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## Test 2228: Case IH MXU115 Limited Diesel

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# SUMMARY OF OECD TEST 2228—NEBRASKA SUMMARY 544

## CASE IH MXU 115 LIMITED DIESEL

### 24 SPEED

**Location of tests:** Silsoe Research Institute, Wrest Park, Silsoe, MK45 4HS, United Kingdom

**Dates of tests:** September to November, 2004.

**Manufacturer:** CNH U.K. Ltd., Basildon, Essex, SS14 3AD, England

#### 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—1038 rpm)</b>					
101.0 (75.3)	2200	6.73 (25.47)	0.470 (0.286)	15.01 (2.96)	
<b>Standard Power Take-off Speed (999 rpm)</b>					
103.7 (77.3)	2119	6.68 (25.29)	0.455 (0.277)	15.53 (3.06)	
<b>Maximum Power (2 hours)</b>					
104.7 (78.1)	1964	6.45 (24.40)	0.434 (0.264)	16.24 (3.20)	

#### VARYING POWER AND FUEL CONSUMPTION

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Conditions
101.0 (75.3)	2200	6.73 (25.47)	0.470 (0.286)	15.01 (2.96)	Air temperature
90.4 (67.4)	2316	6.39 (24.20)	0.499 (0.304)	14.14 (2.79)	73°F (23°C)
68.1 (50.8)	2330	5.52 (20.89)	0.572 (0.348)	12.33 (2.43)	Relative humidity
45.9 (34.2)	2354	4.32 (16.34)	0.663 (0.403)	10.64 (2.10)	54%
23.3 (17.4)	2382	3.26 (12.33)	0.983 (0.598)	7.17 (1.41)	Barometer
--	2423	2.27 (8.59)	--	--	30.0" Hg (102.2 kPa)

Maximum Torque - 381.4 lb.-ft. (517.1 Nm) at 1301 rpm  
 Maximum Torque Rise - 58.1%  
 Torque rise at 1800 engine rpm - 25%

#### 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—12th(2 II Hi) Gear</b>							
83.4 (62.2)	6945 (30.9)	4.50 (7.24)	2201	3.6	0.565 (0.344)	12.49 (2.46)	180 (82)
<b>75% of Pull at Maximum Power—12th(2 II Hi) Gear</b>							
66.5 (49.6)	5215 (23.2)	4.78 (7.70)	2323	2.9	0.637 (0.387)	11.08 (2.18)	181 (83)
<b>50% of Pull at Maximum Power—12th(2 II Hi) Gear</b>							
44.8 (33.4)	3450 (15.4)	4.87 (7.83)	2345	2.0	0.780 (0.474)	9.05 (1.78)	183 (84)
<b>75% of Pull at Reduced Engine Speed—13th(3 II Lo) Gear</b>							
66.6 (49.7)	5205 (23.2)	4.80 (7.73)	1997	2.9	0.556 (0.338)	12.69 (2.50)	181 (83)
<b>50% of Pull at Reduced Engine Speed—13th(3 II Lo) Gear</b>							
44.9 (33.5)	3450 (15.4)	4.88 (7.86)	2014	2.0	0.665 (0.404)	10.61 (2.09)	180 (82)

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.847 **Fuel weight** 7.04 lbs/gal (0.8453 kg/l) **Oil SAE 10W30 API service classification** CH-4 **Transmission and hydraulic lubricant** NH 410B fluid **Front axle lubricant** NH 410B fluid

