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January 1997

## Test 1734: Case IH 8910 Diesel 18-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# NEBRASKA OECD TRACTOR TEST 1734—SUMMARY 234

## CASE IH 8910 DIESEL

### 18 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1002 rpm)</b>					
137.44 (102.49)	2200	8.73 (33.06)	0.448 (0.272)	15.74 (3.10)	
<b>Maximum Power (2 hours)</b>					
147.91 (110.30)	2000	8.67 (32.82)	0.413 (0.251)	17.06 (3.36)	
<b>VARYING POWER AND FUEL CONSUMPTION</b>					
137.44 (102.49)	2200	8.73 (33.06)	0.448 (0.272)	15.74 (3.10)	Air temperature
121.24 (90.40)	2285	8.13 (30.78)	0.473 (0.287)	14.91 (2.94)	79°F (26°C)
92.49 (68.97)	2318	6.90 (26.10)	0.525 (0.320)	13.41 (2.64)	Relative humidity
62.37 (46.51)	2358	5.66 (21.43)	0.640 (0.389)	11.02 (2.17)	46%
31.62 (23.58)	2392	4.38 (16.60)	0.977 (0.594)	7.21 (1.42)	Barometer
1.05 (0.78)	2427	3.15 (11.92)	21.104 (12.837)	0.33 (0.07)	28.89" Hg (97.83 kPa)

Maximum Torque 453 lb.-ft. (614 Nm) at 1199 rpm  
 Maximum Torque Rise 38.3%  
 Torque rise at 1801 engine rpm 27%

#### DRAWBAR PERFORMANCE (UNBALLASTED—FRONT DRIVE ENGAGED) FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—8th Gear</b>									
116.38 (86.79)	9463 (42.09)	4.61 (7.42)	2203	3.24	0.523 (0.318)	13.47 (2.65)	191 (88)	73 (23)	28.73 (97.29)
<b>75% of Pull at Maximum Power—8th Gear</b>									
91.57 (68.28)	7079 (31.49)	4.85 (7.81)	2299	2.50	0.582 (0.354)	12.11 (2.39)	188 (87)	76 (24)	28.73 (97.29)
<b>50% of Pull at Maximum Power—8th Gear</b>									
62.50 (46.61)	4716 (20.98)	4.97 (8.00)	2339	1.84	0.697 (0.424)	10.11 (1.99)	187 (86)	79 (26)	28.73 (97.29)
<b>75% of Pull at Reduced Engine Speed—10th Gear</b>									
91.53 (68.25)	7086 (31.52)	4.84 (7.80)	1736	2.50	0.481 (0.292)	14.66 (2.89)	183 (84)	78 (26)	28.73 (97.29)
<b>50% of Pull at Reduced Engine Speed—10th Gear</b>									
62.52 (46.62)	4699 (20.90)	4.99 (8.03)	1775	1.92	0.565 (0.343)	12.48 (2.46)	182 (83)	84 (29)	28.73 (97.29)

**Location of Test:** Tractor Testing Laboratory,  
University of Nebraska, Lincoln, Nebraska 68583-0832

**Dates of Test:** September 10-October 1, 1997

**Manufacturer:** Case Corporation, 700 State Street,  
Racine, Wisconsin 53404

**FUEL OIL and TIME:** Fuel No. 2 Diesel Cetane No. 50.6 Specific gravity converted to 60°/60° F (15°/15°C) 0.8464 Fuel weight 7.048 lbs/gal (0.845 kg/l) Oil SAE 15W-40 API service classification CG-4, CF, CF-4 To motor 4.100 gal (15.519 l) Drained from motor 3.661 gal (13.860 l) Transmission and hydraulic lubricant Case IH Hytran Plus fluid Front axle lubricant Case IH 135 HEP Gear Lube SAE 85W140 Total time engine was operated 21.5 hours.

**ENGINE:** Make Consolidated Diesel Corporation Diesel Type six cylinder vertical with turbocharger Serial No. \*45470171\* Crankshaft lengthwise Rated engine speed 2200 Bore and stroke (as specified) 4.488" × 5.315" (114.0 mm × 135.0 mm) Compression ratio 16.5 to 1 Displacement 505 cu in (8268 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 elements and prefilter Fuel cooler radiator for return fuel Muffler vertical Cooling medium temperature control two thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 58.2-65.0 lb/h (26.4-29.5 kg/h) High idle: 2370-2530 rpm Turbo boost nominal 16.0-21.8 psi (110-150 kPa) as measured 18.2 psi (125 kPa)

**CHASSIS:** Type front wheel assist Serial No. \*JJA0074757\* Tread width rear 60.0" (1524 mm) to 128.0" (3251 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) Wheel base 118.3" (3006 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with full range operator controlled powershift Nominal travel speeds mph (km/h) first 1.73 (2.78) second 1.98 (3.19) third 2.28 (3.68) fourth 2.62 (4.22) fifth 3.01 (4.84) sixth 3.45 (5.55) seventh 4.02 (6.47) eighth 4.61 (7.43) ninth 5.32 (8.56) tenth 6.10 (9.82) eleventh 7.00 (11.27) twelfth 8.03 (12.92) thirteenth 9.19 (14.78) fourteenth 10.54 (16.96) fifteenth 12.15 (19.55) sixteenth 13.94 (22.43) seventeenth 15.99 (25.73) eighteenth 18.34 (29.51) reverse 2.49 (4.00), 2.85 (4.59), 5.79 (9.31), 6.63 (10.68) Clutch multiple wet disc hydraulically actuated by foot pedal Brakes wet multiple disc hydraulically

**DRAWBAR PERFORMANCE**  
**(UNBALLASTED—FRONT DRIVE ENGAGED)**  
**MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th Gear									
101.94 (76.02)	16529 (73.52)	2.31 (3.72)	2212	14.78	0.599 (0.364)	11.77 (2.32)	187 (86)	65 (18)	28.90 (97.87)
5th Gear									
113.65 (84.75)	15636 (69.55)	2.73 (4.39)	2112	8.48	0.542 (0.330)	13.00 (2.56)	189 (87)	69 (21)	28.92 (97.93)
6th Gear									
117.10 (87.32)	14437 (64.22)	3.04 (4.90)	2005	6.32	0.514 (0.313)	13.70 (2.70)	189 (87)	75 (24)	28.73 (97.29)
7th Gear									
122.57 (91.40)	12842 (57.12)	3.58 (5.76)	1998	5.00	0.492 (0.299)	14.33 (2.82)	190 (88)	74 (23)	28.73 (97.29)
8th Gear									
123.81 (92.33)	11162 (49.65)	4.16 (6.69)	2001	3.89	0.488 (0.297)	14.45 (2.85)	190 (88)	74 (23)	28.73 (97.29)
9th Gear									
122.95 (91.69)	9561 (42.53)	4.82 (7.76)	1999	3.24	0.489 (0.297)	14.42 (2.84)	188 (87)	74 (23)	28.73 (97.29)
10th Gear									
123.01 (91.73)	8284 (36.85)	5.57 (8.96)	2002	2.75	0.495 (0.301)	14.25 (2.81)	187 (86)	72 (22)	28.73 (97.29)
11th Gear									
120.97 (90.20)	7076 (31.47)	6.41 (10.32)	2003	2.59	0.495 (0.301)	14.23 (2.80)	189 (87)	75 (24)	28.73 (97.29)
12th Gear									
117.58 (87.68)	5965 (26.53)	7.39 (11.90)	2006	2.17	0.511 (0.311)	13.79 (2.72)	188 (86)	75 (24)	28.73 (97.29)
13th Gear									
117.59 (87.68)	5213 (23.19)	8.46 (13.61)	2002	2.00	0.513 (0.312)	13.74 (2.71)	188 (86)	75 (24)	28.73 (97.29)

actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2229 engine rpm or 1000 rpm at 2193 engine rpm **Unladen tractor mass** 17224 lb (7813 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 122° F (50°C). The pull in 3rd gear (ballasted tractor) was limited to avoid excessive tractor bouncing. The performance results on this summary were taken from OECD tests conducted under the Code II Restricted Standard Test Code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1734**, Summary 234, October 22, 1997.

LOUIS I. LEVITICUS  
 Engineer-in-Charge

L.L. BASHFORD  
 R.D. GRISSO  
 M.F. KOCHER

Board of Tractor Test Engineers

**DRAWBAR PERFORMANCE  
(BALLASTED TRACTOR)  
MAXIMUM POWER IN SELECTED GEARS**

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)
					lb/hp.hr (kg/kWh)	Hp.hr/gal (kW.h/l)	cool- ing med	Air dry bulb	
<b>3rd Gear</b>									
108.84 (81.16)	19795 (88.05)	2.06 (3.32)	2195	11.34	0.563 (0.343)	12.52 (2.47)	188 (86)	51 (11)	28.94 (98.00)
<b>4th Gear</b>									
120.02 (89.50)	18718 (83.26)	2.40 (3.87)	2116	6.63	0.513 (0.312)	13.74 (2.71)	188 (87)	55 (13)	28.95 (98.04)
<b>5th Gear</b>									
123.11 (91.80)	17355 (77.20)	2.66 (4.28)	2003	4.79	0.492 (0.299)	14.33 (2.82)	188 (87)	58 (14)	28.96 (98.07)
<b>6th Gear</b>									
123.39 (92.01)	14975 (66.61)	3.09 (4.97)	2000	3.61	0.489 (0.298)	14.41 (2.84)	189 (87)	61 (16)	28.98 (98.14)
<b>7th Gear</b>									
128.92 (96.14)	13332 (59.30)	3.63 (5.84)	2001	2.96	0.468 (0.285)	15.07 (2.97)	189 (87)	62 (17)	28.97 (98.10)
<b>8th Gear</b>									
127.50 (95.08)	11446 (50.91)	4.18 (6.72)	2000	2.72	0.476 (0.289)	14.81 (2.92)	189 (87)	65 (18)	28.98 (98.14)
<b>9th Gear</b>									
126.67 (94.45)	9818 (43.67)	4.84 (7.79)	2001	2.14	0.476 (0.290)	14.81 (2.92)	189 (87)	68 (20)	28.98 (98.14)
<b>10th Gear</b>									
123.30 (91.94)	8305 (36.94)	5.57 (8.96)	2001	1.89	0.484 (0.294)	14.56 (2.87)	188 (87)	71 (22)	28.98 (98.14)
<b>11th Gear</b>									
120.13 (89.58)	7032 (31.28)	6.41 (10.31)	2001	1.64	0.496 (0.301)	14.22 (2.80)	189 (87)	72 (22)	28.99 (98.17)
<b>12th Gear</b>									
119.13 (88.83)	6059 (26.95)	7.37 (11.87)	2003	1.31	0.507 (0.308)	13.91 (2.74)	188 (87)	72 (22)	28.99 (98.17)
<b>13th Gear</b>									
118.75 (88.55)	5274 (23.46)	8.44 (13.59)	2002	1.06	0.503 (0.306)	14.01 (2.76)	188 (87)	73 (23)	28.99 (98.17)

