

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 1429: Ford 5610 (16x8) Diesel 8 and 16-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto: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 1429: Ford 5610 (16x8) Diesel 8 and 16-Speed" (1982). *Nebraska Tractor Tests*. 1744.

<https://digitalcommons.unl.edu/tractormuseumlit/1744>

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 1429 — FORD 5610 (16 X 8) DIESEL 16 SPEED ALSO 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—596 rpm)								
62.57 (46.66)	2100	4.174 (15.800)	0.460 (0.280)	14.99 (2.953)	197 (91.7)	57 (13.9)	75 (24.1)	29.325 (99.026)

Standard Power Take-off Speed (540 rpm)—One Hour								
59.99 (44.73)	1901	3.884 (14.703)	0.447 (0.272)	15.45 (3.042)	198 (92.1)	54 (12.4)	74 (23.6)	29.270 (98.840)

## VARYING POWER AND FUEL CONSUMPTION—Two Hours

54.90 (40.94)	2166	3.680 (13.930)	0.462 (0.281)	14.92 (2.939)	186 (85.3)	53 (11.7)	75 (23.9)	.....
0.00 (0.00)	2225	1.309 (4.955)	.....	.....	167 (75.0)	54 (12.2)	76 (24.4)	.....
27.79 (20.72)	2194	2.466 (9.335)	0.612 (0.372)	11.27 (2.220)	168 (75.6)	53 (11.7)	74 (23.6)	.....
62.51 (46.61)	2101	4.202 (15.906)	0.464 (0.282)	14.88 (2.930)	189 (87.2)	54 (11.9)	76 (24.2)	.....
13.98 (10.42)	2208	1.883 (7.128)	0.929 (0.565)	7.42 (1.462)	168 (75.8)	53 (11.7)	74 (23.3)	.....
41.41 (30.88)	2178	3.023 (11.443)	0.503 (0.306)	13.70 (2.699)	170 (76.7)	53 (11.7)	75 (23.9)	.....
<b>Av 33.43</b> <b>Av (24.93)</b>	<b>2179</b>	<b>2.761</b> <b>(10.452)</b>	<b>0.570</b> <b>(0.346)</b>	<b>12.11</b> <b>(2.385)</b>	<b>175</b> <b>(79.3)</b>	<b>53</b> <b>(11.8)</b>	<b>75</b> <b>(23.9)</b>	<b>29.247</b> <b>(98.762)</b>

## DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs - (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 11th (6L) Gear											
52.98 (39.51)	3029 (13.47)	6.56 (10.56)	2097	4.07	4.096 (15.505)	0.533 (0.324)	12.93 (2.548)	178 (81.1)	53 (11.7)	61 (16.1)	29.170 (98.503)
75% of Pull at Maximum Power—Ten Hours 11th (6L) Gear											
42.16 (31.44)	2297 (10.22)	6.88 (11.08)	2174	2.89	3.505 (13.268)	0.573 (0.349)	12.03 (2.370)	177 (80.6)	65 (18.3)	73 (22.7)	28.880 (97.523)
50% of Pull at Maximum Power—Two Hours 11th (6L) Gear											
28.70 (21.40)	1533 (6.82)	7.02 (11.30)	2195	1.94	2.845 (10.771)	0.684 (0.416)	10.09 (1.987)	170 (76.7)	66 (18.6)	74 (23.1)	28.715 (96.966)
50% of Pull at Reduced Engine Speed—Two Hours 13th (7L) Gear											
28.73 (21.42)	1533 (6.82)	7.03 (11.31)	1500	1.79	2.338 (8.850)	0.561 (0.341)	12.29 (2.420)	178 (80.8)	68 (20.0)	79 (26.1)	28.720 (96.983)

