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Test 1428: Ford 5610 (16x4) 8 and 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1428 — FORD 5610 (16 X 4) 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)								
62.54 (46.64)	2100	4.166 (15.770)	0.459 (0.280)	15.01 (2.958)	213 (100.4)	58 (14.3)	75 (24.0)	29.077 (98.188)
Standard Power Take-off Speed (540 rpm)—One Hour								
60.58 (45.17)	1900	3.892 (14.733)	0.443 (0.270)	15.57 (3.066)	217 (102.8)	58 (14.3)	75 (23.9)	29.120 (98.334)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
54.82 (40.88)	2166	3.610 (13.665)	0.454 (0.276)	15.18 (2.992)	200 (93.3)	58 (14.2)	76 (24.4)	..... .....
0.00 (0.00)	2248	1.292 (4.891)	..... .....	..... .....	166 (74.4)	57 (13.9)	75 (23.9)	..... .....
27.97 (20.86)	2208	2.414 (9.138)	0.595 (0.362)	11.58 (2.283)	172 (77.8)	57 (13.9)	74 (23.6)	..... .....
63.55 (47.39)	2101	4.206 (15.921)	0.457 (0.278)	15.11 (2.977)	207 (97.2)	58 (14.2)	75 (23.9)	..... .....
14.13 (10.54)	2232	1.814 (6.867)	0.885 (0.539)	7.79 (1.535)	172 (78.1)	57 (13.9)	75 (23.9)	..... .....
41.50 (30.95)	2186	2.984 (11.296)	0.496 (0.302)	13.91 (2.740)	179 (81.7)	57 (13.9)	75 (23.9)	..... .....
Av Av	33.66 (25.10)	2.720 (10.296)	0.557 (0.339)	12.38 (2.438)	183 (83.8)	57 (14.0)	75 (23.9)	29.190 (98.570)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

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 10th (6L) Gear											
53.43 (39.84)	3512 (15.62)	5.70 (9.18)	2103	5.03	4.168 (15.779)	0.538 (0.327)	12.82 (2.525)	216 (102.2)	60 (15.6)	82 (27.8)	28.635 (96.696)
75% of Pull at Maximum Power—Ten Hours 10th (6L) Gear											
43.26 (32.26)	2702 (12.02)	6.00 (9.66)	2181	3.75	3.476 (13.159)	0.554 (0.337)	12.44 (2.451)	188 (86.8)	63 (17.2)	72 (22.4)	28.467 (96.129)
50% of Pull at Maximum Power—Two Hours 10th (6L) Gear											
29.48 (21.98)	1803 (8.02)	6.13 (9.87)	2205	2.67	2.864 (10.840)	0.670 (0.407)	10.30 (2.028)	169 (76.1)	51 (10.3)	60 (15.3)	28.780 (97.186)
50% of Pull at Reduced Engine Speed—Two Hours 13th (7L) Gear											
29.45 (21.96)	1802 (8.01)	6.13 (9.86)	1255	2.60	2.320 (8.782)	0.543 (0.331)	12.69 (2.500)	190 (87.5)	57 (13.6)	70 (21.1)	28.735 (97.034)
MAXIMUM POWER IN SELECTED GEARS											
49.71 (37.07)	7408 (32.95)	2.52 (4.05)	2106	14.76	5th (3L) Gear			196 (90.8)	56 (13.3)	71 (21.7)	28.830 (97.355)
51.91 (38.71)	5631 (25.05)	3.46 (5.56)	2101	8.84	6th (3H) Gear			201 (93.6)	56 (13.3)	72 (22.2)	28.830 (97.355)
53.56 (39.94)	5469 (24.33)	3.67 (5.91)	2100	8.31	7th (4L) Gear			202 (94.4)	57 (13.9)	73 (22.8)	28.840 (97.388)
54.23 (40.44)	4543 (20.21)	4.48 (7.20)	2101	6.91	8th (5L) Gear			198 (91.9)	55 (12.8)	70 (21.1)	28.870 (97.490)
53.15 (39.64)	4112 (18.29)	4.85 (7.80)	2102	6.08	9th (4H) Gear			200 (93.3)	55 (12.8)	70 (21.1)	28.880 (97.523)
54.63 (40.74)	3603 (16.03)	5.69 (9.15)	2100	5.24	10th (6L) Gear			200 (93.3)	55 (12.8)	70 (21.1)	28.860 (97.456)
53.81 (40.13)	3433 (15.27)	5.88 (9.46)	2100	4.82	11th (5H) Gear			200 (93.1)	55 (12.8)	70 (21.1)	28.840 (97.388)
53.60 (39.97)	2704 (12.03)	7.43 (11.96)	2102	3.59	12th (6H) Gear			200 (93.1)	56 (13.3)	72 (22.2)	28.840 (97.388)

Department of Agricultural Engineering

Dates of Test: March 25 to April 19, 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 1.745 gal (6.606 l)
Drained from motor 1.436 gal (5.436 l) Trans-
mission and hydraulic lubricant Ford 134 fluid
Front axle lubricant Ford EOAZ-19580 fluid
Total time engine was operated 47.5 hours.

