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Test 1296: Case 2290 Manual Diesel 8-Speed

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NEBRASKA TRACTOR TEST 1296 — CASE 2290 MANUAL DIESEL 8 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—998 rpm)								
128.80 (96.05)	2100	8.870 (33.575)	0.476 (0.290)	14.52 (2.861)	192 (88.9)	60 (15.6)	75 (24.0)	28.540 (96.375)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
112.45 (83.85)	2158	8.040 (30.434)	0.495 (0.301)	13.99 (2.755)	190 (87.8)	60 (15.6)	75 (23.9)	....
0.00 (0.00)	2310	2.723 (10.309)	....	....	177 (80.6)	60 (15.6)	74 (23.3)	....
58.27 (43.45)	2241	5.282 (19.994)	0.627 (0.381)	11.03 (2.173)	183 (83.9)	60 (15.6)	74 (23.6)	....
129.26 (96.39)	2100	8.903 (33.701)	0.476 (0.290)	14.52 (2.860)	193 (89.4)	60 (15.6)	75 (23.9)	....
29.60 (22.07)	2274	3.981 (15.069)	0.930 (0.566)	7.44 (1.465)	180 (81.9)	60 (15.6)	76 (24.2)	....
86.38 (64.41)	2208	6.748 (25.542)	0.540 (0.329)	12.80 (2.522)	186 (85.8)	61 (16.1)	74 (23.6)	....
Av 69.33 ***Av (51.70)***	**2215**	**5.946** ***(22.508)***	**0.593** ***(0.361)***	**11.66** ***(2.297)***	**185** ***(84.9)***	**60** ***(15.6)***	**75** ***(23.8)***	**28.537** ***(96.364)***

DRAWBAR PERFORMANCE

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 5th (3L) Gear											
106.07 (79.10)	7489 (33.31)	5.31 (8.55)	2099	5.42	8.510 (32.215)	0.555 (0.338)	12.46 (2.455)	185 (85.0)	36 (2.2)	40 (4.4)	28.496 (96.225)
75% of Pull at Maximum Power—Ten Hours 5th (3L) Gear											
87.24 (65.06)	5791 (25.76)	5.65 (9.09)	2202	4.02	7.437 (28.153)	0.590 (0.359)	11.73 (2.311)	181 (82.9)	30 (−1.0)	33 (0.6)	29.241 (98.742)
50% of Pull at Maximum Power—Two Hours 5th (3L) Gear											
60.06 (44.79)	3870 (17.22)	5.82 (9.37)	2238	2.77	5.963 (22.571)	0.687 (0.418)	10.07 (1.984)	181 (82.5)	40 (4.4)	44 (6.7)	28.855 (97.439)
50% of Pull at Reduced Engine Speed—Two Hours 6th (3H) Gear											
59.89 (44.66)	3857 (17.16)	5.82 (9.37)	1778	2.69	4.824 (18.262)	0.557 (0.339)	12.41 (2.446)	180 (81.9)	39 (3.9)	46 (7.5)	28.875 (97.507)

MAXIMUM POWER IN SELECTED GEARS

82.69 (61.66)	12635 (56.20)	2.45 (3.95)	2191	14.99	2nd (1H) Gear	180 (82.2)	30 (−1.0)	33 (0.6)	29.210 (98.638)
103.81 (77.41)	11813 (52.55)	3.30 (5.30)	2100	12.05	3rd (2L) Gear	184 (84.2)	35 (1.7)	38 (3.3)	28.500 (96.240)
108.76 (81.11)	9285 (41.30)	4.39 (7.07)	2100	6.78	4th (2H) Gear	185 (84.7)	36 (2.2)	39 (3.9)	28.490 (96.206)
109.36 (81.55)	7714 (34.31)	5.32 (8.56)	2100	5.30	5th (3L) Gear	185 (85.0)	36 (2.2)	40 (4.4)	28.490 (96.206)
108.57 (80.96)	6013 (26.75)	6.77 (10.90)	2099	4.17	6th (3H) Gear	185 (85.0)	35 (1.7)	37 (2.8)	28.500 (96.240)

