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Test 1564: Hesston 130-90DT and 130-90 Turbo Diesel 16-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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NEBRASKA TRACTOR TEST 1564—HESSTON 130-90DT TURBO FIAT DIESEL ALSO HESSTON 130-90 TURBO FIAT DIESEL 16 SPEED

Department of Agricultural Engineering

Dates of Test: April 18 to May 4, 1985

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

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—1017 rpm)									
107.48 (80.15)	2500	6.616 (25.045)	0.430 (0.261)	16.25 (3.201)	185 (84.9)	60 (15.3)	75 (23.7)	28.77 (97.14)	
Standard Power Take-off Speed (1000 rpm) — One Hour									
106.80 (79.64)	2458	6.499 (24.603)	0.425 (0.258)	16.43 (3.237)	184 (84.5)	60 (15.6)	75 (24.1)	28.79 (97.22)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
95.78 (71.42)	2621	6.371 (24.115)	0.464 (0.282)	15.03 (2.962)	183 (83.9)	60 (15.3)	75 (23.9)	..... .....
0.00 (0.00)	2772	2.510 (9.503)	..... .....	..... .....	176 (79.7)	59 (15.0)	74 (23.1)	..... .....
49.57 (36.97)	2712	4.539 (17.183)	0.639 (0.389)	10.92 (2.151)	178 (81.1)	60 (15.3)	75 (23.9)	..... .....
107.64 (80.26)	2501	6.641 (25.140)	0.431 (0.262)	16.21 (3.193)	185 (84.7)	60 (15.3)	76 (24.2)	..... .....
25.03 (18.67)	2740	3.568 (13.506)	0.995 (0.605)	7.02 (1.382)	176 (80.0)	60 (15.3)	75 (23.9)	..... .....
73.47 (54.79)	2680	5.498 (20.811)	0.522 (0.318)	13.36 (2.633)	181 (82.8)	59 (15.0)	76 (24.2)	..... .....
Av Av	58.58 (43.68)	2671	4.855 (18.377)	0.578 (0.352)	12.07 (2.377)	180 (82.0)	59 (15.2)	75 (23.8)	28.80 (97.24)

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

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 8th (III-2) Gear											
90.47 (67.47)	6513 (28.97)	5.21 (8.38)	2500	3.66	6.541 (24.761)	0.505 (0.307)	13.83 (2.725)	183 (83.9)	61 (15.8)	67 (19.4)	29.01 (97.96)
75% of Pull at Maximum Power — Ten Hours 8th (III-2) Gear											
73.53 (54.83)	4946 (22.00)	5.58 (8.97)	2648	2.61	6.044 (22.878)	0.574 (0.349)	12.17 (2.397)	182 (83.3)	59 (14.9)	68 (19.9)	29.09 (98.23)
50% of Pull at Maximum Power — Two Hours 8th (III-2) Gear											
50.11 (37.37)	3275 (14.57)	5.74 (9.23)	2705	1.81	5.087 (19.255)	0.708 (0.431)	9.85 (1.941)	180 (82.2)	63 (16.9)	64 (17.5)	28.85 (97.42)
50% of Pull at Reduced Engine Speed — Two Hours 12th (III-4) Gear											
50.10 (37.36)	3277 (14.57)	5.73 (9.23)	1805	1.90	3.661 (13.858)	0.510 (0.310)	13.69 (2.696)	178 (81.1)	62 (16.7)	63 (17.2)	28.84 (97.39)

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 4.183 gal (15.835 l) Drained from motor 3.523 gal (13.337 l) Transmission and final drive lubricant API 303 hydraulic fluid Total time engine was operated 47.0 hours.

ENGINE: Make Fiat/IVECO Diesel Type six cylinder vertical with turbocharger Serial No. 8065.25*010-016115* Crankshaft lengthwise Rated rpm 2500 Bore and stroke 4.094" × 4.527" (104 mm × 115 mm) Compression ratio 16.5 to 1 Displacement 358 cu in (5861 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements and centrifugal precleaner Oil filter two full flow cartridges Oil cooler engine coolant heat exchanger for crankcase oil Fuel filter two paper cartridges and sediment bowl Muffler vertical Cooling medium temperature control one thermostat.

CHASSIS: Type front wheel assist with duals Serial No. *130-90DT/1S*256828* Tread width rear 60" (1524 mm) to 129" (3277 mm) front 64" (1625 mm) to 92" (2337 mm) Wheel base 105.1" (2670 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 33.2" (843 mm) Vertical distance above roadway 42.5" (1080 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 1.9 (3.1) second 2.4 (3.8) third 2.9 (4.6) fourth 3.5 (5.7) fifth 3.9 (6.3) sixth 4.3 (7.0) seventh 4.8 (7.7) eighth 5.3 (8.6) ninth 5.8 (9.3) tenth 6.5 (10.4) eleventh 7.2 (11.6) twelfth 7.9 (12.8) thirteenth 9.8 (15.8) fourteenth 12.0 (19.3) fifteenth 14.5 (23.4) sixteenth 18.0 (29.0) reverse 1.6 (2.5), 1.9 (3.0), 2.3 (3.7), 2.8 (4.6), 3.1 (5.0) 3.5 (5.6), 3.9 (6.2), 4.2 (6.8), 4.7 (7.5), 5.2 (8.3), 5.8 (9.3), 6.4 (10.3), 7.9 (12.7), 9.6 (15.5), 11.6 (18.7), 14.4 (23.2) Clutch single dry disc hydraulically operated by foot pedal Brakes multiple wet disc hydraulically operated by two foot pedals which can be locked together Steering hydrostatic Turning radius (on concrete surface with brake applied) right 202" (5.14 m) left 204" (5.18 m)(on

MAXIMUM POWER IN SELECTED GEARS

81.31 (60.63)	14850 (66.05)	2.05 (3.30)	2506	14.89	2nd (I-2) Gear	181 (82.8)	53 (11.7)	61 (16.1)	29.11 (98.30)
88.23 (65.79)	12434 (55.31)	2.66 (4.28)	2500	8.62	3rd (I-3) Gear	181 (82.8)	55 (12.8)	58 (14.4)	29.00 (97.93)
90.07 (67.17)	9987 (44.42)	3.38 (5.44)	2500	6.17	4th (I-4) Gear	181 (82.8)	55 (12.8)	58 (14.4)	29.00 (97.93)
91.11 (67.94)	9051 (40.26)	3.78 (6.08)	2500	5.40	5th (II-1) Gear	182 (83.1)	55 (12.8)	58 (14.4)	29.00 (97.93)
91.44 (68.19)	8127 (36.15)	4.22 (6.79)	2500	4.62	6th (III-1) Gear	182 (83.1)	55 (12.8)	58 (14.4)	29.00 (97.93)
91.59 (68.30)	7351 (32.70)	4.67 (7.52)	2501	4.14	7th (II-2) Gear	181 (82.8)	55 (12.8)	58 (14.4)	29.00 (97.93)
91.56 (68.28)	6594 (29.33)	5.21 (8.38)	2499	3.58	8th (III-2) Gear	183 (83.9)	61 (16.1)	68 (20.0)	29.01 (97.96)
90.31 (67.35)	5943 (26.43)	5.70 (9.17)	2500	3.25	9th (II-3) Gear	181 (82.8)	56 (13.3)	59 (15.0)	29.00 (97.93)
89.74 (66.92)	5300 (23.57)	6.35 (10.22)	2501	2.93	10th (III-3) Gear	181 (82.8)	56 (13.3)	60 (15.6)	29.01 (97.96)
88.80 (66.22)	4684 (20.83)	7.11 (11.44)	2498	2.44	11th (II-4) Gear	182 (83.1)	57 (13.9)	61 (16.1)	29.01 (97.96)
87.19 (65.02)	4132 (18.38)	7.91 (12.73)	2498	2.11	12th (III-4) Gear	182 (83.3)	58 (14.4)	62 (16.7)	29.01 (97.96)
85.41 (63.69)	3263 (14.51)	9.82 (15.80)	2499	1.60	13th (IV-1) Gear	182 (83.3)	59 (15.0)	63 (17.2)	29.01 (97.96)

LUGGING ABILITY IN 8th (III-2) GEAR

Crankshaft Speed rpm	2499	2246	2001	1748	1488	1242
Pull—lbs (kN)	6594 (29.33)	7043 (31.33)	7411 (32.97)	7563 (33.64)	7437 (33.08)	6950 (30.91)
Increase in Pull %	0	7	12	15	13	5
Power—Hp (kW)	91.56 (68.28)	87.65 (65.36)	81.94 (61.11)	72.92 (54.38)	61.07 (45.54)	47.81 (35.65)
Speed—Mph (km/h)	5.21 (8.38)	4.67 (7.51)	4.15 (6.67)	3.62 (5.82)	3.08 (4.96)	2.58 (4.15)
Slip %	3.58	3.90	4.22	4.22	4.22	3.90

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
Maximum Available Power—Two Hours	77.5	77.5
75% of Pull at Maximum Power—Ten Hours		83.0
50% of Pull at Maximum Power—Two Hours		81.5
50% of Pull at Reduced Engine Speed—Two Hours		77.0
Bystander in 15th (IV-3) 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			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-2) Gear											
89.39 (66.66)	6552 (29.14)	5.12 (8.23)	2499	5.10	6.555 (24.815)	0.512 (0.311)	13.64 (2.686)	184 (84.2)	63 (16.9)	70 (20.8)	29.00 (97.91)

