17 (3.58)	0.67 (2.54)	71°F (22°C)
285.35 (212.78)	1907	16.41 (62.12)	0.403 (0.245)	17.39 (3.43)	0.50 (1.90)	Relative humidity
190.73 (142.23)	1910	12.26 (46.42)	0.450 (0.274)	15.55 (3.06)	0.35 (1.32)	35%
95.54 (71.24)	1913	8.39 (31.77)	0.615 (0.374)	11.38 (2.24)	0.28 (1.06)	Barometer
1.53 (1.14)	1917	4.63 (17.51)	21.198 (12.894)	0.33 (0.07)	0.16 (0.60)	28.25" Hg (95.67 kPa)

Maximum torque - 1668 lb.-ft. (2261 Nm) at 1100 rpm
 Maximum torque rise - 35.2%
 Torque rise at 1521 engine rpm - 31%
 Power increase at 1650 engine rpm - 7.3%

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 dry bulb	Barom. inch Hg (kPa)
Power at Rated Engine Speed—5.6 mph (9.0 km/h)-Manual mode								
404.06 (301.30)	28494 (126.75)	5.32 (8.56)	1839	4.0	0.432 (0.263)	16.21 (3.19)	0.021 (0.013)	186 (86)
75% of Pull at Rated Engine Speed—5.6 mph (9.0 km/h)-Manual mode								
306.71 (228.71)	21354 (94.99)	5.39 (8.67)	1860	3.1	0.435 (0.264)	16.12 (3.18)	0.018 (0.011)	185 (85)
50% of Pull at Rated Engine Speed—5.6 mph (9.0 km/h)-Manual mode								
208.02 (155.12)	14221 (63.26)	5.49 (8.84)	1877	2.0	0.466 (0.284)	15.01 (2.96)	0.018 (0.011)	184 (84)
75% of Pull at Reduced Engine Speed—Auto mode								
304.96 (227.41)	20979 (93.32)	5.46 (8.78)	1284	3.0	0.404 (0.246)	17.32 (3.41)	0.023 (0.014)	186 (86)
50% of Pull at Reduced Engine Speed—Auto mode								
208.78 (155.69)	14349 (63.83)	5.46 (8.79)	1286	2.1	0.419 (0.255)	16.72 (3.29)	0.024 (0.015)	185 (85)

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

Dates of tests: April 25 - 28, 2017

Manufacturer: CLAAS Selbstfahrende Erntemaschinen GmbH, 33428 Harsewinkel, Germany

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8411 **Fuel weight** 7.003 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 lubricant** Agrishift XE fluid **Hydraulics, front and rear axle lubricant** Claas Agrihyd HVLDP fluid **Final drive lubricant** MT 80W-90 API GL5 **Total time engine was operated:** 19.5 hours

ENGINE: Make Mercedes-Benz Diesel **Type** six cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** 471.919-C-0262520 **Crankshaft** lengthwise **Rated engine speed** 1900 **Bore and stroke** 5.197" x 6.142" (132.0 mm x 156.0 mm) **Compression ratio** 17.3 to 1 **Displacement** 781 cu in (12810 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, transmission, front axle and rear axle oils **Fuel filter** two paper elements **Exhaust** DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) within a horizontal muffler with vertical outlet **Cooling medium temperature control** thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 170.2 - 176.8 lb/h (77.2 - 80.2 kg/h) **High idle:** 1910 - 1930 rpm (Drawbar operations - 1850 - 1890 rpm) **Turbo boost:** nominal 31.9 - 34.8 psi (220 - 240 kPa) as measured 33.6 psi (232 kPa)

CHASSIS: Type rigid frame four wheel drive with duals **Serial No.** *78300446* **Tread width** rear 89.2" (2265 mm) and 159.8" (4060 mm) front 89.2" (2265 mm) and 159.8" (4060 mm) **Wheelbase** 141.7" (3600 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 - 31 mph, (0 - 50 km/h) reverse - 0 - 31 mph (0 - 50 km/h) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** wet disc hydraulically operated by foot pedal **Steering** electro-hydraulic with the ability to steer front and rear axles independently or coordinated

