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Test 1548: Case 1896 Powershift Diesel 12-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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NEBRASKA TRACTOR TEST 1548—CASE 1896 POWERSHIFT DIESEL ALSO CASE INTERNATIONAL 1896 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—997 rpm)								
95.92 (71.53)	2100	5.739 (21.726)	0.418 (0.254)	16.71 (3.293)	187 (86.1)	58 (14.2)	75 (23.9)	29.23 (98.69)
VARYING POWER AND FUEL CONSUMPTION — Two Hours								
83.83 (62.51)	2158	5.270 (19.949)	0.439 (0.267)	15.91 (3.134)	187 (86.1)	59 (14.7)	77 (24.7)	..... .....
0.00 (0.00)	2273	1.934 (7.322)	..... .....	..... .....	186 (85.6)	57 (13.9)	75 (23.9)	..... .....
43.03 (32.09)	2217	3.632 (13.750)	0.589 (0.358)	11.85 (2.334)	187 (85.8)	58 (14.2)	75 (23.6)	..... .....
96.69 (72.10)	2101	5.782 (21.886)	0.417 (0.254)	16.72 (3.295)	187 (86.1)	59 (14.7)	75 (23.9)	..... .....
21.79 (16.25)	2244	2.811 (10.642)	0.900 (0.548)	7.75 (1.527)	184 (84.2)	58 (14.4)	75 (23.6)	..... .....
63.78 (47.56)	2191	4.453 (16.858)	0.487 (0.296)	14.32 (2.821)	186 (85.3)	58 (14.4)	75 (23.9)	..... .....
Av Av	51.52 (38.42)	2197 (15.068)	3.981 (0.328)	0.539 (2.550)	186 (85.5)	58 (14.4)	75 (23.9)	29.19 (98.57)

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 8th (3-2) Gear											
84.51 (63.02)	4914 (21.86)	6.45 (10.38)	2100	3.08	5.703 (21.588)	0.471 (0.286)	14.82 (2.919)	192 (88.6)	43 (5.8)	53 (11.4)	29.11 (98.30)
75% of Pull at Maximum Power — Ten Hours 8th (3-2) Gear											
66.89 (49.88)	3735 (16.61)	6.72 (10.81)	2165	2.24	4.902 (18.556)	0.511 (0.311)	13.65 (2.688)	189 (87.1)	43 (6.2)	55 (12.8)	28.94 (97.73)
50% of Pull at Maximum Power — Two Hours 8th (3-2) Gear											
45.83 (34.18)	2490 (11.07)	6.90 (11.11)	2211	1.50	4.041 (15.296)	0.615 (0.374)	11.34 (2.235)	189 (87.2)	45 (7.2)	58 (14.2)	29.09 (98.23)
50% of Pull at Reduced Engine Speed — Two Hours 10th (4-1) Gear											
45.77 (34.13)	2489 (11.07)	6.90 (11.10)	1447	1.46	3.202 (12.123)	0.488 (0.297)	14.29 (2.815)	185 (85.0)	44 (6.7)	55 (12.8)	29.07 (98.17)

MAXIMUM POWER IN SELECTED GEARS

74.26 (55.38)	12357 (54.97)	2.25 (3.63)	2128	14.70	2nd (1-2) Gear		188 (86.7)	45 (7.2)	50 (10.0)	28.55 (96.41)
82.87 (61.80)	10367 (46.11)	3.00 (4.82)	2100	7.92	3rd (1-3) Gear		189 (86.9)	39 (3.9)	44 (6.7)	29.10 (98.27)
84.62 (63.10)	10352 (46.05)	3.07 (4.93)	2100	7.92	4th (2-1) Gear		187 (86.1)	39 (3.9)	45 (7.2)	29.10 (98.27)
85.80 (63.98)	7643 (34.00)	4.21 (6.77)	2100	5.33	5th (2-2) Gear		188 (86.4)	40 (4.4)	46 (7.8)	29.10 (98.27)
86.45 (64.46)	6790 (30.20)	4.77 (7.68)	2100	4.49	6th (3-1) Gear		187 (86.1)	40 (4.4)	47 (8.3)	29.11 (98.30)
85.41 (63.69)	6006 (26.72)	5.33 (8.58)	2100	3.87	7th (2-3) Gear		186 (85.3)	40 (4.4)	48 (8.9)	29.11 (98.30)
85.77 (63.96)	4980 (22.15)	6.46 (10.39)	2103	3.08	8th (3-2) Gear		189 (87.2)	41 (5.0)	50 (10.0)	29.12 (98.33)
83.05 (61.93)	3833 (17.05)	8.13 (13.08)	2100	2.52	9th (3-3) Gear		188 (86.7)	41 (5.0)	49 (9.4)	29.11 (98.30)

Department of Agricultural Engineering

Dates of Test: October 24 to November 7, 1984

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

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)** 0.8382 **Fuel weight** 6.979 lbs/gal (0.836 kg/l) **Oil** SAE 15W-40 **API service classification** CD/SF **To motor** 3.548 gal (13.431 l) **Drained from motor** 3.211 gal (12.157 l) **Transmission and final drive lubricant** Case Powergard PTF transmission fluid **Total time engine was operated** 31.5 hours.

