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## Test 1329: Case 4690 Diesel, Also Case 4694 Powershift Diesel, and Case International 4694 Powershift Diesel (12-Speed)

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1329—CASE 4690 DIESEL ALSO CASE 4694 POWERSHIFT DIESEL ALSO CASE INTERNATIONAL 4694 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—1000 rpm)								
219.62 (163.77)	2200	14.393 (54.485)	0.461 (0.280)	15.26 (3.006)	204 (95.6)	56 (13.2)	75 (23.9)	28.847 (97.411)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
192.64 (143.65)	2271	13.078 (49.505)	0.477 (0.290)	14.73 (2.902)	197 (91.7)	56 (13.3)	76 (24.4)	..... .....
0.00 (0.00)	2389	3.682 (13.939)	..... .....	..... .....	176 (79.7)	55 (12.8)	74 (23.1)	..... .....
99.35 (74.09)	2344	8.179 (30.963)	0.579 (0.352)	12.15 (2.393)	186 (85.3)	55 (12.8)	75 (23.9)	..... .....
222.38 (165.83)	2200	14.473 (54.786)	0.458 (0.278)	15.37 (3.027)	200 (93.6)	56 (13.1)	76 (24.2)	..... .....
50.35 (37.55)	2374	5.948 (22.515)	0.831 (0.505)	8.47 (1.668)	182 (83.1)	55 (12.8)	74 (23.6)	..... .....
147.56 (110.04)	2320	10.462 (39.604)	0.499 (0.303)	14.10 (2.778)	190 (87.8)	56 (13.1)	76 (24.2)	..... .....
<b>Av</b> <i>Av</i>	<b>118.71</b> <i>(88.53)</i>	<b>2316</b> <i>(35.219)</i>	<b>9.304</b> <i>(0.335)</i>	<b>0.551</b> <i>(2.514)</i>	<b>12.76</b> <i>(86.9)</i>	<b>188</b> <i>(13.0)</i>	<b>55</b> <i>(23.9)</i>	<b>75</b> <i>(97.602)</i>

## 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 (3I) Gear												
189.75 (141.49)	11925 (53.04)	5.97 (9.60)	2199	3.98	14.169 (53.637)	0.525 (0.319)	13.39 (2.638)	193 (89.2)	43 (6.1)	53 (11.4)	29.010 (97.962)	
75% of Pull at Maximum Power—Ten Hours 8th (3I) Gear												
154.65 (115.32)	9226 (41.04)	6.29 (10.12)	2291	2.87	12.047 (45.602)	0.548 (0.333)	12.84 (2.529)	188 (86.4)	47 (8.1)	55 (12.5)	28.962 (97.800)	
50% of Pull at Maximum Power—Two Hours 8th (3I) Gear												
106.98 (79.78)	6195 (27.55)	6.48 (10.42)	2340	1.95	9.547 (36.139)	0.627 (0.382)	11.21 (2.207)	180 (81.9)	44 (6.4)	46 (7.8)	29.030 (98.030)	
50% of Pull at Reduced Engine Speed—Two Hours 9th (3H) Gear												
106.97 (79.77)	6192 (27.54)	6.48 (10.43)	1871	1.87	8.231 (31.159)	0.541 (0.329)	13.00 (2.560)	179 (81.4)	50 (10.0)	57 (13.6)	29.025 (98.013)	

## MAXIMUM POWER IN SELECTED GEARS

166.25 (123.97)	24564 (109.27)	2.54 (4.08)	2265	14.77		2nd (1I) Gear	176 (79.7)	40 (4.4)	41 (5.0)	29.000 (97.929)
182.35 (135.98)	23207 (103.23)	2.95 (4.74)	2201	10.93		3rd (2L) Gear	187 (86.1)	40 (4.4)	41 (5.0)	29.000 (97.929)
187.55 (139.85)	21323 (94.85)	3.30 (5.31)	2200	8.67		4th (1H) Gear	191 (88.3)	42 (5.6)	50 (10.0)	29.040 (98.064)
192.40 (143.47)	17439 (77.57)	4.14 (6.66)	2199	6.21		5th (2I) Gear	192 (88.9)	41 (5.0)	49 (9.4)	29.050 (98.097)
192.81 (143.78)	16449 (73.17)	4.40 (7.07)	2199	5.62		6th (3L) Gear	192 (88.9)	41 (5.0)	49 (9.4)	29.050 (98.097)
194.96 (145.38)	13883 (61.76)	5.27 (8.47)	2200	4.56		7th (2H) Gear	193 (89.4)	40 (4.4)	48 (8.9)	29.050 (98.097)
195.60 (145.86)	12292 (54.68)	5.97 (9.60)	2200	3.94		8th (3I) Gear	191 (88.3)	40 (4.4)	47 (8.3)	29.060 (98.131)
193.71 (144.45)	9638 (42.87)	7.54 (12.13)	2201	2.99		9th (3H) Gear	192 (88.9)	43 (6.1)	52 (11.1)	29.030 (98.030)

Department of Agricultural Engineering

Dates of Test: October 18-26, 1979

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

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel  
Cetane No. 49.0 (rating taken from oil company's  
inspection data) **Specific gravity converted to 60°/**  
**60° (15°/15°) 0.8444 Fuel weight 7.031 lbs/gal**  
**(0.843 kg/l) Oil SAE 30 API service classification**  
**SE-CD To motor 5.640 gal (21.349 l) Drained from**  
**motor 5.362 gal (20.295 l) Transmission and hy-**  
**draulic lubricant Case TFD fluid Final drive lu-**  
**bricant Case FDL fluid Total time engine was**  
**operated 34.5 hours.**

