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## Test 1549: Case 2096 powershift Diesel 12-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1549—CASE 2096 POWERSHIFT DIESEL ALSO CASE INTERNATIONAL 2096 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)									
115.67 (86.26)	2100	6.657 (25.200)	0.402 (0.244)	17.38 (3.423)	189 (87.0)	58 (14.5)	75 (23.9)	28.96 (97.78)	
* VARYING POWER AND FUEL CONSUMPTION — Two Hours									
101.61 (75.77)	2170	6.100 (23.090)	0.419 (0.255)	16.66 (3.281)	188 (86.7)	58 (14.4)	74 (23.3)	..... .....	
0.00 (0.00)	2260	1.870 (7.078)	..... .....	..... .....	186 (85.6)	57 (13.9)	74 (23.3)	..... .....	
51.73 (38.58)	2211	3.981 (15.068)	0.537 (0.327)	13.00 (2.560)	188 (86.4)	59 (14.7)	75 (23.9)	..... .....	
116.30 (86.73)	2100	6.667 (25.238)	0.400 (0.243)	17.44 (3.436)	187 (86.1)	58 (14.4)	75 (23.6)	..... .....	
26.11 (19.47)	2232	2.936 (11.114)	0.785 (0.477)	8.89 (1.752)	186 (85.6)	58 (14.4)	75 (23.9)	..... .....	
77.10 (57.49)	2197	5.055 (19.136)	0.458 (0.278)	15.25 (3.004)	187 (85.8)	58 (14.4)	74 (23.3)	..... .....	
Av Av	62.14 (46.34)	2195	4.435 (16.787)	0.498 (0.303)	14.01 (2.760)	187 (86.0)	58 (14.4)	74 (23.6)	28.90 (97.60)

## DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Cool- ing med	Temp. °F (°C)		Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)		Air wet bulb	Air dry bulb	
Maximum Available Power — Two Hours 8th (3-2) Gear											
100.56 (74.99)	5915 (26.31)	6.38 (10.26)	2101	3.90	6.613 (25.032)	0.459 (0.279)	15.21 (2.996)	187 (85.8)	52 (10.8)	61 (15.8)	28.39 (95.85)
75% of Pull at Maximum Power — Ten Hours 8th (3-2) Gear											
79.68 (59.41)	4463 (19.85)	6.69 (10.77)	2184	2.84	5.723 (21.663)	0.501 (0.305)	13.92 (2.743)	189 (87.2)	33 (0.4)	41 (4.7)	29.18 (98.53)
50% of Pull at Maximum Power — Two Hours 8th (3-2) Gear											
54.18 (40.40)	2975 (13.23)	6.83 (10.99)	2208	1.99	4.535 (17.167)	0.584 (0.355)	11.95 (2.353)	189 (87.2)	56 (13.1)	57 (13.6)	28.71 (96.95)
50% of Pull at Reduced Engine Speed — Two Hours 10th (4-1) Gear											
54.23 (40.44)	2975 (13.23)	6.84 (11.00)	1449	1.91	3.740 (14.157)	0.481 (0.293)	14.50 (2.857)	186 (85.6)	59 (14.7)	59 (15.0)	28.68 (96.85)
MAXIMUM POWER IN SELECTED GEARS											
78.27 (58.36)	12915 (57.45)	2.27 (3.66)	2161	14.86	2nd (1-2) Gear			188 (86.7)	44 (6.7)	47 (8.3)	28.51 (96.27)
94.28 (70.30)	12476 (55.49)	2.83 (4.56)	2099	12.54	3rd (1-3) Gear			188 (86.4)	45 (7.2)	48 (8.9)	28.49 (96.21)
95.94 (71.54)	12348 (54.93)	2.91 (4.69)	2100	12.08	4th (2-1) Gear			189 (87.2)	46 (7.8)	49 (9.4)	28.47 (96.14)
100.65 (75.05)	9166 (40.77)	4.12 (6.63)	2100	6.77	5th (2-2) Gear			188 (86.4)	47 (8.3)	50 (10.0)	28.45 (96.07)
101.28 (75.52)	8103 (36.04)	4.69 (7.54)	2101	5.80	6th (3-1) Gear			190 (87.8)	47 (8.3)	51 (10.6)	28.44 (96.04)
100.10 (74.64)	7145 (31.78)	5.25 (8.45)	2100	4.90	7th (2-3) Gear			189 (87.2)	48 (8.9)	52 (11.1)	28.43 (96.00)
101.40 (75.62)	5968 (26.54)	6.37 (10.25)	2100	3.82	8th (3-2) Gear			187 (86.1)	52 (11.1)	62 (16.7)	28.37 (95.80)
98.65 (73.57)	4603 (20.48)	8.04 (12.93)	2100	2.95	9th (3-3) Gear			187 (85.8)	49 (9.4)	53 (11.7)	28.42 (95.97)

Department of Agricultural Engineering

Dates of Test: October 24 to November 5, 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** 3.549 gal (13.436 l) **Drained from motor** 3.109 gal (11.768 l) **Transmission and final drive lubricant** Case Powergard PTF transmission fluid **Total time engine was operated** 32.5 hours.

**ENGINE:** Make Consolidated Diesel Corporation-Case Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 6TA-590/44114446 **Crankshaft lengthwise** **Rated rpm** 2100 **Bore and stroke** 4.016" × 4.724" (102 mm × 120 mm) **Compression ratio** 16.5 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.** 9935403 **Tread width** rear 60" (1524 mm) to 100" (2540 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 27.1" (688 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	2100	1890	1680	1472	1236	1042
Pull—lbs (kN)	5968 (26.54)	6620 (29.45)	7141 (31.76)	7743 (34.44)	8311 (36.97)	7537 (33.53)
Increase in Pull %	0	11	20	30	39	26
Power—Hp (kW)	101.40 (75.62)	100.59 (75.01)	96.16 (71.70)	90.83 (67.74)	81.44 (60.73)	62.64 (46.71)
Speed—Mph (km/h)	6.37 (10.25)	5.70 (9.17)	5.05 (8.13)	4.40 (7.08)	3.67 (5.91)	3.12 (5.02)
Slip %	3.82	4.59	4.90	5.35	5.80	5.20

### TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	77.0
75% of Pull at Maximum Power—Ten Hours	77.5
50% of Pull at Maximum Power—Two Hours	77.0
50% of Pull at Reduced Engine Speed—Two Hours	74.5
Bystander in 12th (4-3) gear	87.5

### TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b>		
—No., size, ply & psi (kPa)	Inner Two 18.4-38; 8; 16 (110)	Inner Two 18.4-38; 8; 16 (110)
Ballast	Outer Two 18.4-38; 6; 16 (110)	Outer Two 18.4-38; 6; 16 (110)
—Liquid (each)	None	None
—Cast Iron (each)	161 lb (73 kg)	None
<b>Front Tires</b>		
—No., size, ply & psi (kPa)	Two 11.00-16SL; 6; 32 (220)	Two 11.00-16SL; 6; 32 (220)
Ballast	None	None
—Liquid (each)		
—Cast Iron (each)	58 lb (26 kg)	None
<b>Height of Drawbar</b>	19.5 in (495 mm)	19.5 in (495 mm)
<b>Static Weight with Operator</b> —Rear	11330 lb (5139 kg)	10685 lb (4847 kg)
—Front	3610 lb (1637 kg)	3495 lb (1585 kg)
—Total	14940 lb (6776 kg)	14180 lb (6432 kg)

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2225	15340
Location	remote	
Hydraulic oil temperature °F (°C)	172	78
Location	sump	
	<b>Maximum Lift Capacity</b>	<b>Lift Capacity for Transport</b>
QUICK ATTACH	no	
CATEGORY	II	*not measured
LOAD lbs (kg)	6604	2996
TIME sec	2.44	
<b>HITCH POINT MOVEMENT</b> in (mm)		
Lowest position	12.0	305
Top of timed range	36.0	914
Highest position	36.0	914
<b>LOAD CG MOVEMENT</b> in (mm)		
Lowest position	10.5	267
Top of timed range	42.0	1067
Highest position	42.1	1070

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

surface without brake) right 362" (9.20 m) left 362" (9.20 m) **Power take-off** 534 rpm at 2100 engine rpm and 998 rpm at 2100 engine rpm **Unladen tractor mass** 12155 lb (5514 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 inlet was maintained at 123°F (50.5°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. 1549, December 10, 1984.

Report reissued. Supplemental sales permit for Case International 2096 Powershift Diesel June 18, 1985.

LOUIS I. LEVITICUS

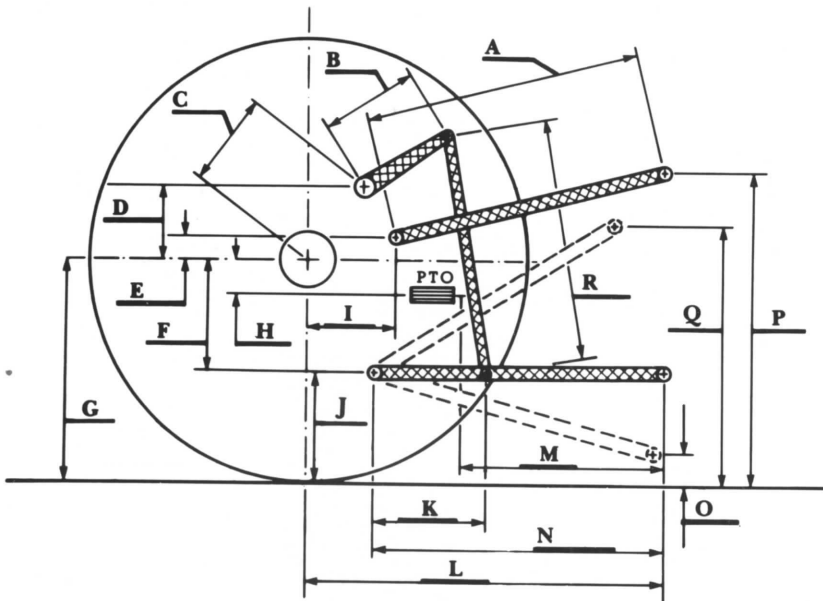
Engineer-in-Charge

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	31.7	805
H	0.2	5
I	20.2	512
J	19.3	490
K	17.1	434
L	42.7	1084
M	20.7	525
N	30.2	766
O	8.0	203
P	38.3	973
Q	33.3	845
R	34.5	876



Case 2096 Powershift Diesel