ENGINE: Make Ford Diesel Type four cylin-
der vertical Serial No. *L627031* 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 hydraulic and
transmission oil, radiator for power steering fluid
Fuel filter one paper element Muffler vertical
Cooling medium temperature control one ther-
mostat.

CHASSIS: Type front wheel assist Serial No.
C681210 Tread width rear 60" (1525 mm) to
90" (2286 mm) front 60" (1525 mm) to 80" (2032
mm) Wheel base 88.8" (2255 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 cen-
ter-line of rear wheels 31.7" (804 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 (2.7) third 1.7 (2.8) fourth 2.2
(3.5) fifth 2.9 (4.7) sixth 3.8 (6.1) seventh 4.0 (6.5)
eighth 4.8 (7.8) ninth 5.2 (8.4) tenth 6.0 (9.7)
eleventh 6.2 (10.0) twelfth 7.8 (12.5) thirteenth
10.6 (17.0) fourteenth 13.6 (21.8) fifteenth 14.5
(23.4) sixteenth 18.6 (30.0) reverse 1.9 (3.1), 2.5
(4.0), 7.0 (11.2), 8.9 (14.4) Clutch single plate dry
disc operated by foot pedal Brakes wet multiple
disc operated by two foot pedals which can be
locked together Steering power assist Turning
radius (on concrete surface with brake applied)
right 194" (4.93 m) left 194" (4.93 m) (on concrete
surface without brake) right 209" (5.30 m) left 209"
(5.30 m) Turning space diameter (on concrete
surface with brake applied) right 395" (10.03 m)
left 395" (10.03 m) (on concrete surface without
brake) right 425" (10.79 m) left 425" (10.79 m)
Power take-off 540 rpm at 1900 engine rpm.

LUGGING ABILITY IN 10th (6L) GEAR

Crankshaft Speed rpm	2100	1890	1685	1468	1271	1063
Pull—lbs (kN)	3603 (16.03)	3864 (17.19)	4064 (18.08)	4127 (18.36)	4154 (18.48)	4083 (18.16)
Increase in Pull %	0	7	13	15	15	13
Power—Hp (kW)	54.63 (40.74)	52.47 (39.13)	49.03 (36.36)	43.33 (32.31)	37.73 (28.14)	31.03 (23.14)
Speed—Mph (km/h)	5.69 (9.15)	5.09 (8.19)	4.52 (7.28)	3.94 (6.34)	3.41 (5.48)	2.85 (4.59)
Slip %	5.24	5.59	6.01	6.01	6.15	6.15

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	97.0	96.0
75% of Pull at Maximum Power—Ten Hours		96.0
50% of Pull at Maximum Power—Two Hours		95.5
50% of Pull at Reduced Engine Speed—Two Hours		91.0
Bystander in 16th (8H) gear		89.0

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C)	Cool- ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th (6L) Gear												
53.27 (39.73)	3455 (15.37)	5.78 (9.31)	2099	4.27	4.061 (15.373)	0.533 (0.324)	13.12 (2.584)	218 (103.3)	61 (16.1)	84 (28.9)		28.570 (96.477)

MAXIMUM POWER IN SELECTED GEARS

41.02 (30.59)	8090 (35.99)	1.90 (3.06)	2162	14.96	4th (2H) Gear		185 (85.0)	56 (13.3)	70 (21.1)	28.830 (97.355)
55.18 (41.15)	4546 (20.22)	4.55 (7.33)	2100	5.98	8th (5L) Gear		202 (94.4)	55 (12.8)	70 (21.1)	28.900 (97.591)
54.93 (40.96)	3567 (15.86)	5.78 (9.30)	2100	4.34	10th (6L) Gear		201 (93.9)	55 (12.8)	70 (21.1)	28.840 (97.388)

TIRES, BALLAST AND WEIGHT

Rear Tires		With Ballast	Without Ballast
Ballast	—No., size, ply & psi (kPa)	Two 18.4-34; 6; 16 (110)	Two 18.4-34; 6; 16 (110)
	—Liquid (each)	768 lb (348 kg)	None
	—Cast Iron (each)	350 lb (159 kg)	None
Front Tires			
Ballast	—No., size, ply & psi (kPa)	Two 13.6-24; 8; 22 (150)	Two 13.6-24; 8; 22 (150)
	—Liquid (each)	None	None
	—Cast Iron (each)	45 lb (20 kg)	None
Height of Drawbar		20.5 in (520 mm)	20.5 in (520 mm)
Static Weight with Operator—Rear		6980 lb (3166 kg)	4745 lb (2152 kg)
	—Front	2720 lb (1234 kg)	2630 lb (1193 kg)
	—Total	9700 lb (4400 kg)	7375 lb (3345 kg)



Ford 5610 (16 X 4) Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
Robert W. Kleis, Acting Dean and Director

REPAIRS and ADJUSTMENTS: All fuel injectors were 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 152°F (66.6°C). Eight gears were chosen between 15% slip 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 1428.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers