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January 1996

Test 1720: Agcostar 8360 Diesel 18-Speed (Cummins Engine)

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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NEBRASKA OECD TRACTOR TEST 1720—SUMMARY 215

AGCOSTAR 8360 DIESEL

18 SPEED

(CUMMINS ENGINE)

DRAWBAR PERFORMANCE (UNBALLASTED TRACTOR) 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—11th (5L) Gear | | | | | | | | | |
| 290.56 (216.67) | 14299 (63.61) | 7.62 (12.26) | 2096 | 2.54 | 0.456 (0.277) | 15.39 (3.03) | 182 (83) | 59 (15) | 29.23 (98.98) |
| 75% of Pull at Maximum Power—11th (5L) Gear | | | | | | | | | |
| 234.24 (174.68) | 10723 (47.70) | 8.19 (13.18) | 2238 | 1.90 | 0.504 (0.307) | 13.91 (2.74) | 181 (83) | 60 (16) | 29.22 (98.95) |
| 50% of Pull at Maximum Power—11th (5L) Gear | | | | | | | | | |
| 159.33 (118.81) | 7153 (31.82) | 8.35 (13.44) | 2269 | 1.25 | 0.584 (0.355) | 12.01 (2.37) | 180 (82) | 62 (17) | 29.21 (98.92) |
| 75% of Pull at Reduced Engine Speed—13th (6L) Gear | | | | | | | | | |
| 234.40 (174.79) | 10767 (47.89) | 8.16 (13.14) | 1576 | 1.90 | 0.401 (0.244) | 17.49 (3.45) | 182 (83) | 62 (17) | 29.21 (98.92) |
| 50% of Pull at Reduced Engine Speed—13th (6L) Gear | | | | | | | | | |
| 159.27 (118.77) | 7150 (31.80) | 8.35 (13.44) | 1603 | 1.25 | 0.415 (0.253) | 16.88 (3.33) | 181 (83) | 64 (18) | 29.19 (98.85) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | |
| 6th (2H) Gear | | | | | | | | | |
| 258.62 (192.85) | 29963 (133.28) | 3.24 (5.21) | 2169 | 9.84 | 0.519 (0.316) | 13.52 (2.66) | 181 (83) | 50 (10) | 29.28 (99.15) |
| 7th (3L) Gear | | | | | | | | | |
| 279.00 (208.05) | 28025 (124.66) | 3.73 (6.01) | 2077 | 7.86 | 0.466 (0.283) | 15.07 (2.97) | 182 (83) | 56 (13) | 29.27 (99.12) |
| 8th (3H) Gear | | | | | | | | | |
| 288.10 (214.84) | 24742 (110.06) | 4.37 (7.03) | 2025 | 5.61 | 0.447 (0.272) | 15.67 (3.09) | 182 (83) | 57 (14) | 29.26 (99.09) |
| 9th (4L) Gear | | | | | | | | | |
| 290.26 (216.45) | 22493 (100.05) | 4.84 (7.79) | 1901 | 4.58 | 0.434 (0.264) | 16.16 (3.18) | 182 (83) | 57 (14) | 29.26 (99.09) |
| 10th (4H) Gear | | | | | | | | | |
| 295.30 (220.20) | 19381 (86.21) | 5.71 (9.20) | 1897 | 3.70 | 0.425 (0.259) | 16.50 (3.25) | 182 (83) | 58 (14) | 29.24 (99.02) |
| 11th (5L) Gear | | | | | | | | | |
| 295.85 (220.62) | 16058 (71.43) | 6.91 (11.12) | 1907 | 2.90 | 0.424 (0.258) | 16.53 (3.26) | 182 (83) | 59 (15) | 29.24 (99.02) |
| 12th (5H) Gear | | | | | | | | | |
| 300.69 (224.22) | 13846 (61.59) | 8.14 (13.11) | 1909 | 2.54 | 0.420 (0.256) | 16.68 (3.29) | 182 (83) | 60 (16) | 29.23 (98.98) |

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

Dates of Test: October 7-17, 1996

Manufacturer: AGCO CORPORATION, 123 W.
Sycamore St., Coldwater OH 45828

FUEL OIL and TIME: Fuel No. 2 Diesel **Cetane**
No. 50.6 Specific gravity converted to 60°/60°
F (15°/15°C) 0.8422 Fuel weight 7.012 lbs/gal
(0.840 kg/l) Oil SAE 15W-40 API service
classification CE-II, CD To motor 8.947 gal
(33.869 l) Drained from motor 8.240 gal (31.193 l)
Transmission and final drive lubricant SAE 90
Gear Lube, GL-1 Hydraulic lubricant AGCO
Power-fluid 821 XL Total time engine was
operated 19.5 hours.

ENGINE: Make Cummins **Diesel Type** six
cylinder vertical with turbocharger and intercooler
Serial No. 11807789 **Crankshaft** lengthwise **Rated**
engine speed 2100 Bore and stroke (as specified)
5.5" × 6.0" (139.7 mm × 152.4 mm) Compression
ratio 18.5 to 1 Displacement 855 cu in (14013 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 transmission
oil, radiator for hydraulic and steering oil **Fuel filter**
one paper element **Muffler** vertical **Cooling**
medium temperature control thermostat.

ENGINE OPERATING PARAMETERS: Fuel
rate: 124.0-134.0 lb/h (56.2-60.8 kg/h) **High idle:**
2260-2400 rpm **Turbo boost** nominal 19.5-24.5 psi
(135-169 kPa) as measured 20.2 psi (139 kPa)

CHASSIS: Type four wheel drive with duals **Serial**
No. *100112RC* Tread width rear 76.6" (1946
mm) and 133.5" (3390 mm) front 76.6" (1946 mm) and
133.5" (3390 mm) **Wheel base 137.1" (3482 mm)**
Hydraulic control system direct engine drive
Transmission selective gear fixed ratio **Nominal**
travel speeds mph (km/h) first 1.24 (1.98) second
1.46 (2.34) third 2.09 (2.45) fourth 2.45 (3.92) fifth 2.96
(4.73) sixth 3.47 (5.55) seventh 4.09 (6.54) eighth 4.79
(7.66) ninth 5.60 (8.86) tenth 6.56 (10.56) eleventh
7.82 (12.59) twelfth 9.19 (14.79) thirteenth 11.06 (17.80)
fourteenth 12.98 (20.89) fifteenth 15.32 (24.66)
sixteenth 17.92 (28.85) seventeenth 20.83 (33.53)
eighteenth 24.54 (39.26) reverse 1.31 (2.10), 4.70
(7.52) **Clutch** dual dry disc actuated by foot pedal
Brakes caliper disc hydraulically operated by foot
pedal **Steering** hydrostatic and articulated **Power**
take-off None **Unladen tractor mass 29280 lb**
(13281 kg)

**DRAWBAR PERFORMANCE
(BALLASTED TRACTOR)
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/kWh) | Hp.hr/gal (kW.h/l) | Temp. °F (°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|--|-----------------------|--------------------------------------|--------------------|-------------------------------|
| 5th (2L) Gear | | | | | | | | | |
| 243.17 (181.33) | 32477 (144.46) | 2.81 (4.52) | 2209 | 9.81 | 0.533 (0.324) | 13.16 (2.59) | 182 (83) | 65 (18) | 28.62 (96.92) |
| 6th (2H) Gear | | | | | | | | | |
| 268.86 (200.49) | 31838 (141.62) | 3.17 (5.10) | 2118 | 9.42 | 0.486 (0.296) | 14.42 (2.84) | 182 (83) | 66 (19) | 28.63 (96.95) |
| 7th (3L) Gear | | | | | | | | | |
| 286.21 (213.43) | 29880 (132.91) | 3.59 (5.78) | 1992 | 7.34 | 0.445 (0.270) | 15.77 (3.11) | 183 (84) | 67 (19) | 28.64 (96.99) |
| 8th (3H) Gear | | | | | | | | | |
| 292.52 (218.13) | 26759 (119.03) | 4.10 (6.60) | 1900 | 5.51 | 0.432 (0.263) | 16.23 (3.20) | 184 (84) | 68 (20) | 28.65 (97.02) |
| 9th (4L) Gear | | | | | | | | | |
| 293.63 (218.96) | 22630 (100.66) | 4.87 (7.83) | 1903 | 3.95 | 0.430 (0.261) | 16.32 (3.22) | 184 (84) | 69 (21) | 28.65 (97.02) |
| 10th (4H) Gear | | | | | | | | | |
| 295.51 (220.36) | 19254 (85.64) | 5.76 (9.26) | 1904 | 3.33 | 0.427 (0.260) | 16.43 (3.24) | 184 (84) | 69 (21) | 28.65 (97.02) |
| 11th (5L) Gear | | | | | | | | | |
| 295.84 (220.61) | 16096 (71.60) | 6.89 (11.09) | 1898 | 2.52 | 0.423 (0.257) | 16.57 (3.26) | 184 (84) | 70 (21) | 28.65 (97.02) |
| 12th (5H) Gear | | | | | | | | | |
| 301.20 (224.60) | 13907 (61.86) | 8.12 (13.07) | 1901 | 2.07 | 0.416 (0.253) | 16.87 (3.32) | 184 (84) | 71 (22) | 28.65 (97.02) |

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 114° F (46°C). The drawbar pull in 6th (2H) gear (unballasted tractor) and 5th (2L) gear (ballasted tractor) was limited to avoid excessive tractor bouncing. The performance results on this summary were taken from a test conducted under the OECD Code II Restricted Standard Test Code procedure.

NOTE: The performance figures on this report apply to AGCOSTAR 8360 tractors equipped with a Cummins Diesel engine.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1720**, Summary 215, November 8, 1996.

LOUIS I. LEVITICUS
Engineer-in-Charge

L. L. BASHFORD
R.D. GRISIO
M.F. KOCHER
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB

dB(A)

| | |
|------------------------------|------|
| At 75% load in 9th (4L) Gear | 80.5 |
| Bystander in 18th (8H) Gear | 93.2 |

TIRES, BALLAST AND WEIGHT

| | With Ballast | Without Ballast |
|--|---|---|
| Rear Tires —No., size, ply & psi (kPa) | Four 20.8R42; **, inner 14 (95) outer 12 (85) | Four 20.8R42; **, inner 14 (95) outer 12 (85) |
| Ballast —Liquid (total) | 3274 lb (1485 kg) | None |
| Front Tires —No., size, ply & psi (kPa) | Four 20.8R42; **, inner 14 (95) outer 12 (85) | Four 20.8R42; **, inner 14 (95) outer 12 (85) |
| Ballast —Liquid (total) | None | None |
| Height of Drawbar | 24.5 in (620 mm) | 25.0 in (635 mm) |
| Static Weight with Operator —Rear | 13366 lb (6063 kg) | 10092 lb (4578 kg) |
| —Front | 19354 lb (8779 kg) | 19354 lb (8779 kg) |
| —Total | 32720 lb (14842 kg) | 29446 lb (13356 kg) |

**The following test results were obtained by connecting
to the tractors transfer case output shaft.**

DYNAMOMETER 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—2098 rpm) | | | | | |
| 326.62 (243.56) | 2100 | 18.82 (71.26) | 0.404 (0.246) | 17.35 (3.42) | |
| Maximum Power (2 hours) | | | | | |
| 332.19 (247.72) | 1900 | 18.00 (68.13) | 0.380 (0.231) | 18.46 (3.64) | |
| VARYING POWER AND FUEL CONSUMPTION | | | | | |
| 326.62 (243.56) | 2100 | 18.82 (71.26) | 0.404 (0.246) | 17.35 (3.42) | Air temperature |
| 293.64 (218.96) | 2219 | 18.14 (68.87) | 0.433 (0.264) | 16.19 (3.19) | 75°F (24°C) |
| 224.34 (167.29) | 2255 | 15.23 (57.66) | 0.476 (0.290) | 14.73 (2.90) | Relative humidity |
| 150.46 (112.20) | 2274 | 12.07 (45.67) | 0.562 (0.342) | 12.47 (2.46) | 40% |
| 76.47 (57.02) | 2295 | 8.94 (33.85) | 0.820 (0.499) | 8.55 (1.68) | Barometer |
| 2.21 (1.65) | 2326 | 5.48 (20.73) | 17.341 (10.548) | 0.40 (0.08) | 28.90"Hg (97.87 kPa) |

Maximum Torque 1183 lb.-ft. (1604 Nm) at 1300 rpm

Maximum Torque Rise 44.9%

Torque rise at 1700 rpm 25%

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: No 3 Point Hitch lift system available

Quick Attach: NA

Maximum Force Exerted Through Whole Range:

NA

i) Opening pressure of relief valve:

NA

Sustained pressure with pump stalled:

2510 psi (173 bar)

ii) Pump delivery rate at minimum pressure and
rated engine speed:

35.4 GPM (134.0 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

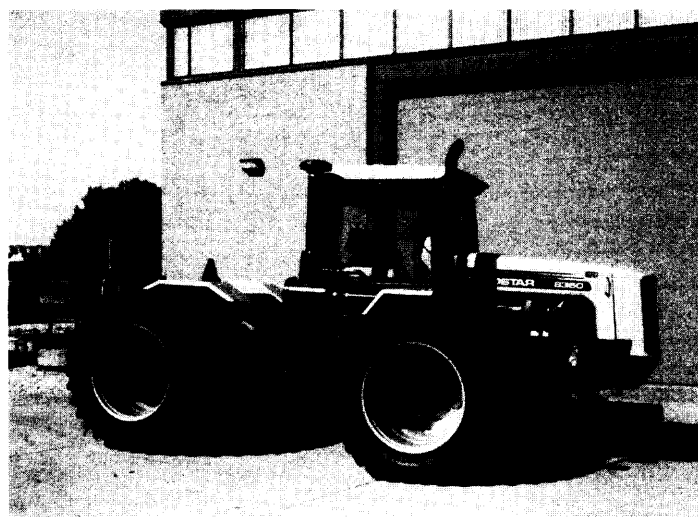
33.5 GPM (126.8 l/min)

Delivery pressure:

2200 psi (152 bar)

Power:

43.0 HP (32.1 kW)



AGCOSTAR 8360 DIESEL

**Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
Darrell Nelson, Dean and Director**