**TRACTOR SOUND LEVEL WITH CAB**

**dB(A)**

At 75% load in 7th Gear	73.0
Bystander in 18th Gear	83.9

**TIRES, BALLAST AND WEIGHT**

	<b>With Ballast</b>	<b>Without Ballast</b>
<b>Rear Tires</b> ---No., size, ply & psi (kPa)	Four 18.4R38; *, 12 (85)	Two 18.4R38; *, 18 (125)
<b>Ballast</b> ---Duals (total)	1472 lb (668 kg)	None
---Test Equip. (total)	84 lb (37 kg)	None
<b>Front Tires</b> ---No., size, ply & psi (kPa)	Two 14.9R28; ***, 14 (95)	Two 14.9R28; ***, 14 (95)
<b>Ballast</b> ---Liquid (total)	None	None
---Cast Iron (total)	None	None
<b>Height of Drawbar</b>	16.0 in (405 mm)	16.0 in (405 mm)
<b>Static Weight with Operator</b> ---Rear	13416 lb (6085 kg)	11860 lb (5380 kg)
---Front	5540 lb (2513 kg)	5540 lb (2513 kg)
---Total	18956 lb (8598 kg)	17400 lb (7893 kg)

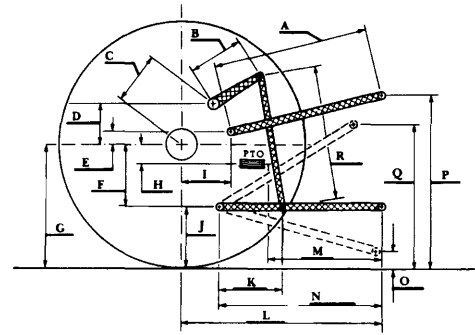
### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: None

Maximum Force Exerted Through Whole Range: 9076 lbs (40.4 kN)

	2650 psi System	2800 psi System
i) Opening pressure of relief valve:	NA	
Sustained pressure at Compensator cutoff:	2640 psi (182 bar)	2780 psi (192 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	29.8 GPM (112.8 l/min)	30.0 GPM (113.6 l/min)
iii) Pump delivery rate at maximum hydraulic power:	27.7 GPM (104.9 l/min)	27.5 GPM (104.1 l/min)
Delivery pressure:	2050 psi (141 bar)	2200 psi (152 bar)
Power:	33.1 HP (24.7 kW)	35.3 HP (26.3 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	mm	inch	mm
A	26.0	660	26.0	660
B	15.0	381	15.0	381
C	21.9	557	21.9	557
D	16.6	422	16.6	422
E	9.8	250	9.8	250
F	13.1	332	13.1	332
G	32.3	820	33.7	855
H	3.5	90	3.5	90
I	24.7	627	24.7	627
J	19.2	488	20.6	523
K	22.8	579	22.8	579
L	51.4	1306	51.4	1306
M	22.1	561	22.1	561
N	33.9	861	33.9	861
O	9.7	247	8.0	203
P	41.2	1048	42.6	1082
Q	37.1	942	35.9	911
R	30.2	768	32.5	825

### THREE POINT HITCH PERFORMANCE (SAE Dynamic Test)

Observed Maximum Pressure psi. (bar)	2800 (193)
Location	Remote outlet
Hydraulic oil temperature °F (°C)	141 (61)
Location	Transmission sump

#### Maximum Lift Capacity

QUICK ATTACH	No
CATEGORY:	III
LOAD lbs (kg)	11960 (5425)
TIME sec	4.41
HITCH MOVEMENT in (mm)	
Lowest position	14.0 (356)
Top of timed range	40.0 (1016)
Highest position	40.0 (1016)
LOAD CG MOVEMENT in (mm)	
Lowest position	16.1 (409)
Top of timed range	43.3 (1100)
Highest position	43.3 (1100)



CASE IH 8910 DIESEL

Agricultural Research Division  
 Institute of Agriculture and Natural Resources  
 University of Nebraska—Lincoln  
 Darrell Nelson, Dean and Director