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Test 1735: Case IH 8930 Diesel 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1735—SUMMARY 235

CASE IH 8930 DIESEL

18 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1003 rpm)					
182.08 (135.78)	2200	11.26 (42.64)	0.436 (0.265)	16.16 (3.18)	
Maximum Power (2 hours)					
198.35 (147.91)	1950	11.21 (42.44)	0.398 (0.242)	17.69 (3.49)	

VARYING POWER AND FUEL CONSUMPTION

182.08 (135.78)	2200	11.26 (42.64)	0.436 (0.265)	16.16 (3.18)	Air temperature
161.63 (120.52)	2298	10.56 (39.96)	0.460 (0.280)	15.31 (3.02)	78°F (25°C)
122.61 (91.43)	2323	8.73 (33.03)	0.502 (0.305)	14.05 (2.77)	Relative humidity
82.82 (61.76)	2358	6.90 (26.10)	0.587 (0.357)	12.01 (2.37)	44%
42.19 (31.46)	2398	5.11 (19.34)	0.853 (0.519)	8.26 (1.63)	Barometer
1.06 (0.79)	2436	3.41 (12.89)	22.691 (13.803)	0.31 (0.06)	28.99" Hg (98.17 kPa)

Maximum Torque 614 lb.-ft. (833 Nm) at 1399 rpm

Maximum Torque Rise 41.0%

Torque rise at 1802 engine rpm 28%

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

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)
Maximum Power—8th Gear									
156.31 (116.56)	12292 (54.68)	4.77 (7.67)	2201	3.58	0.507 (0.309)	13.89 (2.74)	191 (88)	69 (21)	28.76 (97.39)
75% of Pull at Maximum Power—8th Gear									
124.26 (92.66)	9213 (40.98)	5.06 (8.14)	2311	2.57	0.550 (0.335)	12.81 (2.52)	192 (89)	78 (26)	28.85 (97.70)
50% of Pull at Maximum Power—8th Gear									
84.57 (63.07)	6136 (27.29)	5.17 (8.32)	2342	1.96	0.639 (0.389)	11.03 (2.17)	187 (86)	79 (26)	28.86 (97.73)
75% of Pull at Reduced Engine Speed—10th Gear									
123.14 (92.56)	9210 (40.97)	5.05 (8.13)	1748	2.74	0.458 (0.279)	15.39 (3.03)	184 (84)	78 (26)	28.86 (97.73)
50% of Pull at Reduced Engine Speed—10th Gear									
84.43 (62.96)	6133 (27.28)	5.16 (8.31)	1768	1.96	0.504 (0.306)	13.99 (2.76)	182 (83)	79 (26)	28.86 (97.73)

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

Dates of Test: September 8-25, 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 4.392 gal
(16.627 l) Drained from motor 4.121 gal (15.600 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 25.5 hours.

ENGINE: Make Consolidated Diesel Corporation
Diesel Type six cylinder vertical with turbocharger
and intercooler Serial No. *45477574* 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 prestrainer Fuel cooler
radiator for return fuel Muffler vertical Cooling
medium temperature control two thermostats
and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel
rate: 76.1-84.4 lb/h (34.5-38.3 kg/h) High idle:
2370-2530 rpm Turbo boost nominal 19.1-24.9 psi
(132-172 kPa) as measured 21.9 psi (151 kPa)

CHASSIS: Type front wheel assist Serial No.
JJA0075180 Tread width rear 64.0" (1626 mm) to
136.0" (3454 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 1.81 (2.92) second 2.08 (3.34) third 2.40
(3.86) fourth 2.75 (4.42) fifth 3.15 (5.07) sixth 3.62
(5.82) seventh 4.22 (6.79) eighth 4.84 (7.79) ninth 5.58
(8.98) tenth 6.40 (10.30) eleventh 7.34 (11.81) twelfth
8.39 (13.51) thirteenth 9.63 (15.50) fourteenth 11.04
(17.78) fifteenth 12.74 (20.51) sixteenth 14.62 (23.52)
seventeenth 16.77 (26.98) eighteenth 19.23 (30.95)
reverse 2.61 (4.20), 2.99 (4.81), 6.08 (9.78), 6.97 (11.22)
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)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
5th Gear									
132.78 (99.01)	17533 (77.99)	2.84 (4.57)	2259	14.22	0.588 (0.358)	11.98 (2.36)	191 (88)	69 (21)	28.77 (97.43)
6th Gear									
146.08 (108.93)	16585 (73.77)	3.30 (5.32)	2167	9.25	0.544 (0.331)	12.95 (2.55)	192 (89)	69 (21)	28.80 (97.53)
7th Gear									
162.42 (121.12)	16350 (72.73)	3.73 (6.00)	2071	8.12	0.499 (0.303)	14.13 (2.78)	194 (90)	70 (21)	28.82 (97.60)
8th Gear									
166.67 (124.29)	15143 (67.36)	4.13 (6.64)	1956	6.10	0.473 (0.288)	14.89 (2.93)	196 (91)	71 (22)	28.82 (97.60)
9th Gear									
170.73 (127.32)	13151 (58.50)	4.87 (7.84)	1955	3.91	0.462 (0.281)	15.25 (3.00)	195 (90)	69 (21)	28.75 (97.36)
10th Gear									
170.12 (126.86)	11356 (50.51)	5.62 (9.04)	1951	3.25	0.464 (0.282)	15.20 (2.99)	195 (90)	69 (21)	28.74 (97.32)
11th Gear									
169.22 (126.19)	9810 (43.63)	6.47 (10.41)	1953	2.99	0.469 (0.285)	15.05 (2.96)	194 (90)	72 (22)	28.83 (97.63)
12th Gear									
166.87 (124.44)	8384 (37.29)	7.46 (12.01)	1955	2.48	0.472 (0.287)	14.92 (2.94)	199 (93)	73 (23)	28.83 (97.63)
13th Gear									
164.82 (122.91)	7210 (32.07)	8.57 (13.80)	1955	2.14	0.481 (0.292)	14.66 (2.89)	195 (91)	75 (24)	28.83 (97.63)

actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 2193 (optional dual speed-540 rpm at 2229 engine rpm or 1000 rpm at 2193 engine rpm) **Unladen tractor mass** 17855 lb (8100 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 136° F (58°C). The pull in 4th 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. **1735**, Summary 235, October 22, 1997.