ENGINE: Make Consolidated Diesel Corporation - Case Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *44111064* **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 4.016" × 4.724" (102 mm × 120 mm) **Compression ratio** 17.5 to 1 **Displacement** 359 cu in (5884 ml) **Starting system** 12 volt **Lubrication pressure** Air cleaner two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard with duals **Serial No.** *9934563* **Tread width** rear 60" (1524 mm) to 128" (3251 mm) front 60" (1524 mm) to 88" (2235 mm) **Wheel base** 108" (2743 mm) **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 27.9" (708 mm) Vertical distance above roadway 40.7" (1034 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 157" (3.99 m) left 157" (3.99 m) (on concrete surface without brake) right 174" (4.42 m) left 174" (4.42 m) **Turning space diameter** (on concrete surface with brake applied) right 326" (8.28 m) left 326" (8.28 m) (on concrete

LUGGING ABILITY IN 8th (3-2) GEAR

Crankshaft Speed rpm	2103	1894	1689	1467	1264	1050
Pull—lbs (kN)	4980 (22.15)	5738 (25.52)	6387 (28.41)	6804 (30.27)	7275 (32.36)	7208 (32.06)
Increase in Pull %	0	15	28	37	46	45
Power—Hp (kW)	85.77 (63.96)	88.53 (66.02)	87.37 (65.15)	80.54 (60.06)	73.89 (55.10)	60.90 (45.42)
Speed—Mph (km/h)	6.46 (10.39)	5.79 (9.31)	5.13 (8.26)	4.44 (7.14)	3.81 (6.13)	3.17 (5.10)
Slip %	3.08	3.55	4.18	4.49	4.80	4.80

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	77.5
75% of Pull at Maximum Power—Ten Hours	78.0
50% of Pull at Maximum Power—Two Hours	77.5
50% of Pull at Reduced Engine Speed—Two Hours	74.0
Bystander in 12th (4-3) gear	89.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	Four 18.4-38; 6; 16 (110)	Four 18.4-38; 6; 16 (110)
Ballast	None	None
—No., size, ply & psi (kPa)	76 lb (35 kg)	None
—Liquid (each)	None	None
—Test Equip (each)	Two 11.00-16; 6; 32 (220)	Two 11.00-16; 6; 32 (220)
Front Tires	None	None
Ballast	63 lb (28 kg)	None
—No., size, ply & psi (kPa)	19.5 in (495 mm)	19.5 in (495 mm)
—Liquid (each)	10360 lb (4699 kg)	10055 lb (4561 kg)
—Test equip (each)	3565 lb (1617 kg)	3440 lb (1560 kg)
Height of Drawbar	13925 lb (6316 kg)	13495 lb (6121 kg)
Static Weight with Operator—Rear		
—Front		
—Total		

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2250	15510
Location	remote	
Hydraulic oil temperature °F (°C)	173	78
Location	sump	
	Maximum Lift Capacity	Lift Capacity for Transport
QUICK ATTACH CATEGORY	no	
	II	*not measured
LOAD lbs (kg)	6604	2996
TIME sec	2.47	
HITCH POINT MOVEMENT in (mm)		
Lowest position	12.5	317
Top of timed range	**35.5	902
Highest position	36.0	914
LOAD CG MOVEMENT in (mm)		
Lowest position	11.2	284
Top of timed range	41.6	1056
Highest position	42.5	1080

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

**The observed power range 23.5" (597 mm) does not meet the minimum power range 24" (610 mm) specified by ASAE Standard S217.10

surface without brake) right 362" (9.20 m) left 362" (9.20 m) **Power take-off** 534 rpm at 2100 engine rpm and 997 rpm at 2100 engine rpm **Unladen tractor mass** 12040 lb (5461 kg).

REPAIRS AND ADJUSTMENTS: During the hydraulic lift test the control valve linkage was adjusted.

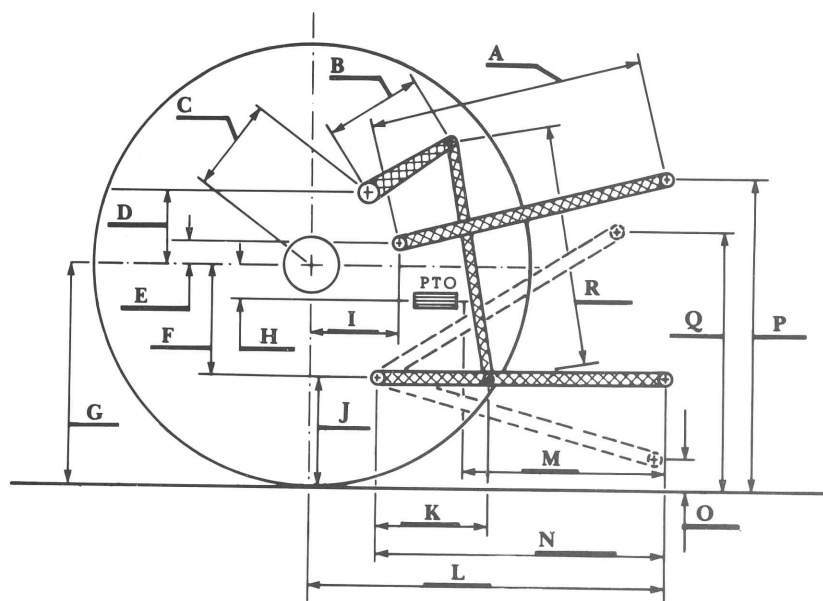
REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 125°F 51.7°C. Eight 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. 1548, December 3, 1984.

Report reissued. Supplemental sales permit for Case International 1896 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



Hitch Dimensions as Tested — No Load

	inch	mm
A	22.5	572
B	12.0	305
C	14.7	372
D	13.0	330
E	6.2	157
F	12.4	315
G	31.9	810
H	0.2	5
I	20.2	512
J	19.5	495
K	17.1	434
L	42.7	1084
M	20.7	525
N	30.2	766
O	8.0	203
P	38.5	978
Q	32.8	832
R	34.1	867



Case 1896 Powershift Diesel