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(Restricted code)
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NEBRASKA TRACTOR TESTING LABORATORY
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LINCOLN, NEBRASKA 68583-0832, USA

# REPORT ON TEST IN ACCORDANCE WITH OECD STANDARD CODE FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTOR PERFORMANCE

## RESTRICTED TEST-CODE II

## CASE INTERNATIONAL 9240 (4 WD) Rigid Frame
## STEIGER 9240 (4 WD) Rigid Frame



MANUFACTURED BY: J.I. Case Company
3401 First Avenue
Fargo, North Dakota, 58102 USA

NEBRASKA TEST NO. 1650

Test date: June 1991

This test report provides the results of the tests conducted in accordance with the OECD Standard Test Code for the Official Testing of Agricultural Tractor Performance - C(87)53 Final - Annex II, Restricted Code.

This report has been approved by the OECD Coordinating Centre in Paris (CEMAGREF) on March 20 1992

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## SPECIFICATIONS OF TRACTOR.

| | | |
|---|---|---|
| Manufacturers name/address | : | J.I. Case Company<br>3401 First Avenue North<br>Fargo, North Dakota 58102 |
| Location of tractor assembly | : | Fargo plant |
| Submitted for test by | : | The manufacturer |
| Selected for test by | : | The manufacturer in agreement with the test station. |
| Place of running in | : | Case IH<br>Fargo, North Dakota |
| Duration of running in | : | 188 hours |
| Location of Test | : | Nebraska Tractor Test Laboratory<br>Lincoln, Nebraska, U.S.A. |

## SPECIFICATIONS OF TRACTOR

### TRACTOR.

| | |
|---|---|
| Make/Model/Type | Case IH 9240/4WD/Rigid frame |
| Number of driving wheels | 4 |
| Serial number | -JCB0027368- |
| 1st Serial number | -JCB0006498- |

### ENGINE.

| | |
|---|---|
| Make | Consolidated Diesel Company |
| Model | 6TA-830 |
| Type | diesel, direct injection, turbocharged and intercooled |
| Serial Number | *44598515* |
| **Cylinders** | |
| Number/disposition | 6, in-line, vertical |
| Bore x stroke | 114.0 mm x 135.0 mm (4.488 in x 5.315 in) |
| Capacity | 8269 ml (505 in) |
| Compression Ratio | 16.5 - 1 |
| Arrangement of valves | Overhead |
| Cylinder liners | Wet, replaceable |
| **Super charging** | |
| Make/Model/Type | Holset/H2E/exhaust gas driven |
| Pressure | 81-106 kPa (12-15.5 psi) |
| **Fuel System** | |
| Feed system | Engine driven transfer pump |
| Make/Type/Model of filters | Case IH/spin on/<br>primary J903410<br>secondary J903640 |
| Fuel tank capacity | 757 liters (200 US gallons) |

| | |
|---|---|
| Make/Model/Type Injection Pump | Robert Bosch/PESWM/in line multiple plunger |
| Pump Serial number | PESMW100/120RS1137-1 |
| Production setting of pump Flow Rate (Rated Eng.Spd & Full Load) | 34.3 - 38.0 kg/h (75.6 - 83.8 lb/h) (fuel density - 0.838 kg/l) |
| Make/Model/Type of injectors | Robert Bosch,17 mm P/N J908511 |
| Injection pressure | 20.5 MPa(2975 psi) |
| Timing | 22 degrees BTDC |
| **Governor** | |
| Make/Model/Type | Robert Bosch,mechanical,RSV |
| Governed engine speed range | From 850 to 2400 rev/min |
| Rated engine speed | 2200 rev/min |
| High-idle speed range | 2400 +/- 50 rev/min |
| **Air Cleaner.** | |
| Pre-cleaner Air intake location | Above engine,intake in front of radiator |
| Main Cleaner Make/Model/Type | Donaldson/FHG14-0133/ dry element |
| Secondary element | Donaldson/pleated paper |
| Maintenance indicator | restriction switch in air inlet tube,light on dash |
| **Lubrication system.** | |
| Type of feed pump | full pressure, positive displacement. |
| Type of filters | full flow |
| Number | 1 |
| Oil cooler | Heat exchanger with engine coolant |
| **Cooling system.** | |
| Type of coolant | Liquid |
| Type of pump | Centrifugal,belt driven |
| Fan specification | ECS P/N 411357 |
| Number of fan blades | 6 |
| Fan diameter | 610 mm (24.0 in) |
| Coolant system capacity | 28 liter (29 qt) |
| Type of temperature control | 2 thermostats |
| **Starting system.** | |
| Make/Model/Type | Nippendenso/F4.0/electro-mechanical engagement |
| Power Rating | 4.0 kW (5.4 hp) |
| Cold starting aid | Ether spray in intake manifold and in-block coolant heater |
| Safety device | Electrical lockout on gearshift and PTO controls |

| | |
|---|---|
| **Electrical system.** | |
| Voltage | 12 Volt |
| Generator | |
| Make/Model/Type | Delco Remy/Series 21SI/2000 |
| Power rating | 125 Ampere at 2200 engine rpm. |
| Batteries | |
| Number & connection | 2-12 V batteries in parallel |
| Rating | 90 amp-hours per battery at 20 hour rating<br>625 Cold crank amps per battery |
| **Exhaust system.** | |
| Make/Model/Type | Donaldson/P/N MAM09-M090655, expansion chamber |
| Location | Vertical,right front side of cab outlet directed to right side |

## TRANSMISSION TO WHEELS

| | |
|---|---|
| **Clutch. (travel alone)** | |
| Make/Model/Type | FTK/wet multiple plate, oil cooled |
| Number of plates | 10 |
| Plate diameter | 229 mm (9.0 in) |
| Method of operation | Hydraulic, foot pedal. |
| **Gear Box.** | |
| Make/Model/Type | FTK Model EW16/Full Powershift |
| Arrangement | countershaft |
| Number of gears | 12 forward, 3 reverse controlled by a single hand lever |
| Oil cooler | Heat exchanger with air |
| Available options | None |

Rear axle and final drives.

| | |
|---|---|
| Make/model/Type | Raba 595/outboard planetary, steerable |
| Differential Lock Type | multiple disc clutch with limited slip |
| Method of engagement | electrically |
| Method of disengagement | electrically |

Front Axle and final drives.

| | |
|---|---|
| Make/Model/Type | Raba 595/outboard planetary, steerable |
| Differential lock Type | multiple disc clutch with limited slip |
| Method of engagement | electrically |
| Method of disengagement | electrically |

Total ratios and travelling speeds

| Gear Number | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed at rated engine speed of 2200 rev/min [km/h] | [mph] |
|---|---|---|---|
| Forward | | | |
| 1 | 195.666 | 3.62 | 2.25 |
| 2 | 161.709 | 4.39 | 2.73 |
| 3 | 131.395 | 5.40 | 3.36 |
| 4 | 108.214 | 6.55 | 4.07 |
| 5 | 89.439 | 7.93 | 4.93 |
| 6 | 72.652 | 9.76 | 6.06 |
| 7 | 61.545 | 11.52 | 7.16 |
| 8 | 50.872 | 13.94 | 8.66 |
| 9 | 41.319 | 17.16 | 10.66 |
| 10 | 34.033 | 20.84 | 12.95 |
| 11 | 28.123 | 25.21 | 15.67 |
| 12 | 22.850 | 31.03 | 19.28 |
| Reverse | | | |
| R1 | 149.634 | 4.74 | 2.95 |
| R2 | 82.740 | 8.57 | 5.33 |
| R3 | 47.076 | 15.06 | 9.36 |

Calculated with a tire dynamic radius index of 855 mm (33.7 in) (ISO 4251/1-1984)
Number of revolutions of front wheels for one revolution of rear wheels 1.000

## POWER - TAKE - OFF.

### Main Power-Take-Off.

| | |
|---|---|
| Type | Independent |
| Method of engagement | Hydraulically actuated multi-plate clutch operated by hand lever, independent of main drive clutch. |
| Number of shafts | One |

### Power take-off proportional to engine speed 1000 rev/min.

| | |
|---|---|
| Location | Rear of tractor, vertical center plane. |
| Diameter of shaft | 44.4 mm (1.75 in) |
| Number of splines | 20;conforms to ISO 500/1979. |
| Height above ground | 799 mm (31.5 in) |
| Distance from median plane of tractor | 0 mm |
| Distance behind rear axle | 754 mm (29.7 in) |
| PTO Speed at rated engine spd | 1049 rev/min |
| Engine speed at Std. PTO spd | 2098 rev/min |
| Ratio of Engine rpm to PTO rpm | 2.09797:1 |
| Direction of rotation (viewed facing driving end) | Clockwise. |