**ENGINE: Make** CNH Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** 00093411 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.094" x 5.196" (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** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS: Type** front wheel assist **Serial No.** 221208 **Tread width** rear 68.1" (1730 mm) to 83.9" (2130 mm) front 64.2" (1630 mm) to 81.9" (2080 mm) **Wheelbase** 104.4" (2652 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.02 (1.64) second 1.25 (2.01) third 1.49 (2.40) fourth 1.83 (2.94) fifth 2.13 (3.43) sixth 2.56 (4.12) seventh 2.61 (4.20) eighth 3.11 (5.00) ninth 3.13 (5.04) tenth 3.75 (6.04) eleventh 3.80 (6.11) twelfth 4.59 (7.39) thirteenth 5.36 (8.62) fourteenth 6.20 (9.98) fifteenth 6.56 (10.55) sixteenth 7.59 (12.21) seventeenth 7.80 (12.55) eighteenth 9.08 (14.62) nineteenth 9.54 (15.35) twentieth 11.11 (17.88) twenty-first 12.97 (20.88) twenty-second 15.87 (25.54) twenty-third 18.88 (30.38) twenty-fourth 23.09 (37.16) reverse 1.06 (1.70), 1.29 (2.08), 1.55 (2.49), 1.89 (3.04), 2.21 (3.55), 2.65 (4.26), 2.70 (4.34), 3.22 (5.17), 3.24 (5.21), 3.88 (6.24) 3.93 (6.32), 4.75 (7.64), 5.54 (8.92), 6.41 (10.32), 6.78 (10.91), 7.84 (12.62), 8.07 (12.98), 9.40 (15.12), 9.86 (15.87), 11.49 (18.49), 13.42 (21.59), 16.41 (26.41), 19.52 (31.41), 23.87 (38.42) **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 1969 engine rpm or 1000 rpm at 2120 engine rpm **Unladen tractor mass** 11840 lb (5370 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. <sup>°F</sup> (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
1st(1 I Lo) Gear									
32.2 (24.0)	12365 (55.0)	0.98 (1.57)	2379	13.0	0.913 (0.555)	7.73 (1.52)	181 (83)	63 (17)	29.9 (101.2)
2nd(1 I Hi) Gear									
39.2 (29.2)	12305 (54.7)	1.19 (1.92)	2366	12.6	0.828 (0.504)	8.52 (1.68)	183 (84)	63 (17)	29.9 (101.2)
3rd(2 I Lo) Gear									
46.7 (34.8)	12185 (54.2)	1.44 (2.31)	2351	11.6	0.788 (0.479)	8.95 (1.76)	185 (85)	63 (17)	29.9 (101.2)
4th(2 I Hi) Gear									
56.7 (42.3)	12180 (54.2)	1.75 (2.81)	2346	11.9	0.671 (0.408)	10.51 (2.07)	185 (85)	63 (17)	29.9 (101.2)
5th(3 I Lo) Gear									
66.1 (49.3)	12125 (53.9)	2.04 (3.29)	2335	11.2	0.649 (0.395)	10.86 (2.14)	181 (83)	63 (17)	29.9 (101.2)
6th(1 II Lo) Gear									
76.3 (56.9)	11980 (53.3)	2.39 (3.84)	2242	10.1	0.589 (0.358)	11.98 (2.36)	183 (84)	64 (18)	29.9 (101.1)
7th(3 I Hi) Gear									
75.6 (56.4)	11500 (51.2)	2.47 (3.97)	2246	9.0	0.615 (0.374)	11.47 (2.26)	183 (84)	63 (17)	29.9 (101.2)
8th(4 I Lo) Gear									
83.1 (61.9)	10760 (47.9)	2.90 (4.66)	2157	6.6	0.539 (0.328)	13.10 (2.58)	181 (83)	64 (18)	29.9 (101.2)
9th(1 II Hi) Gear									
82.6 (61.6)	10655 (47.4)	2.91 (4.68)	2153	6.8	0.551 (0.335)	12.79 (2.52)	181 (83)	64 (18)	29.9 (101.2)
10th(2 II Lo) Gear									
83.1 (62.0)	9485 (42.2)	3.29 (5.30)	2006	5.4	0.551 (0.335)	12.79 (2.52)	181 (83)	64 (18)	29.8 (101.0)
11th(4 II Hi) Gear									
86.4 (64.4)	9780 (43.5)	3.31 (5.33)	1996	5.5	0.526 (0.320)	13.40 (2.64)	181 (83)	64 (18)	29.9 (101.2)
12th(2 II Hi) Gear									
86.8 (64.7)	8160 (36.3)	3.99 (6.42)	1964	4.3	0.520 (0.317)	13.55 (2.67)	180 (82)	59 (15)	29.9 (101.2)
13th(3 II Lo) Gear									
85.0 (63.4)	6765 (30.1)	4.71 (7.58)	1972	3.6	0.533 (0.324)	13.24 (2.61)	180 (82)	61 (16)	29.9 (101.2)
14th(1 III Lo) Gear									
86.4 (64.4)	5890 (26.2)	5.50 (8.85)	1982	3.2	0.526 (0.320)	13.40 (2.64)	181 (83)	61 (16)	29.9 (101.2)
15th(3 II Hi) Gear									
86.0 (64.1)	5555 (24.7)	5.81 (9.35)	1978	3.0	0.530 (0.322)	13.31 (2.62)	180 (82)	63 (17)	29.9 (101.2)
16th(1 III Hi) Gear									
86.5 (64.5)	4880 (21.7)	6.65 (10.70)	1950	2.4	0.517 (0.314)	13.65 (2.69)	181 (83)	61 (16)	29.9 (101.2)
17th(4 II Lo) Gear									
85.2 (63.5)	4675 (20.8)	6.83 (10.99)	1947	2.6	0.524 (0.319)	13.45 (2.65)	183 (83)	59 (15)	29.9 (101.2)
18th(2 III Lo) Gear									
82.6 (61.6)	3845 (17.1)	8.06 (12.96)	1965	2.1	0.543 (0.330)	12.99 (2.56)	180 (82)	61 (16)	29.9 (101.2)
19th(4 II Hi) Gear									
84.9 (63.3)	3790 (16.9)	8.40 (13.52)	1950	2.2	0.522 (0.318)	13.50 (2.66)	181 (83)	61 (16)	29.9 (101.2)

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

**NOTE 1:-** The Case IH MXU115 is available in two versions - base and Limited. The data on this Summary applies to the Limited version. The advertised claims, for the base version, of remote flow of 16.6 GPM(63 lpm) with open centered system and 3 point lift capacity of 4878 lbs(2213 kg), optionally 8813 lbs(3997 kg) were not verified.

**NOTE 2:** The test results on this Summary were obtained from tests carried out on the New Holland TS115A Diesel.

**NOTE 3:** All results reported were for a tractor equipped with a cab unless noted otherwise.

**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 claims of: 26.5 gpm (100 lpm) remote hydraulic flow nor 3 point lift capacity of 12185 lbs (5527 kg). 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. 2228 Nebraska Summary 544, August 7, 2006.

Leonard L. Bashford  
Director

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

**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 600/65R38; \*\*,10 (70)  
Two 480/65R28; \*\*,10 (70)  
18.5 in (470 mm)  
7365 lb (3341 kg)  
4640 lb (2104 kg)  
12005 lb (5445 kg)

**DRAWBAR PERFORMANCE**  
**(Unballasted - Front Drive Disengaged)**  
**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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—12th(2II Hi) Gear</b>									
84.4 (62.9)	7150 (31.8)	4.43 (7.13)	2202	4.1	0.560 (0.341)	12.59 (2.48)	180 (82)	57 (14)	29.9 (101.2)
<b>75% of Pull at Maximum Power—12th(2II Hi) Gear</b>									
67.9 (50.6)	5350 (23.8)	4.76 (7.67)	2340	2.9	0.632 (0.384)	11.17 (2.20)	181 (83)	57 (14)	29.9 (101.2)
<b>50% of Pull at Maximum Power—12th(2II Hi) Gear</b>									
46.1 (34.4)	3570 (15.9)	4.85 (7.80)	2361	2.0	0.755 (0.459)	9.34 (1.84)	181 (83)	57 (14)	29.9 (101.2)
<b>75% of Pull at Reduced Engine Speed—13th(3II Lo) Gear</b>									
67.9 (50.6)	5350 (23.8)	4.76 (7.66)	2005	3.1	0.559 (0.340)	12.63 (2.49)	176 (80)	63 (17)	29.9 (101.3)
<b>50% of Pull at Reduced Engine Speed—13th(3II Lo) Gear</b>									
46.1 (34.4)	3560 (15.8)	4.86 (7.82)	2027	1.9	0.635 (0.387)	11.10 (2.19)	180 (82)	63 (17)	29.9 (101.3)

