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Test 1379: Case 1290 Manual Diesel 12-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1379 — CASE 1290 MANUAL DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—650 rpm)								
53.73 (40.07)	2200	3.617 (13.792)	0.472 (0.287)	14.86 (2.927)	187 (86.3)	56 (13.4)	75 (23.7)	29.043 (98.075)
Standard Power take-off Speed (540 rpm)—One Hour								
47.80 (35.64)	1827	3.144 (11.901)	0.462 (0.281)	15.20 (2.995)	195 (90.6)	57 (13.8)	75 (24.1)	29.040 (98.064)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
47.42 (35.36)	2286	3.078 (11.651)	0.456 (0.277)	15.41 (3.035)	179 (81.7)	55 (12.5)	74 (23.3)	....
0.00 (0.00)	2362	0.864 (3.271)	....	....	162 (72.2)	54 (12.2)	74 (23.1)	....
24.04 (17.93)	2318	1.791 (6.780)	0.523 (0.318)	13.42 (2.645)	164 (73.3)	54 (12.2)	75 (23.6)	....
53.84 (40.15)	2200	3.621 (13.707)	0.472 (0.287)	14.87 (2.929)	187 (86.1)	54 (12.2)	75 (23.9)	....
12.16 (9.07)	2341	1.308 (4.951)	0.755 (0.459)	9.29 (1.832)	164 (73.1)	54 (12.2)	75 (23.9)	....
35.76 (26.67)	2296	2.322 (8.790)	0.456 (0.277)	15.41 (3.034)	174 (78.9)	54 (12.2)	75 (23.9)	....
Av 28.87	**2300**	**2.164**	**0.526**	**13.34**	**172**	**54**	**75**	**29.010**
Av (21.53)		***(8.192)***	***(0.320)***	***(2.628)***	***(77.6)***	***(12.3)***	***(23.6)***	***(97.962)***

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)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (4-1) Gear											
44.66 (33.30)	3367 (14.98)	4.98 (8.01)	2200	5.12	3.598 (13.620)	0.565 (0.344)	12.41 (2.445)	195 (90.6)	56 (13.3)	70 (21.1)	28.465 (96.120)
75% of Pull at Maximum Power—Ten Hours 8th (4-1) Gear											
37.14 (27.70)	2637 (11.73)	5.28 (8.50)	2301	3.72	2.879 (10.898)	0.544 (0.331)	12.90 (2.542)	178 (81.1)	47 (8.3)	57 (13.9)	28.533 (96.350)
50% of Pull at Maximum Power—Two Hours 8th (4-1) Gear											
25.17 (18.77)	1754 (7.80)	5.38 (8.66)	2316	2.58	2.155 (8.158)	0.600 (0.365)	11.68 (2.301)	173 (78.3)	49 (9.4)	63 (17.2)	28.955 (97.780)
50% of Pull at Reduced Engine Speed—Two Hours 10th (3-3) Gear											
25.21 (18.80)	1750 (7.78)	5.40 (8.69)	1617	2.38	1.728 (6.541)	0.481 (0.293)	14.59 (2.874)	180 (82.2)	52 (10.8)	69 (20.3)	28.945 (97.740)
MAXIMUM POWER IN SELECTED GEARS											
43.07 (32.12)	6851 (30.47)	2.36 (3.80)	2260	12.73	4th (3-1) Gear			181 (82.8)	44 (6.7)	53 (11.7)	28.960 (97.790)
43.36 (32.33)	6163 (27.41)	2.64 (4.25)	2199	10.92	5th (1-3) Gear			186 (85.6)	51 (10.6)	60 (15.6)	28.520 (96.310)
44.03 (32.83)	5270 (23.44)	3.13 (5.04)	2200	8.51	6th (2-2) Gear			191 (88.3)	50 (10.0)	58 (14.4)	28.520 (96.310)
46.14 (34.41)	4236 (18.84)	4.08 (6.57)	2200	6.34	7th (3-2) Gear			190 (87.8)	49 (9.4)	56 (13.3)	28.520 (96.310)
46.41 (34.61)	3500 (15.57)	4.97 (8.00)	2200	5.27	8th (4-1) Gear			183 (83.9)	44 (6.7)	49 (9.4)	28.520 (96.310)
44.64 (33.29)	2958 (13.16)	5.66 (9.11)	2200	4.38	9th (2-3) Gear			192 (88.9)	52 (11.1)	62 (16.7)	28.510 (96.270)
45.34 (33.81)	2333 (10.38)	7.29 (11.73)	2202	3.27	10th (3-3) Gear			192 (88.9)	53 (11.7)	63 (17.2)	28.520 (96.310)
44.17 (32.94)	1959 (8.71)	8.46 (13.62)	2198	2.61	11th (4-2) Gear			193 (89.4)	54 (12.2)	65 (18.3)	28.480 (96.170)

Department of Agricultural Engineering

Dates of Test: March 18 to April 13, 1981

Manufacturer: J. I. CASE COMPANY, Racine, Wisconsin 53404

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.3 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8428 **Fuel weight** 7.017 lbs/gal *(0.841 kg/l)* **Oil SAE** 30 **API service classification** CD-SE **To motor** 2.188 gal *(8.282 l)* **Drained from motor** 1.772 gal *(6.708 l)* **Transmission lubricant** Case TFD fluid **Final drive lubricant** Case ETHB fluid **Front axle lubricant** Case FDL SAE 90 **Total time engine was operated** 44.5 hours

