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## Test 1290: Ford FW-40 Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1290 — FORD FW-40 DIESEL

## 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	
<b>Maximum Available Power—Two Hours 10th (3LO) Gear</b>											
227.48 (169.63)	12897 (57.37)	6.61 (10.64)	2600	3.77	16.450 (62.269)	0.500 (0.304)	13.83 (2.724)	181 (82.5)	50 (9.7)	59 (15.0)	28.885 (97.540)
<b>75% of Pull at Maximum Power—Ten Hours 10th (3LO) Gear</b>											
194.11 (144.75)	10174 (45.25)	7.15 (11.51)	2793	3.25	15.119 (57.233)	0.539 (0.328)	12.84 (2.529)	173 (78.6)	43 (6.3)	51 (10.6)	29.228 (98.699)
<b>50% of Pull at Maximum Power—Two Hours 10th (3LO) Gear</b>											
131.69 (98.20)	6718 (29.89)	7.35 (11.83)	2839	2.19	12.274 (46.462)	0.645 (0.392)	10.73 (2.114)	170 (76.4)	40 (4.2)	43 (5.8)	29.210 (98.638)
<b>50% of Pull at Reduced Engine Speed—Two Hours 15th (4HS) Gear</b>											
131.75 (98.21)	6721 (29.89)	7.35 (11.83)	1521	2.15	8.785 (33.256)	0.461 (0.281)	14.99 (2.953)	158 (69.7)	44 (6.4)	50 (9.7)	29.235 (98.722)

## MAXIMUM POWER IN SELECTED GEARS

199.26 (148.59)	28245 (125.64)	2.65 (4.26)	2758	14.99	3rd (1HS) Gear			174 (78.9)	35 (1.7)	38 (3.3)	29.220 (98.672)
210.24 (156.78)	27675 (123.10)	2.85 (4.58)	2600	13.89	4th (1HO) Gear			180 (82.2)	46 (7.8)	58 (14.4)	29.180 (98.536)
226.45 (168.87)	24719 (109.95)	3.44 (5.53)	2599	9.26	5th (2LS) Gear			180 (81.9)	46 (7.8)	57 (13.9)	29.190 (98.570)
230.84 (172.13)	21890 (97.37)	3.95 (6.36)	2600	7.32	6th (2LO) Gear			180 (82.2)	45 (7.2)	57 (13.9)	29.190 (98.570)
232.58 (173.44)	19284 (85.78)	4.52 (7.28)	2600	6.09	7th (2HS) Gear			181 (82.5)	45 (7.2)	55 (12.8)	29.210 (98.638)
234.03 (174.52)	17078 (75.97)	5.14 (8.27)	2598	5.23	8th (2HO) Gear			181 (82.8)	44 (6.7)	54 (12.2)	29.210 (98.638)
237.49 (177.09)	15286 (68.00)	5.83 (9.38)	2599	4.67	9th (3LS) Gear			180 (82.2)	44 (6.7)	53 (11.7)	29.200 (98.604)
238.78 (178.06)	13563 (60.33)	6.60 (10.62)	2599	4.10	10th (3LO) Gear			182 (83.3)	44 (6.7)	52 (11.1)	29.220 (98.672)
236.09 (176.05)	11815 (52.56)	7.49 (12.06)	2599	3.45	11th (3HS) Gear			181 (82.8)	45 (7.2)	56 (13.3)	29.200 (98.604)
234.18 (174.63)	10359 (46.08)	8.48 (13.64)	2598	3.03	12th (3HO) Gear			181 (82.8)	45 (7.2)	56 (13.3)	29.200 (98.604)

## LUGGING ABILITY IN RATED GEAR 10th (3LO)

Crankshaft Speed rpm	2599	2339	2079	1824	1560	1301
Pull—lbs (kN)	13563 (60.33)	14778 (65.74)	16076 (71.51)	17053 (75.86)	17126 (76.18)	16908 (75.21)
Increase in Pull %	0	9	19	26	26	25
Power—Hp (kW)	238.78 (178.06)	233.06 (173.80)	224.49 (167.40)	207.94 (155.06)	178.57 (133.16)	147.12 (109.70)
Speed—Mph (km/h)	6.60 (10.62)	5.91 (9.52)	5.24 (8.43)	4.57 (7.36)	3.91 (6.29)	3.26 (5.25)
Slip %	4.10	4.34	4.83	5.15	5.15	5.31

## TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	79.0
75% of Pull at Maximum Power—Ten Hours	80.5
50% of Pull at Maximum Power—Two Hours	81.0
50% of Pull at Reduced Engine Speed—Two Hours	76.0
Bystander in 18th (5LO) gear	96.0

Department of Agricultural Engineering

Dates of Test: October 10-16, 1978

Manufacturer: STEIGER TRACTOR, INC., 3101 First Avenue North, Fargo North Dakota 58102.