LOUIS I. LEVITICUS
Engineer-in-Charge

L.L. BASHFORD
R.D. GRISSE
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 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									
150.74 (112.41)	22323 (99.30)	2.53 (4.08)	2178	9.38	0.524 (0.319)	13.44 (2.65)	189 (87)	61 (16)	28.95 (98.04)
5th Gear									
159.58 (119.00)	20208 (89.89)	2.96 (4.77)	2136	5.76	0.501 (0.305)	14.08 (2.77)	190 (88)	63 (17)	28.93 (97.97)
6th Gear									
165.97 (123.77)	20084 (89.34)	3.10 (4.99)	1948	5.84	0.474 (0.288)	14.86 (2.93)	195 (90)	66 (19)	28.92 (97.93)
7th Gear									
170.03 (126.79)	17354 (77.19)	3.67 (5.91)	1951	4.37	0.463 (0.282)	15.21 (3.00)	197 (92)	71 (22)	28.95 (98.04)
8th Gear									
172.00 (128.26)	15201 (67.62)	4.24 (6.83)	1949	3.71	0.459 (0.279)	15.37 (3.03)	198 (92)	72 (22)	28.95 (98.04)
9th Gear									
171.71 (128.04)	13102 (58.28)	4.91 (7.91)	1948	3.12	0.458 (0.279)	15.39 (3.03)	196 (91)	73 (23)	28.94 (98.00)
10th Gear									
170.01 (126.78)	11229 (49.95)	5.68 (9.14)	1952	2.61	0.464 (0.282)	15.20 (2.99)	203 (95)	75 (24)	28.93 (97.97)
11th Gear									
167.82 (125.15)	9642 (42.89)	6.53 (10.50)	1950	2.26	0.468 (0.285)	15.05 (2.97)	197 (91)	75 (24)	28.93 (97.97)
12th Gear									
165.33 (123.29)	8234 (36.63)	7.53 (12.12)	1955	2.00	0.476 (0.290)	14.80 (2.92)	198 (92)	76 (24)	28.93 (97.97)
13th Gear									
163.12 (121.64)	7098 (31.57)	8.62 (13.87)	1950	1.66	0.480 (0.292)	14.69 (2.89)	195 (91)	76 (24)	28.93 (97.97)

TRACTOR SOUND LEVEL WITH CAB

dB(A)

At 75% load in 7th Gear	72.8
Bystander in 18th Gear	87.5

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires —No., size, ply & psi (kPa)	Four 20.8R38; **, 12 (85)	Two 20.8R38; **, 18 (110)
Ballast —Duals (total)	1616 lb (733 kg)	None
—Cast Iron (total)	740 lb (336 kg)	None
Front Tires —No., size, ply & psi (kPa)	Two 14.9R30; ***, 22 (150)	Two 14.9R30; ***, 14 (95)
Ballast —Liquid (total)	None	None
—Cast Iron (total)	1760 lb (798 kg)	None
Height of Drawbar	19.5 in (495 mm)	14.0 in (355 mm)
Static Weight with Operator —Rear	14186 lb (6434 kg)	12392 lb (5621 kg)
—Front	7960 lb (3611 kg)	5638 lb (2557 kg)
—Total	22146 lb (10045 kg)	18030 lb (8178 kg)

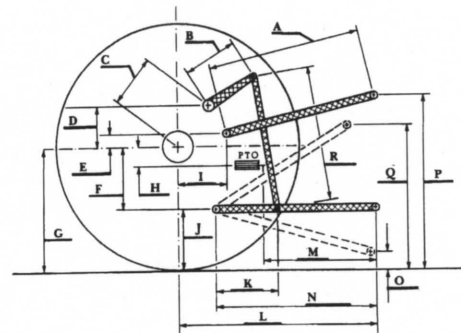
THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: None

Maximum Force Exerted Through Whole Range: 11196 lbs (49.8 kN)

i) Opening pressure of relief valve:	NA	
Sustained pressure at Compensator cutoff:	2650 psi System 2640 psi (182 bar)	2800 psi System 2780 psi (193 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	29.7 GPM (112.4 l/min)	29.9 GPM (113.2 l/min)
iii) Pump delivery rate at maximum hydraulic power:	27.2 GPM (103.0 l/min)	26.8 GPM (101.4 l/min)
Delivery pressure:	2050 psi (141 bar)	2200 psi (152 bar)
* Power:	32.5 HP (24.3 kW)	34.4 HP (25.7 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

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)	13530 (6137)
TIME sec	4.53
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)

	OECD test		SAE test	
	inch	mm	inch	mm
A	25.8	654	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	33.7	855	33.7	855
H	3.5	90	3.5	90
I	24.7	627	24.7	627
J	20.6	523	20.6	523
K	22.8	579	22.8	579
L	51.4	1306	51.4	1306
M	20.1	510	22.1	561
N	33.9	861	33.9	861
O	10.1	257	8.0	203
P	42.6	1083	42.6	1083
Q	37.1	942	35.9	911
R	31.3	794	32.5	825



CASE IH 8930 DIESEL

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