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## Test 1642: Ford 3230 (8x2) Diesel 8-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# NEBRASKA OECD TRACTOR TEST 1642—SUMMARY 080

## FORD 3230 8 x 2 DIESEL

### 8 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
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#### MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—(PTO speed—600 rpm)					
32.33 (24.11)	2000	2.11 (7.99)	0.457 (0.278)	15.31 (3.02)	
Standard PTO Speed (PTO—540 RPM)					
30.99 (23.11)	1800	1.95 (7.40)	0.441 (0.268)	15.85 (3.12)	

#### VARYING POWER AND FUEL CONSUMPTION

32.33 (24.11)	2000	2.11 (7.99)	0.457 (0.278)	15.31 (3.02)	Air temperature  75°F (24°C)
28.80 (21.47)	2100	1.97 (7.47)	0.479 (0.292)	14.59 (2.87)	
21.78 (16.24)	2117	1.72 (6.50)	0.551 (0.335)	12.69 (2.50)	Relative humidity  30%
14.62 (10.90)	2130	1.37 (5.20)	0.657 (0.399)	10.65 (2.10)	
7.36 (5.49)	2145	1.12 (4.22)	1.060 (0.645)	6.60 (1.30)	Barometer  29.06" Hg (98.40 kPa)
0.12 (0.09)	2167	0.82 (3.09)	46.056 (28.015)	0.15 (0.03)	

Maximum Torque 113 lb.-ft (153 Nm) at 998 rpm  
Maximum Torque Rise 32.6%

#### DRAWBAR PERFORMANCE

#### FUEL CONSUMPTION CHARACTERISTICS

#### (Front Drive Engaged)

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—5th (1H) Gear									
26.03 (19.41)	1584 (7.04)	6.16 (9.92)	2001	3.78	0.578 (0.351)	12.11 (2.38)	179 (82)	60 (16)	28.72 (97.26)
75% of Pull at Maximum Power—5th (1H) Gear									
20.67 (15.42)	1187 (5.28)	6.53 (10.51)	2112	3.36	0.651 (0.396)	10.75 (2.12)	176 (80)	53 (12)	28.85 (97.70)
50% of Pull at Maximum Power—5th (1H) Gear									
14.02 (10.46)	792 (3.52)	6.64 (10.69)	2128	2.44	0.800 (0.487)	8.74 (1.72)	180 (82)	53 (12)	28.85 (97.70)
75% of Pull at Reduced Engine Speed—6th (2H) Gear									
20.67 (15.42)	1189 (5.29)	6.52 (10.49)	1689	3.36	0.575 (0.349)	12.17 (2.40)	177 (81)	53 (12)	28.85 (97.70)
50% of Pull at Reduced Engine Speed—6th (2H) Gear									
14.00 (10.44)	792 (3.52)	6.63 (10.67)	1702	2.62	0.693 (0.421)	10.10 (1.99)	176 (80)	53 (12)	28.85 (97.70)

**Location of Test:** Tractor Testing Laboratory,  
University of Nebraska, Lincoln, Nebraska 68583-  
0832, U.S.A.

**Dates of Test:** April 9-25, 1991

**Manufacturer:** FORD NEW HOLLAND, 500  
Diller Avenue, New Holland, PA 17557

**FUEL OIL and TIME:** Fuel No. 2 Diesel Cetane  
No. 53.9 Specific gravity converted to 60°/60°F  
(15°/15°C) 0.8399 Fuel weight 6.993 lbs/gal (0.838  
kg/l) Oil SAE 15W-40 API service classification  
SG/CE To motor 1.127 gal (4.266 l) Drained from  
motor 1.007 gal (3.813 l) Transmission and final  
drive lubricant Ford M2C 134-D fluid Front axle  
lubricant Ford M2C 134-D fluid Total time engine  
was operated 21.5 hours.

**ENGINE:** Make Ford Diesel Type three cylin-  
der vertical Serial No. \*B293617\* Crankshaft  
lengthwise Rated rpm 2000 Bore and stroke (as  
specified) 4.4" × 4.2" (111.8 mm × 106.7 mm)  
Compression ratio 16.3 to 1 Displacement 192 cu  
in (3142 ml) Starting system 12 volt Lubrication  
pressure Air cleaner two paper elements Oil filter  
one full flow cartridge Oil cooler radiator for power  
steering fluid Fuel filter one paper element and  
sediment bowl Muffler vertical Cooling medium  
temperature control one thermostat.

