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Test 1485: Hesston 666, 666 DT, 666 DT/L and 666/L Fiat Models (12-Speed)

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1485—HESSTON 666 DT FIAT DIESEL ALSO HESSTON 666, 666 DT/L AND 666/L FIAT MODELS 12 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—614 rpm)								
62.40 (46.53)	2500	3.894 (14.740)	0.437 (0.266)	16.03 (3.157)	186 (85.8)	57 (13.8)	75 (23.9)	28.853 (97.430)
Standard Power Take-off Speed (540 rpm)—One Hour								
60.33 (44.99)	2199	3.548 (13.431)	0.412 (0.251)	17.00 (3.350)	186 (85.7)	57 (14.1)	76 (24.2)	28.860 (97.456)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
57.09 (42.57)	2692	3.682 (13.938)	0.452 (0.275)	15.50 (3.054)	183 (83.9)	58 (14.2)	76 (24.4)	..... .....
0.00 (0.00)	2906	1.297 (4.910)	..... .....	..... .....	171 (77.2)	57 (13.9)	76 (24.4)	..... .....
29.81 (22.23)	2808	2.368 (8.964)	0.557 (0.339)	12.59 (2.480)	175 (79.4)	57 (13.9)	76 (24.4)	..... .....
62.68 (46.74)	2502	3.896 (14.748)	0.436 (0.265)	16.09 (3.169)	187 (86.1)	58 (14.4)	78 (25.6)	..... .....
15.20 (11.33)	2864	1.811 (6.855)	0.835 (0.508)	8.39 (1.653)	172 (77.8)	58 (14.2)	78 (25.3)	..... .....
43.85 (32.70)	2758	3.001 (11.360)	0.480 (0.292)	14.61 (2.879)	180 (81.9)	57 (13.9)	78 (25.6)	..... .....
Av 34.77 Av (25.93)	2755	2.676 (10.130)	0.539 (0.328)	13.00 (2.560)	178 (81.1)	57 (14.1)	77 (24.9)	28.845 (97.405)

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 8th (III-1) Gear											
53.38 (39.80)	3636 (16.17)	5.51 (8.86)	2500	6.33	3.871 (14.654)	0.508 (0.309)	13.79 (2.716)	189 (86.9)	70 (20.8)	76 (24.4)	28.660 (96.781)
75% of Pull at Maximum Power—Ten Hours 8th (III-1) Gear											
44.83 (33.43)	2772 (12.33)	6.06 (9.76)	2706	4.68	3.397 (12.858)	0.531 (0.323)	13.20 (2.600)	185 (84.7)	61 (16.3)	72 (22.3)	28.878 (97.517)
50% of Pull at Maximum Power—Two Hours 8th (III-1) Gear											
30.96 (23.09)	1848 (8.22)	6.28 (10.11)	2767	3.44	2.640 (9.994)	0.598 (0.363)	11.73 (2.310)	178 (81.1)	63 (16.9)	72 (22.2)	28.880 (97.523)
50% of Pull at Reduced Engine Speed—Two Hours 10th (III-2) Gear											
31.00 (23.12)	1849 (8.22)	6.29 (10.12)	1796	3.33	2.087 (7.901)	0.472 (0.287)	14.85 (2.926)	178 (81.1)	65 (18.3)	77 (24.7)	28.900 (97.591)
MAXIMUM POWER IN SELECTED GEARS											
50.33 (37.53)	6611 (29.41)	2.85 (4.59)	2626	14.99	5th (I-4) Gear			182 (83.3)	59 (15.0)	67 (19.4)	28.880 (97.523)
52.11 (38.86)	5676 (25.25)	3.44 (5.54)	2501	11.17	6th (II-2) Gear			187 (86.1)	68 (20.0)	71 (21.7)	28.690 (96.882)
53.15 (39.63)	4575 (20.35)	4.36 (7.01)	2501	8.32	7th (II-3) Gear			188 (86.7)	67 (19.4)	71 (21.7)	28.700 (96.916)
54.31 (40.50)	3696 (16.44)	5.51 (8.87)	2501	6.20	8th (III-1) Gear			188 (86.7)	67 (19.4)	71 (21.7)	28.700 (96.916)
53.03 (39.55)	2857 (12.71)	6.96 (11.20)	2499	4.87	9th (II-4) Gear			188 (86.7)	68 (20.0)	71 (21.7)	28.690 (96.882)
52.77 (39.35)	2271 (10.10)	8.71 (14.02)	2501	3.85	10th (III-2) Gear			188 (86.7)	68 (20.0)	71 (21.7)	28.690 (96.882)

Department of Agricultural Engineering

Dates of Test: June 6-17, 1983

Manufacturer: FIAT TRATTORI S.p.A., Via Pico della Mirandola, 72-41100 Modena, Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 47.0 (rating taken from oil company's inspection data) Specific gravity converted to 60°/60° (15°/15°) 0.8416 Fuel weight 7.007 lbs/gal (0.840 kg/l) Oil SAE 15W-40 API service classification SE-SF, CC-CD To motor 2.448 gal (9.268 l) Drained from motor 2.130 gal (8.062 l) Transmission and final drive lubricant API 303 hydraulic fluid Total time engine was operated 39.5 hours.

ENGINE: Make Fiat Diesel Type four cylinder vertical Serial No. 8045.02*276-137011* Crankshaft lengthwise Rated rpm 2500 Bore and stroke 3.94" × 4.33" (100 mm × 110 mm) Compression ratio 17 to 1 Displacement 211 cu in (3456 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow paper cartridge Fuel filter two paper elements Muffler vertical Cooling medium temperature control one thermostat.

CHASSIS: Type front wheel assist Serial No. 666DT/12*391026* Tread width rear 59.1" (1500 mm) to 78.8" (2000 mm) front 60.2" (1530 mm) to 77" (1956 mm) Wheel base 88.5" (2248 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 36.5" (927 mm) Vertical distance above roadway 36.5" (927 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 Advertised speeds mph (km/h) first 1.1 (1.7) second 1.6 (2.6) third 2.0 (3.2) fourth 2.4 (3.9) fifth 3.1 (5.0) sixth 3.8 (6.0) seventh 4.6 (7.4) eighth 5.7 (9.2) ninth 7.1 (11.4) tenth 8.8 (14.1) eleventh 10.7 (17.3) twelfth 16.6 (26.6) reverse 2.7 (4.4), 4.2 (6.7), 5.1 (8.2), 7.9 (12.7) Clutch dry disc operated by foot pedal Brakes wet disc operated by two foot pedals which can be locked together and hand lever Steering hydrostatic Turning radius (on concrete surface with brake applied) right 151" (3.84 m) left 151" (3.84 m) (on concrete surface without brake) right 212" (5.38 m) left 212" (5.38 m) Turning space diameter (on concrete surface with brake applied) right 311" (7.90 m) left 311" (7.90 m) (on concrete surface without brake) right 433" (11.00 m) left 433" (11.00 m) Power take-off 540 rpm at 2199 engine rpm.

LUGGING ABILITY IN 8th (III-1) GEAR

Crankshaft Speed rpm	2501	2255	1994	1752	1492	1242
Pull—lbs (kN)	3696 (16.44)	3986 (17.73)	4266 (18.98)	4365 (19.42)	4535 (20.17)	4533 (20.16)
Increase in Pull %	0	8	15	18	23	23
Power—Hp (kW)	54.31 (40.50)	52.45 (39.11)	49.34 (36.79)	44.24 (32.99)	38.97 (29.06)	32.42 (24.18)
Speed—Mph (km/h)	5.51 (8.87)	4.93 (7.94)	4.34 (6.98)	3.80 (6.12)	3.22 (5.19)	2.68 (4.32)
Slip %	6.20	6.85	7.49	7.62	8.00	8.13

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB (A)
Maximum Available Power—Two Hours	94.5	93.5
75% of Pull at Maximum Power—Ten Hours		95.0
50% of Pull at Maximum Power—Two Hours		94.5
50% of Pull at Reduced Engine Speed—Two Hours		90.5
Bystander in 12th (III-4) gear		85.5

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 8th (III-1) Gear											
53.13 (39.62)	3542 (15.75)	5.63 (9.05)	2500	5.45	3.889 (14.721)	0.513 (0.312)	13.66 (2.691)	190 (87.5)	70 (20.8)	75 (23.6)	28.625 (96.662)

MAXIMUM POWER IN SELECTED GEARS

46.24 (34.48)	7433 (33.06)	2.33 (3.75)	2690	14.84	4th (II-1) Gear	178 (80.8)	58 (14.4)	62 (16.7)	28.870 (97.490)
54.15 (40.38)	3606 (16.04)	5.63 (9.06)	2504	5.62	8th (III-1) Gear	188 (86.7)	66 (18.9)	70 (21.1)	28.700 (96.916)

TIRES, BALLAST AND WEIGHT

Rear Tires		With Ballast	Without Ballast
Ballast	—No., size, ply & psi (kPa)	Two 18.4-30; 6; 16 (110)	Two 18.4-30; 6; 16 (110)
	—Liquid (each)	732 lb (332 kg)	None
	—Cast Iron (each)	445 lb (202 kg)	None
Front Tires		Two 12.4-24; 6; 24 (165)	Two 12.4-24; 6; 24 (165)
Ballast	—No., size, ply & psi (kPa)	None	None
	—Liquid (each)	35 lb (16 kg)	None
	—Cast Iron (each)		
Height of Drawbar		22 in (560 mm)	22 in (560 mm)
Static Weight with Operator—Rear		6125 lb (2778 kg)	3770 lb (1710 kg)
—Front		2590 lb (1175 kg)	2520 lb (1143 kg)
—Total		8715 lb (3953 kg)	6290 lb (2853 kg)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

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 151°F (65.8°C). Six gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1485.

LOUIS I. LEVITICUS
Engineer-in-Charge

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Hesston 666 DT Fiat Diesel

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