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January 1997

Test 1737: Case IH 8950 Diesel 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1737—SUMMARY 237

CASE IH 8950 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—1002 rpm) | | | | | |
| 227.12 (169.36) | 2200 | 13.64 (51.65) | 0.423 (0.258) | 16.65 (3.28) | |
| Maximum Power (2 hours) | | | | | |
| 255.18 (190.29) | 1950 | 14.25 (53.96) | 0.394 (0.239) | 17.90 (3.53) | |
| VARYING POWER AND FUEL CONSUMPTION | | | | | |
| 227.12 (169.36) | 2200 | 13.64 (51.65) | 0.423 (0.258) | 16.65 (3.28) | Air temperature |
| 199.72 (148.93) | 2275 | 12.51 (47.37) | 0.442 (0.269) | 15.96 (3.14) | 77°F (25°C) |
| 154.54 (115.24) | 2345 | 10.51 (39.80) | 0.479 (0.291) | 14.70 (2.90) | Relative humidity |
| 104.89 (78.22) | 2399 | 8.47 (32.06) | 0.569 (0.346) | 12.38 (2.44) | 57% |
| 53.36 (39.79) | 2437 | 6.13 (23.20) | 0.810 (0.492) | 8.71 (1.72) | Barometer |
| 1.06 (0.79) | 2452 | 3.36 (12.73) | 22.307 (13.569) | 0.32 (0.06) | 28.82" Hg (97.60 kPa) |

Maximum Torque 772 lb.-ft. (1046 Nm) at 1400 rpm
 Maximum Torque Rise 42.4%
 Torque rise at 1799 engine rpm 33%

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—7th Gear | | | | | | | | | |
| 195.89 (146.08) | 17303 (76.96) | 4.25 (6.84) | 2203 | 6.75 | 0.492 (0.299) | 14.32 (2.82) | 186 (85) | 59 (15) | 28.71 (97.22) |
| 75% of Pull at Maximum Power—7th Gear | | | | | | | | | |
| 158.75 (118.38) | 12979 (57.73) | 4.59 (7.37) | 2295 | 3.18 | 0.514 (0.313) | 13.71 (2.70) | 187 (85) | 78 (26) | 28.74 (97.33) |
| 50% of Pull at Maximum Power—7th Gear | | | | | | | | | |
| 109.89 (81.94) | 8657 (38.51) | 4.76 (7.66) | 2348 | 1.99 | 0.579 (0.352) | 12.18 (2.40) | 185 (85) | 81 (27) | 28.73 (97.29) |
| 75% of Pull at Reduced Engine Speed—9th Gear | | | | | | | | | |
| 158.70 (118.34) | 12975 (57.72) | 4.59 (7.39) | 1737 | 3.18 | 0.433 (0.263) | 16.26 (3.21) | 185 (85) | 80 (27) | 28.74 (97.33) |
| 50% of Pull at Reduced Engine Speed—9th Gear | | | | | | | | | |
| 110.02 (82.05) | 8605 (38.28) | 4.79 (7.72) | 1788 | 1.71 | 0.469 (0.285) | 15.01 (2.96) | 183 (84) | 81 (27) | 28.73 (97.29) |

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

Dates of Test: September 18-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 3.934 gal (14.890 l) Drained from motor 3.398 gal (12.861 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 18.5 hours.

ENGINE: Make Consolidated Diesel Corporation Diesel Type six cylinder vertical with turbocharger and intercooler Serial No. *45729570* Crankshaft lengthwise Rated engine speed 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: 93.5-103.2 lb/h (42.4-46.8 kg/h) High idle: 2370-2530 rpm Turbo boost nominal 20.0-27.8 psi (152-192 kPa) as measured 24.5 psi (169 kPa)

