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Test 1225: Ford 7600 Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1225 — FORD 7600 DIESEL, 16-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—1020 rpm)									
84.79 (63.22)	2100	5.399 (20.439)	0.446 (0.271)	15.70 (3.093)	199 (92.9)	60 (15.8)	75 (24.1)	28.890 (97.557)	
Standard Power Take-off Speed (1000 rpm)—One Hour									
85.16 (63.50)	2059	5.338 (20.206)	0.439 (0.267)	15.95 (3.143)	200 (93.6)	62 (16.6)	75 (24.0)	28.870 (97.490)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
75.68 (56.44)	2204	5.118 (19.373)	0.473 (0.288)	14.79 (2.913)	196 (90.8)	62 (16.9)	75 (23.9)	..... .....
0.00 (0.00)	2334	1.659 (6.279)	..... .....	..... .....	176 (79.7)	61 (16.1)	75 (23.9)	..... .....
39.18 (29.22)	2282	3.463 (13.110)	0.619 (0.376)	11.31 (2.229)	178 (81.1)	58 (14.7)	76 (24.2)	..... .....
86.38 (64.42)	2100	5.521 (20.898)	0.447 (0.272)	15.65 (3.082)	204 (95.6)	60 (15.3)	76 (24.2)	..... .....
19.82 (14.78)	2310	2.542 (9.622)	0.897 (0.546)	7.80 (1.536)	174 (78.9)	60 (15.3)	75 (23.9)	..... .....
57.93 (43.20)	2249	4.286 (16.226)	0.518 (0.315)	13.52 (2.662)	182 (83.3)	60 (15.6)	75 (23.9)	..... .....
Av Av	46.50 (34.68)	2246	3.765 (14.251)	0.567 (0.345)	12.35 (2.433)	185 (84.9)	60 (15.6)	75 (24.0)	28.840 (97.388)

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 8th (5PD) Gear											
65.33 (48.71)	5625 (25.02)	4.36 (7.01)	2100	10.98	5.251 (19.876)	0.563 (0.342)	12.44 (2.451)	176 (80.0)	54 (11.9)	62 (16.4)	28.810 (97.287)
75% of Pull at Maximum Power—Ten Hours 8th (5PD) Gear											
54.62 (40.73)	4280 (19.04)	4.79 (7.70)	2228	7.81	4.640 (17.564)	0.595 (0.362)	11.77 (2.319)	168 (75.8)	45 (7.4)	55 (12.7)	29.016 (98.064)
50% of Pull at Maximum Power—Two Hours 8th (5PD) Gear											
38.44 (28.67)	2864 (12.74)	5.03 (8.10)	2282	5.29	3.876 (14.671)	0.706 (0.429)	9.92 (1.954)	167 (75.0)	40 (4.4)	46 (7.5)	28.985 (97.878)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6DD) Gear											
38.32 (28.58)	2838 (12.62)	5.06 (8.15)	1430	5.29	2.840 (10.749)	0.519 (0.316)	13.50 (2.658)	166 (74.4)	44 (6.7)	54 (12.2)	29.010 (97.962)

MAXIMUM POWER IN SELECTED GEARS

55.92 (41.70)	7779 (34.60)	2.70 (4.34)	2241	14.83	5th (3PD) Gear			169 (76.1)	33 (0.6)	36 (2.2)	29.270 (98.840)
63.62 (47.44)	6795 (30.23)	3.51 (5.65)	2098	13.90	7th (4PD) Gear			172 (77.8)	56 (13.3)	59 (15.0)	28.720 (96.983)
66.48 (49.57)	5702 (25.37)	4.37 (7.04)	2099	10.63	8th (5PD) Gear			174 (78.9)	53 (11.7)	62 (16.7)	28.790 (97.220)
67.95 (50.67)	4543 (20.21)	5.61 (9.03)	2100	8.07	10th (6PD) Gear			175 (79.2)	55 (12.8)	60 (15.6)	28.720 (96.983)
67.04 (49.99)	3405 (15.15)	7.38 (11.88)	2101	5.93	12th (6DD) Gear			174 (78.6)	54 (12.2)	60 (15.6)	28.710 (96.949)
66.78 (49.80)	2453 (10.91)	10.21 (16.43)	2101	4.42	13th (7PD) Gear			174 (78.6)	53 (11.7)	61 (16.1)	28.710 (96.949)

LUGGING ABILITY IN RATED GEAR (8th (5PD))

Crankshaft Speed rpm		2099	1892	1681	1470	1254	1039
Pull—lbs (kN)		5702 (25.37)	6220 (27.67)	6658 (29.62)	6721 (29.90)	6368 (28.33)	5592 (24.87)
Increase in Pull %		0	9	17	18	12	-2
Power—Hp (kW)		66.48 (49.57)	64.31 (47.95)	60.14 (44.84)	52.87 (39.42)	43.23 (32.24)	32.19 (24.00)
Speed—Mph (km/h)		4.37 (7.04)	3.88 (6.24)	3.39 (5.45)	2.95 (4.75)	2.55 (4.10)	2.16 (3.47)
Slip %		10.63	12.08	13.42	13.90	12.81	10.95

