

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

---

8-28-1984

## Test 1531: Hesston 60-66DT and 60-66 Fiat Diesel 12-Speeds

Nebraska Tractor Test Lab

*University of Nebraska-Lincoln*, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

---

Nebraska Tractor Test Lab, "Test 1531: Hesston 60-66DT and 60-66 Fiat Diesel 12-Speeds" (1984).  
*Nebraska Tractor Tests*. 1842.

<https://digitalcommons.unl.edu/tractormuseumlit/1842>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

# NEBRASKA TRACTOR TEST 1531—HESSTON 60-66DT FIAT DIESEL ALSO HESSTON 60-66 FIAT DIESEL 12 SPEED

## POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption		Temperature ° (°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)									
51.49 (38.40)	2500	3.168 (11.990)	0.429 (0.261)	16.26 (3.203)	193 (89.4)	66 (19.1)	75 (23.8)	28.95 (97.75)	
Standard Power Take-off Speed (540 rpm) — One Hour									
48.51 (36.18)	2199	2.832 (10.717)	0.407 (0.248)	17.13 (3.375)	190 (87.9)	66 (18.9)	75 (24.1)	28.96 (97.79)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
46.46 (34.64)	2654	2.938 (11.120)	0.441 (0.268)	15.81 (3.115)	183 (83.9)	66 (18.9)	75 (23.9)	..... .....	
0.00 (0.00)	2758	0.976 (3.696)	..... .....	..... .....	171 (77.2)	66 (18.6)	74 (23.3)	..... .....	
23.73 (17.70)	2708	1.897 (7.180)	0.558 (0.339)	12.51 (2.465)	175 (79.4)	66 (18.9)	75 (23.9)	..... .....	
51.80 (38.63)	2500	3.226 (12.211)	0.434 (0.264)	16.06 (3.163)	192 (88.6)	66 (18.9)	76 (24.2)	..... .....	
11.97 (8.93)	2733	1.449 (5.487)	0.845 (0.514)	8.26 (1.627)	171 (77.2)	66 (18.9)	75 (23.9)	..... .....	
35.15 (26.21)	2676	2.417 (9.150)	0.480 (0.292)	14.54 (2.864)	178 (80.8)	65 (18.3)	75 (23.9)	..... .....	
Av Av	28.18 (21.02)	2671	2.151 (8.140)	0.532 (0.324)	13.11 (2.582)	178 (81.2)	66 (18.8)	75 (23.8)	29.00 (97.93)

## 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											
44.67 (33.31)	3031 (13.48)	5.53 (8.89)	2499	5.37	3.147 (11.913)	0.491 (0.299)	14.19 (2.796)	182 (83.3)	61 (16.1)	69 (20.6)	29.06 (98.11)
75% of Pull at Maximum Power — Ten Hours 8th (III-1) Gear											
36.11 (26.92)	2275 (10.12)	5.95 (9.58)	2649	3.83	2.715 (10.279)	0.525 (0.319)	13.30 (2.619)	193 (89.4)	72 (22.3)	90 (32.3)	28.72 (96.99)
50% of Pull at Maximum Power — Two Hours 8th (III-1) Gear											
24.89 (18.56)	1521 (6.76)	6.14 (9.88)	2696	2.59	2.186 (8.276)	0.613 (0.373)	11.38 (2.242)	178 (80.8)	61 (16.1)	82 (27.5)	29.08 (98.18)
50% of Pull at Reduced Engine Speed — Two Hours 10th (III-2) Gear											
24.87 (18.55)	1519 (6.76)	6.14 (9.88)	1747	2.36	1.720 (6.513)	0.483 (0.294)	14.46 (2.848)	180 (82.2)	61 (15.8)	84 (28.6)	29.05 (98.08)
MAXIMUM POWER IN SELECTED GEARS											
40.49 (30.20)	5515 (24.53)	2.75 (4.43)	2534	14.75	5th (I-4) Gear			186 (85.3)	60 (15.6)	75 (23.9)	28.91 (97.62)
43.33 (32.31)	4682 (20.83)	3.47 (5.58)	2501	9.25	6th (II-2) Gear			191 (88.1)	61 (16.1)	76 (24.4)	28.90 (97.59)
43.64 (32.55)	3759 (16.72)	4.35 (7.01)	2499	6.93	7th (II-3) Gear			192 (88.6)	61 (16.1)	77 (25.0)	28.89 (97.56)
45.51 (33.94)	3087 (13.73)	5.53 (8.90)	2502	5.37	8th (III-1) Gear			184 (84.2)	62 (16.7)	71 (21.7)	29.06 (98.13)
43.14 (32.17)	2263 (10.07)	7.15 (11.51)	2499	4.06	9th (II-4) Gear			192 (88.9)	62 (16.7)	79 (26.1)	28.88 (97.52)
43.04 (32.10)	1856 (8.26)	8.70 (14.00)	2499	3.30	10th (III-2) Gear			192 (88.9)	62 (16.7)	78 (25.6)	28.88 (97.52)

