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Nebraska Summary: S669 Case-IH Puma 115

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SUMMARY OF OECD TEST 2480—NEBRASKA SUMMARY 669

CASE IH PUMA 115 DIESEL

18 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1038 rpm)					
102.2 (76.2)	2200	6.39 (24.18)	0.438 (0.267)	15.99 (3.15)	
Standard Power Take-off Speed (1001 rpm)					
109.4 (81.6)	2121	6.53 (24.70)	0.418 (0.254)	16.76 (3.30)	
Maximum Power - (1 hour)					
114.3 (85.2)	2000	6.62 (25.06)	0.406 (0.247)	17.26 (3.40)	
VARYING POWER AND FUEL CONSUMPTION					
102.2 (76.2)	2200	6.39 (24.18)	0.438 (0.267)	15.99 (3.15)	Air temperature
89.2 (66.5)	2259	5.95 (22.51)	0.467 (0.284)	15.00 (2.96)	67°F (20°C)
67.3 (50.2)	2284	5.00 (18.93)	0.521 (0.317)	13.45 (2.65)	Relative humidity
45.6 (34.0)	2301	4.06 (15.36)	0.624 (0.379)	11.24 (2.21)	55%
22.9 (17.1)	2318	2.97 (11.24)	0.908 (0.553)	7.72 (1.52)	Barometer
--	2337	2.12 (8.02)	--	--	29.1" Hg (98.6 kPa)
Maximum Torque - 383.6 lb.-ft. (520.1 Nm) at 1000 rpm Maximum Torque Rise - 57.2% 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)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—8th(2Med) Gear									
74.3 (55.4)	6675 (29.7)	4.17 (6.71)	2202	2.1	0.588 (0.357)	11.93 (2.35)	187 (86)	39 (4)	28.9 (97.9)
75% of Pull at Maximum Power—8th(2Med) Gear									
57.4 (42.8)	5010 (22.3)	4.30 (6.92)	2273	1.5	0.663 (0.403)	10.57 (2.08)	187 (86)	41 (5)	28.9 (97.9)
50% of Pull at Maximum Power—8th(2Med) Gear									
38.9 (29.0)	3340 (14.9)	4.37 (7.03)	2295	1.1	0.792 (0.482)	8.84 (1.74)	187 (86)	43 (6)	28.9 (97.9)
75% of Pull at Reduced Engine Speed—9th(3Med) Gear									
57.5 (42.9)	5015 (22.3)	4.30 (6.92)	1887	1.4	0.588 (0.358)	11.92 (2.35)	183 (84)	45 (7)	28.9 (97.9)
50% of Pull at Reduced Engine Speed—9th(3Med) Gear									
38.9 (29.0)	3340 (14.9)	4.37 (7.03)	1908	0.9	0.705 (0.429)	9.95 (1.96)	183 (84)	46 (8)	28.9 (97.9)

Location of tests: Istituto per le Macchine Agricole e Movimento Terra 73, Strada delle Cacce 10135 Torino Italy

Dates of tests: September to December, 2008.

Manufacturer: CNH Europe Holding S.A. 13, Rue Aldringen L-1118 Luxembourg

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.842 **Fuel weight** 7.01 lbs/gal (0.840 kg/l) **Oil SAE** 15W40 **API service classification** CH-4 **Transmission and hydraulic lubricant** Akcela Nexplore fluid **Front axle lubricant** Akcela Nexplore fluid