ENGINE Make Case Diesel **Type** four cylinder vertical **Serial No.** 195002 11340667 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 3.939″ × 4.000″ *(100 mm × 101.6 mm)* **Compression ratio** 17 to 1 **Displacement** 195 cu in *(3197 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with centrifugal precleaner **Oil filter** one full flow cartridge **Fuel filter** two paper cartridges with sediment bowl and screen **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type front wheel assist **Serial No.** 1290/18/11050714 **Tread width** rear 56″ *(1422 mm)* to 84″ *(2134 mm)* front 60″ *(1524 mm)* to 72″ *(1829 mm)* **Wheel base** 84″ *(2134 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 36.4″ *(925 mm)* Vertical distance above roadway 30.4″ *(772 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 1.0 *(1.7)* second 1.7 *(2.8)* third 2.1 *(3.3)* fourth 2.6 *(4.2)* fifth 3.0 *(4.8)* sixth 3.4 *(5.5)* seventh 4.3 *(7.0)* eighth 5.2 *(8.4)* ninth 5.9 *(9.5)* tenth 7.5 *(12.0)* eleventh 8.7 *(14.0)* twelfth 15.0 *(24.0)* reverse 1.7 *(2.7)*, 3.4 *(5.4)*, 4.3 *(6.9)*, 8.6 *(13.8)* **Clutch** single dry disc operated by foot pedal **Brakes** drum and shoe operated by two foot pedals which can be locked together and hand lever **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 138″ *(3.51 m)* left 138″ *(3.51 m)* (on concrete surface without brake) right 178″ *(4.52 m)* left 178″ *(4.52 m)* **Turning space diameter** (on concrete surface with brake applied) right 296″ *(7.52 m)* left 296″ *(7.52 m)* (on concrete surface without brake) right 372″ *(9.45 m)* left 372″ *(9.45 m)* **Power take-off** 540 rpm at 1827 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 8th (4-1) GEAR

Crankshaft Speed rpm	2200	1984	1756	1536	1318	1094
Pull—lbs *(kN)*	3500 *(15.57)*	3659 *(16.28)*	3778 *(16.81)*	3862 *(17.18)*	3810 *(16.95)*	3602 *(16.02)*
Increase in Pull %	0	5	8	10	9	3
Power—Hp *(kW)*	46.41 *(34.61)*	43.65 *(32.55)*	39.79 *(29.67)*	35.53 *(26.49)*	30.08 *(22.43)*	23.70 *(17.67)*
Speed—Mph *(km/h)*	4.97 *(8.00)*	4.47 *(7.19)*	3.95 *(6.36)*	3.45 *(5.55)*	2.96 *(4.76)*	2.47 *(3.98)*
Slip %	5.27	5.46	5.59	5.84	5.71	5.31

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	98.5	98.0
75% of Pull at Maximum Power—Ten Hours		97.5
50% of Pull at Maximum Power—Two Hours		95.5
50% of Pull at Reduced Engine Speed—Two Hours		93.5
Bystander in 12th (4-3) gear		90.0

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 (4-1) Gear											
44.81 *(33.41)*	3288 *(14.63)*	5.11 *(8.22)*	2200	3.88	3.527 *(13.351)*	0.552 *(0.336)*	12.70 *(2.502)*	197 *(91.7)*	57 *(13.9)*	75 *(23.9)*	28.420 *(95.970)*
MAXIMUM POWER IN SELECTED GEARS											
41.32 *(30.81)*	8445 *(37.57)*	1.84 *(2.96)*	2264	14.62	3rd (2-1) Gear			174 *(78.9)*	40 *(4.4)*	47 *(8.3)*	28.940 *(97.730)*
46.44 *(34.63)*	4160 *(18.50)*	4.19 *(6.74)*	2201	5.15	7th (3-2) Gear			190 *(87.8)*	48 *(8.9)*	55 *(12.8)*	28.520 *(96.310)*
45.89 *(34.22)*	3381 *(15.04)*	5.09 *(8.19)*	2200	4.18	8th (4-1) Gear			189 *(87.2)*	47 *(8.3)*	53 *(11.7)*	28.520 *(96.310)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 16.9/14-30; 6; 16 *(110)*	Two 16.9/14-30; 6; 16 *(110)*
Ballast	—Liquid (each)	620 lb *(281 kg)*	None
	—Cast Iron (each)	722 lb *(327 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 9.5-24; 6; 24 *(165)*	Two 9.5-24; 6; 24 *(165)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	33 lb *(15 kg)*	None
Height of drawbar		18 in *(455 mm)*	18 in *(455 mm)*
Static Weight with Operator—Rear		6500 lb *(2948 kg)*	3815 lb *(1731 kg)*
Front		2820 lb *(1279 kg)*	2755 lb *(1250 kg)*
Total		9320 lb *(4227 kg)*	6570 lb *(2981 kg)*

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 157°F *(69.3°C)*. Eight gears were chosen between tire tangential pull limit (front wheel disengaged), 15% slip (front wheel drive engaged), and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1379.**

LOUIS I. LEVITICUS
Engineer-in Charge

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Case 1290 Manual Diesel

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