

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

1-1-1982

Test 1422: Ford 3610 (8x2) Diesel 8-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 1422: Ford 3610 (8x2) Diesel 8-Speed" (1982). *Nebraska Tractor Tests*. 1737.

<https://digitalcommons.unl.edu/tractormuseumlit/1737>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

NEBRASKA TRACTOR TEST 1422 — FORD 3610 (8 X 2) DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption		Temperature °F (°C)				Barometer inch Hg (kPa)	
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb		
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed—Two Hours (PTO Speed—597 rpm)									
42.26 (31.51)	2000	2.704 (10.236)	0.441 (0.268)	15.63 (3.078)	197 (91.7)	54 (12.4)	75 (24.0)	29.037 (98.052)	
Standard Power Take-off Speed (540 rpm)—One Hour									
40.17 (29.95)	1810	2.519 (9.535)	0.432 (0.263)	15.95 (3.141)	200 (93.3)	54 (12.2)	75 (23.9)	29.040 (98.064)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
37.14 (27.70)	2067	2.454 (9.289)	0.456 (0.277)	15.14 (2.982)	188 (86.4)	54 (12.2)	75 (23.9)	.....
0.00 (0.00)	2122	0.818 (3.096)	.....	.....	168 (75.6)	54 (12.2)	74 (23.6)	.....
18.81 (14.03)	2094	1.570 (5.943)	0.576 (0.350)	11.98 (2.361)	170 (76.4)	54 (12.2)	74 (23.3)	.....
42.48 (31.68)	2001	2.719 (10.293)	0.441 (0.269)	15.62 (3.078)	196 (91.4)	54 (12.2)	75 (23.9)	.....
9.48 (7.07)	2108	1.170 (4.429)	0.852 (0.518)	8.10 (1.596)	168 (75.3)	55 (12.8)	75 (23.9)	.....
28.05 (20.92)	2080	2.019 (7.643)	0.496 (0.302)	13.90 (2.737)	173 (78.3)	54 (12.5)	75 (23.9)	.....
Av Av	22.66 (16.90)	2079	1.792 (6.783)	0.545 (0.332)	12.65 (2.492)	177 (80.6)	54 (12.4)	75 (23.8)	29.070 (98.165)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel gal/hr (l/h)	Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal. (kW.h/l)	Cool- ing med	Temp. °F (°C) Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 5th Gear											
35.86 (26.74)	2295 (10.21)	5.86 (9.43)	2000	5.63	2.683 (10.155)	0.516 (0.314)	13.37 (2.633)	191 (88.3)	60 (15.6)	70 (20.8)	28.815 (97.304)
75% of Pull at Maximum Power—Ten Hours 5th Gear											
28.85 (21.52)	1769 (7.87)	6.12 (9.84)	2057	4.26	2.273 (8.604)	0.543 (0.330)	12.69 (2.501)	181 (82.7)	65 (18.1)	75 (23.6)	28.675 (96.831)
50% of Pull at Maximum Power—Two Hours 5th Gear											
19.70 (14.69)	1180 (5.25)	6.26 (10.08)	2077	2.84	1.758 (6.656)	0.616 (0.374)	11.20 (2.207)	172 (77.8)	63 (16.9)	75 (23.6)	28.780 (97.186)
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
19.68 (14.68)	1180 (5.25)	6.26 (10.07)	1662	2.78	1.559 (5.901)	0.546 (0.332)	12.63 (2.488)	173 (78.3)	64 (17.8)	79 (25.8)	28.750 (97.084)

