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Test 1221: Ford 3600 Diesel 8-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1221 — FORD 3600 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)									
40.55 (30.24)	2000	2.666 (10.092)	0.460 (0.280)	15.21 (2.996)	203 (95.1)	61 (16.2)	75 (23.9)	28.820 (97.321)	
Standard Power Take-off Speed (540 rpm)—One Hour									
38.31 (28.57)	1810	2.499 (9.459)	0.457 (0.278)	15.33 (3.020)	205 (96.3)	60 (15.6)	75 (23.9)	28.815 (97.304)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
36.51 (27.22)	2120	2.443 (9.249)	0.468 (0.285)	14.94 (2.944)	192 (88.6)	60 (15.6)	75 (23.9)	..... .....
0.00 (0.00)	2258	0.827 (3.132)	..... .....	..... .....	168 (75.6)	60 (15.6)	76 (24.2)	..... .....
18.91 (14.10)	2195	1.599 (6.052)	0.592 (0.360)	11.83 (2.330)	175 (79.4)	60 (15.6)	76 (24.2)	..... .....
40.81 (30.43)	2000	2.683 (10.157)	0.460 (0.280)	15.21 (2.996)	200 (93.6)	60 (15.6)	76 (24.2)	..... .....
9.60 (7.16)	2230	1.217 (4.608)	0.887 (0.540)	7.89 (1.554)	173 (78.3)	59 (15.0)	76 (24.2)	..... .....
27.91 (20.81)	2160	2.019 (7.642)	0.506 (0.308)	13.82 (2.723)	180 (81.9)	60 (15.3)	76 (24.2)	..... .....
Av Av	22.29 (16.62)	2160	1.798 (6.807)	0.565 (0.343)	12.40 (2.442)	181 (82.9)	60 (15.4)	75 (24.1)	28.823 (97.332)

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 4th Gear											
33.71 (25.14)	2566 (11.41)	4.93 (7.93)	2000	5.64	2.608 (9.871)	0.541 (0.329)	12.93 (2.547)	172 (77.8)	44 (6.7)	55 (12.5)	29.230 (98.705)
75% of Pull at Maximum Power—Ten Hours 4th Gear											
27.83 (20.75)	1928 (8.57)	5.41 (8.71)	2159	3.99	2.225 (8.424)	0.560 (0.340)	12.51 (2.464)	167 (75.1)	48 (8.7)	57 (14.1)	28.928 (97.686)
50% of Pull at Maximum Power—Two Hours 4th Gear											
19.24 (14.35)	1299 (5.78)	5.56 (8.94)	2192	2.95	1.857 (7.031)	0.676 (0.411)	10.36 (2.041)	159 (70.3)	38 (3.1)	46 (7.8)	29.290 (98.908)
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
19.68 (14.67)	1325 (5.89)	5.57 (8.96)	1468	2.86	1.518 (5.747)	0.540 (0.328)	12.96 (2.554)	163 (72.5)	42 (5.6)	52 (11.1)	29.280 (98.874)
MAXIMUM POWER IN SELECTED GEARS											
28.04 (20.91)	5277 (23.47)	1.99 (3.21)	2144	14.99	2nd Gear			169 (76.1)	44 (6.7)	55 (12.8)	29.200 (98.604)
32.94 (24.56)	3505 (15.59)	3.52 (5.67)	1999	8.11	3rd Gear			174 (78.9)	46 (7.8)	58 (14.4)	29.010 (97.962)
33.62 (25.07)	2563 (11.40)	4.92 (7.92)	1998	5.84	4th Gear			173 (78.3)	46 (7.8)	58 (14.4)	29.000 (97.929)
34.10 (25.43)	2144 (9.54)	5.96 (9.60)	2000	4.81	5th Gear			173 (78.3)	46 (7.8)	58 (14.4)	29.010 (97.962)
33.41 (24.92)	1663 (7.40)	7.53 (12.12)	2000	3.64	6th Gear			174 (78.6)	46 (7.8)	58 (14.4)	29.020 (97.996)
30.90 (23.04)	862 (3.84)	13.44 (21.63)	1998	1.82	7th Gear			167 (75.0)	46 (7.8)	58 (14.4)	29.020 (97.996)
LUGGING ABILITY IN RATED GEAR (4th)											
Crankshaft Speed rpm				1998	1798	1596	1404	1198	1001		
Pull—lbs (kN)				2563 (11.40)	2701 (12.02)	2793 (12.42)	2859 (12.72)	2904 (12.92)	2875 (12.79)		
Increase in Pull %				0	5	9	12	13	12		
Power—Hp (kW)				33.62 (25.07)	31.75 (23.68)	29.09 (21.69)	26.13 (19.48)	22.60 (16.85)	18.71 (13.95)		
Speed—Mph (km/h)				4.92 (7.92)	4.41 (7.09)	3.91 (6.29)	3.43 (5.52)	2.92 (4.70)	2.44 (3.93)		
Slip %				5.84	6.18	6.40	6.63	6.85	6.74		