LUGGING ABILITY IN 5th (3L) GEAR

Crankshaft Speed rpm	2100	1888	1682	1472	1255	1046
Pull—lbs (kN)	7714 (34.31)	8479 (37.72)	9166 (40.77)	9426 (41.93)	9398 (41.80)	8680 (38.61)
Increase in Pull %	0	10	19	22	22	13
Power—Hp (kW)	109.36 (81.55)	107.35 (80.05)	102.70 (76.59)	92.01 (68.61)	78.30 (58.39)	60.62 (45.21)
Speed—Mph (km/h)	5.32 (8.56)	4.75 (7.64)	4.20 (6.76)	3.66 (5.89)	3.12 (5.03)	2.62 (4.22)
Slip %	5.30	5.90	6.49	6.78	6.78	6.34

Department of Agricultural Engineering

Dates of Test: November 7, 1978 to January 4, 1979 Cab Sound Test No. 81-3 March 19, 1981

Manufacturer: J. I. CASE COMPANY, 700 State Street, Racine, Wisconsin 53404.

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 50.4 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8309 **Fuel weight** 6.918 lbs/gal *(0.831 kg/l)* **Oil SAE** 30 **API service classification** SE-CD **To motor** 4.245 gal *(16.067 l)* **Drained from motor** 4.013 gal *(15.189 l)* **Transmission and final drive lubricant** Case TFD fluid **Total time engine was operated** 41.5 hours

ENGINE: Make Case Diesel **Type** 6 cylinder vertical with turbocharger **Serial No.** 10160542 **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 4.625″ × 5.00″ *(117.5 mm × 127 mm)* **Compression ratio** 15.75 to 1 **Displacement** 504 cu in *(8259 ml)* **Cranking system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** two thermostats

CHASSIS: Type standard with duals **Serial No.** 8836198 **Tread width** rear 60″ *(1524 mm)* to 124″ *(3150 mm)* front 60″ *(1524 mm)* to 88″ *(2235 mm)* **Wheel base** 104″ *(2642 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 30.3″ *(770 mm)* Vertical distance above roadway 38.3″ *(973 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 2.2 *(3.5)* second 2.7 *(4.4)* third 3.7 *(6.0)* fourth 4.7 *(7.6)* fifth 5.5 *(8.9)* sixth 7.0 *(11.3)* seventh 11.3 *(18.2)* eighth 15.6 *(25.1)* reverse 2.7 *(4.4)*, 4.5 *(7.2)*, 6.7 *(10.8)*, 13.7 *(22.1)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** multiple wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 145″ *(3.68 m)* left 145″ *(3.68 m)* (on concrete surface without brake) right 163″ *(4.14 m)* left 163″ *(4.14 m)* **Turning space diameter** (on concrete surface with brake applied) right 300″ *(7.62 m)* left 300″ *(762 m)* (on concrete surface without brake) right 341″ *(8.66 m)* left 341″ *(8.66 m)* **Power take-off** 998 rpm at 2100 engine rpm and 534 rpm at 2100 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL	w/cab dB(A)	w/out cab dB(A)
Maximum Available Power—Two Hours	77.5	86.0
75% of Pull at Maximum Power—Ten Hours	78.0	85.5
50% of Pull at Maximum Power—Two Hours	77.5	87.0
50% of Pull at Reduced Engine Speed—Two Hours	75.5	84.5
Bystander in 8th (4H) gear	86.0	87.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-38; 8; 12 *(85)*	Four 18.4-38; 8; 12 *(85)*
Ballast	—Liquid (each inner)	1195 lb *(542 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.00-16; 8; 40 *(275)*	Two 11.00-16; 8; 40 *(275)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	120 lb *(54 kg)*	None
Height of Drawbar		19 in *(485 mm)*	19 in *(485 mm)*
Static Weight with Operator—Rear		11950 lb *(5420 kg)*	9560 lb *(4336 kg)*
Front		3450 lb *(1565 kg)*	3210 lb *(1456 kg)*
Total		15400 lb *(6985 kg)*	12770 lb *(5792 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 return was 175°F *(79.4°C)*. Five 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 **1296.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Case 2290 Manual Diesel

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