MAXIMUM POWER IN SELECTED GEARS

Power	Drawbar pull	Speed	Crankshaft speed	Slip	Fuel Consumption	Temp. °F	Air wet bulb	Air dry bulb	Barom.
Hp (kW)	lbs (kN)	mph (km/h)	rpm	%	gal/hr (l/h)	°F (°C)	bulb	bulb	inch Hg (kPa)
25.17 (18.77)	4964 (22.08)	1.90 (3.06)	2058	14.75	2nd Gear	173 (78.1)	55 (12.8)	60 (15.6)	28.820 (97.321)
34.69 (25.87)	3794 (16.88)	3.43 (5.52)	2000	9.84	3rd Gear	182 (83.1)	56 (13.3)	62 (16.7)	28.820 (97.321)
36.12 (26.94)	2809 (12.50)	4.82 (7.76)	2000	6.91	4th Gear	187 (85.8)	57 (13.9)	64 (17.8)	28.810 (97.287)
36.80 (27.44)	2358 (10.49)	5.85 (9.42)	1998	5.69	5th Gear	186 (85.3)	58 (14.4)	66 (18.9)	28.810 (97.287)
35.99 (26.84)	1821 (8.10)	7.41 (11.93)	2000	4.32	6th Gear	185 (85.0)	57 (13.9)	65 (18.3)	28.810 (97.287)

LUGGING ABILITY IN 5th GEAR

Crankshaft Speed rpm	1998	1807	1603	1401	1201	1007
Pull—lbs (kN)	2358 (10.49)	2455 (10.92)	2580 (11.48)	2689 (11.96)	2704 (12.03)	2676 (11.90)
Increase in Pull %	0	4	9	14	15	13
Power—Hp (kW)	36.80 (27.44)	34.53 (25.75)	32.11 (23.94)	29.14 (21.73)	25.10 (18.72)	20.79 (15.51)
Speed—Mph (km/h)	5.85 (9.42)	5.27 (8.49)	4.67 (7.51)	4.06 (6.54)	3.48 (5.60)	2.91 (4.69)
Slip %	5.69	5.91	6.25	6.58	6.58	6.80

Department of Agricultural Engineering

Dates of Test: April 23 to May 12, 1982

Manufacturer: FORD MOTOR COMPANY,
Ford Tractor Operations, 2500 East Maple
Road, Troy, Michigan 48084

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 46.5 (rating taken from oil company's
inspection data) Specific gravity converted to 60°/60°
(15°/15°) 0.8282 Fuel weight 6.896 lbs/gal
(0.826 kg/l) Oil SAE 30 API service classifica-
tion SE/SF-CC/CD To motor 1.472 gal (5.572 l)
Drained from motor 1.378 gal (5.217 l) Trans-
mission and final drive lubricant Ford 134 fluid
Total time engine was operated 39.5 hours.

ENGINE: Make Ford Diesel Type three cylin-
der vertical Serial No. *C625475* Crankshaft
lengthwise Rated rpm 2000 Bore and stroke 4.4"
× 4.2" (112 mm × 107 mm) Compression ratio
16.3 to 1 Displacement 192 cu in (3147 ml) Start-
ing system 12 volt Lubrication pressure Air
cleaner two paper elements Oil filter one full
flow cartridge Oil cooler radiator for hydraulic
and rear axle oil Fuel filter one paper cartridge
Muffler vertical Cooling medium temperature
control one thermostat.

CHASSIS: Type standard Serial No.
C681121 Tread width rear 60" (1525 mm) to
76" (1930 mm) front 52" (1320 mm) to 80" (2032
mm) Wheel base 75.8" (1925 mm) Center of grav-
ity (without operator or ballast, with minimum
tread, with fuel tank filled and tractor serviced for
operation) Horizontal distance forward from center-
line of rear wheels 31.3" (795 mm) Vertical dis-
tance above roadway 25.2" (640 mm) Horizontal
distance from center of rear wheel tread 0" (0 mm)
to the right/left Hydraulic control system direct
engine drive Transmission selective gear fixed
ratio Advertised speeds mph (km/h) first 1.7 (2.7)
second 2.2 (3.5) third 3.8 (6.1) fourth 5.2 (8.4)
fifth 6.2 (10.0) sixth 7.8 (12.5) seventh 13.7 (22.0)
eighth 18.6 (29.9) reverse 2.5 (4.0), 9.0 (14.5)
Clutch single plate dry disc operated by foot
pedal Brakes drum and shoe operated by two
foot pedals which can be locked together Steering
power assist Turning radius (on concrete surface
with brake applied) right 117" (2.97 m) left 117"
(2.97 m) (on concrete surface without brake) right
129" (3.28 m) left 129" (3.28 m) Turning space
diameter (on concrete surface with brake applied)
right 240" (6.1 m) left 240" (6.1 m) (on concrete
surface without brake) right 267" (6.8 m) left 267"
(6.8 m) Power take-off 540 rpm at 1810 engine
rpm.

