

# SUMMARY OF OECD TEST 2482-NEBRASKA SUMMARY 678

## CASE IH MAXXUM 120 PRO DIESEL

### 16 SPEED

#### POWER TAKE-OFF PERFORMANCE

| Power<br>HP<br>(kW)                             | Crank<br>shaft<br>speed<br>rpm | Gal/hr<br>(l/h) | lb/hp.hr<br>(kg/kW.h) | Hp.hr/gal<br>(kW.h/l) | Mean Atmospheric<br>Conditions |
|---|--------------------------------|-----------------|-----------------------|-----------------------|--------------------------------|
| <b>MAXIMUM POWER AND FUEL CONSUMPTION</b>       |                                |                 |                       |                       |                                |
| <b>Rated Engine Speed—(PTO speed—1038 rpm)</b>  |                                |                 |                       |                       |                                |
| 101.9<br>(76.0)                                 | 2200                           | 6.47<br>(24.49) | 0.446<br>(0.271)      | 15.74<br>(3.10)       |                                |
| <b>Standard Power Take-off Speed (1000 rpm)</b> |                                |                 |                       |                       |                                |
| 107.0<br>(79.8)                                 | 2119                           | 6.60<br>(24.99) | 0.433<br>(0.263)      | 16.20<br>(3.19)       |                                |
| <b>Maximum Power - (1 hour)</b>                 |                                |                 |                       |                       |                                |
| 117.9<br>(87.9)                                 | 1901                           | 6.77<br>(25.61) | 0.403<br>(0.245)      | 17.41<br>(3.43)       |                                |

#### VARYING POWER AND FUEL CONSUMPTION

|                 |      |                 |                  |                 |                     |
|-----------------|------|-----------------|------------------|-----------------|---------------------|
| 101.9<br>(76.0) | 2200 | 6.47<br>(24.49) | 0.446<br>(0.271) | 15.74<br>(3.10) | Air temperature     |
| 88.8<br>(66.2)  | 2257 | 6.02<br>(22.80) | 0.475<br>(0.289) | 14.75<br>(2.91) | 64°F (18°C)         |
| 67.5<br>(50.3)  | 2280 | 5.02<br>(18.99) | 0.521<br>(0.317) | 13.45<br>(2.65) | Relative humidity   |
| 45.6<br>(34.0)  | 2303 | 3.95<br>(14.95) | 0.606<br>(0.369) | 11.55<br>(2.28) | 41%                 |
| 23.1<br>(17.2)  | 2327 | 2.84<br>(10.74) | 0.860<br>(0.523) | 8.15<br>(1.61)  | Barometer           |
| --              | 2354 | 1.97<br>(7.45)  | --               | --              | 29.3" Hg (99.2 kPa) |

Maximum Torque - 388.5 lb.-ft. (526.7 Nm) at 1401 rpm

Maximum Torque Rise - 59.7%

Torque rise at 1800 engine rpm - 39%

#### DRAWBAR PERFORMANCE (Unballasted - Front Drive Engaged) FUEL CONSUMPTION CHARACTERISTICS

| Power<br>Hp<br>(kW)  | Drawbar<br>pull<br>lbs<br>(kN) | Speed<br>mph<br>(km/h) | Crank-<br>shaft<br>speed<br>rpm | Slip<br>% | Fuel Consumption<br>lb/hp.hr<br>(kg/kW.h) | Hp.hr/gal<br>(kW.h/l) | Temp.°F (°C)<br>cool-<br>ing<br>med | Air<br>dry<br>bulb | Barom.<br>inch<br>Hg<br>(kPa) |
|--|--------------------------------|------------------------|---------------------------------|-----------|---|-----------------------|-------------------------------------|--------------------|-------------------------------|
| <b>Maximum Power—9th (8B) Gear</b>                         |                                |                        |                                 |           |   |                       |                                     |                    |                               |
| 81.0<br>(60.4)   | 5035<br>(22.39)                | 6.03<br>(9.71)         | 2195                            | 1.8       | 0.561<br>(0.341)                          | 12.49<br>(2.46)       | 187<br>(86)                         | 77<br>(25)         | 28.9<br>(97.9)                |
| <b>75% of Pull at Maximum Power—9th (8B) Gear</b>          |                                |                        |                                 |           |   |                       |                                     |                    |                               |
| 62.9<br>(46.9)   | 3745<br>(16.66)                | 6.30<br>(10.14)        | 2261                            | 1.2       | 0.670<br>(0.408)                          | 10.46<br>(2.06)       | 187<br>(86)                         | 77<br>(25)         | 28.9<br>(97.9)                |
| <b>50% of Pull at Maximum Power—9th (8B) Gear</b>          |                                |                        |                                 |           |   |                       |                                     |                    |                               |
| 43.2<br>(32.2)   | 2545<br>(11.31)                | 6.37<br>(10.25)        | 2295                            | 0.7       | 0.787<br>(0.479)                          | 8.90<br>(1.75)        | 187<br>(86)                         | 73<br>(23)         | 28.9<br>(97.9)                |
| <b>75% of Pull at Reduced Engine Speed—10th (10C) Gear</b> |                                |                        |                                 |           |   |                       |                                     |                    |                               |
| 62.9<br>(46.9)   | 3745<br>(16.65)                | 6.30<br>(10.14)        | 2028                            | 1.2       | 0.578<br>(0.352)                          | 12.12<br>(2.39)       | 185<br>(85)                         | 72<br>(22)         | 28.9<br>(97.9)                |
| <b>50% of Pull at Reduced Engine Speed—10th (10C) Gear</b> |                                |                        |                                 |           |   |                       |                                     |                    |                               |
| 43.0<br>(32.1)   | 2535<br>(11.27)                | 6.37<br>(10.25)        | 2045                            | 0.8       | 0.704<br>(0.428)                          | 9.96<br>(1.96)        | 185<br>(85)                         | 73<br>(23)         | 28.9<br>(97.9)                |