**DRAWBAR PERFORMANCE AT
1840 ENGINE RPM-MANUAL MODE
DRAWBAR POWER AT SELECTED TRAVEL SPEEDS**

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)	
3.1 mph (5.0 km/h)										
301.96 (225.17)	43378 (192.95)	2.61 (4.20)	1851	13.9	0.509 (0.310)	13.76 (2.71)	0.021 (0.013)	185 (85)	43 (6)	28.52 (96.58)
3.7 mph (6.0 km/h)										
365.07 (272.23)	41579 (184.95)	3.30 (5.30)	1840	9.4	0.477 (0.290)	14.69 (2.89)	0.022 (0.014)	186 (86)	44 (7)	28.52 (96.58)
4.2 mph (6.8 km/h)										
393.38 (293.34)	35341 (157.20)	4.18 (6.72)	1840	6.1	0.443 (0.269)	15.81 (3.11)	0.019 (0.012)	185 (85)	46 (8)	28.52 (96.58)
4.7 mph (7.5 km/h)										
395.47 (294.90)	34732 (154.49)	4.27 (6.87)	1839	5.8	0.442 (0.269)	15.85 (3.12)	0.021 (0.013)	185 (85)	46 (8)	28.53 (96.61)
5.1 mph (8.2 km/h)										
402.07 (299.82)	31981 (142.26)	4.72 (7.59)	1839	4.9	0.433 (0.263)	16.17 (3.19)	0.021 (0.013)	186 (86)	41 (5)	28.51 (96.55)
5.6 mph (9.0 km/h)										
404.06 (301.30)	28494 (126.75)	5.32 (8.56)	1839	4.0	0.432 (0.263)	16.21 (3.19)	0.021 (0.013)	186 (86)	41 (5)	28.51 (96.55)
6.2 mph (10.0 km/h)										
399.09 (297.60)	25131 (111.79)	5.96 (9.59)	1840	3.4	0.433 (0.263)	16.17 (3.18)	0.020 (0.012)	186 (86)	40 (5)	28.51 (96.55)
6.8 mph (11.0 km/h)										
396.06 (295.34)	23418 (104.17)	6.34 (10.20)	1840	3.1	0.436 (0.265)	16.07 (3.17)	0.020 (0.012)	187 (86)	42 (6)	28.50 (96.51)
7.5 mph (12.0 km/h)										
386.45 (288.17)	20456 (90.99)	7.08 (11.39)	1840	2.7	0.448 (0.273)	15.62 (3.08)	0.022 (0.014)	186 (86)	42 (6)	28.50 (96.51)
8.1 mph (13.0 km/h)										
389.09 (290.14)	19164 (85.25)	7.62 (12.26)	1840	2.5	0.444 (0.270)	15.77 (3.11)	0.022 (0.013)	187 (86)	43 (6)	28.49 (96.48)
8.7 mph (14.0 km/h)										
396.57 (295.72)	17901 (79.63)	8.31 (13.37)	1841	2.3	0.437 (0.266)	16.03 (3.16)	0.020 (0.012)	186 (86)	43 (6)	28.48 (96.44)

Power take-off 1000 rpm at 1730 engine rpm
Unladen tractor mass 43085 lb (19543 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: To facilitate drawbar testing, the tractor was equipped with computer software that locked the transmission into the speed settings shown. These runs are denoted as Manual mode.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor fell 3.3% short of meeting the manufacturer's 3 point lift claim of 22480 lb (100 kN) and 1% short of the remote hydraulic flow claim of 51.5 GPM (195 l/min) with standard pump. The manufacturer's remote hydraulic flow claim of 72.5 GPM (275 l/min) with "twin priority" pump was not verified. 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. **2175**, Nebraska Summary 1089, June 12, 2017.

