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Test 1561: Hesston 70-66DT and 70-66 Fiat Diesel 12-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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NEBRASKA TRACTOR TEST 1561—HESSTON 70-66DT FIAT DIESEL ALSO HESSTON 70-66 FIAT DIESEL 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—1050 rpm)								
62.72 (46.77)	2500	3.708 (14.037)	0.413 (0.251)	16.91 (3.332)	195 (90.5)	60 (15.6)	75 (23.9)	28.81 (97.27)
Standard Power Take-off Speed (1000 rpm) — One Hour								
62.71 (46.76)	2381	3.645 (13.799)	0.406 (0.247)	17.20 (3.389)	196 (90.8)	60 (15.7)	75 (23.7)	28.77 (97.15)
Standard Power Take-off Speed (540 rpm) — One Hour								
60.90 (45.42)	2199	3.466 (13.121)	0.397 (0.242)	17.57 (3.462)	197 (91.5)	59 (14.9)	75 (23.7)	28.82 (97.30)
VARYING POWER AND FUEL CONSUMPTION — Two Hours								
56.35 (42.02)	2643	3.452 (13.066)	0.428 (0.260)	16.32 (3.216)	190 (87.5)	61 (16.1)	76 (24.4)	..... .....
0.00 (0.00)	2752	1.143 (4.328)	..... .....	..... .....	173 (78.1)	60 (15.3)	74 (23.3)	..... .....
28.28 (21.09)	2651	2.162 (8.185)	0.534 (0.325)	13.08 (2.576)	180 (81.9)	60 (15.6)	75 (23.9)	..... .....
62.23 (46.40)	2500	3.705 (14.026)	0.416 (0.253)	16.79 (3.308)	196 (90.8)	60 (15.6)	76 (24.2)	..... .....
14.35 (10.70)	2692	1.659 (6.281)	0.807 (0.491)	8.65 (1.704)	173 (78.3)	60 (15.3)	74 (23.3)	..... .....
41.92 (31.26)	2622	2.734 (10.349)	0.455 (0.277)	15.34 (3.021)	189 (87.2)	60 (15.3)	76 (24.2)	..... .....
Av Av	33.85 (25.25)	2.476 (9.373)	0.510 (0.310)	13.67 (2.694)	183 (84.0)	60 (15.5)	75 (23.9)	28.78 (97.19)

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

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											
54.22 (40.43)	3573 (15.89)	5.69 (9.16)	2500	4.30	3.704 (14.021)	0.477 (0.290)	14.64 (2.883)	193 (89.4)	62 (16.4)	67 (19.2)	29.00 (97.91)
75% of Pull at Maximum Power — Ten Hours 8th (III-1) Gear											
43.91 (32.74)	2708 (12.05)	6.08 (9.79)	2651	3.57	3.225 (12.209)	0.513 (0.312)	13.61 (2.682)	186 (85.6)	53 (11.4)	54 (12.2)	28.77 (97.16)
50% of Pull at Maximum Power — Two Hours 8th (III-1) Gear											
30.01 (22.38)	1800 (8.01)	6.25 (10.06)	2697	2.55	2.601 (9.845)	0.605 (0.368)	11.54 (2.273)	181 (82.8)	46 (7.8)	47 (8.3)	28.84 (97.39)
50% of Pull at Reduced Engine Speed — Two Hours 10th (III-2) Gear											
30.01 (22.38)	1799 (8.00)	6.26 (10.07)	1751	2.48	2.063 (7.811)	0.480 (0.292)	14.54 (2.865)	180 (82.2)	46 (7.5)	48 (8.6)	28.78 (97.19)
MAXIMUM POWER IN SELECTED GEARS											
49.43 (36.86)	8320 (37.01)	2.23 (3.59)	2590	14.74	4th (II-1) Gear			183 (83.9)	45 (7.2)	48 (8.9)	28.75 (97.08)
52.65 (39.26)	6689 (29.75)	2.95 (4.75)	2499	9.08	5th (I-4) Gear			188 (86.7)	45 (7.2)	47 (8.3)	28.76 (97.12)
53.91 (40.20)	5599 (24.91)	3.61 (5.81)	2499	7.11	6th (II-2) Gear			191 (88.3)	45 (7.2)	47 (8.3)	28.76 (97.12)
53.74 (40.07)	4471 (19.89)	4.51 (7.25)	2501	5.46	7th (II-3) Gear			191 (88.3)	45 (7.2)	47 (8.3)	28.76 (97.12)
54.83 (40.89)	3611 (16.06)	5.69 (9.16)	2501	4.30	8th (III-1) Gear			188 (86.7)	45 (7.2)	48 (8.9)	28.75 (97.08)
52.45 (39.11)	2682 (11.93)	7.33 (11.80)	2499	3.19	9th (II-4) Gear			191 (88.1)	45 (7.2)	47 (8.3)	28.76 (97.12)
52.33 (39.02)	2200 (9.79)	8.92 (14.36)	2502	2.62	10th (III-2) Gear			190 (87.5)	45 (7.2)	48 (8.9)	28.75 (97.08)