Department of Agricultural Engineering

Dates of Test: September 28 to October 9, 1976

Manufacturer: FORD MOTOR COMPANY,
Tractor Operations, 2500 East Maple Rd., Troy,
Michigan 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** 1.446 gal
(5.474 l) **Drained from motor** 1.257 gal (4.758 l)
Transmission and final drive lubricant Ford
M-2C53A **Total time engine was operated** 43
hours

ENGINE Make Ford Diesel **Type** 3 cylinder
vertical **Serial No.** *C096165* **Crankshaft**
lengthwise **Rated rpm** 2000 **Bore and stroke** 4.2"
× 4.2" (106.68 mm × 106.68 mm) **Compression**
ratio 16.3 to 1 **Displacement** 175 cu in (2861 ml)
Cranking system 12 volt **Lubrication** pressure
Air cleaner paper and felt elements with dust
evacuator **Oil filter** full flow cotton blend spin-on
cartridge **Oil cooler** radiator for hydraulic oil
Fuel filter nylon gauze in bottom of tank and
paper element **Muffler** vertical **Cooling medium**
temperature control thermostat

CHASSIS: Type standard **Serial No.**
C510279 **Tread width** rear 52" (1320 mm) to 76"
(1930 mm) front 52" (1320 mm) to 80" (2030 mm)
Wheel base 75.8" (1925 mm) **Center of gravity**
(without operator or ballast, with minimum tread,
with fuel tank filled and tractor serviced for oper-
ation) Horizontal distance forward from center-
line of rear wheels 26.3" (668 mm) Vertical distance
above roadway 34.5" (876 mm) Horizontal distance
from center of rear wheel tread 0.06" (2 mm) to the
left **Hydraulic control system** direct engine
drive **Transmission** selective gear fixed ratio
Advertised speeds mph (km/h) first 1.6 (2.6) sec-
ond 2.0 (3.2) third 3.6 (5.8) fourth 4.8 (7.7) fifth
5.8 (9.3) sixth 7.2 (11.6) seventh 12.8 (20.6) eighth
17.4 (28.0) reverse 2.4 (3.9), 8.4 (13.5) **Clutch**
single plate dry disc operated by foot pedal
Brakes internal shoe operated by two foot pedals
which can be locked together **Steering** power as-
sist **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 diame-**
ter (on concrete surface with brake applied) right
240" (6.10 m) left 240" (6.10 m) (on concrete sur-
face without brake) right 267" (6.78 m) left 267"
(6.78 m) **Belt pulley** 1113 rpm at 2000 engine
rpm diameter 10.25" (260 mm) face 6.5" (165 mm)
Belt speed 2987 fpm (15.2 m/s) **Power take-off**
540 rpm at 1810 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or
adjustments.

TRACTOR SOUND LEVEL WITH CAB		dB(A)
Maximum Available Power—Two Hours		82.5
75% of Pull at Maximum Power—Ten Hours		83.5
50% of Pull at Maximum Power—Two Hours		83.5
50% of Pull at Reduced Engine Speed—Two Hours		81.5
Bystander in 8th gear		85.0
TIRES, BALLAST AND WEIGHT		
		With Ballast
Rear Tires		Two 16.9-24; 6; 16 (110)
Ballast	—No., size, ply & psi (kPa)	Two 16.9-24; 6; 16 (110)
	—Liquid (each)	450 lb (204 kg)
	—Cast Iron (each)	100 lb (45 kg)
Front Tires		Two 6.50-16; 6; 40 (280)
Ballast	—No., size, ply & psi (kPa)	Two 6.50-16; 6; 40 (280)
	—Liquid (each)	None
	—Cast Iron (each)	100 lb (45 kg)
Height of drawbar		24 in (610 mm)
Static weight with operator—rear		4750 lb (2154 kg)
Static weight with operator—front		2140 lb (971 kg)
Static weight with operator—total		6890 lb (3125 kg)
		5590 lb (2536 kg)

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 return was 153°F (67.1°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 1221.

LOUIS I. LEVITICUS

Engineer-in Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



Ford 3600 Diesel