

# SUMMARY OF OECD TEST 2638—NEBRASKA SUMMARY 802

## CASE IH PUMA 215 DIESEL

### 19 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—1162 rpm)</b>					
191.6 (142.9)	2200	10.29 (38.95)	0.373 (0.227)	18.62 (3.67)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
209.2 (156.0)	1893	10.75 (40.69)	0.357 (0.217)	19.46 (3.83)	
<b>Maximum Power (1 hour)</b>					
210.4 (156.9)	1800	10.57 (40.01)	0.349 (0.212)	19.91 (3.92)	
<b>VARYING POWER AND FUEL CONSUMPTION</b>					
191.6 (142.9)	2200	10.29 (38.95)	0.373 (0.227)	18.62 (3.67)	Air temperature
167.9 (125.2)	2265	9.22 (34.90)	0.382 (0.232)	18.21 (3.59)	77°F (25°C)
127.1 (94.8)	2289	7.51 (28.43)	0.410 (0.249)	16.93 (3.33)	Relative humidity
85.2 (63.5)	2300	6.03 (22.82)	0.492 (0.299)	14.12 (2.78)	40%
42.9 (32.0)	2313	4.03 (15.26)	0.652 (0.396)	10.64 (2.10)	Barometer
--	2330	2.78 (10.53)	--	--	29.3" Hg (99.3 kPa)
Maximum Torque - 688.3 lb.-ft. (923.1 Nm) at 1500 rpm Maximum Torque rise - 48.8% Torque rise at 1800 engine rpm - 34%					

#### 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)	Temp. °F (°C) cool- ing med	Barom. inch Hg (kPa)
<b>Maximum Power—10th Gear</b>							
171.1 (127.6)	11730 (52.17)	5.47 (8.81)	2100	5.5	0.430 (0.262)	16.22 (3.20)	176 (80)
<b>75% of Pull at Maximum Power—10th Gear</b>							
133.7 (99.7)	8865 (39.44)	5.66 (9.10)	2130	4.0	0.462 (0.281)	15.08 (2.97)	176 (80)
<b>50% of Pull at Maximum Power—10th Gear</b>							
92.2 (68.8)	5890 (26.20)	5.87 (9.45)	2155	2.0	0.508 (0.309)	13.71 (2.70)	178 (81)
<b>75% of Pull at Reduced Engine Speed—11th Gear</b>							
140.4 (104.7)	8890 (39.54)	5.92 (9.54)	1880	3.8	0.430 (0.262)	16.19 (3.19)	179 (82)
<b>50% of Pull at Reduced Engine Speed—11th Gear</b>							
90.5 (67.5)	5865 (26.1)	5.79 (9.31)	1805	2.0	0.472 (0.287)	14.77 (2.91)	179 (82)

**Location of tests:** HBLFA Francisco Josephinum  
BLT Biomass-Logistics-Technology,  
Rottenhauser, Strasse, 1, AT, 3250, Wieselburg,  
Austria

**Dates of tests:** October, 2010 to May, 2011.

**Manufacturer:** CNH UK Limited Basildon, Essex  
SS14 3AD United Kingdom

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C) 0.837**  
**Fuel weight 6.97 lbs/gal (0.835 kg/l)** **Oil SAE 10W30 API service classification CG-4**  
**Transmission and hydraulic lubricant Akcela**  
**Nexlore fluid Front axle lubricant Akcela**  
**Nexlore fluid**

**ENGINE:** Make F.P.T. Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment. **Serial No.** 518516 **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 410 cu in (6728 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 canisters Muffler underhood Exhaust vertical Cooling medium temperature control thermostat and variable speed fan**

**CHASSIS:** **Type** front wheel assist **Serial No.** ZABS08007 **Tread width** rear 60.2" (1530 mm) to 87.8" (2230 mm) front 61.4" (1560 mm) to 89.0" (2260 mm) **Wheelbase 113.5" (2884 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 1.17 (1.89) second 1.40 (2.25) third 1.68 (2.71) fourth 2.01 (3.24) fifth 2.39 (3.85) sixth 2.86 (4.60) seventh 3.40 (5.47) eighth 4.06 (6.54) ninth 4.88 (7.86) tenth 5.83 (9.39) eleventh 6.95 (11.18) twelfth 8.30 (13.35) thirteenth 9.82 (15.80) fourteenth 11.74 (18.89) fifteenth 14.11 (22.70) sixteenth 16.86 (27.13) seventeenth 20.06 (32.29) eighteenth 25.10 (40.39) nineteenth 26.10 (42.00) (electronically limited) reverse 2.59 (4.17), 3.10 (4.99), 3.73 (6.00), 4.45 (7.16), 5.30 (8.53), 6.33 (10.18) **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off 540 rpm at 1950 engine rpm or 1000 rpm at 1893 engine rpm Unladen tractor mass 17880 lb (8110 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 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)
154.4 (115.1)	16335 (72.67)	3.54 (5.70)	2100	14.3	8th Gear 0.460 (0.280)	15.13 (2.98)	183 (84)	46 (8)	29.6 (100.1)
171.4 (127.8)	16145 (71.82)	3.98 (6.41)	1930	13.9	9th Gear 0.438 (0.266)	15.90 (3.13)	183 (84)	46 (8)	29.5 (100.0)
176.9 (131.9)	14370 (63.92)	4.62 (7.43)	1800	7.0	10th Gear 0.425 (0.258)	16.40 (3.23)	178 (81)	45 (7)	29.5 (100.0)
181.7 (135.5)	12240 (54.44)	5.57 (8.96)	1800	5.3	11th Gear 0.412 (0.251)	16.93 (3.34)	179 (82)	46 (8)	29.5 (100.0)
178.9 (133.4)	9955 (44.28)	6.74 (10.84)	1800	4.2	12th Gear 0.422 (0.257)	16.50 (3.25)	176 (80)	46 (8)	29.5 (100.0)
185.9 (138.6)	8680 (38.60)	8.03 (12.92)	1800	3.7	13th Gear 0.406 (0.247)	17.16 (3.38)	169 (76)	46 (8)	29.5 (100.0)
184.8 (137.8)	7155 (31.83)	9.68 (15.58)	1800	3.2	14th Gear 0.407 (0.248)	17.11 (3.37)	176 (80)	46 (8)	29.5 (100.0)

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

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's implement pump flow claims of 32 GPM (121 lpm) with standard system nor 35 GPM (135 lpm) with high flow option. This tractor did not meet the manufacturer's 3 point lift claims of 10200 lbs (4626 kg) with 90 mm lift cylinders nor 13400 lbs (6078 kg) with 100 mm lift cylinders. 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 summary of data from OECD Report No. **2638** Nebraska Summary 802, January 26, 2012.

Roger M. Hoy  
 Director

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

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
At no load in 9th gear	68.0	68.0
Bystander	--	--

**TIRES, BALLAST 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 710/70R38; \*\*; 14(100)  
 Two 600/65R28; \*\*; 14(100)  
 19.7 in (500 mm)  
 10815 lb (4905 kg)  
 7230 lb (3280 kg)  
 18045 lb (8185 kg)

This vehicle is equipped with an electronically controlled engine Power management system that monitors and boosts engine power output in certain circumstances. This is achieved by electronically changing the characteristics of the engine power-speed curve. The engine Power management function ("boosted" power level) becomes active in the higher transmission gears (16th and above) and for road transport applications. The system is also activated when power transfer through the PTO and hydraulic pump exceeds a preset level (and forward speed exceeds 0.5 km/h), for mobile PTO driven implement applications. An override system is provided to enable PTO operations at the "boosted" power level while the vehicle is stationary for test purposes. The results of this PTO output test are presented below.

### 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—1162 rpm)</b>					
221.3 (165.0)	2200	11.15 (42.22)	0.349 (0.212)	19.85 (3.91)	
<b>Standard Power Take-off Speed - (1000 rpm)</b>					
236.7 (176.5)	1893	12.04 (45.56)	0.352 (0.214)	19.66 (3.87)	
<b>Maximum Power (1 hour)</b>					
237.2 (176.9)	1800	12.01 (45.47)	0.350 (0.213)	19.75 (3.89)	

### VARYING POWER AND FUEL CONSUMPTION

221.3 (165.0)	2200	11.15 (42.22)	0.349 (0.212)	19.85 (3.91)	Air temperature
192.4 (143.5)	2250	10.28 (38.91)	0.370 (0.225)	18.73 (3.69)	70°F (21°C)
146.2 (109.0)	2280	8.38 (31.73)	0.421 (0.242)	17.45 (3.44)	Relative humidity
98.3 (73.3)	2298	6.49 (24.56)	0.398 (0.278)	15.15 (2.98)	45%
49.5 (36.9)	2314	4.41 (16.70)	0.616 (0.375)	11.22 (2.21)	Barometer
--	2330	2.40 (9.10)	--	--	29.2"Hg (99.0 kPa)

Maximum Torque 770.1 lb.-ft. (1044.2 Nm) at 1500 rpm  
 Maximum Torque Rise - 45.8%  
 Torque rise at 1800 rpm - 31%

## HYDRAULIC PERFORMANCE

CATEGORY: III

Quick Attach: No

OECD Static test

Lift cylinders:

2 x 90 mm                      2 x 100 mm

Maximum force exerted through whole range:      9465 lbs (42.1 kN)                      12500 lbs (55.6 kN)

	<u>Standard pump - 32 gpm</u>	<u>High flow pump - 35 gpm</u>
i) Sustained pressure at compensator cutoff:	2975 psi (205 bar)	2830 psi (195 bar)
	<b><u>two outlet sets combined</u></b>	
ii) Pump delivery rate at minimum pressure:	29.6 GPM (112.0 l/min)	33.5 GPM (127.0 l/min)
iii) Pump delivery rate at maximum		
hydraulic power:	26.2 GPM (99.1 l/min)	27.1 GPM (102.5 l/min)
Delivery pressure:	2685 psi (185 bar)	2465 psi (170 bar)
Power:	41.0 HP (30.6 kW)	38.9 HP (29.0 kW)

	<b><u>single outlet set</u></b>	
ii) Pump delivery rate at minimum pressure:	26.2 GPM (99.1 l/min)	30.3 GPM (114.7 l/min)
iii) Pump delivery rate at maximum		
hydraulic power:	24.3 GPM (91.8 l/min)	24.3 GPM (92.0 l/min)
Delivery pressure:	2465 psi (170 bar)	2320 psi (160 bar)
Power:	34.9 HP (26.0 kW)	32.9 HP (24.5 kW)

### HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	32.3	820
B	15.0	380
C	15.1	383
D	14.6	372
E	10.8	275
F	10.6	270
G	36.4	925
H	2.4	60
I	17.7	450
J	25.8	655
K	26.9	682
L	48.2	1224
M	23.1	587
N	38.3	974
O	9.0	230
P	52.8	1340
Q	40.2	1020
R	38.4	975