**ENGINE: Make Case Diesel Type** six cylinder  
vertical with turbocharger and intercooler **Serial**  
**No. 10178781 Crankshaft lengthwise Rated rpm**  
**2200 Bore and stroke 4.625" × 5.0" (117.5 mm ×**  
**127 mm) Compression ratio 15.8 to 1 Displace-**  
**ment 504 cu in (8259 ml) Starting system 12 volt**  
**Lubrication pressure Air cleaner two paper ele-**  
**ments with aspirator Oil filter two paper car-**  
**tridges 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** four wheel drive with duals  
**Serial No. 8854444 Tread width rear 76" (1930**  
**mm) to 139" (3530 mm) front 76" (1930 mm) to 139"**  
**(3530 mm) Wheel base 102" (2591 mm) Center of**  
**gravity (without operator or ballast, with**  
**minimum tread, with fuel tank filled and tractor**  
**served for operation) Horizontal distance from**  
**forward from center-line of rear wheels 55.7" (1415**  
**mm) Vertical distance above roadway 45.5" (1156**  
**mm) Horizontal distance from center of rear wheel**  
**tread 0" (0 mm) to the right/left Hydraulic control**  
**system direct engine drive Transmission selec-**  
**tive gear fixed ratio with partial (3) range operator**  
**controlled powershift Advertised speeds mph**  
**(km/h) first 2.0 (3.2) second 2.7 (4.3) third 3.1 (5.0)**  
**fourth 3.4 (5.5) fifth 4.2 (6.8) sixth 4.4 (7.1)**  
**seventh 5.2 (8.4) eighth 5.9 (9.5) ninth 7.4 (11.9)**  
**tenth 9.9 (15.9) eleventh 13.3 (21.4) twelfth 18.2**  
**(29.3) reverse 3.4 (5.5), 5.2 (8.4), 7.4 (11.9), 18.2**  
**(29.3) Clutch multiple wet disc hydraulically op-**  
**erated by foot pedal Brakes multiple dry disc**  
**hydraulically operated by foot pedal Steering**  
**hydrostatic for front wheels, electro hydraulic for**  
**rear wheels, front and rear wheels may be steered**  
**independently or together Turning radius (on**  
**concrete surface with front-wheel steering) with**  
**duals, right 330" (8.38 m) left 330" (8.38 m) with**  
**singles, right 287" (7.29 m) left 287" (7.29 m) (on**  
**concrete surface with four-wheel steering) with**  
**duals, right 211" (5.36 m) left 211" (5.36 m) with**  
**singles, right 175" (4.45 m) left 175" (4.45 m)**  
**Turning space diameter (on concrete surface with**  
**front-wheel steering) with duals, right 689" (17.50**  
**m) left 689" (17.50 m) with singles, right 603"**  
**(15.32 m) left 603" (15.32 m) (on concrete surface**  
**with four-wheel steering) with duals, right 459"**

# LUGGING ABILITY IN 8th (3I) GEAR

Crankshaft Speed rpm	2200	1983	1759	1538	1316	1093
Pull—lbs (kN)	12292 (54.68)	13097 (58.26)	13639 (60.67)	13658 (60.75)	12963 (57.66)	11428 (50.84)
Increase in Pull %	0	7	11	11	5	-7
Power—Hp (kW)	195.60 (145.86)	187.30 (139.67)	172.60 (128.71)	151.05 (112.64)	123.01 (91.73)	90.61 (67.57)
Speed—Mph (km/h)	5.97 (9.60)	5.36 (8.63)	4.75 (7.64)	4.15 (6.67)	3.56 (5.73)	2.97 (4.79)
Slip %	3.94	4.17	4.48	4.48	4.17	3.70

# TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	78.0
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	76.0
Bystander in 12th (4H) gear	86.0

# TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b>		
—No., size, ply & psi (kPa)	Four 20.8-34; 8; 16 (110)	Four 20.8-34; 8; 16 (110)
Ballast	None	None
—Effect of front ballast (each)	-102 lb (-46 kg)	None
<b>Front Tires</b>		
—No., size, ply & psi (kPa)	Four 20.8-34; 8; 16 (110)	Four 20.8-34; 8; 16 (110)
Ballast	1010 lb (458 kg)	None
—Effect of front ballast (each)	327 lb (149 kg)	None
<b>Height of drawbar</b>	18.5 in (470 mm)	18.5 in (470 mm)
<b>Static weight with operator—Rear</b>	9860 lb (4473 kg)	10270 lb (4658 kg)
—Front	15370 lb (6972 kg)	12040 lb (5461 kg)
—Total	25230 lb (11445 kg)	22310 lb (10120 kg)

(11.66 m) left 459" (11.66 m) with singles, right 384" (9.75 m) left 384" (9.75 m) **Power take-off** 1000 rpm at 2200 engine rpm.

**REPAIRS and ADJUSTMENTS:** No repairs or adjustments.

**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 187°F (86.3°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. **1329**.

Report reissued. Supplemental permit for Case 4694 granted March 30, 1984.

Report reissued. Supplemental sales permit for Case International 4694 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 4690 Diesel