## MAXIMUM POWER IN SELECTED GEARS

44.37 (33.09)	7578 (33.71)	2.20 (3.53)	2133	13.35	4th (2H) Gear	177 (80.6)	62 (16.7)	67 (19.4)	28.710 (96.949)
48.69 (36.31)	7411 (32.96)	2.46 (3.97)	2098	13.06	5th (3L) Gear	185 (84.7)	64 (17.8)	70 (21.1)	28.700 (96.916)
50.23 (37.46)	5641 (25.09)	3.34 (5.37)	2099	8.39	6th (3H) Gear	184 (84.2)	55 (12.8)	65 (18.3)	29.120 (98.334)
51.88 (38.69)	5081 (22.60)	3.83 (6.16)	2101	7.20	7th (4L) Gear	181 (82.5)	55 (12.8)	65 (18.3)	29.120 (98.334)
53.02 (39.54)	4500 (20.01)	4.42 (7.11)	2101	6.18	8th (5L) Gear	181 (82.8)	55 (12.8)	65 (18.3)	29.120 (98.334)
50.97 (38.01)	3796 (16.88)	5.04 (8.10)	2099	5.07	9th (4H) Gear	180 (81.9)	55 (12.8)	65 (18.3)	29.130 (98.368)
52.19 (38.92)	3376 (15.01)	5.80 (9.33)	2103	4.36	10th (5H) Gear	181 (82.8)	55 (12.8)	65 (18.3)	29.130 (98.368)
53.70 (40.05)	3063 (13.62)	6.57 (10.58)	2100	4.00	11th (6L) Gear	182 (83.3)	54 (12.2)	64 (17.8)	29.140 (98.401)
51.05 (38.07)	2236 (9.94)	8.56 (13.78)	2101	2.76	12th (6H) Gear	180 (82.2)	53 (11.7)	65 (18.3)	29.130 (98.368)

Department of Agricultural Engineering

Dates of Test: April 5 to May 6, 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°)** 0.8283 **Fuel weight** 6.897 lbs/gal  
(0.827 kg/l) **Oil SAE 30 API service classifica-**  
**tion SE/SF-CC/CD To motor** 1.790 gal (6.778 l)  
**Drained from motor** 1.525 gal (5.772 l) **Trans-**  
**mission and hydraulic lubricant** Ford 134 fluid  
**Total time engine was operated** 52.5 hours.

**ENGINE:** Make Ford Diesel **Type** four cylin-  
der vertical **Serial No.** \*L634940\* **Crankshaft**  
lengthwise **Rated rpm** 2100 **Bore and stroke** 4.4"  
× 4.2" (112 mm × 107 mm) **Compression ratio**  
16.3 to 1 **Displacement** 256 cu in (4195 ml) **Start-**  
**ing system** 12 volt **Lubrication pressure** **Air**  
**cleaner** two paper elements with centrifugal  
precleaner **Oil filter** one full flow paper  
cartridge **Oil cooler** radiator for transmission  
and hydraulic oil, radiator for power steering  
fluid **Fuel filter** one paper element **Muffler**  
vertical **Cooling medium temperature control**  
one thermostat.

**CHASSIS:** **Type** standard **Serial No.**  
C680988 **Tread width** rear 60" (1525 mm) to 80"  
(2032 mm) front 52" (1320 mm) to 80" (2032 mm)  
**Wheel base** 87.5" (2223 mm) **Center of gravity**  
(without operator or ballast, with minimum tread,  
with fuel tank filled and tractor serviced for op-  
eration) Horizontal distance forward from center-  
line of rear wheels 29.3" (744 mm) Vertical dis-  
tance above roadway 32.9" (837 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 with partial (2) range operator controlled  
powershift **Advertised speeds mph (km/h)** first  
1.3 (2.2) second 1.7 (2.8) third 2.0 (3.1) fourth 2.5  
(4.0) fifth 2.9 (4.6) sixth 3.7 (5.9) seventh 4.2 (6.7)  
eighth 4.8 (7.7) ninth 5.4 (8.7) tenth 6.1 (9.9)  
eleventh 6.9 (11.2) twelfth 8.9 (14.4) thirteenth  
10.2 (16.3) fourteenth 13.1 (21.0) fifteenth 14.8  
(23.7) sixteenth 19.0 (30.6) reverse 1.7 (2.8), 2.2  
(3.6), 2.5 (4.1), 3.3 (5.3), 3.7 (6.0), 4.8 (7.7), 5.4  
(8.7), 6.9 (11.2) **Clutch** single plate dry disc oper-  
ated by foot pedal **Brakes** wet multiple disc oper-  
ated by two foot pedals which can be locked  
together **Steering** power assist **Turning radius**  
(on concrete surface with brake applied) right  
120" (3.05 m) left 120" (3.05 m) (on concrete sur-  
face without brake) right 138" (3.51 m) left 138"  
(3.51 m) **Turning space diameter** (on concrete  
surface with brake applied) right 249" (6.32 m) left  
249" (6.32 m) (on concrete surface without brake)  
right 294" (7.47 m) left 294" (7.47 m) **Power take-**  
**off** 540 rpm at 1901 engine rpm.