Department of Agricultural Engineering

Dates of Test: April 17 to May 1, 1985

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 48.3 (rating taken from oil company's inspection data) Specific gravity converted to 60/60°F (15/15°C) 0.8382 Fuel weight 6.979 lbs/gal (0.836 kg/l) Oil SAE 15W-40 API service classification SE, SF, CC, CD To motor 3.066 gal (11.605 l) Drained from motor 2.695 gal (10.202 l) Transmission and final drive lubricant API 303 hydraulic fluid Total time engine was operated 51.5 hours.

ENGINE: Make Fiat/IVECO Diesel Type four cylinder vertical Serial No. 8045.06*206-019337* Crankshaft lengthwise Rated rpm 2500 Bore and stroke 3.937" × 4.527" (100 mm × 115 mm) Compression ratio 17 to 1 Displacement 220.5 cu in (3613 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. 70-66 DT/12*439665* Tread width rear 59.1" (1500 mm) to 78.7" (2000 mm) front 60.2" (1530 mm) to 77.2" (1960 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 34.0" (865 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 (5.1) sixth 3.8 (6.1) seventh 4.6 (7.4) eighth 5.7 (9.3) ninth 7.3 (11.8) tenth 8.9 (14.3) eleventh 10.8 (17.5) twelfth 17.3 (27.8) reverse 2.8 (4.5), 4.3 (6.9), 5.3 (8.5), 8.4 (13.5) Clutch dry disc operated by foot pedal Brakes wet disc operated by two foot pedals which can be locked together Steering hydrostatic Turning radius (on concrete surface with brake applied) right 159" (4.04 m) left 159" (4.04 m) (on concrete surface without brake) right 190" (4.83 m) left 190" (4.83 m) Turning space diameter (on concrete surface with brake applied) right 330" (8.38 m) left 330" (8.38 m) (on concrete surface without brake) right 392" (9.96 m) left 392" (9.96 m) Power take-off 540 rpm at 2199 engine rpm and 1000 rpm at 2381 engine rpm Unladen tractor mass 6510 lb (2953 kg).

LUGGING ABILITY IN 8th (III-1) GEAR

Crankshaft Speed rpm	2501	2255	1997	1750	1491	1243	1003
Pull—lbs (kN)	3611 (16.06)	4003 (17.81)	4092 (18.20)	4227 (18.80)	4421 (19.67)	4486 (19.95)	3967 (17.65)
Increase in Pull %	0	11	13	17	22	24	10
Power—Hp (kW)	54.83 (40.89)	54.53 (40.67)	49.31 (36.77)	44.52 (33.20)	39.55 (29.30)	33.43 (24.93)	24.03 (17.92)
Speed—Mph (km/h)	5.69 (9.16)	5.11 (8.22)	4.52 (7.27)	3.95 (6.36)	3.36 (5.40)	2.79 (4.50)	2.27 (3.66)
Slip %	4.30	4.58	4.85	5.26	5.39	5.39	4.85

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
Maximum Available Power—Two Hours	94.0	94.5
75% of Pull at Maximum Power—Ten Hours		94.0
50% of Pull at Maximum Power—Two Hours		94.0
50% of Pull at Reduced Engine Speed—Two Hours		90.0
Bystander in 12th (III-4) gear	86.0	—

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

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)	Cool- ing med	Temp. °F (°C) Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power — Two Hours 8th (III-1) Gear											
53.54 (39.92)	3644 (16.21)	5.51 (8.87)	2499	6.47	3.697 (13.994)	0.482 (0.293)	14.48 (2.853)	195 (90.3)	65 (18.3)	72 (22.2)	28.96 (97.78)
MAXIMUM POWER IN SELECTED GEARS											
47.75 (35.61)	6217 (27.65)	2.88 (4.64)	2630	14.94	5th (I-4) Gear			182 (83.3)	45 (7.2)	48 (8.9)	28.75 (97.08)
54.40 (40.57)	3695 (16.44)	5.52 (8.89)	2500	6.24	8th (III-1) Gear			191 (88.1)	45 (7.2)	48 (8.9)	28.75 (97.08)