Department of Agricultural Engineering

Dates of Test: September 22 to October 8, 1976

Manufacturer: FORD MOTOR COMPANY,
Tractor Operations, 2500 East Maple Rd, Troy,
MI 48084

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 51.8 (rating taken from oil company's
typical inspection data) **Specific gravity converted
to 60°/60° (15.6°/15.6°)** 0.8406 **Fuel weight** 6.999
lbs/gal (0.841 kg/l) **Oil** SAE 30 **API service
classification** SB/SE-CA/CD **To motor** 1.950 gal
(7.382 l) **Drained from motor** 1.435 gal (5.432 l)
Transmission and final drive lubricant Ford
M-2C53A **Total time engine was operated** 51
hours

ENGINE Make Ford Diesel **Type** 4 cylinder
vertical with turbocharger **Serial No.** *F080815*
Crankshaft lengthwise **Rated rpm** 2100 **Bore
and stroke** 4.4" × 4.2" (111.76 mm × 106.68 mm)
Compression ratio 15.6 to 1 **Displacement** 255 cu
in (4186 ml) **Cranking system** 12 volt **Lubrica-
tion pressure** **Air cleaner** paper and felt elements
with centrifugal precleaner and dust evacuator
Oil filter cotton blend screw-on cartridge **Oil
cooler** engine coolant heat exchanger for crank-
case oil, radiator for hydraulic and transmission
oil **Fuel filter** nylon gauze in bottom of tank and
paper element **Muffler** vertical **Cooling medium
temperature control** thermostat

CHASSIS: Type standard **Serial No.** C510283
Tread width rear 56" (1420 mm) to 80" (2030 mm)
front 52" (1320 mm) to 80" (2030 mm) **Wheel base**
87.5" (2222 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 28.6" (726 mm) Vertical distance above
roadway 39.9" (1013 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 power shift
Advertised speeds mph (km/h) first 1.2 (1.9) second
1.4 (2.3) third 1.5 (2.4) fourth 1.9 (3.0) fifth
2.5 (4.1) sixth 3.2 (5.2) seventh 3.5 (5.6) eighth 4.2
(6.7) ninth 4.5 (7.2) tenth 5.2 (8.3) eleventh 5.3
(8.6) twelfth 6.7 (10.7) thirteenth 9.1 (14.6) four-
teenth 11.7 (18.8) fifteenth 12.5 (20.1) sixteenth
16.1 (25.8) reverse 1.7 (2.7), 2.1 (3.4), 5.8 (9.6), 7.7
(12.4) **Clutch** single plate dry disc operated by
foot pedal **Brakes** multiple wet disc operated
by two foot pedals which can be locked to-
gether **Steering** power assist **Turning radius** (on
concrete surface with brake applied) right 120"
(3.05 m) left 120" (3.05 m) (on concrete surface
without brake) right 138" (3.51 m) left 138" (3.51
m) **Turning space diameter** (on concrete surface
with brake applied) right 252" (6.40 m) left 252"
(6.40 m) (on concrete surface without brake) right
291" (7.39 m) left 291" (7.39 m) **Belt pulley** 1072
rpm at 2050 engine rpm diameter 11" (279 mm)
face 6.5" (165 mm) **Belt speed** 3087 fpm (15.7 m/s)
Power take-off 540 rpm at 1900 engine rpm and
1000 rpm at 2059 engine rpm.

TRACTOR SOUND LEVEL WITH CAB		dB(A)
Maximum Available Power—Two Hours		84.5
75% of Pull at Maximum Power—Ten Hours		85.0
50% of Pull at Maximum Power—Two Hours		84.5
50% of Pull at Reduced Engine Speed—Two Hours		80.5
Bystander in 16th (8DD) gear		86.0

REPAIRS and ADJUSTMENTS: Alternator support bolt was found to be broken after pto tests. This was repaired and tests continued.

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 inlet was 160°F (71.1°C). Six gears were chosen between 15% slip and 15 mph (24.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1225**.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 18.4-34; 6; 16 (110)	Two 18.4-34; 6; 16 (110)
	—Liquid (each)	1080 lb (490 kg)	None
	—Cast Iron (each)	500 lb (227 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 7.50-18; 6; 40 (280)	Two 7.50-18; 6; 40 (280)
	—Liquid (each)	None	None
	—Cast Iron (each)	80 lb (36 kg)	None
Height of drawbar		22 in (560 mm)	22 in (560 mm)
Static weight with operator—rear			
	front	8170 lb (3706 kg)	5010 lb (2273 kg)
	total	2590 lb (1175 kg)	2430 lb (1102 kg)
		10760 lb (4881 kg)	7440 lb (3375 kg)



Ford 7600 Diesel