# LUGGING ABILITY IN 11th (6L) GEAR

Crankshaft Speed rpm	2100	1893	1683	1479	1263	1061
Pull—lbs (kN)	3063 (13.62)	3256 (14.48)	3419 (15.21)	3516 (15.64)	3531 (15.71)	3469 (15.43)
Increase in Pull %	0	6	12	15	15	13
Power—Hp (kW)	53.70 (40.05)	51.31 (38.26)	47.81 (35.65)	43.08 (32.12)	36.94 (27.54)	30.54 (22.77)
Speed—Mph (km/h)	6.57 (10.58)	5.91 (9.51)	5.24 (8.44)	4.59 (7.39)	3.92 (6.31)	3.30 (5.31)
Slip %	4.00	4.29	4.57	4.71	4.71	4.57

# TRACTOR SOUND LEVEL WITHOUT CAB

dB(A)

Maximum Available Power—Two Hours	96.5
75% of Pull at Maximum Power—Ten Hours	95.5
50% of Pull at Maximum Power—Two Hours	94.5
50% of Pull at Reduced Engine Speed—Two Hours	92.0
Bystander in 15th (8L) gear	89.5

# TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b>		
—No., size, ply & psi (kPa)	Two 18.4-34; 6; 16 (110)	Two 18.4-34; 6; 16 (110)
Ballast		
—Liquid (each)	1112 lb (505 kg)	None
—Cast Iron (each)	400 lb (181 kg)	None
<b>Front Tires</b>		
—No., size, ply & psi (kPa)	Two 7.50-18; 6; 40 (275)	Two 7.50-18; 6; 40 (275)
Ballast		
—Liquid (each)	None	None
—Cast Iron (each)	52 lb (24 kg)	None
<b>Height of Drawbar</b>	20.5 in (520 mm)	20.5 in (520 mm)
<b>Static Weight with Operator—Rear</b>	7325 lb (3323 kg)	4300 lb (1951 kg)
—Front	2220 lb (1007 kg)	2115 lb (959 kg)
—Total	9545 lb (4330 kg)	6415 lb (2910 kg)

**REPAIRS AND ADJUSTMENTS:** The fuel injection pump was replaced during preliminary PTO tests.

**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 148°F (64.4°C). Nine gears were chosen between stability limit and 10 mph (16.1 km/h). This tractor did not attain the estimated 15.37 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 1429.

LOUIS I. LEVITICUS

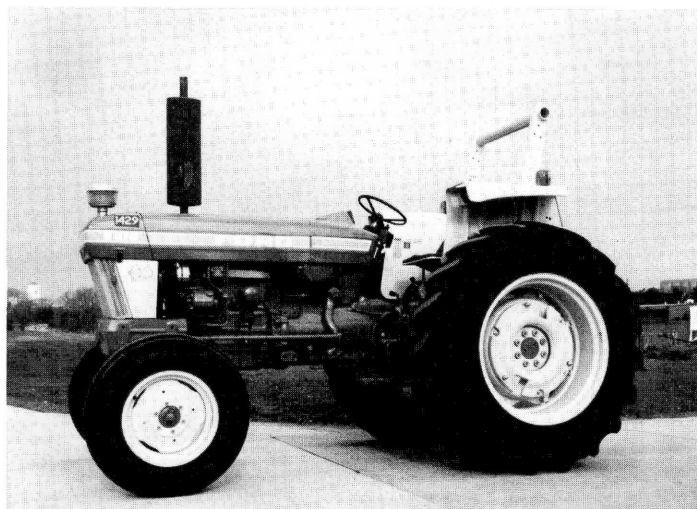
Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



Ford 5610 (16 X 8) Diesel