**ENGINE OPERATING PARAMETERS:** Fuel  
rate 14.5-16.5 lb/hr (6.6-7.5 kg/hr) High idle 2150-  
2200 rpm.

**CHASSIS:** Type front wheel assist Serial No.  
\*BC76439\* Tread width rear 56.0" (1423 mm) to  
79.8" (2026 mm) front 55.0" (1396 mm) to 73.0"  
(1855 mm) Wheel base 84.1" (2136 mm) Hydraulic  
control system direct engine drive Transmission  
selective gear fixed ratio Nominal travel speeds  
mph (km/h) first 1.73 (2.79) second 2.16 (3.48) third  
3.79 (6.10) fourth 5.16 (8.30) fifth 6.18 (9.94) sixth  
7.71 (12.41) seventh 13.52 (21.76) eighth 18.49  
(29.75) reverse 2.49 (4.00), 8.89 (14.30) Clutch  
single dry disc operated by foot pedal Brakes wet  
multiple disc operated by two foot pedals which  
can be locked together Steering hydrostatic Power  
take-off 540 rpm at 1800 engine rpm Unladen  
tractor mass 5374 lb (2438 kg).

**DRAWBAR PERFORMANCE  
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)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>2nd (2L) Gear</b>									
22.78 (16.99)	4275 (19.01)	2.00 (3.22)	2094	14.66	0.641 (0.390)	10.92 (2.15)	178 (81)	46 (8)	28.81 (97.56)
<b>3rd (3L) Gear</b>									
25.71 (19.17)	2637 (11.73)	3.66 (5.88)	2000	6.86	0.585 (0.356)	11.96 (2.36)	180 (82)	62 (17)	28.71 (97.22)
<b>4th (4L) Gear</b>									
25.80 (19.24)	1903 (8.46)	5.08 (8.18)	1998	4.67	0.584 (0.355)	11.98 (2.36)	177 (80)	55 (13)	28.74 (97.32)
<b>5th (1H) Gear</b>									
26.03 (19.41)	1584 (7.04)	6.16 (9.92)	2001	3.78	0.578 (0.351)	12.11 (2.38)	179 (82)	60 (16)	28.72 (97.26)
<b>6th (2H) Gear</b>									
24.91 (18.58)	1208 (5.37)	7.74 (12.45)	1996	2.93	0.600 (0.365)	11.65 (2.30)	180 (82)	67 (19)	28.69 (97.16)

**DRAWBAR PERFORMANCE  
FUEL CONSUMPTION CHARACTERISTICS  
(Front Drive Disengaged)**

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)
<b>Maximum Power—5th (1H) Gear</b>									
26.20 (19.54)	1659 (7.38)	5.92 (9.53)	2000	6.46	0.575 (0.350)	12.15 (2.39)	175 (79)	58 (14)	28.72 (97.26)
<b>75% of Pull at Maximum Power—5th (1H) Gear</b>									
21.06 (15.70)	1246 (5.54)	6.34 (10.20)	2112	5.26	0.636 (0.387)	11.00 (2.17)	180 (82)	56 (13)	28.84 (97.66)
<b>50% of Pull at Maximum Power—5th (1H) Gear</b>									
14.41 (10.75)	833 (3.71)	6.49 (10.44)	2128	3.74	0.775 (0.471)	9.02 (1.78)	177 (80)	56 (13)	28.84 (97.66)
<b>75% of Pull at Reduced Engine Speed—6th (2H) Gear</b>									
21.03 (15.68)	1242 (5.52)	6.35 (10.22)	1695	5.20	0.566 (0.344)	12.35 (2.43)	175 (79)	56 (13)	28.84 (97.66)
<b>50% of Pull at Reduced Engine Speed—6th (2H) Gear</b>									
14.45 (10.78)	832 (3.70)	6.51 (10.48)	1711	3.74	0.666 (0.405)	10.49 (2.07)	174 (79)	56 (13)	28.84 (97.66)

**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 was maintained at 135° F (57° C). The performance figures on this summary were taken from a test conducted under the OECD Code II restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1642**, Summary 080, July 15, 1991.

