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10-8-1985

## Test 1579: Hesston 45-66DT and 45-66 Fiat Diesel 12-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1579—HESSTON 45-66DT FIAT DIESEL ALSO HESSTON 45-66 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 — 614 rpm)								
39.49 (29.45)	2500	2.512 (9.508)	0.446 (0.271)	15.72 (3.097)	175 (79.7)	60 (15.8)	75 (24.0)	28.91 (97.62)
* Standard Power Take-off Speed (540 rpm) — One Hour								
37.97 (28.31)	2199	2.281 (8.633)	0.421 (0.256)	16.65 (3.279)	175 (79.2)	61 (16.2)	76 (24.3)	28.90 (97.57)

<b>VARYING POWER AND FUEL CONSUMPTION — Two Hours</b>								
35.95 (26.81)	2678	2.413 (9.136)	0.471 (0.286)	14.90 (2.934)	175 (79.2)	61 (16.1)	75 (23.9)	.....
0.00 (0.00)	2759	0.941 (3.564)	.....	.....	171 (77.2)	61 (15.8)	74 (23.3)	.....
18.21 (13.58)	2712	1.613 (6.107)	0.621 (0.378)	11.29 (2.224)	172 (77.8)	61 (15.8)	74 (23.3)	.....
39.32 (29.32)	2501	2.507 (9.492)	0.447 (0.272)	15.68 (3.089)	176 (79.7)	61 (16.1)	75 (23.9)	.....
9.18 (6.85)	2736	1.267 (4.795)	0.967 (0.588)	7.25 (1.428)	171 (77.2)	62 (16.4)	75 (23.9)	.....
27.12 (20.22)	2693	1.977 (7.483)	0.511 (0.311)	13.72 (2.702)	173 (78.3)	62 (16.7)	76 (24.2)	.....
<b>Av 21.63</b> <b>Av (16.13)</b>	<b>2680</b>	<b>1.786</b> <b>(6.763)</b>	<b>0.579</b> <b>(0.352)</b>	<b>12.11</b> <b>(2.385)</b>	<b>173</b> <b>(78.2)</b>	<b>61</b> <b>(16.2)</b>	<b>75</b> <b>(23.8)</b>	<b>28.87</b> <b>(97.49)</b>

## 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	
<b>Maximum Available Power — Two Hours 8th (III-1) Gear</b>											
31.21 (23.27)	2498 (11.11)	4.69 (7.54)	2499	7.87	2.525 (9.557)	0.567 (0.345)	12.36 (2.435)	177 (80.6)	57 (13.9)	63 (17.2)	28.66 (96.76)
<b>75% of Pull at Maximum Power — Ten Hours 8th (III-1) Gear</b>											
26.05 (19.43)	1908 (8.49)	5.12 (8.24)	2686	6.34	2.321 (8.785)	0.624 (0.380)	11.23 (2.212)	177 (80.7)	48 (8.7)	53 (11.8)	28.94 (97.74)
<b>50% of Pull at Maximum Power — Two Hours 8th (III-1) Gear</b>											
17.87 (13.33)	1272 (5.66)	5.27 (8.48)	2703	4.28	1.890 (7.154)	0.741 (0.451)	9.46 (1.863)	177 (80.6)	49 (9.4)	56 (13.3)	28.51 (96.26)
<b>50% of Pull at Reduced Engine Speed — Two Hours 10th (III-2) Gear</b>											
17.86 (13.32)	1271 (5.65)	5.27 (8.48)	1695	4.06	1.426 (5.399)	0.560 (0.341)	12.52 (2.466)	175 (79.4)	52 (10.8)	60 (15.6)	28.45 (96.05)

## MAXIMUM POWER IN SELECTED GEARS

30.64 (22.85)	4257 (18.93)	2.70 (4.34)	2500	14.93	6th (II-2) Gear			176 (80.0)	53 (11.7)	58 (14.4)	28.74 (97.05)
31.58 (23.55)	3273 (14.56)	3.62 (5.82)	2501	10.45	7th (II-3) Gear			177 (80.3)	54 (12.2)	60 (15.6)	28.72 (96.98)
31.74 (23.67)	2544 (11.31)	4.68 (7.53)	2499	7.95	8th (III-1) Gear			177 (80.6)	54 (12.2)	60 (15.6)	28.70 (96.92)
30.24 (22.55)	1871 (8.32)	6.06 (9.75)	2501	5.93	9th (II-4) Gear			177 (80.6)	55 (12.8)	60 (15.6)	28.69 (96.88)
29.59 (22.07)	1440 (6.40)	7.71 (12.41)	2499	4.73	10th (III-2) Gear			177 (80.6)	56 (13.3)	61 (16.1)	28.68 (96.85)
27.04 (20.16)	1020 (4.54)	9.94 (16.00)	2500	3.55	11th (III-3) Gear			177 (80.6)	56 (13.3)	61 (16.1)	28.68 (96.85)