**MAXIMUM POWER IN SELECTED GEARS**

7th(3 I Hi) Gear									
60.5 (45.1)	9305 (41.4)	2.44 (3.93)	2289	10.6	0.668 (0.406)	10.56 (2.08)	183 (84)	61 (16)	29.9 (101.2)
8th(4 I Lo) Gear									
71.5 (53.3)	9195 (40.9)	2.92 (4.70)	2266	9.1	0.609 (0.370)	11.58 (2.28)	181 (83)	61 (16)	29.9 (101.3)
9th(1 II Hi) Gear									
71.7 (53.5)	9215 (41.0)	2.92 (4.70)	2252	9.4	0.604 (0.367)	11.68 (2.30)	181 (83)	61 (16)	29.9 (101.3)
10th(2 II Lo) Gear									
79.7 (59.4)	8745 (38.9)	3.42 (5.51)	2158	7.6	0.570 (0.347)	12.38 (2.44)	181 (83)	61 (16)	29.9 (101.3)
11th(4 I Hi) Gear									
81.0 (60.4)	8745 (38.9)	3.47 (5.59)	2164	7.6	0.563 (0.343)	12.53 (2.47)	181 (83)	63 (17)	29.9 (101.3)
12th(2 II Hi) Gear									
86.2 (64.3)	8090 (36.0)	4.00 (6.43)	2017	5.6	0.526 (0.320)	13.40 (2.64)	180 (82)	57 (14)	29.9 (101.2)
13th(3 II Lo) Gear									
85.3 (63.6)	6870 (30.6)	4.66 (7.50)	1981	4.0	0.524 (0.319)	13.45 (2.65)	180 (82)	59 (15)	29.9 (101.2)
14th(1 III Lo) Gear									
86.9 (64.8)	6015 (26.8)	5.42 (8.72)	1977	3.4	0.513 (0.312)	13.76 (2.71)	180 (82)	59 (15)	29.9 (101.2)
15th(2 II Hi) Gear									
87.3 (65.1)	5755 (25.6)	5.69 (9.15)	1962	3.1	0.511 (0.311)	13.81 (2.72)	180 (82)	59 (15)	29.9 (101.2)
16th(1 III Hi) Gear									
87.7 (65.4)	4900 (21.8)	6.71 (10.80)	1991	2.7	0.509 (0.310)	13.86 (2.73)	181 (83)	59 (15)	29.9 (101.2)
17th(4 II Lo) Gear									
86.2 (64.3)	4705 (20.9)	6.87 (11.06)	1981	2.6	0.517 (0.315)	13.64 (2.69)	180 (82)	59 (15)	29.9 (101.2)
18th(2 III Lo) Gear									
84.5 (63.0)	3975 (17.7)	7.97 (12.83)	1966	2.2	0.526 (0.320)	13.40 (2.64)	181 (83)	59 (15)	29.9 (101.2)
19th(4 II Hi) Gear									
86.7 (64.7)	3875 (17.2)	8.39 (13.50)	1971	2.2	0.517 (0.315)	13.64 (2.69)	180 (82)	59 (15)	29.9 (101.2)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
At no load in 12th (2 II Hi) gear	74.0	75.0
Bystander	--	--

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
At no load in 12th (2 II Hi) gear	86.0	86.0
Bystander	--	--

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II  
Quick Attach: No

Maximum force exerted through whole range: 9530 lbs (42.4 kN)

i) Opening pressure of relief valve: NA NA

fixed disp. pump      variable disp. pump

Sustained pressure at compensator cutoff: 2975 psi (205 bar) 3105 psi (214 bar)

ii) Pump delivery rate at minimum pressure: 22.2 GPM(84.0 l/min) 26.2 GPM(99.0 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 19.0 GPM(71.9 l/min) 25.0 GPM(94.5 l/min)

Delivery pressure: 2465 psi (170 bar) 2610 psi (180 bar)

Power: 27.3 HP (20.4 kW) 38.0 HP (28.3 kW)

### THREE POINT HITCH PERFORMANCE

Observed maximum pressure psi. (bar)	3105 (214)
Location:	lift cylinder
Hydraulic oil temperature: °F (°C)	150 (65)
Location:	hydraulic sump
Category:	II
Quick attach:	none

#### SAE Static Test—System pressure 2685 psi (185 Bar) (two 90 mm external cylinders)

Hitch point distance to ground level in. (mm)	7.7 (195)	15.6 (395)	23.0 (585)	30.3 (770)	36.2 (920)
Lift force on frame lb	14500	13510	12970	12455	11240
" " " " " " (kN)	(64.5)	(60.1)	(57.7)	(55.4)	(50.0)

#### HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	mm	inch	mm
A	29.9	760	30.3	770
B	12.2	310	12.2	310
C	15.6	395	15.6	395
D	14.6	370	14.6	370
E	8.2	208	10.8	275
F	9.3	235	9.3	235
G	32.3	820	32.3	820
H	1.1	28	1.1	28
I	17.9	455	16.9	430
J	23.0	585	23.0	585
K	19.8	502	22.8	580
L	46.5	1180	46.5	1180
M	24.6	625	24.6	625
N	39.8	1012	39.8	1012
O	7.7	195	7.7	195
P	47.0	1195	42.0	1068
Q	35.4	900	33.1	840
R	32.3	820	35.0	888