## Department of Agricultural Engineering

**Dates of Test:** August 28-September 5, 1984

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

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel Cetane No. 46.8 (rating taken from oil company's inspection data) Specific gravity converted to 60/60°F (15/15°C) 0.8377 Fuel weight 6.975 lbs/gal (0.836 kg/l) Oil SAE 15W-40 API service classification SE, SF, CC, CD To motor 1.842 gal (6.972 l) Drained from motor 1.534 gal (5.807 l) Transmission and final drive lubricant API 303 hydraulic fluid Total time engine was operated 44.0 hours.

**ENGINE:** Make Fiat/IVECO Diesel Type three cylinder vertical Serial No. 8035.05\*200-003704\* Crankshaft lengthwise Rated rpm 2500 Bore and stroke 4.094" × 4.527" (104 mm × 115 mm) Compression ratio 17 to 1 Displacement 178.8 cu in (2931 ml) Starting system 12 volt Lubrication pressure Air cleaner oil bath Oil filter one full flow cartridge Fuel filter two paper elements Muffler vertical Cooling medium temperature control one thermostat.

**CHASSIS:** Type front wheel assist Serial No. 60-66DT/I\*385014\* Tread width rear 56.1" (1425 mm) to 75.8" (1925 mm) front 56.9" (1445 mm) to 73.8" (1875 mm) Wheel base 83.4" (2119 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 31.5" (799 mm) Vertical distance above roadway 32.5" (825 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 1.7 (2.7) third 2.1 (3.3) fourth 2.5 (4.1) fifth 3.2 (5.1) sixth 3.9 (6.3) seventh 4.8 (7.7) eighth 5.9 (9.5) ninth 7.4 (11.8) tenth 9.1 (14.6) eleventh 11.1 (17.9) twelfth 17.2 (27.6) reverse 1.1 (1.7), 1.7 (2.7), 2.1 (3.3), 2.5 (4.1), 3.2 (5.1), 3.9 (6.3), 4.8 (7.7), 5.9 (9.5), 7.4 (11.8), 9.1 (14.6), 11.1 (17.9), 17.2 (27.6) 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 158" (4.01 m) left 158" (4.01 m) (on concrete surface without brake) right 188" (4.78 m) left 188" (4.78 m) Turning space diameter (on concrete surface with brake applied) right 325.5" (8.27 m) left 325.5" (8.27 m) (on concrete surface without brake) right 385.5" (9.79 m) left 385.5" (9.79 m) Power take-off 540 rpm at 2199 engine rpm Unladen tractor mass 5700 lbs (2586 kg).

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

Crankshaft Speed rpm	2502	2259	1992	1753	1499	1245
Pull—lbs (kN)	3087 (13.73)	3201 (14.24)	3358 (14.94)	3473 (15.45)	3584 (15.94)	3485 (15.50)
Increase in Pull %	0	4	9	13	16	13
Power—Hp (kW)	45.51 (33.94)	42.49 (31.69)	39.17 (29.21)	35.58 (26.53)	31.32 (23.36)	25.35 (18.90)
Speed—Mph (km/h)	5.53 (8.90)	4.98 (8.01)	4.37 (7.04)	3.84 (6.18)	3.28 (5.27)	2.73 (4.39)
Slip %	5.37	5.61	5.85	6.22	6.46	6.22

### Front Wheel Drive

### TRACTOR SOUND LEVEL WITHOUT CAB Engaged dB(A) Disengaged dB(A)

Maximum Available Power—Two Hours	94.0	94.5
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		89.0
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)	Cool- ing med	Temp. °F (°C) Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Available Power — Two Hours 8th (III-1) Gear</b>											
44.89 (33.48)	2997 (13.33)	5.62 (9.04)	2499	4.59	3.161 (11.967)	0.491 (0.299)	14.20 (2.798)	188	65 (18.1)	75 (23.6)	29.06 (98.13)