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel Cetane No. 50.4 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°60° (15°/15°)** 0.8305 **Fuel weight** 6.915 lbs/gal (0.830 kg/l) **Oil SAE 30 API service classification** SB/SE-CA/CD **To motor** 4.606 gal (17.434 l) **Drained from motor** 3.594 gal (13.603 l) **Transmission and drop box lubricant** Ford M2C48-A or equivalent **Final drive lubricant** SAE 90 **Total time engine was operated** 29.5 hours.

**ENGINE:** Make Cummins Diesel **Type** 8 cylinder vee **Serial No.** 10712224 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 5.5" x 4.75" (140 mm x 121 mm) **Compression ratio** 15.5 to 1 **Displacement** 903 cu in (14800 ml) **Cranking System** 12 volt **Lubrication pressure** **Air cleaner** primary and secondary paper elements with aspirator **Oil filter** one full flow paper cartridge and one bypass element **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and dropbox oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** 2 thermostats.

**CHASSIS:** **Type** Four wheel drive with duals **Serial No.** X200142 **Tread width** rear 80.0" (2032 mm) to 139.4" (3540 mm) front 80.0" (2032 mm) to 139.4" (3540 mm) **Wheel base** 132.5" (3365 mm) **Center of gravity** (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 75.2" (1910 mm) Vertical distance above roadway 47.2" (1199 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 **Advised speeds mph (km/h)** first 2.2 (3.5) second 2.5 (4.0) third 2.8 (4.5) fourth 3.1 (5.0) fifth 3.6 (5.8) sixth 4.0 (6.5) seventh 4.6 (7.3) eighth 5.1 (8.2) ninth 5.8 (9.3) tenth 6.5 (10.5) eleventh 7.4 (11.8) twelfth 8.3 (13.3) thirteenth 9.5 (15.3) fourteenth 10.7 (17.3) fifteenth 12.2 (19.6) sixteenth 13.7 (22.0) seventeenth 15.2 (24.5) eighteenth 17.2 (27.6) nineteenth 19.3 (31.1) twentieth 21.8 (35.1) reverse 2.2 (3.5), 2.5 (4.0), 2.8 (4.5), 3.1 (5.0) **Clutch** two dry plates hydraulically operated by foot pedal **Brakes** multiple dry disc hydraulically operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on con-

**TIRES, BALLAST AND WEIGHT**

		With Ballast	Without Ballast
<b>Rear Tires</b>	—No., size, ply & psi (kPa)	Four 24.5-32; 10; inner 16 (110); outer 14 (95)	Four 24.5-32; 10; inner 16 (110); outer 14 (95)
	Ballast	268 lb (121 kg) None	None None
<b>Front Tires</b>	—No., size, ply & psi (kPa)	Four 24.5-32; 10; inner 16 (110); outer 14 (95)	Four 24.5-32; 10; inner 16 (110); outer 14 (95)
	Ballast	892 lb (405 kg) None	None None
<b>Height of Drawbar</b>		18.5 in (470 mm)	18.5 in (470 mm)
<b>Static Weight with Operator</b> —Rear		14070 lb (6382 kg)	13535 lb (6140 kg)
Front		18880 lb (8564 kg)	17095 lb (7754 kg)
Total		32950 lb (14946 kg)	30630 lb (13894 kg)

crete surface without brake applied) right 257" (6.53 m) left 261" (6.63 m) **Turning space diameter** (on concrete surface without brake) right 537" (13.64 m) left 546" (13.87 m) **Power take-off** none.

**REPAIRS and ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 136°F (57.8°C). Ten gears were chosen between 15% and 10 mph (16.1 km/h). Radiator leaked slightly at end of test.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1289.

L. I. LEVITICUS

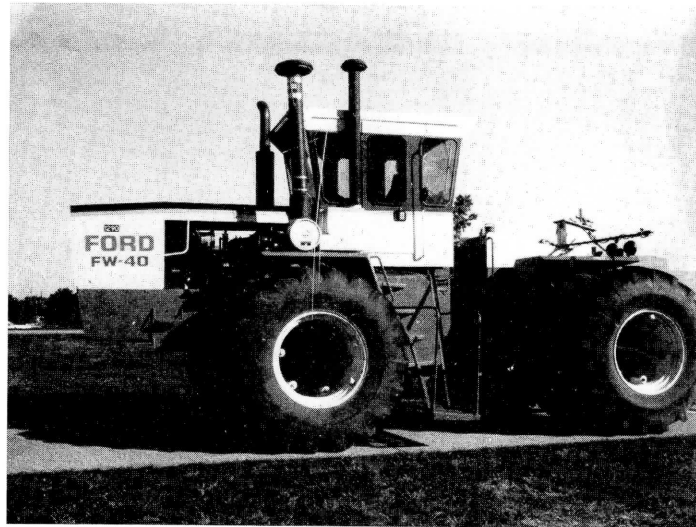
Engineer-in-Charge

G. W. STEINBRUEGGE

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



**Ford FW-40 Diesel**