Department of Agricultural Engineering

Dates of Test: October 1 to 8, 1985

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

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel Cetane No. 46.9 (rating taken from oil company's inspection data) Specific gravity converted to 60°/60°F (15/15°C) 0.8420 Fuel weight 7.011 lbs/gal (0.840 kg/l) Oil SAE 15W40 API service classification SF-CD To motor 2.213 gal (8.379 l) Drained from motor 1.968 gal (7.449 l) Transmission and final drive lubricant Hesston M&PS 705106016 fluid Total time engine was operated 40.0 hours.

**ENGINE:** Make Fiat/IVECO Diesel Type three cylinder vertical Serial No. 8035.06\*206-012765 Crankshaft lengthwise Rated rpm 2500 Bore and stroke 3.937" × 4.528" (100 mm × 115 mm) Compression ratio 17 to 1 Displacement 165 cu in (2710 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow cartridge Fuel filter one paper element Muffler vertical Cooling medium temperature control one thermostat.

**CHASSIS:** Type front wheel assist Serial No. 45-66DT/12\*420698\* Tread width rear 50.0" (1270 mm) to 60.2" (1530 mm) front 54.3" (1380 mm) to 71.6" (1820 mm) Wheel base 74.9" (1902 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 31.9" (810 mm) Vertical distance above roadway 26.7" (678 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 0.7 (1.2) second 1.1 (1.8) third 1.4 (2.3) fourth 1.9 (3.0) fifth 2.3 (3.7) sixth 2.9 (4.7) seventh 3.7 (6.0) eighth 4.7 (7.6) ninth 6.0 (9.7) tenth 7.5 (12.1) eleventh 9.6 (15.5) twelfth 15.2 (24.5) reverse 2.2 (3.5), 3.4 (5.4), 4.1 (6.6), 6.5 (10.5) Clutch single 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 141" (3.58 m) left 141" (3.58 m) (on concrete surface without brake) right 158" (4.01 m) left 158" (4.01 m) Turning space diameter (on concrete surface with brake applied) right 290" (7.37 m) left 290" (7.37 m) (on concrete surface without brake) right 324" (8.23 m) left 324" (8.23 m) Power take-off 540 rpm at 2199 engine rpm Unladen tractor mass 4270 lb (1937 kg).

### LUGGING ABILITY IN 8th (III-1) GEAR

Crankshaft Speed rpm	2499	2250	2000	1750	1491	1244
Pull—lbs (kN)	2544 (11.31)	2796 (12.44)	3009 (13.38)	3160 (14.06)	3169 (14.10)	3120 (13.88)
Increase in Pull %	0	10	18	24	25	23
Power—Hp (kW)	31.74 (23.67)	31.15 (23.23)	29.59 (22.07)	27.04 (20.16)	23.09 (17.22)	19.00 (14.17)
Speed—Mph (km/h)	4.68 (7.53)	4.18 (6.72)	3.69 (5.94)	3.21 (5.16)	2.73 (4.40)	2.28 (3.67)
Slip %	7.95	8.73	9.41	9.98	9.88	9.88

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
Maximum Available Power—Two Hours	95.0	95.0
75% of Pull at Maximum Power—Ten Hours		95.0
50% of Pull at Maximum Power—Two Hours		95.5
50% of Pull at Reduced Engine Speed—Two Hours		90.5
Bystander in 12th (III-4) gear	87.0	

### 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)				
					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	Barom. inch Hg (kPa)	
Maximum Available Power — Two Hours 8th (III-1) Gear												
31.27 (23.32)	2712 (12.06)	4.33 (6.96)	2499	11.08	2.517 (9.530)	0.564 (0.343)	12.42 (2.447)	177 (80.6)	59 (14.7)	70 (20.8)		28.65 (96.73)

