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6-12-1984

## Test 1528: Case 3294 Powershift Diesel 12-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1528—CASE 3294 POWERSHIFT DIESEL ALSO CASE INTERNATIONAL 3294 POWERSHIFT 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—998 rpm)									
162.63 (121.27)	2100	10.614 (40.178)	0.457 (0.278)	15.32 (3.019)	186 (85.7)	69 (20.7)	75 (23.8)	29.02 (98.00)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
141.76 (105.71)	2154	9.537 (36.101)	0.471 (0.286)	14.86 (2.928)	182 (83.1)	70 (20.8)	76 (24.4)	..... .....	
0.00 (0.00)	2317	3.019 (11.428)	..... .....	..... .....	173 (78.1)	70 (20.8)	75 (23.9)	..... .....	
73.86 (55.08)	2245	6.119 (23.164)	0.580 (0.353)	12.07 (2.378)	179 (81.4)	69 (20.6)	73 (22.8)	..... .....	
162.99 (121.54)	2100	10.652 (40.321)	0.457 (0.278)	15.30 (3.014)	187 (85.8)	70 (20.8)	75 (23.9)	..... .....	
37.48 (27.95)	2280	4.554 (17.239)	0.850 (0.517)	8.23 (1.621)	175 (79.4)	70 (20.8)	76 (24.2)	..... .....	
108.76 (81.10)	2204	7.830 (29.640)	0.504 (0.306)	13.89 (2.736)	181 (82.8)	70 (21.1)	76 (24.4)	..... .....	
Av Av	87.48 (65.23)	2216	6.952 (26.316)	0.556 (0.338)	12.58 (2.479)	179 (81.8)	70 (20.8)	75 (23.9)	29.00 (97.94)

## DRAWBAR PERFORMANCE

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 7th (2-3) Gear											
140.79 (104.99)	9183 (40.85)	5.75 (9.25)	2100	3.82	10.392 (39.337)	0.516 (0.314)	13.55 (2.669)	192 (88.9)	71 (21.7)	75 (23.9)	28.90 (97.59)
75% of Pull at Maximum Power—Ten Hours 7th (2-3) Gear											
113.38 (84.55)	7029 (31.27)	6.05 (9.73)	2182	2.60	8.882 (33.623)	0.548 (0.333)	12.76 (2.515)	189 (87.2)	73 (22.6)	77 (25.1)	28.95 (97.75)
50% of Pull at Maximum Power—Two Hours 7th (2-3) Gear											
77.79 (58.01)	4687 (20.85)	6.22 (10.02)	2223	1.57	6.990 (26.459)	0.629 (0.382)	11.13 (2.192)	188 (86.7)	70 (20.8)	85 (29.2)	28.99 (97.88)
50% of Pull at Reduced Engine Speed—Two Hours 9th (3-3) Gear											
77.92 (58.11)	4687 (20.85)	6.23 (10.03)	1484	1.62	5.496 (20.805)	0.493 (0.300)	14.18 (2.793)	189 (86.9)	72 (22.2)	87 (30.3)	28.97 (97.83)
MAXIMUM POWER IN SELECTED GEARS											
106.94 (79.74)	16242 (72.25)	2.47 (3.97)	2166	14.63	2nd (1-2) Gear			185 (85.0)	69 (20.6)	72 (22.2)	28.89 (97.56)
127.83 (95.32)	15890 (70.68)	3.02 (4.86)	2101	14.03	3rd (1-3) Gear			189 (87.2)	70 (21.1)	73 (22.8)	28.90 (97.59)
129.22 (96.36)	15585 (69.32)	3.11 (5.00)	2101	13.21	4th (2-1) Gear			189 (87.2)	65 (18.3)	75 (23.9)	29.00 (97.93)
141.22 (105.31)	11717 (52.12)	4.52 (7.27)	2100	5.51	5th (2-2) Gear			191 (88.1)	65 (18.3)	76 (24.4)	29.00 (97.93)
141.84 (105.77)	10349 (46.03)	5.14 (8.27)	2100	4.53	6th (3-1) Gear			192 (88.6)	65 (18.3)	76 (24.4)	29.00 (97.93)
143.68 (107.14)	9372 (41.69)	5.75 (9.25)	2100	3.86	7th (2-3) Gear			192 (88.9)	66 (18.9)	77 (25.0)	29.00 (97.93)
143.48 (106.99)	7727 (34.37)	6.96 (11.21)	2100	3.01	8th (3-2) Gear			192 (88.9)	66 (18.9)	78 (25.6)	29.00 (97.93)
141.08 (105.20)	6024 (26.80)	8.78 (14.13)	2102	2.32	9th (3-3) Gear			192 (88.9)	67 (19.4)	79 (26.1)	29.00 (97.93)

Department of Agricultural Engineering

Dates of Test: June 12-22, 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°)** 0.8402 **Fuel weight** 6.996 lbs/gal (0.838 kg/l) **Oil SAE 30 API service classification** SF, CD **To motor** 5.513 gal (20.870 l) **Drained from motor** 5.076 gal (19.214 l) **Transmission and final drive lubricant** Case Powergard PTF transmission fluid **Front axle lubricant** SAE 90 EP **Total time engine was operated** 38.0 hours.