LOUIS I. LEVITICUS  
Engineer-in-Charge

K. VON BARGEN  
R. D. GRISSO  
G. J. HOFFMAN  
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE

### 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)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
2nd (2L) Gear									
15.35 (11.45)	2883 (12.82)	2.00 (3.21)	2120	14.90	0.746 (0.454)	9.38 (1.85)	175 (79)	49 (9)	28.85 (97.70)
3rd (3L) Gear									
24.52 (18.28)	2770 (12.32)	3.32 (5.34)	2001	14.57	0.614 (0.374)	11.39 (2.24)	180 (82)	64 (18)	28.70 (97.19)
4th (4L) Gear									
25.71 (19.17)	1984 (8.82)	4.86 (7.82)	2003	8.11	0.584 (0.355)	11.97 (2.36)	178 (81)	56 (13)	28.73 (97.29)
5th (1H) Gear									
26.20 (19.54)	1659 (7.38)	5.92 (9.53)	2000	6.46	0.575 (0.350)	12.15 (2.39)	175 (79)	58 (14)	28.72 (97.26)
6th (2H) Gear									
25.64 (19.12)	1284 (5.71)	7.49 (12.06)	1999	5.20	0.588 (0.358)	11.90 (2.34)	179 (82)	65 (18)	28.70 (97.19)

#### 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 13.6-28; 6; 14 (95)

Two 8.3-24; 4; 16 (110)

15.0 in (380 mm)

3324 lb (1508 kg)

2214 lb (1004 kg)

5538 lb (2512 kg)

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

Observed Maximum Pressure psi. (bar)	2600 (179)							
Location	remote outlet							
Hydraulic oil temperature °F(°C)	169 (76)							
Location	rear axle sump							
Category	I							
Quick attach	none							
Hitch point distance to ground level in. (mm)	8.3 (211)	13.0 (330)	17.7 (450)	22.4 (569)	27.2 (691)	32.1 (815)		
Lift force on frame lb.	3271	3589	3772	3791	3676	3473		
" " " " " " (kN)	(14.5)	(16.0)	(16.8)	(16.9)	(16.3)	(15.4)		

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

CATEGORY: I

Quick Attach: none

Maximum Force Exerted Through Whole Range:

3056 lbs (13.6 kN)

i) Opening pressure of relief valve:

NA

Sustained pressure of the open relief valve

2610 psi (180 bar)

ii) Pump delivery rate at minimum pressure:

8.0 GPM (30.0 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

6.1 GPM (23.1 l/min)

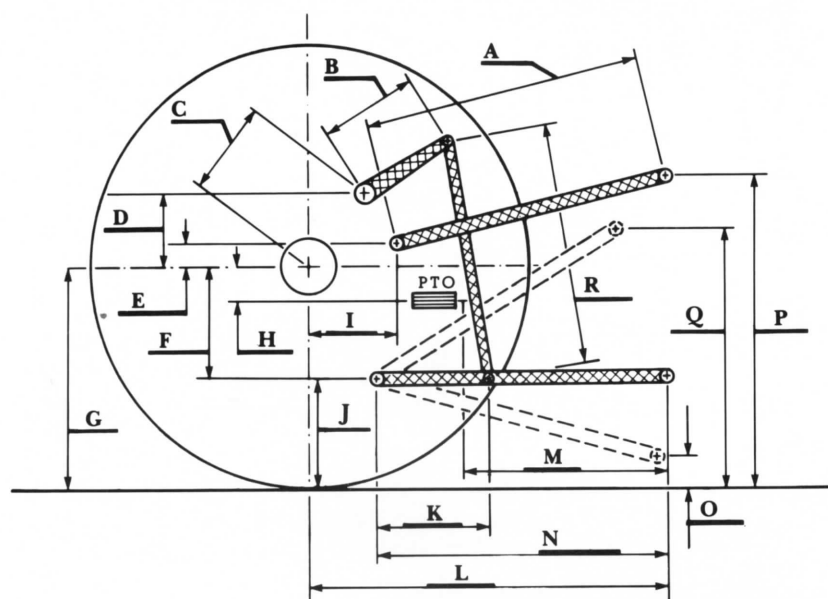
Delivery pressure:

2400 psi (165 bar)

Power:

8.5 HP (6.4 kW)

# HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	28.3	719
B	10.0	254
C	12.9	327
D	10.1	257
E	7.5	191
F	8.0	203
G	24.0	610
H	4.7	120
I	8.7	222
J	16.0	407
K	18.9	481
L	36.7	931
M	20.9	530
N	34.0	864
O	8.0	203
P	34.1	867
Q	33.1	841
R	29.1	740



Ford 3230 8 x 2 Diesel