CHASSIS: Type front wheel assist Serial No. *JJA0075024* 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 1.92 (3.09) second 2.20 (3.54) third 2.54 (4.08) fourth 2.91 (4.68) fifth 3.34 (5.37) sixth 3.83 (6.16) seventh 4.47 (7.19) eighth 5.12 (8.24) ninth 5.90 (9.50) tenth 6.77 (10.90) eleventh 7.78 (12.50) twelfth 8.91 (14.34) thirteenth 10.20 (16.41) fourteenth 11.69 (18.82) fifteenth 13.49 (21.71) sixteenth 15.47 (24.90) seventeenth 17.75 (28.56) eighteenth 20.36 (32.76) reverse 2.76 (4.44), 3.16 (5.09), 6.43 (10.34), 7.37 (11.86) 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/kWh) | Hp.hr/gal (kW.h/l) | Temp. °F (°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|--|-----------------------|--------------------------------------|--------------------|-------------------------------|
| 6th Gear | | | | | | | | | |
| 172.31 (128.49) | 18766 (83.47) | 3.44 (5.54) | 2243 | 13.48 | 0.550 (0.334) | 12.82 (2.53) | 187 (86) | 54 (12) | 28.70 (97.19) |
| 7th Gear | | | | | | | | | |
| 196.55 (146.57) | 18042 (80.25) | 4.09 (6.57) | 2165 | 8.69 | 0.498 (0.303) | 14.15 (2.79) | 186 (86) | 60 (16) | 28.71 (97.22) |
| 8th Gear | | | | | | | | | |
| 207.47 (154.71) | 16942 (75.36) | 4.59 (7.39) | 2072 | 6.50 | 0.476 (0.289) | 14.82 (2.92) | 187 (86) | 70 (21) | 28.74 (97.32) |
| 9th Gear | | | | | | | | | |
| 217.64 (162.30) | 16227 (72.18) | 5.03 (8.09) | 1950 | 5.58 | 0.461 (0.281) | 15.28 (3.01) | 191 (88) | 71 (22) | 28.74 (97.32) |
| 10th Gear | | | | | | | | | |
| 224.00 (167.04) | 14291 (63.57) | 5.88 (9.46) | 1950 | 3.77 | 0.450 (0.274) | 15.65 (3.08) | 189 (87) | 62 (17) | 28.72 (97.26) |
| 11th Gear | | | | | | | | | |
| 222.24 (165.72) | 12283 (54.64) | 6.79 (10.92) | 1944 | 2.98 | 0.451 (0.275) | 15.61 (3.08) | 191 (88) | 67 (19) | 28.73 (97.29) |
| 12th Gear | | | | | | | | | |
| 221.68 (165.30) | 10546 (46.91) | 7.88 (12.69) | 1957 | 2.26 | 0.454 (0.276) | 15.51 (3.06) | 192 (89) | 68 (20) | 28.73 (97.29) |
| 13th Gear | | | | | | | | | |
| 219.73 (163.85) | 9129 (40.61) | 9.03 (14.55) | 1950 | 1.99 | 0.458 (0.278) | 15.40 (3.03) | 192 (89) | 69 (21) | 28.74 (97.32) |

actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 2193 **Unladen tractor mass** 18340 lb (8318 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 147° F (64°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. **1737**, Summary 237, 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 | |
| 4th Gear | | | | | | | | | |
| 188.06 (140.23) | 25386 (112.92) | 2.78 (4.47) | 2217 | 7.26 | 0.512 (0.312) | 13.75 (2.71) | 187 (86) | 56 (13) | 28.87 (97.77) |
| 5th Gear | | | | | | | | | |
| 200.18 (149.28) | 24366 (108.39) | 3.08 (4.96) | 2112 | 5.68 | 0.491 (0.299) | 14.36 (2.83) | 187 (86) | 57 (14) | 28.87 (97.77) |
| 6th Gear | | | | | | | | | |
| 212.40 (158.39) | 23701 (105.43) | 3.36 (5.41) | 2001 | 5.51 | 0.475 (0.289) | 14.83 (2.92) | 187 (86) | 59 (15) | 28.87 (97.77) |
| 7th Gear | | | | | | | | | |
| 220.42 (164.37) | 21298 (94.74) | 3.88 (6.25) | 1956 | 4.14 | 0.456 (0.277) | 15.47 (3.05) | 190 (88) | 64 (18) | 28.87 (97.77) |
| 8th Gear | | | | | | | | | |
| 222.54 (165.94) | 18567 (82.59) | 4.49 (7.23) | 1954 | 3.08 | 0.450 (0.274) | 15.66 (3.09) | 189 (87) | 62 (17) | 28.87 (97.77) |
| 9th Gear | | | | | | | | | |
| 223.03 (166.31) | 16009 (71.21) | 5.22 (8.41) | 1957 | 2.63 | 0.449 (0.273) | 15.70 (3.09) | 190 (88) | 60 (16) | 28.87 (97.77) |
| 10th Gear | | | | | | | | | |
| 223.49 (166.65) | 14002 (62.28) | 5.99 (9.63) | 1948 | 2.26 | 0.448 (0.273) | 15.72 (3.10) | 191 (88) | 65 (18) | 28.88 (97.80) |
| 11th Gear | | | | | | | | | |
| 220.15 (164.17) | 11968 (53.24) | 6.90 (11.10) | 1950 | 1.90 | 0.453 (0.276) | 15.55 (3.06) | 191 (88) | 66 (19) | 28.89 (97.83) |
| 12th Gear | | | | | | | | | |
| 218.16 (162.68) | 10283 (45.74) | 7.96 (12.80) | 1955 | 1.62 | 0.460 (0.280) | 15.31 (3.02) | 192 (89) | 67 (19) | 28.89 (97.83) |
| 13th Gear | | | | | | | | | |
| 216.37 (161.34) | 87930 (39.72) | 9.09 (14.62) | 1947 | 1.35 | 0.463 (0.282) | 15.21 (3.00) | 191 (88) | 68 (20) | 28.89 (97.83) |

TRACTOR SOUND LEVEL WITH CAB

dB(A)

| | |
|-------------------------|------|
| At 75% load in 7th Gear | 71.6 |
| Bystander in 18th Gear | 86.9 |