### MAXIMUM POWER IN SELECTED GEARS

38.27 (28.54)	6424 (28.57)	2.23 (3.60)	2625	14.97	4th (II-1) Gear			181 (82.5)	56 (13.3)	71 (21.7)	28.93 (97.69)
45.57 (33.98)	3038 (13.51)	5.63 (9.05)	2502	4.56	8th (III-1) Gear			187 (86.1)	64 (17.8)	74 (23.3)	29.06 (98.13)

### TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b>	Two 16.9-28; 6; 16 (110)	Two 16.9-28; 6; 16 (110)
Ballast	342 lb (155 kg)	None
—No. size, ply & psi (kPa)	410 lb (186 kg)	None
—Liquid (each)		
—Cast Iron (each)		
<b>Front Tires</b>	Two 9.5-24; 6; 20 (140)	Two 9.5-24; 6; 20 (140)
Ballast	None	None
—No. size, ply & psi (kPa)	38 lb (17 kg)	None
—Liquid (each)		
—Cast Iron (each)		
<b>Height of Drawbar</b>	18 in (455 mm)	18 in (455 mm)
<b>Static Weight with Operator—Rear</b>	5235 lb (2375 kg)	3730 in (1692 kg)
—Front	2225 lb (1009 kg)	2150 lb (975 kg)
—Total	7460 lb (3384 kg)	5880 lb (2667 kg)

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2725	18790
Location	remote	
Hydraulic oil temperature °F (°C)	181	83
Location	pump inlet	
	<b>Maximum Lift Capacity</b>	<b>Lift Capacity for Transport</b>
<b>QUICK ATTACH CATEGORY</b>	no II	*not measured
<b>LOAD lbs (kg)</b>	3920	1778
<b>TIME sec</b>	2.02	
<b>HITCH POINT MOVEMENT in (mm)</b>		
Lowest position	12.1	308
Top of timed range	36.3	921
Highest position	36.8	933
<b>LOAD CG MOVEMENT in (mm)</b>		
Lowest position	11.6	294
Top of timed range	38.1	968
Highest position	38.7	983

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

**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 167°F (74.8°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. 1531, December 21, 1984.

LOUIS I. LEVITICUS

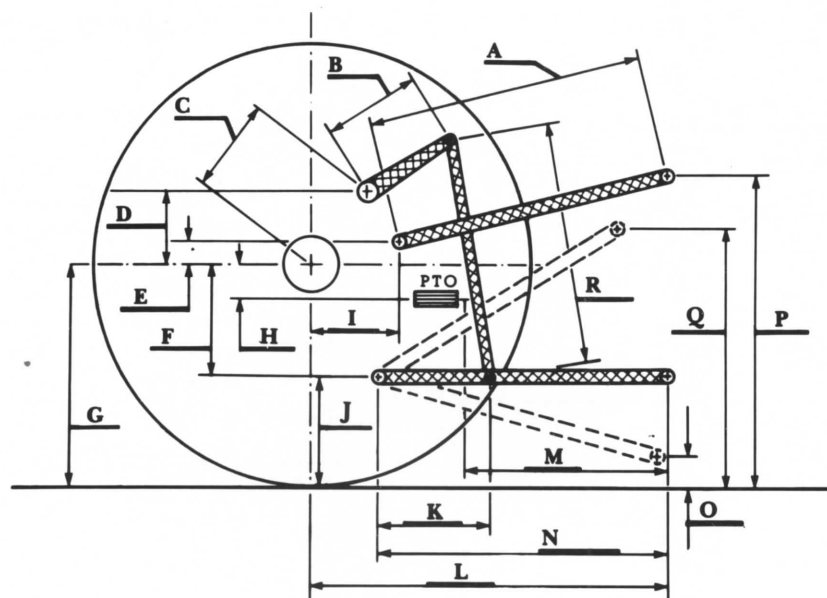
Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



Hitch Dimensions as Tested — No Load

	inch	mm
A	30.3	768
B	10.0	255
C	13.8	350
D	11.7	297
E	10.4	264
F	8.1	206
G	25.5	647
H	0.6	15
I	6.9	176
J	17.4	441
K	16.8	428
L	38.2	971
M	25.6	650
N	35.4	900
O	8.0	203
P	36.4	924
Q	36.0	914
R	22.1	562



Hesston 60-66DT Diesel