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	Two 18.4-30; 6; 16 (110)	Two 18.4-30; 6; 16 (110)
Ballast	550 lb (249 kg)	None
—Liquid (each)	None	None
—Cast Iron (each)	None	None
Front Tires	Two 12.4-24; 6; 16 (110)	Two 12.4-24; 6; 16 (110)
Ballast	None	None
—Liquid (each)	458 lb (208 kg)	None
—Cast Iron (each)	None	None
Height of Drawbar	16.5 in (420 mm)	16.5 in (420 mm)
Static Weight with Operator—Rear	5290 lb (2400 kg)	4190 lb (1901 kg)
—Front	3415 lb (1549 kg)	2500 lb (1134 kg)
—Total	8705 lb (3949 kg)	6690 lb (3035 kg)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2850 (19650)	
Location	remote outlet	
Hydraulic oil temperature °F (°C)	174 (79)	
Location	pump inlet	
	Maximum Lift Capacity	Lift Capacity for Transport
QUICK ATTACH	no	
CATEGORY	II	*not measured
LOAD lbs (kg)	5670 (2572)	
TIME sec	3.86	
HITCH POINT MOVEMENT in (mm)		
Lowest position	13.3 (338)	
Top of timed range	36.3 (922)	
Highest position	** 36.4 (925)	
LOAD CG MOVEMENT in (mm)		
Lowest position	13.2 (335)	
Top of timed range	37.6 (955)	
Highest position	37.7 (958)	

*Implement load capacity for transport purposes not specified by manufacturer.

**The observed power range, 23.1 in. (587 mm) is less than the minimum power range for Cat II, 24 in. (610 mm) specified by ASAE Standard S217.10

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 and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 162°F (72.3°C). Seven 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. **1561**, June 14, 1985.

LOUIS I. LEVITICUS

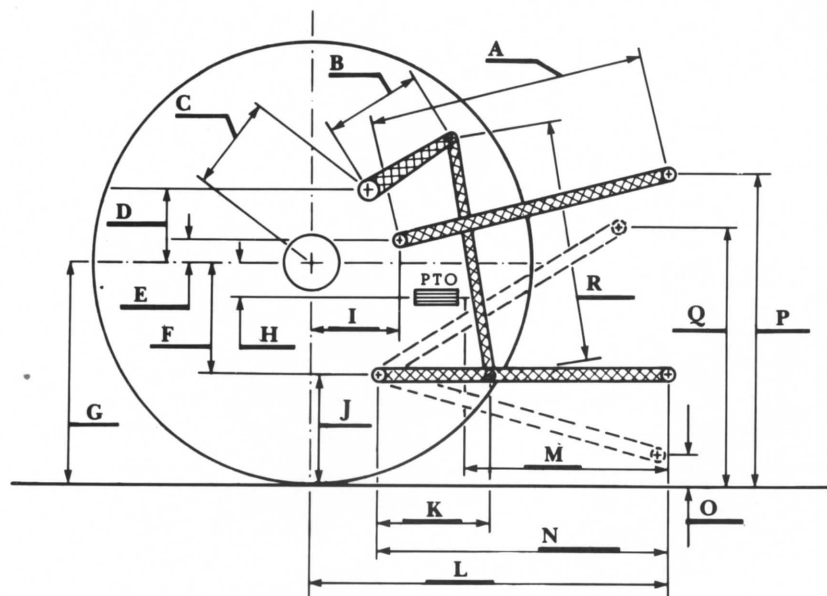
Engineer-in-Charge

K. VON BARGEN

L. L. BASHFORD

T. L. THOMPSON

Board of Tractor Test Engineers



Hitch Dimensions as Tested — No Load

	inch	mm
A	32.3	819
B	10.0	255
C	13.8	350
D	11.7	297
E	10.4	264
F	8.1	206
G	28.0	711
H	0.6	16
I	6.3	160
J	19.9	505
K	21.3	541
L	38.9	989
M	27.9	708
N	36.7	932
O	8.0	203
P	38.9	987
Q	34.3	870
R	26.0	660



Hesston 70-66DT Fiat Diesel