TIRES, BALLAST AND WEIGHT

| | With Ballast | Without Ballast |
|--|---------------------------|--------------------------|
| Rear Tires —No., size, ply & psi (kPa) | Four 20.8R42; **, 12 (85) | Two 20.8R42; **, 14 (95) |
| Ballast —Duals (total) | 1684 lb (764 kg) | None |
| —Cast Iron (total) | 2032 lb (922 kg) | None |
| Front Tires —No., size, ply & psi (kPa) | Two 16.9R30; **, 20 (135) | Two 16.9R30; **, 12 (85) |
| Ballast —Liquid (total) | None | None |
| —Cast Iron (total) | 2560 lb (1161 kg) | None |
| Height of Drawbar | 16.5 in (420 mm) | 15.0 in (380 mm) |
| Static Weight with Operator —Rear | 15682 lb (7113 kg) | 12774 lb (5794 kg) |
| —Front | 9098 lb (4127 kg) | 5730 lb (2599 kg) |
| —Total | 24780 lb (11240 kg) | 18504 lb (8393 kg) |

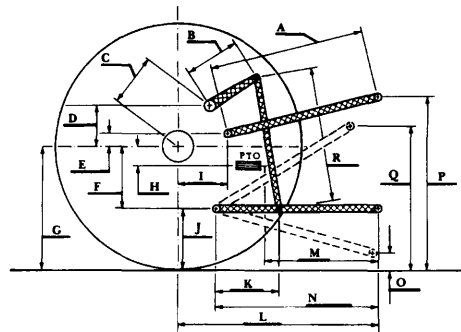
THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: Yes

Maximum Force Exerted Through Whole Range: 14400 lbs (64.1 kN)

| | | |
|--|------------------------|------------------------|
| i) Opening pressure of relief valve: | NA | |
| Sustained pressure at | 2650 psi System | 2800 psi System |
| Compensator cutoff: | 2630 psi (181 bar) | 2760 psi (190 bar) |
| ii) Pump delivery rate at minimum pressure and rated engine speed: | 29.7 GPM (112.4 l/min) | 29.7 GPM (112.4 l/min) |
| iii) Pump delivery rate at maximum hydraulic power: | 26.9 GPM (101.8 l/min) | 27.0 GPM (102.2 l/min) |
| Delivery pressure: | 2070 psi (143 bar) | 2170 psi (150 bar) |
| Power: | 32.5 HP (24.2 kW) | 34.2 HP (25.5 kW) |



HITCH DIMENSIONS AS TESTED—NO LOAD

| | OECD test | | SAE test | |
|----|-----------|------|----------|------|
| | inch | mm | inch | mm |
| A | 25.0 | 635 | 25.4 | 635 |
| 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 | 35.6 | 905 | 35.6 | 905 |
| H | 3.5 | 90 | 3.5 | 90 |
| I | 24.7 | 627 | 24.7 | 627 |
| J | 22.5 | 573 | 22.5 | 573 |
| K | 21.3 | 540 | 21.3 | 540 |
| L | 50.5 | 1282 | 50.5 | 1282 |
| L' | 55.5 | 1409 | 55.5 | 1409 |
| M | 19.1 | 486 | 19.1 | 486 |
| N | 33.0 | 837 | 33.0 | 837 |
| O | 9.0 | 229 | 8.0 | 203 |
| P | 44.5 | 1132 | 44.5 | 1132 |
| Q | 37.3 | 946 | 36.9 | 937 |
| R | 32.6 | 829 | 33.1 | 841 |

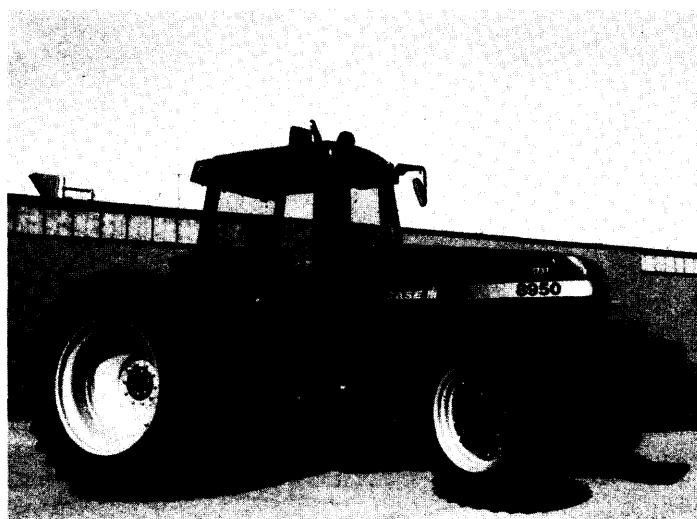
L' to Quick attach ends

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 | Yes |
| CATEGORY: | III |
| LOAD lbs (kg) | 16204 (7350) |
| TIME sec | 4.93 |
| HITCH MOVEMENT in (mm) | |
| Lowest position | 14.0 (356) |
| Top of timed range | 40.0 (1016) |
| Highest position | 41.3 (1049) |
| LOAD CG MOVEMENT in (mm) | |
| Lowest position | 15.8 (401) |
| Top of timed range | 42.3 (1074) |
| Highest position | 43.8 (1113) |



CASE IH 8950 DIESEL

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