ENGINE: Make CNH Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** 512747 **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** 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** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** front wheel assist **Serial No.** Z8BL04778 **Tread width** rear 56.3" (1430 mm) to 87.8" (2230 mm) front 52.2" (1325 mm) to 90.0" (2285 mm) **Wheelbase** 107.8" (2739 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (6) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.23 (1.98) second 1.48 (2.38) third 1.78 (2.86) fourth 2.14 (3.44) fifth 2.52 (4.05) sixth 3.03 (4.87) seventh 3.58 (5.76) eighth 4.30 (6.92) ninth 5.16 (8.31) tenth 6.21 (10.00) eleventh 7.30 (11.75) twelfth 8.78 (14.13) thirteenth 10.33 (16.62) fourteenth 12.42 (19.98) fifteenth 14.91 (24.00) sixteenth 17.93 (28.86) seventeenth 21.08 (33.93) eighteenth 25.35 (40.80) reverse 3.29 (5.29), 3.95 (6.36), 4.75 (7.64), 5.70 (9.18), 6.70 (10.79), 8.07 (12.98) **Clutch** wet disc hydraulically actuated by foot pedal **Brakes** wet disc hydraulically actuated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1969 engine rpm or 1000 rpm at 2120 engine rpm **Unladen tractor mass** 13230 lb (6000 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)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
1st(1Low) Gear									
35.8 (26.7)	12160 (54.09)	1.10 (1.78)	2294	11.9	0.865 (0.526)	8.10 (1.60)	189 (87)	36 (2)	28.8 (97.6)
2nd(2Low) Gear									
43.9 (32.7)	11970 (53.24)	1.37 (2.21)	2287	8.6	0.772 (0.470)	9.07 (1.79)	189 (87)	37 (3)	28.8 (97.6)
3rd(3Low) Gear									
52.8 (39.4)	12065 (53.68)	1.64 (2.64)	2272	8.5	0.723 (0.440)	9.70 (1.91)	189 (87)	39 (4)	28.8 (97.6)
4th(4Low) Gear									
62.9 (46.9)	11940 (53.12)	1.98 (3.18)	2247	7.8	0.675 (0.411)	10.39 (2.05)	189 (87)	43 (6)	28.8 (97.6)
5th(5Low) Gear									
72.7 (54.2)	11485 (51.09)	2.37 (3.82)	2233	6.2	0.592 (0.360)	11.83 (2.33)	189 (87)	46 (8)	28.8 (97.6)
6th(6Low) Gear									
80.1 (59.7)	11660 (51.87)	2.57 (4.14)	2049	7.0	0.576 (0.351)	12.16 (2.40)	187 (86)	45 (7)	28.8 (97.6)
7th(1Med) Gear									
87.8 (65.5)	10845 (48.24)	3.04 (4.89)	2013	4.8	0.527 (0.320)	13.31 (2.62)	185 (85)	43 (6)	28.8 (97.6)
8th(2Med) Gear									
88.9 (66.3)	9335 (41.53)	3.57 (5.75)	1905	3.1	0.519 (0.316)	13.50 (2.66)	183 (84)	45 (7)	28.8 (97.6)
9th(3Med) Gear									
88.9 (66.3)	8695 (38.67)	3.83 (6.17)	1698	2.8	0.504 (0.306)	13.92 (2.74)	187 (86)	46 (8)	28.8 (97.6)
10th(4Med) Gear									
85.6 (63.8)	6825 (30.36)	4.70 (7.57)	1715	2.2	0.525 (0.319)	13.35 (2.63)	183 (84)	43 (6)	28.8 (97.6)
11th(5Med) Gear									
86.6 (64.6)	5840 (25.97)	5.56 (8.96)	1722	1.8	0.519 (0.315)	13.52 (2.66)	183 (84)	41 (5)	28.8 (97.6)
12th(6Med) Gear									
82.2 (61.3)	4650 (20.67)	6.63 (10.67)	1704	1.4	0.550 (0.334)	12.75 (2.51)	185 (85)	39 (4)	28.8 (97.6)
13th(1High) Gear									
84.8 (63.2)	3890 (17.31)	8.17 (13.14)	1779	1.1	0.532 (0.324)	13.18 (2.60)	183 (84)	41 (5)	28.8 (97.6)

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 three point lift claims of 12185 lbs (5527 kg) with 90 mm lift cylinders and 15197 lbs (6893 kg) with 100 mm lift cylinders. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2480**, Nebraska Summary 669, December 14, 2009.