REPAIRS and ADJUSTMENTS: During pre-
liminary pto test the fuel line to number two injec-
tor and all fuel injectors were replaced.

REMARKS: All test results were determined
from observed data obtained in accordance with
SAE and ASAE test codes or official Nebraska test
procedure. For the maximum power tests, the fuel
temperature at the injection pump return was
maintained at 141°F (60.4°C). Five gears were

TRACTOR SOUND LEVEL WITHOUT CAB

	dB(A)
Maximum Available Power—Two Hours	96.5
75% of Pull at Maximum Power—Ten Hours	96.0
50% of Pull at Maximum Power—Two Hours	94.5
50% of Pull at Reduced Engine Speed—Two Hours	92.0
Bystander in 8th gear	85.5

TIRES, BALLAST AND WEIGHT

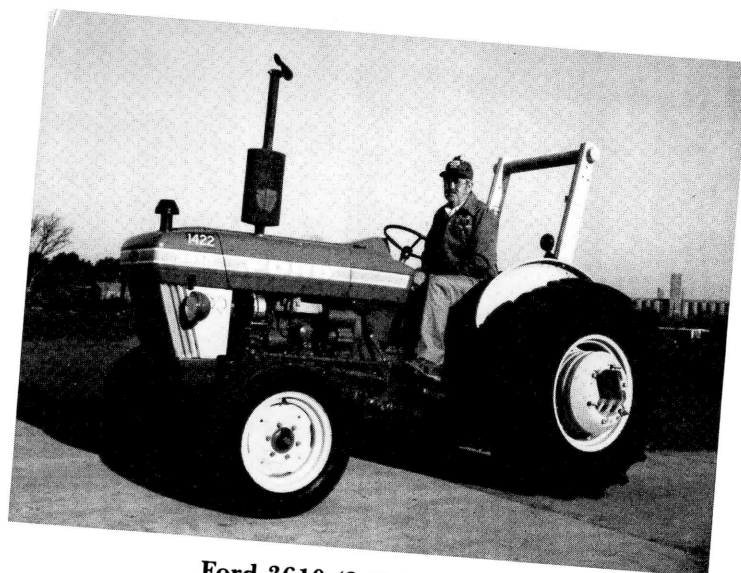
	With Ballast	Without Ballast
Rear Tires		
—No., size, ply & psi (kPa)	Two 16.9-24; 6; 16 (110)	Two 16.9-24; 6; 16 (110)
—Liquid (each)	692 lb (314 kg)	None
—Cast Iron (each)	280 lb (127 kg)	None
Front Tires		
—No., size, ply & psi (kPa)	Two 6.50-16; 6; 36 (250)	Two 6.50-16; 6; 36 (250)
—Liquid (each)	None	None
—Cast Iron (each)	62 lb (28 kg)	None
Height of Drawbar	18 in (455 mm)	18 in (455 mm)
Static Weight with Operator—Rear		
—Front	4535 lb (2057 kg)	2590 lb (1175 kg)
—Total	1805 lb (818 kg)	1680 lb (762 kg)
	6340 lb (2876 kg)	4270 lb (1937 kg)

chosen between 15% slip and 10 mph (16.1 km/h). This tractor did not attain the estimated 15.75 HP-HR per gallon fuel economy at rated engine speed as claimed by the manufacturer.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1422.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Ford 3610 (8 X 2) Diesel