Roger M. Hoy
Director

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

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At no load at 4.5 mph (7.4 km/h) engine speed 1905 rpm	67.0
At no load at 4.5 mph (7.4 km/h) engine speed 1290 rpm	64.5
Bystander	89.0

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;***;11(75)
Four 710/70R42;***;12(85)
21.0 in (535 mm)
19475 lb (8834 kg)
23785 lb (10789 kg)
43260 lb (19623 kg)

DRAWBAR PERFORMANCE - AUTO MODE

(Loads based on 1840 engine rpm manual mode performance runs)
DRAWBAR POWER AT SELECTED TRAVEL SPEEDS

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)
4.7 mph (7.5 km/h)										
393.51 (293.44)	34237 (152.29)	4.31 (6.94)	1655	5.5	0.422 (0.257)	16.60 (3.27)	0.020 (0.012)	186 (86)	41 (5)	28.53 (96.61)
5.1 mph (8.2 km/h)										
401.94 (299.73)	31600 (140.56)	4.77 (7.68)	1627	4.9	0.421 (0.256)	16.62 (3.27)	0.023 (0.014)	186 (86)	42 (5)	28.53 (96.61)
5.6 mph (9.0 km/h)										
402.25 (299.95)	28631 (127.36)	5.27 (8.47)	1659	4.2	0.424 (0.258)	16.50 (3.25)	0.019 (0.012)	187 (86)	42 (6)	28.53 (96.61)
6.2 mph (10.0 km/h)										
398.58 (297.22)	25366 (112.83)	5.89 (9.48)	1669	3.6	0.429 (0.261)	16.34 (3.22)	0.020 (0.012)	187 (86)	42 (6)	28.50 (96.51)
6.8 mph (11.0 km/h)										
396.03 (295.32)	22880 (101.78)	6.49 (10.44)	1691	3.1	0.434 (0.264)	16.13 (3.18)	0.021 (0.013)	186 (86)	42 (6)	28.50 (96.51)
7.5 mph (12.0 km/h)										
386.75 (288.40)	20276 (90.19)	7.16 (11.51)	1422	2.6	0.399 (0.243)	17.54 (3.46)	0.024 (0.015)	186 (86)	42 (6)	28.50 (96.51)
8.1 mph (13.0 km/h)										
389.05 (290.11)	18835 (83.78)	7.75 (12.47)	1416	2.5	0.395 (0.240)	17.73 (3.49)	0.022 (0.014)	186 (86)	43 (6)	28.48 (96.45)
8.7 mph (14.0 km/h)										
396.26 (295.49)	17823 (79.28)	8.34 (13.42)	1448	2.3	0.393 (0.239)	17.80 (3.51)	0.019 (0.012)	186 (86)	43 (6)	28.48 (96.45)

**DRAWBAR PERFORMANCE AT
1650 ENGINE RPM-MANUAL MODE-UNBALLASTED
MAXIMUM POWER AT SELECTED TRAVEL SPEEDS**

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)
3.1 mph (5.0 km/h)										
301.95 (225.16)	43315 (192.67)	2.61 (4.20)	1851	13.9	0.509 (0.310)	13.76 (2.71)	0.020 (0.012)	186 (86)	43 (6)	28.52 (96.58)
3.7 mph (6.0 km/h)										
364.94 (272.13)	41634 (185.19)	3.29 (5.29)	1839	9.4	0.479 (0.291)	14.62 (2.88)	0.022 (0.014)	186 (86)	45 (7)	28.51 (96.55)
4.2 mph (6.8 km/h)										
395.01 (294.56)	39584 (176.08)	3.75 (6.03)	1682	7.9	0.442 (0.269)	15.86 (3.12)	0.025 (0.015)	186 (86)	45 (7)	28.52 (96.58)
4.7 mph (7.5 km/h)										
392.88 (292.97)	39156 (174.17)	3.77 (6.06)	1669	7.7	0.444 (0.270)	15.79 (3.11)	0.020 (0.012)	185 (85)	49 (9)	28.52 (96.58)
5.1 mph (8.2 km/h)										
403.59 (300.96)	36136 (160.74)	4.19 (6.74)	1649	6.7	0.427 (0.260)	16.40 (3.23)	0.020 (0.012)	185 (85)	48 (9)	28.53 (96.61)
5.6 mph (9.0 km/h)										
406.44 (303.08)	32886 (146.28)	4.64 (7.46)	1650	5.6	0.424 (0.258)	16.52 (3.25)	0.020 (0.012)	185 (85)	49 (9)	28.52 (96.58)
6.2 mph (10.0 km/h)										
406.82 (303.36)	29105 (129.47)	5.24 (8.43)	1650	4.6	0.426 (0.259)	16.44 (3.24)	0.019 (0.012)	186 (85)	51 (10)	28.51 (96.55)
6.8 mph (11.0 km/h)										
404.12 (301.35)	26477 (117.77)	5.73 (9.21)	1650	4.0	0.428 (0.260)	16.37 (3.23)	0.020 (0.012)	186 (86)	51 (10)	28.51 (96.55)
7.5 mph (12.0 km/h)										
388.24 (289.51)	23075 (102.64)	6.31 (10.15)	1651	3.2	0.447 (0.272)	15.67 (3.09)	0.023 (0.014)	187 (86)	52 (11)	28.50 (96.51)
8.1 mph (13.0 km/h)										
398.53 (297.18)	21823 (97.07)	6.85 (11.02)	1650	3.0	0.437 (0.266)	16.03 (3.16)	0.021 (0.013)	187 (86)	51 (11)	28.50 (96.51)
8.7 mph (14.0 km/h)										
405.76 (302.57)	20700 (92.08)	7.35 (11.83)	1649	2.8	0.429 (0.261)	16.32 (3.21)	0.020 (0.012)	187 (86)	53 (11)	28.49 (96.48)
9.3 mph (15.0 km/h)										
408.59 (304.68)	19915 (88.58)	7.70 (12.38)	1651	2.5	0.423 (0.257)	16.56 (3.26)	0.020 (0.012)	187 (86)	52 (11)	28.50 (96.51)

HYDRAULIC PERFORMANCE

CATEGORY: IVN

Quick Attach: yes

OECD Static test

Maximum force exerted through whole range: 21739 lbs (96.7 kN)

Two outlet sets combined

Standard pump

- i) Sustained pressure of the open relief valve: 2801 psi (193 bar)
 - ii) Pump delivery rate at minimum pressure and rated engine speed: 51.0 GPM (193.1 l/min)
 - iii) Pump delivery rate at maximum hydraulic power: 47.9 GPM (181.3 l/min)
- Delivery pressure: 2569 psi (177 bar)
- Power: 71.8 HP (53.5 kW)

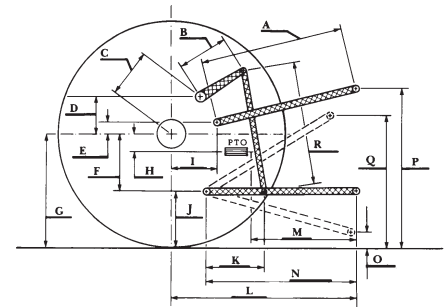
Single outlet set

- ii) Pump delivery rate at minimum pressure and rated engine speed: 32.5 GPM (122.9 l/min)
 - iii) Pump delivery rate at maximum hydraulic power: 30.7 GPM (116.3 l/min)
- Delivery pressure: 2392 psi (165 bar)
- Power: 42.9 HP (32.0 kW)

HITCH DIMENSIONS AS TESTED - NO LOAD

	inch	mm
A	31.9	810
B	23.6	600
C	19.2	487
D	18.8	478
E	11.0	279
F	16.6	422
G	37.6	955
H	0.2	5
I	25.5	647
J	21.0	533
K	22.8	578
L	57.4	1458
*L'	63.7	1618
M	30.4	773
N	41.9	1065
O	9.1	230
P	49.0	1244
Q	38.6	980
R	44.1	1120

*L' to Quick Attach ends



CLAAS XERION 5000 Diesel

Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln