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Test 1645: Ford 4630 (8x2) Diesel 8-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1645—SUMMARY 083

FORD 4630 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—660 rpm)					
55.41 (41.32)	2200	3.66 (13.87)	0.462 (0.281)	15.12 (2.98)	
Standard PTO Speed (PTO—540 RPM)					
50.77 (37.86)	1800	3.23 (12.22)	0.445 (0.270)	15.73 (3.10)	

VARYING POWER AND FUEL CONSUMPTION

55.41 (41.32)	2200	3.66 (13.87)	0.462 (0.281)	15.12 (2.98)	Air temperature 74°F (24°C)
48.59 (36.23)	2274	3.17 (12.02)	0.457 (0.278)	15.31 (3.02)	
37.00 (27.59)	2302	2.53 (9.58)	0.478 (0.291)	14.62 (2.88)	Relative humidity 37%
24.81 (18.50)	2320	1.93 (7.31)	0.544 (0.331)	12.85 (2.53)	
12.47 (9.30)	2341	1.42 (5.36)	0.794 (0.483)	8.81 (1.74)	Barometer 28.84" Hg (97.66 kPa)
0.27 (0.20)	2364	0.94 (3.57)	24.411 (14.848)	0.29 (0.06)	

Maximum Torque 156 lb.-ft (212 Nm) at 1400 rpm
Maximum Torque Rise 18.2%

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—6th (2H) Gear									
46.47 (34.66)	2847 (12.66)	6.12 (9.85)	2198	6.56	0.554 (0.337)	12.63 (2.49)	186 (85)	64 (18)	28.98 (98.14)
75% of Pull at Maximum Power—6th (2H) Gear									
37.21 (27.75)	2134 (9.49)	6.54 (10.52)	2303	4.71	0.558 (0.339)	12.54 (2.47)	184 (84)	66 (19)	28.95 (98.04)
50% of Pull at Maximum Power—6th (2H) Gear									
25.48 (19.00)	1423 (6.33)	6.71 (10.80)	2326	3.16	0.630 (0.383)	11.09 (2.19)	181 (83)	66 (19)	28.95 (98.04)
75% of Pull at Reduced Engine Speed—7th (3H) Gear									
Available Gear ratios did not permit running this test									
50% of Pull at Reduced Engine Speed—7th (3H) Gear									
25.58 (19.07)	1429 (6.35)	6.71 (10.81)	1325	3.23	0.495 (0.301)	14.13 (2.78)	181 (83)	66 (19)	28.95 (98.04)

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

Dates of Test: April 30-May 3, 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 1.152 gal (4.361 l) Drained from
motor 1.083 gal (4.099 l) Transmission and final
drive lubricant Ford M2C 134-D fluid Front axle
lubricant Ford M2C 134-D fluid Total time engine
was operated 13.0 hours.

ENGINE: Make Ford Diesel Type three cylin-
der vertical Serial No. *D293790* Crankshaft
lengthwise Rated rpm 2200 Bore and stroke (as
specified) 4.4" × 4.4" (111.8 mm × 111.8 mm)
Compression ratio 16.3 to 1 Displacement 201 cu
in (3293 ml) Starting system 12 volt Lubrication
pressure Air cleaner two paper elements Oil filter
one full flow cartridge Oil cooler engine coolant
heat exchanger for crankcase oil, 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: 24.0-27.5 lb/hr (10.9-12.5 kg/hr) High idle:
2330-2380 rpm.

CHASSIS: Type front wheel assist Serial No.
BC76441 Tread width rear 59.6" (1515 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 1.45 (2.33) second 1.80 (2.90) third
3.17 (5.10) fourth 4.31 (6.94) fifth 5.16 (8.31) sixth
6.44 (10.37) seventh 11.31 (18.20) eighth 15.40
(24.78) reverse 2.08 (3.34), 7.43 (11.95) 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 5562 lb (2523 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)
3rd (3L) Gear									
36.66 (27.34)	4833 (21.50)	2.84 (4.58)	2279	14.67	0.589 (0.358)	11.88 (2.34)	182 (83)	60 (16)	29.00 (98.21)
4th (4L) Gear									
44.51 (33.19)	4335 (19.28)	3.85 (6.20)	2198	12.06	0.576 (0.350)	12.15 (2.39)	186 (86)	63 (17)	28.99 (98.17)
5th (1H) Gear									
46.04 (34.34)	3623 (16.12)	4.77 (7.67)	2199	9.23	0.556 (0.338)	12.58 (2.48)	186 (86)	63 (17)	29.00 (98.21)
6th (2H) Gear									
46.47 (34.66)	2847 (12.66)	6.12 (9.85)	2198	6.56	0.554 (0.337)	12.63 (2.49)	186 (85)	64 (18)	28.98 (98.14)

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)
Maximum Power—6th (2H) Gear									
45.02 (33.58)	2945 (13.10)	5.73 (9.23)	2199	11.70	0.567 (0.345)	12.34 (2.43)	186 (85)	65 (18)	28.97 (98.10)
75% of Pull at Maximum Power—6th (2H) Gear									
36.95 (27.56)	2212 (9.84)	6.26 (10.08)	2294	7.53	0.557 (0.339)	12.56 (2.47)	184 (84)	66 (19)	28.94 (98.00)
50% of Pull at Maximum Power—6th (2H) Gear									
25.54 (19.05)	1473 (6.55)	6.50 (10.47)	2317	4.96	0.617 (0.375)	11.33 (2.23)	180 (82)	66 (19)	28.94 (98.00)
75% of Pull at Reduced Engine Speed—7th (3H) Gear Available gear ratios did not permit running this test									
50% of Pull at Reduced Engine Speed—7th (3H) Gear									
25.60 (19.09)	1473 (6.55)	6.52 (10.49)	1321	4.90	0.487 (0.296)	14.37 (2.83)	181 (83)	66 (19)	28.94 (98.00)

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)
5th (1H) Gear									
41.01 (30.58)	3331 (14.81)	4.62 (7.43)	2293	14.94	0.579 (0.352)	12.08 (2.38)	185 (85)	62 (17)	29.00 (98.21)
6th (2H) Gear									
45.02 (33.58)	2945 (13.10)	5.73 (9.23)	2199	11.70	0.567 (0.345)	12.34 (2.43)	186 (85)	65 (18)	28.97 (98.10)

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 14.9-28; 6; 14 (95)

Two 8.3-24; 4; 16 (110)

16.5 in (420 mm)

3492 lb (1584 kg)

2236 lb (1014 kg)

5728 lb (2598 kg)

REPAIRS AND ADJUSTMENTS: A fuel injector sealing washer was replaced following the PTO tests.

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 147° F (64° 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. **1645**, Summary 083, July 15, 1991.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

R. D. GRISSO

G. J. HOFFMAN

Board of Tractor Test Engineers

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

2640 psi (182 bar)

ii) Pump delivery rate at minimum pressure:

8.8 GPM (33.3 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

7.7 GPM (29.1 l/min)

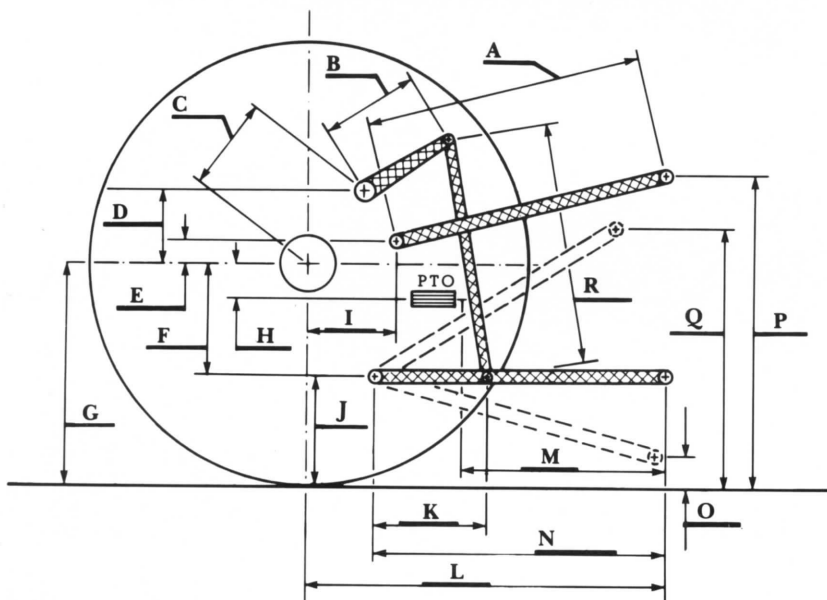
Delivery pressure:

2390 psi (165 bar)

Power:

10.7 HP (8.0 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	25.2	640
H	4.7	120
I	8.7	222
J	17.2	437
K	18.9	481
L	36.7	931
M	20.9	530
N	34.0	864
O	9.2	233
P	35.3	897
Q	34.3	871
R	29.1	740



Ford 4630 8 x 2 Diesel

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