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

**Dates of tests:** December 2007 to June, 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 Nexplora fluid Front axle lubricant Akcela Nexplora fluid

**ENGINE:** Make CNH Diesel Type four cylinder vertical with turbocharger and air to air intercooler Serial No. 333045 Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 4.094" x 5.197" (104.0 mm x 132.0 mm) Compression ratio 16.5 to 1 Displacement 274 cu in (4485 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. Z6BE01003 Tread width rear 56.3" (1430 mm) to 83.9" (2130 mm) front 52.2" (1325 mm) to 90.0" (2285 mm) Wheelbase 95.3" (2421 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (8) range operator controlled powershift Nominal travel speeds mph (km/h) first 1.41 (2.27) second 1.73 (2.78) third 2.10 (3.38) fourth 2.58 (4.15) fifth 3.31 (5.32) sixth 4.06 (6.53) seventh 4.94 (7.95) eighth 5.51 (8.86) ninth 6.06 (9.75) tenth 6.75 (10.87) eleventh 8.23 (13.24) twelfth 10.09 (16.24) thirteenth 12.94 (20.82) fourteenth 15.87 (25.54) fifteenth 19.32 (31.09) sixteenth 23.70 (38.14) reverse 1.39 (2.24), 1.71 (2.75), 2.08 (3.35), 2.55 (4.10), 3.27 (5.26), 4.01 (6.45), 4.88 (7.86), 5.44 (8.76), 5.99 (9.64), 6.67 (10.74), 8.13 (13.08), 9.97 (16.05), 12.78 (20.57), 15.68 (25.24), 19.10 (30.73), 23.43 (37.70) 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 1970 engine rpm or 1000 rpm at 2120 engine rpm Unladen tractor mass 12465 lb (5655 kg)

## DRAWBAR PERFORMANCE

### (Unballasted - Front Drive Engaged) MAXIMUM POWER IN SELECTED GEARS

| Power<br>Hp<br>(kW) | Drawbar<br>pull<br>lbs<br>(kN) | Speed<br>mph<br>(km/h) | Crank-<br>shaft<br>speed<br>rpm | Slip<br>% | Fuel Consumption<br>lb/hp.hr<br>(kg/kW.h) | Consumption<br>Hp.hr/gal<br>(kW.h/l) | Temp. <sup>o</sup> F(°C)<br>cool-<br>ing<br>med | Air<br>dry<br>bulb | Barom.<br>inch<br>Hg<br>(kPa) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|---|--------------------------------------|---|--------------------|-------------------------------|
| 1st(1A) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 44.3<br>(33.0)      | 12525<br>(55.71)               | 1.33<br>(2.13)         | 2298                            | 12.0      | 0.727<br>(0.442)                          | 9.64<br>(1.90)                       | 187<br>(86)                                     | 77<br>(25)         | 28.9<br>(97.9)                |
| 2nd(2A) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 54.7<br>(40.8)      | 12425<br>(55.27)               | 1.65<br>(2.66)         | 2286                            | 9.6       | 0.648<br>(0.394)                          | 10.81<br>(2.13)                      | 187<br>(86)                                     | 79<br>(26)         | 28.9<br>(97.9)                |
| 3rd(3A) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 65.4<br>(48.8)      | 12115<br>(53.90)               | 2.03<br>(3.26)         | 2271                            | 8.5       | 0.608<br>(0.370)                          | 11.52<br>(2.27)                      | 187<br>(86)                                     | 79<br>(26)         | 28.9<br>(97.9)                |
| 4th(4A) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 78.7<br>(58.7)      | 12095<br>(53.79)               | 2.44<br>(3.93)         | 2230                            | 8.2       | 0.578<br>(0.351)                          | 12.13<br>(2.39)                      | 187<br>(86)                                     | 77<br>(25)         | 28.9<br>(97.9)                |
| 5th(5B) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 91.6<br>(68.3)      | 12280<br>(54.63)               | 2.80<br>(4.50)         | 1992                            | 8.7       | 0.516<br>(0.314)                          | 13.59<br>(2.68)                      | 185<br>(85)                                     | 77<br>(25)         | 28.9<br>(97.9)                |
| 6th(6B) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 99.1<br>(73.9)      | 11015<br>(49.01)               | 3.37<br>(5.43)         | 1901                            | 5.5       | 0.479<br>(0.291)                          | 14.63<br>(2.88)                      | 185<br>(85)                                     | 77<br>(25)         | 28.9<br>(97.9)                |
| 7th(7B) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 96.7<br>(72.1)      | 8560<br>(38.08)                | 4.24<br>(6.82)         | 1900                            | 3.4       | 0.488<br>(0.297)                          | 14.37<br>(2.83)                      | 185<br>(85)                                     | 81<br>(27)         | 28.9<br>(97.9)                |
| 8th(9C) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 99.5<br>(74.2)      | 7835<br>(34.85)                | 4.76<br>(7.67)         | 1897                            | 2.8       | 0.474<br>(0.288)                          | 14.78<br>(2.91)                      | 185<br>(85)                                     | 77<br>(25)         | 28.9<br>(97.9)                |
| 9th(8B) Gear        |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 98.0<br>(73.1)      | 6940<br>(30.86)                | 5.30<br>(8.53)         | 1911                            | 2.4       | 0.485<br>(0.295)                          | 14.47<br>(2.85)                      | 185<br>(85)                                     | 77<br>(25)         | 28.9<br>(97.9)                |
| 10th(10C) Gear      |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 99.4<br>(74.1)      | 6245<br>(27.78)                | 5.97<br>(9.60)         | 1921                            | 2.1       | 0.476<br>(0.290)                          | 14.72<br>(2.90)                      | 185<br>(85)                                     | 77<br>(25)         | 28.9<br>(97.9)                |
| 11th(11C) Gear      |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 96.2<br>(71.7)      | 4985<br>(22.19)                | 7.23<br>(11.64)        | 1898                            | 1.4       | 0.493<br>(0.300)                          | 14.21<br>(2.80)                      | 185<br>(85)                                     | 73<br>(23)         | 28.9<br>(97.9)                |
| 12th(12C) Gear      |                                |                        |                                 |           |   |                                      |   |                    |                               |
| 94.5<br>(70.5)      | 3955<br>(17.59)                | 8.96<br>(14.42)        | 1908                            | 0.9       | 0.500<br>(0.304)                          | 14.01<br>(2.76)                      | 187<br>(86)                                     | 75<br>(24)         | 28.9<br>(97.9)                |

**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 claim of 9620 lbs (4364 kg) nor cab sound level claim of 70.0 dB(A). 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. **2482**, Nebraska Summary 678, January 8, 2010.

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<br>dB(A) | Engaged<br>dB(A) |
| At no load in 7th (7B) gear  | 69.7                | 70.9             |
| 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 600/65R38; \*\*,12 (80)

Two 480/65R28; \*\*,12 (80)

17.3 in (440 mm)

7760 lb (3520 kg)

4870 lb (2210 kg)

