6-1-1984

Test 1526: Case 2294 Powershift Diesel 12-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1526—CASE 2294 POWERSHIFT DIESEL ALSO CASE INTERNATIONAL 2294 POWERSHIFT 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—998 rpm)								
131.97 *(98.41)*	2100	8.879 *(33.612)*	0.471 *(0.287)*	14.86 *(2.928)*	190 *(88.0)*	67 *(19.6)*	76 *(24.7)*	28.56 *(96.44)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
115.46 *(86.10)*	2162	8.167 *(30.917)*	0.495 *(0.301)*	14.14 *(2.785)*	186 *(85.6)*	67 *(19.2)*	77 *(25.0)*	....
0.00 *(0.00)*	2307	2.815 *(10.657)*	....	....	173 *(78.1)*	68 *(20.0)*	77 *(25.0)*	....
59.75 *(44.56)*	2238	5.335 *(20.195)*	0.625 *(0.380)*	11.20 *(2.206)*	182 *(83.1)*	68 *(19.7)*	77 *(25.0)*	....
131.56 *(98.10)*	2100	8.857 *(33.529)*	0.471 *(0.287)*	14.85 *(2.926)*	191 *(88.1)*	67 *(19.4)*	77 *(25.0)*	....
30.24 *(22.55)*	2266	4.049 *(15.329)*	0.937 *(0.570)*	7.47 *(1.471)*	176 *(80.0)*	67 *(19.4)*	77 *(25.0)*	....
88.26 *(65.82)*	2204	6.762 *(25.597)*	0.536 *(0.326)*	13.05 *(2.571)*	186 *(85.3)*	68 *(19.7)*	78 *(25.6)*	....
Av 70.88 ***(52.86)***	**2213**	**5.998** ***(22.704)***	**0.592** ***(0.360)***	**11.82** ***(2.328)***	**182** ***(83.3)***	**67** ***(19.6)***	**77** ***(25.1)***	**28.53** ***(96.34)***

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 8th (3-2) Gear											
115.35 *(86.01)*	6877 *(30.59)*	6.29 *(10.12)*	2099	5.11	8.799 *(33.307)*	0.534 *(0.325)*	13.11 *(2.582)*	193 *(89.2)*	66 *(18.9)*	69 *(20.3)*	28.64 *(96.71)*
75% of Pull at Maximum Power—Ten Hours 8th (3-2) Gear											
92.28 *(68.82)*	5191 *(23.09)*	6.67 *(10.73)*	2189	3.51	7.559 *(28.614)*	0.573 *(0.349)*	12.21 *(2.405)*	191 *(88.4)*	63 *(17.3)*	78 *(25.6)*	28.75 *(97.09)*
50% of Pull at Maximum Power—Two Hours 8th (3-2) Gear											
63.29 *(47.20)*	3461 *(15.40)*	6.86 *(11.04)*	2224	2.34	6.021 *(22.790)*	0.666 *(0.405)*	10.51 *(2.071)*	191 *(88.3)*	75 *(23.9)*	87 *(30.6)*	28.32 *(95.62)*
50% of Pull at Reduced Engine Speed—Two Hours 10th (4-1) Gear											
63.30 *(47.20)*	3461 *(15.40)*	6.86 *(11.04)*	1457	2.34	4.506 *(17.059)*	0.498 *(0.303)*	14.05 *(2.767)*	194 *(90.0)*	72 *(22.2)*	92 *(33.3)*	28.28 *(95.48)*

MAXIMUM POWER IN SELECTED GEARS

100.47 *(74.92)*	13017 *(57.90)*	2.89 *(4.66)*	2153	14.81	4th (2-1) Gear	190 *(87.8)*	68 *(20.0)*	71 *(21.7)*	28.46 *(96.11)*
113.19 *(84.41)*	10484 *(46.63)*	4.05 *(6.52)*	2100	8.30	5th (2-2) Gear	193 *(89.4)*	69 *(20.6)*	72 *(22.2)*	28.46 *(96.11)*
114.48 *(85.37)*	9283 *(41.29)*	4.62 *(7.44)*	2100	6.94	6th (3-1) Gear	194 *(89.7)*	70 *(21.1)*	73 *(22.8)*	28.45 *(96.07)*
115.37 *(86.03)*	8342 *(37.11)*	5.19 *(8.35)*	2100	6.13	7th (2-3) Gear	194 *(89.7)*	70 *(21.1)*	74 *(23.3)*	28.44 *(96.04)*
116.38 *(86.78)*	6921 *(30.78)*	6.31 *(10.15)*	2100	4.92	8th (3-2) Gear	195 *(90.3)*	71 *(21.7)*	77 *(25.0)*	28.41 *(95.94)*
115.41 *(86.06)*	5435 *(24.17)*	7.96 *(12.82)*	2099	3.77	9th (3-3) Gear	194 *(90.0)*	71 *(21.7)*	75 *(23.9)*	28.43 *(96.00)*
112.94 *(84.22)*	4315 *(19.19)*	9.82 *(15.80)*	2100	2.98	10th (4-1) Gear	192 *(88.9)*	71 *(21.7)*	76 *(24.4)*	28.42 *(95.97)*

LUGGING ABILITY IN 8th (3-2) GEAR

Crankshaft Speed rpm	2100	1892	1677	1470	1264	1049
Pull—lbs *(kN)*	6921 *(30.78)*	7576 *(33.70)*	8079 *(35.94)*	8401 *(37.37)*	8414 *(37.43)*	8045 *(35.79)*
Increase in Pull %	0	9	17	21	22	16
Power—Hp *(kW)*	116.38 *(86.78)*	114.10 *(85.09)*	107.35 *(80.05)*	97.60 *(72.78)*	83.87 *(62.54)*	66.76 *(49.78)*
Speed—Mph *(km/h)*	6.31 *(10.15)*	5.65 *(9.09)*	4.98 *(8.02)*	4.36 *(7.01)*	3.74 *(6.02)*	3.11 *(5.01)*
Slip %	4.92	5.45	5.75	6.20	6.35	5.90

Department of Agricultural Engineering

Dates of Test: June 1-12, 1984

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8408 **Fuel weight** 7.001 lbs/gal *(0.839 kg/l)* **Oil SAE** 30 **API service classification** SF, CD **To motor** 5.201 gal *(19.687 l)* **Drained from motor** 4.933 gal *(18.674 l)* **Transmission and final drive lubricant** Case Powergard PTF transmission fluid **Total time engine was operated** 39.0 hours.

ENGINE: Make Case Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *10356589* **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 4.625″ × 5.0″ *(117.5 mm × 127 mm)* **Compression ratio** 15.8 to 1 **Displacement** 504 cu in *(8259 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and 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 and prestrainer **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type standard with duals **Serial No.** *9932940* **Tread width** rear 60″ *(1524 mm)* to 124″ *(3150 mm)* front 60″ *(1524 mm)* to 88″ *(2235 mm)* **Wheel base** 110″ *(2794 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 25.8″ *(655 mm)* Vertical distance above roadway 40.6″ *(1031 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 with partial (3) range operator controlled powershift **Advertised speeds mph *(km/h)*** first 1.9 *(3.1)* second 2.5 *(4.0)* third 3.2 *(5.2)* fourth 3.2 *(5.2)* fifth 4.3 *(6.9)* sixth 4.9 *(7.9)* seventh 5.4 *(8.7)* eighth 6.5 *(10.5)* ninth 8.1 *(13.0)* tenth 9.9 *(15.9)* eleventh 13.2 *(21.2)* twelfth 18.1 *(29.1)* reverse 3.2 *(5.2)*, 5.4 *(8.7)*, 8.1 *(13.0)* **Clutch** wet multiple disc hydraulically power actuated by foot pedal **Brakes** wet multiple disc hydraulically power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 162″ *(4.12 m)* left 162″ *(4.12 m)* (on concrete surface without brake) right 182″ *(4.62 m)* left 182″ *(4.62 m)* **Turning space diameter** (on concrete surface with brake applied) right 338″ *(8.59 m)* left 338″ *(8.59 m)* (on concrete surface without brake) right 382″ *(9.70 m)* left 382″ *(9.70 m)* **Power take-off** 534 rpm at 2100 engine rpm and 998 rpm at 2100 engine rpm.

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	76.0
75% of Pull at Maximum Power—Ten Hours	76.5
50% of Pull at Maximum Power—Two Hours	76.5
50% of Pull at Reduced Engine Speed—Two Hours	73.5
Bystander in 12th (3-4) gear	84.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 18.4-38; 6; 14 *(95)*	Four 18.4-38; 6; 14 *(95)*
Ballast	—Liquid (each inner)	522 lb *(237 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)	118 lb *(53 kg)*	None
* **Height of Drawbar**		19.5 in *(495 mm)*	19.5 in *(495 mm)*
Static Weight with Operator	—Rear	12100 lb *(5489 kg)*	11055 lb *(5014 kg)*
	—Front	3570 lb *(1619 kg)*	3335 lb *(1513 kg)*
	—Total	15670 lb *(7108 kg)*	14390 lb *(6527 kg)*

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 192°F *(89.0°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. During drawbar tests, the engine oil pressure warning light and beeper were activated intermittently.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1526**, July 19, 1984.

Report reissued. Supplemental sales permit for Case International 2294 Powershift Diesel June 18, 1985.

LOUIS I. LEVITICUS
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Case 2294 Powershift Diesel

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