Roger M. Hoy
Director

M.F. Kocher
V.I. Adamchuk
J.A. Smith
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
At no load in 8th gear	70.5	71.0
Bystander	--	--

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 650/65R38; **,12 (80)
 Two 540/65R28; **,12 (80)
 20.0 in (509 mm)
 8115 lb (3680 kg)
 5280 lb (2395 kg)
 13395 lb (6075 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 for road transport applications. The system is also activated when power transfer through the PTO 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1037 rpm)					
127.7 (95.2)	2197	7.53 (28.51)	0.413 (0.251)	16.95 (3.34)	
Standard Power Take-off Speed (1000 rpm)					
132.9 (99.1)	2119	7.59 (28.73)	0.400 (0.244)	17.50 (3.45)	
Maximum Power - (1 hour)					
138.8 (103.5)	1998	7.83 (29.63)	0.396 (0.241)	17.72 (3.49)	

VARYING POWER AND FUEL CONSUMPTION

127.7 (95.2)	2197	7.53 (28.51)	0.413 (0.251)	16.38 (3.34)	Air temperature
110.6 (82.5)	2236	6.86 (25.96)	0.434 (0.264)	16.14 (3.18)	65°F(18°C)
83.8 (62.5)	2267	5.68 (21.50)	0.475 (0.289)	14.76 (2.91)	Relative humidity
56.6 (42.2)	2291	4.53 (17.14)	0.561 (0.341)	12.49 (2.46)	50%
28.6 (21.3)	2314	3.22 (12.19)	0.791 (0.481)	8.86 (1.74)	Barometer
--	2339	2.07 (7.83)	--	--	29.1" Hg (98.6 kPa)

Maximum Torque - 391.2 lb.-ft. (530.4 Nm) at 1600 rpm

Maximum Torque Rise - 28.1%

Torque rise at 1800 engine rpm - 25%

HYDRAULIC PERFORMANCE

CATEGORY: III
 Quick Attach: None
 OECD Static test

	lift cylinders
Maximum force exerted through whole range:	7915 lbs (35.2 kN) (2x 90 mm) 9215 lbs (41.0 kN) (2x 100 mm)
i) Sustained pressure of the open relief valve:	3020 psi (208 bar)
ii) Pump delivery rate at minimum pressure:	29.1 GPM (110.1 l/min)
iii) Pump delivery rate at maximum	
hydraulic power:	25.5 GPM (96.7 l/min)
Delivery pressure:	2755 psi (190 bar)
Power:	41.0 HP (30.6 kW)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar)	3020 (208)
Location:	lift cylinder
Hydraulic oil temperature: °F (°C)	150 (66)
Location:	hydraulic sump
Category:	III
Quick attach:	None

SAE Static Test—System pressure 2715 psi (187 Bar)
lift cylinders - 2 x 90 mm

Hitch point distance to ground level in. (mm)	9.6 (245)	15.4 (390)	24.6 (625)	33.1 (840)	37.0 (940)
Lift force on frame lb	14165	12520	11980	11665	11355
" " " " " " (kN)	(63.0)	(55.7)	(53.3)	(51.9)	(50.5)

SAE Static Test—System pressure 2715 psi (187 Bar)
lift cylinders - 2 x 100 mm

Hitch point distance to ground level in. (mm)	9.1 (230)	15.2 (386)	24.6 (625)	31.7 (805)	36.0 (914)
Lift force on frame lb	18840	16590	15445	14925	13780
" " " " " " (kN)	(83.8)	(73.8)	(68.7)	(66.4)	(61.3)

HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	mm	inch	mm
A	29.5	750	30.6	778
B	12.2	310	12.2	310
C	15.7	398	15.7	398
D	14.3	364	14.3	364
E	8.2	208	10.4	263
F	9.8	250	9.8	250
G	34.4	875	34.4	875
H	0.6	16	0.6	16
I	17.5	445	16.8	427
J	24.6	625	24.6	625
K	17.3	440	19.9	505
L	47.0	1194	47.0	1194
M	24.6	624	24.6	624
N	38.3	974	38.3	974
O	7.9	200	9.6	245
P	51.6	1310	46.6	1184
Q	38.5	978	37.6	954
R	32.4	823	33.5	850