**ENGINE:** Make Case Diesel **Type** six cylinder vertical with turbocharger **Serial No.** \*10356311\* **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** all wheel drive with constant mesh front axle **Serial No.** \*9933474\* **Tread width** rear 64" (1626 mm) to 88" (2235 mm) front 75.4" (1915 mm) to 91.1" (2314 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 50.3" (1278 mm) Vertical distance above roadway 39.3" (998 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 2.0 (3.2) second 2.6 (4.2) third 3.3 (5.3) fourth 3.4 (5.5) fifth 4.5 (7.2) sixth 5.0 (8.0) seventh 5.6 (9.0) eighth 6.7 (10.8) ninth 8.4 (13.5) tenth 10.2 (16.4) eleventh 13.6 (21.9) twelfth 18.8 (30.3) reverse 3.3 (5.3), 5.6 (9.0), 8.4 (13.5) **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 178" (4.52 m) left 178" (4.52 m) (on concrete surface without brake) right 242" (6.15 m) left 242" (6.15 m) **Turning space diameter** (on concrete surface with brake applied) right 387" (9.82 m) left 387" (9.82 m) (on concrete surface without brake) right 505" (12.82 m) left 505" (12.82 m) **Power take-off** 998 rpm at 2100 engine rpm.

# LUGGING ABILITY IN 7th (2-3) GEAR

Crankshaft Speed rpm	2100	1889	1682	1470	1257	1055
Pull—lbs (kN)	9372 (41.69)	10242 (45.56)	10757 (47.85)	11056 (49.18)	10807 (48.07)	10025 (44.59)
Increase in Pull %	0	9	15	18	15	7
Power—Hp (kW)	143.68 (107.14)	140.48 (104.76)	130.85 (97.57)	117.22 (87.41)	98.10 (73.16)	76.80 (57.27)
Speed—Mph (km/h)	5.75 (9.25)	5.14 (8.28)	4.56 (7.34)	3.98 (6.40)	3.40 (5.48)	2.87 (4.62)
Slip %	3.86	4.28	4.78	4.94	4.94	4.28

# TRACTOR SOUND LEVEL WITH CAB

Maximum Available Power—Two Hours	75.5
75% of Pull at Maximum Power—Ten Hours	76.5
50% of Pull at Maximum Power—Two Hours	76.0
50% of Pull at Reduced Engine Speed—Two Hours	74.0
Bystander in 12th (4-3) gear	84.5

# TIRES, BALLAST AND WEIGHT

	As Tested	Pretest
<b>Rear Tires</b>		
—No., size, ply & psi (kPa)	Two 20.8R38; 8; 16 (110)	Two 20.8R38; 8; 16 (110)
Ballast	None	None
—Liquid (each)	None	None
—Test Equip. (each)	140 lb (64 kg)	None
<b>Front Tires</b>		
—No., size, ply & psi (kPa)	Two 16.9-28; 10; 28 (195)	Two 16.9-28; 10; 28 (195)
*Ballast	—172 lb (78 kg)	None
—Liquid (each)	65 lb (29 kg)	None
—Test Equip. (each)		
<b>Height of Drawbar</b>	22.5 in (570 mm)	22.5 in (570 mm)
<b>Static Weight with Operator—Rear</b>	9680 lb (4391 kg)	9400 lb (4264 kg)
—Front	8300 lb (3765 kg)	8515 lb (3862 kg)
—Total	17980 lb (8156 kg)	17915 lb (8126 kg)

\*Fluid was drained from front tires when test equipment was added to keep total weight below manufacturer's allowed gross vehicle weight of 18,000 lbs. (8165 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 171°F (77.0°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h).

**NOTE:** This tractor is shipped from the factory with standard equipment consisting of: 3 point hitch Quick attaching coupler, front weight bracket, 12-100 lb (45 kg) front weights and fluid filled front tires. This weight with operator and full fuel tank is shown as the pretest weight.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1528, July 19, 1984.

Report reissued. Supplemental sales permit for Case International 3294 Powershift Diesel June 18, 1985.

LOUIS I. LEVITICUS  
Engineer-in-Charge

K. VON BARGEN  
L. L. BASHFORD  
T. L. THOMPSON

Board of Tractor Test Engineers



Case 3294 Powershift Diesel

The Agricultural Experiment Station  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
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