12630 lb (5730 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<br>HP<br>(kW)                             | Crank<br>shaft<br>speed<br>rpm | Gal/hr<br>(l/h) | lb/hp.hr<br>(kg/kW.h) | Hp.hr/gal<br>(kW.h/l) | Mean Atmospheric<br>Conditions |
|---|--------------------------------|-----------------|-----------------------|-----------------------|--------------------------------|
| <b>MAXIMUM POWER AND FUEL CONSUMPTION</b>       |                                |                 |                       |                       |                                |
| <b>Rated Engine Speed—(PTO speed—1037 rpm)</b>  |                                |                 |                       |                       |                                |
| 121.9<br>(90.9)                                 | 2197                           | 7.43<br>(28.13) | 0.427<br>(0.260)      | 16.40<br>(3.23)       |                                |
| <b>Standard Power Take-off Speed (1001 rpm)</b> |                                |                 |                       |                       |                                |
| 123.2<br>(91.9)                                 | 2121                           | 7.45<br>(28.20) | 0.424<br>(0.258)      | 16.53<br>(3.26)       |                                |
| <b>Maximum Power - (1 hour)</b>                 |                                |                 |                       |                       |                                |
| 128.3<br>(95.7)                                 | 1901                           | 7.30<br>(27.64) | 0.399<br>(0.243)      | 17.57<br>(3.46)       |                                |

### VARYING POWER AND FUEL CONSUMPTION

|                 |      |                 |                  |                 |                     |
|-----------------|------|-----------------|------------------|-----------------|---------------------|
| 121.9<br>(90.9) | 2197 | 7.43<br>(28.13) | 0.427<br>(0.260) | 16.40<br>(3.23) | Air temperature     |
| 105.4<br>(78.6) | 2238 | 6.71<br>(25.39) | 0.446<br>(0.271) | 15.72<br>(3.10) | 64°F (18°C)         |
| 80.1<br>(59.7)  | 2267 | 5.60<br>(21.19) | 0.490<br>(0.298) | 14.31<br>(2.82) | Relative humidity   |
| 54.3<br>(40.5)  | 2295 | 4.39<br>(16.61) | 0.566<br>(0.345) | 12.38<br>(2.44) | 52%                 |
| 27.4<br>(20.4)  | 2322 | 3.04<br>(11.52) | 0.779<br>(0.474) | 8.99<br>(1.77)  | Barometer           |
| --              | 2348 | 1.98<br>(7.49)  | --               | --              | 29.4" Hg (99.4 kPa) |

Maximum Torque - 390.5 lb.-ft. (529.5 Nm) at 1399 rpm

Maximum Torque Rise - 34.1%

Torque rise at 1800 engine rpm - 27%

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range: 6925 lbs (30.8 kN)

i) Opening pressure of relief valve: NA

Sustained pressure of the open relief valve: 2990 psi (206 bar)

ii) Pump delivery rate at minimum pressure: 28.5 GPM (107.9 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 26.5 GPM (100.2 l/min)

Delivery pressure: 2465 psi (170 bar)

Power: 38.1 HP (28.4 kW)

## THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi.(bar) 3000(207)

Location: lift cylinder

Hydraulic oil temperature: °F(°C) 150(66)

Location: hydraulic sump

Category: II

Quick attach: None

### SAE Static Test—System pressure 2700 psi (186 Bar)

| Hitch point distance to ground level in. (mm) | 7.9 (200) | 17.9 (455) | 23.0 (585) | 29.5 (750) | 37.6 (955) |
|---|-----------|------------|------------|------------|------------|
| Lift force on frame lb                        | 12115     | 10815      | 10655      | 10365      | 9420       |
| " " " " " (kN)                                | (53.9)    | (48.1)     | (47.4)     | (46.1)     | (41.9)     |

## HITCH DIMENSIONS AS TESTED—NO LOAD

|   | OECD test |      | SAE test |      |
|---|-----------|------|----------|------|
|   | inch      | mm   | inch     | mm   |
| A | 28.0      | 712  | 28.7     | 729  |
| B | 12.2      | 310  | 12.2     | 310  |
| C | 15.6      | 395  | 15.6     | 395  |
| D | 14.6      | 370  | 14.6     | 370  |
| E | 7.9       | 200  | 9.8      | 250  |
| F | 9.3       | 235  | 9.3      | 235  |
| G | 32.3      | 820  | 32.3     | 820  |
| H | 1.2       | 30   | 1.2      | 30   |
| I | 16.9      | 430  | 15.6     | 395  |
| J | 23.0      | 585  | 23.0     | 585  |
| K | 19.9      | 505  | 23.0     | 585  |
| L | 44.0      | 1118 | 44.0     | 1118 |
| M | 22.2      | 563  | 22.2     | 563  |
| N | 37.4      | 950  | 37.4     | 950  |
| O | 7.9       | 200  | 7.9      | 200  |
| P | 47.0      | 1195 | 42.0     | 1068 |
| Q | 34.8      | 885  | 32.5     | 825  |
| R | 32.6      | 828  | 34.6     | 878  |