### MAXIMUM POWER IN SELECTED GEARS

29.29 (21.84)	3148 (14.00)	3.49 (5.62)	2654	14.97		7th (II-3) Gear	176 (80.0)	53 (11.7)	59 (15.0)		28.73 (97.02)
31.71 (23.65)	2752 (12.24)	4.32 (6.96)	2501	11.23		8th (III-1) Gear	176 (80.0)	54 (12.2)	60 (15.6)		28.71 (96.95)
31.59 (23.56)	2083 (9.27)	5.69 (9.15)	2500	7.67		9th (II-4) Gear	176 (80.0)	55 (12.8)	60 (15.6)		28.69 (96.88)

### TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
<b>Rear Tires</b>	—No., size, ply & psi (kPa)	Two 12.4-24; 6; 20 (140)	Two 12.4-24; 6; 20 (140)
<b>Ballast</b>	—Liquid (each)	300 lb (136 kg)	None
	—Cast Iron (each)	None	None
<b>Front Tires</b>	—No., size, ply & psi (kPa)	Two 7.50-20; 4; 24 (165)	Two 7.50-20; 4; 24 (165)
<b>Ballast</b>	—Liquid (each)	None	None
	—Cast Iron (each)	175 lb (79 kg)	None
<b>Height of Drawbar</b>		16 in (405 mm)	16 in (405 mm)
<b>Static Weight with Operator</b>	—Rear	3200 lb (1451 kg)	2600 lb (1179 kg)
	—Front	2200 lb (998 kg)	1850 lb (839 kg)
	—Total	5400 lb (2449 kg)	4450 lb (2018 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 152°F (66.5°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. 1579, December 6, 1985.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

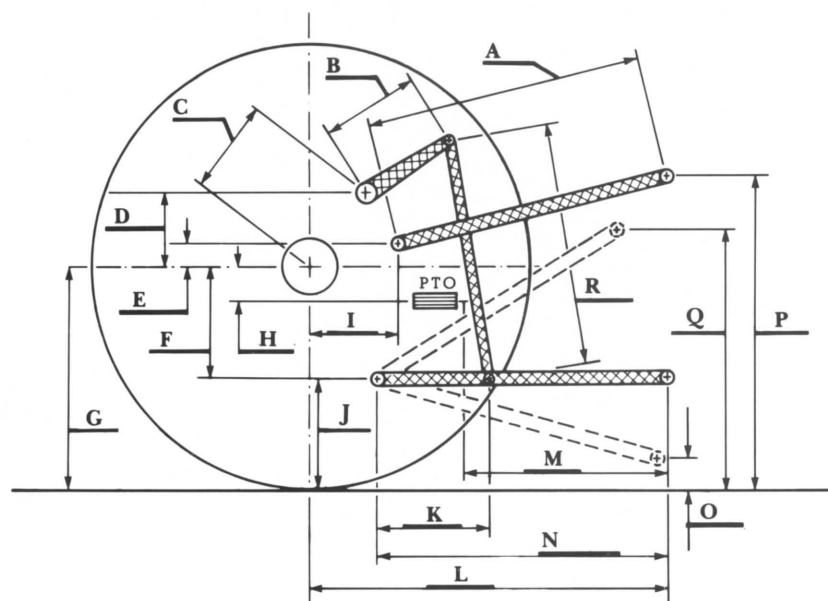
Board of Tractor Test Engineers

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2800 (19310)	
Location	remote outlet	
Hydraulic oil temperature °F (°C)	170 (77)	
Location	hydraulic filter	
	<b>Maximum Lift Capacity</b>	<b>Lift Capacity for Transport</b>
QUICK ATTACH	no	
CATEGORY	II	*not measured
LOAD lbs (kg)	3016 (1368)	
TIME sec	1.85	
HITCH POINT MOVEMENT in (mm)		
Lowest position	10.2 (259)	
Top of timed range	34.2 (869)	
Highest position	** 35.0 (889)	
LOAD CG MOVEMENT in (mm)		
Lowest position	9.8 (249)	
Top of timed range	38.6 (980)	
Highest position	39.8 (1011)	

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

\*\* The observed highest position, 35.0 in. (889 mm) is less than the minimum height for highest position for Cat II, 36 in. (914 mm) specified by ASAE Standard S217.10



Hitch Dimensions as Tested — No Load

	inch	mm
A	27.0	686
B	9.0	230
C	10.2	258
D	10.1	257
E	10.8	275
F	5.9	150
G	20.9	531
H	0.5	14
I	4.8	121
J	15.0	381
K	14.5	369
L	32.1	815
M	23.0	584
N	32.7	830
O	8.0	203
P	34.0	864
Q	34.4	873
R	17.0	432



Hesston 45-66 DT Diesel