MAXIMUM POWER IN SELECTED GEARS

80.40 (59.96)	11805 (52.51)	2.55 (4.11)	2580	14.79	3rd (I-3) Gear	180 (82.2)	50 (10.0)	57 (13.9)	29.08 (98.20)
90.38 (67.39)	7400 (32.92)	4.58 (7.37)	2501	5.84	7th (II-2) Gear	182 (83.1)	56 (13.3)	59 (15.0)	29.00 (97.93)
90.77 (67.68)	6653 (29.59)	5.12 (8.23)	2500	5.14	8th (III-2) Gear	183 (83.9)	63 (17.2)	70 (21.1)	28.99 (97.89)

concrete surface without brake) right 241" (6.12 m) left 241" (6.12 m) **Turning space diameter** (on concrete surface with brake applied) right 419" (10.65 m) left 423" (10.73 m)(on concrete surface without brake) right 497" (12.63 m) left 497" (12.63 m) **Power take-off** 540 rpm at 2261 engine rpm and 1000 rpm at 2458 engine rpm **Unladen tractor mass** 14240 lb (6459 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 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 137°F (58.3°C). Twelve 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. 1564, June 19, 1985.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

L. L. BASHFORD

T. L. THOMPSON

Board of Tractor Test Engineers

TIRES, BALLAST AND WEIGHT

Rear Tires —No., size, ply & psi (kPa)
Ballast —Liquid (each)
 —Cast Iron (each)

With Ballast
 Four 18.4-38; 8; 16 (110)
 None
 61 lb (28 kg)

Without Ballast
 Four 18.4-38; 8; 16 (110)
 None
 None

Front Tires —No., size, ply & psi (kPa)
Ballast —Liquid (each)
 —Cast Iron (each)

Two 14.9-28; 6; 20 (140)
 None
 208 lb (94 kg)

Two 14.9-28; 6; 20 (140)
 None
 None

Height of Drawbar

18 in (455 mm)

18 in (455 mm)

Static Weight with Operator—Rear

11055 lb (5014 kg)

10810 lb (4903 kg)

—Front

5330 lb (2418 kg)

4915 lb (2229 kg)

—Total

16385 lb (7432 kg)

15725 lb (7132 kg)

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)

2450 (16890)

Location

remote outlet

Hydraulic oil temperature °F (°C)

192 (89)

Location

pump inlet

Maximum Lift Capacity

**Lift Capacity
for Transport**

QUICK ATTACH

no

CATEGORY

II

*not measured

LOAD lbs (kg)

6976 (3164)

TIME sec

2.01

HITCH POINT MOVEMENT in (mm)

Lowest position

10.1 (257)

Top of timed range

34.2 (869)

Highest position

36.0 (914)

LOAD CG MOVEMENT in (mm)

Lowest position

11.3 (287)

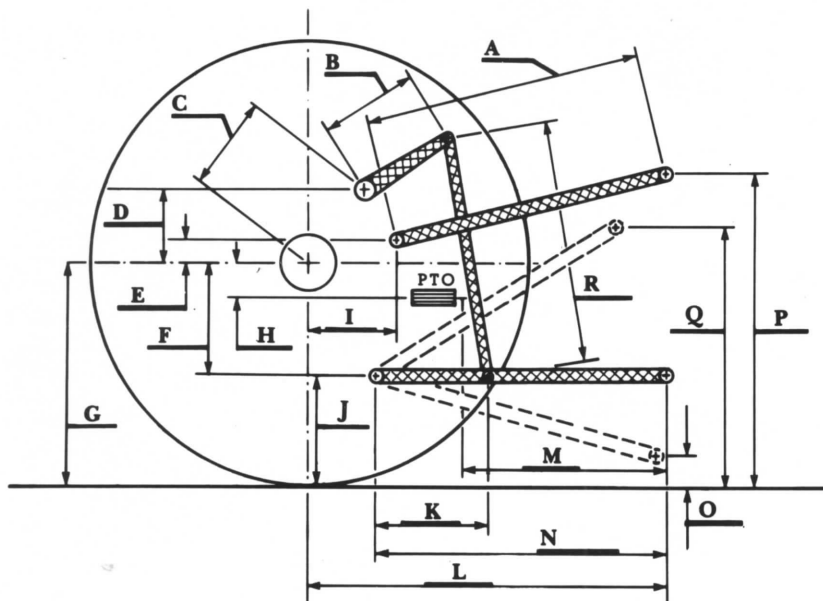
Top of timed range

33.9 (861)

Highest position

35.8 (909)

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



Hitch Dimensions as Tested — No Load

	inch	mm
A	31.1	791
B	10.8	275
C	16.9	430
D	16.1	409
E	9.0	229
F	11.0	280
G	32.8	832
H	2.5	64
I	16.7	425
J	21.8	552
K	21.5	546
L	48.5	1232
M	26.2	665
N	40.0	1016
O	8.0	203
P	40.8	1035
Q	36.3	921
R	34.9	886



Hesston 130-90DT Turbo Fiat Diesel

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
Irvin T. Omtvedt, Dean and Director