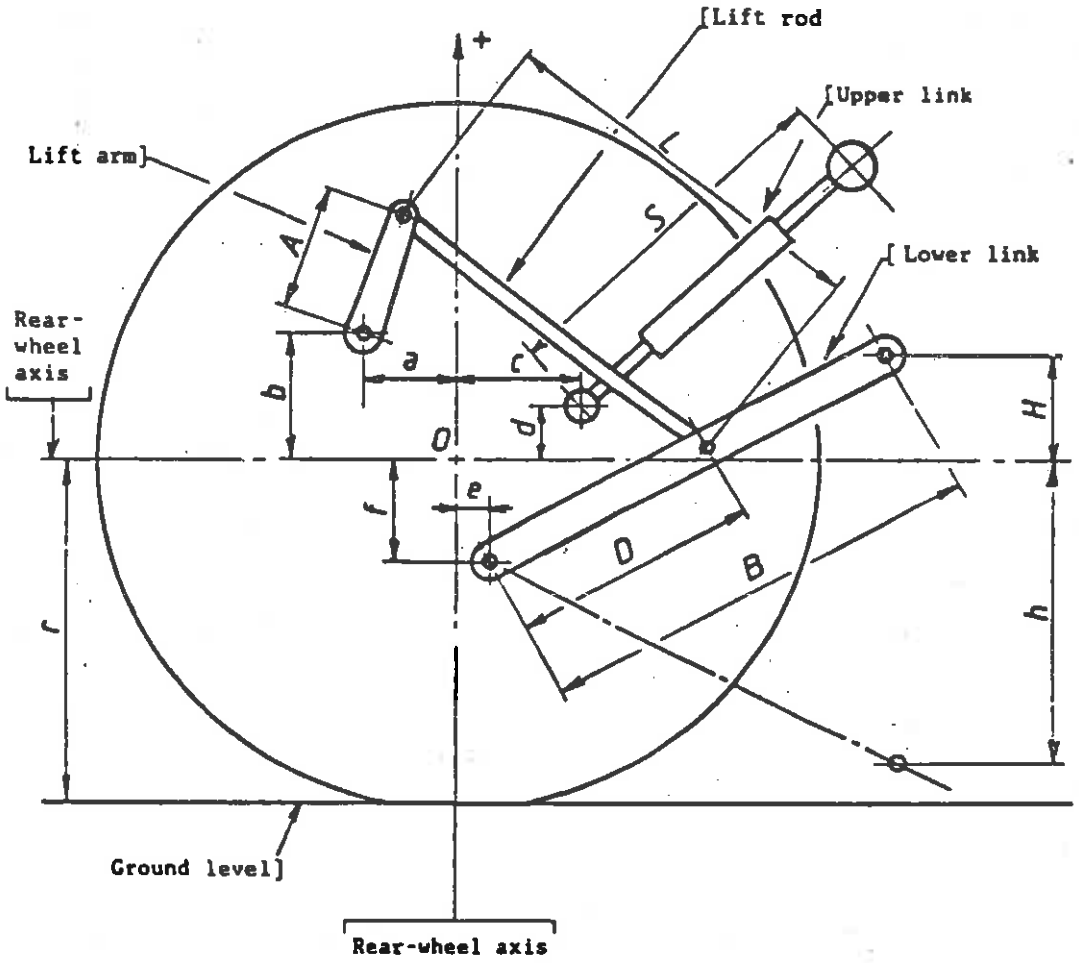
## POWER LIFT.

| | |
|---|---|
| Make/Model/Type | Cessna axial piston pump, pressure and flow compensated |
| Type of hydraulic system | closed center, load sensing |
| Number/Type of cylinders | Two external,both single acting |
| Type of linkage lock for transport | Hydraulic |
| Relief valve setting | 17.237 +/-0.345 MPa (2500 +/- 50 psi) |
| Opening pressure of cylinder safety valve | 20.684 MPa (3000 psi) |
| Lift pump type | axial piston, pressure and flow compensated |
| Power transmission to pump | direct drive |
| Type/Number of filters | Spin on cartridge/one |
| Location of oil reservoir | separate reservoir, right side,rear end of front frame |
| Number/Type/Location of tapping points. | 4 pairs of ISO standard couplings at rear of tractor |
| Max. oil volume available for external cylinders. | 22.7 l (24 qt) |

## THREE POINT LINKAGE

- Category 3 in conformity with ISO 730/1-1977, except for horizontal distance from PTO to center of hitch points on the lower links while in horizontal position - 616 mm
- Category adaptor - Quick attach

## THREE POINT LINKAGE



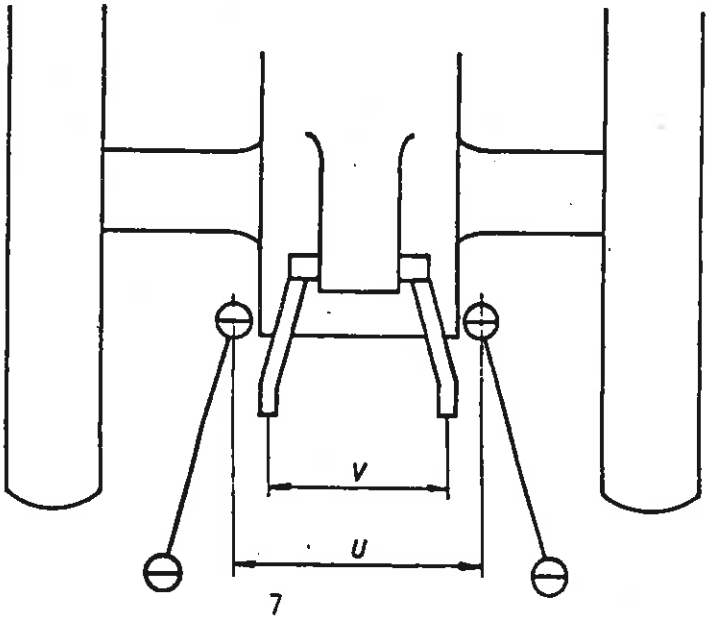



Table 1.1 - *Linkage geometry dimensions

| | | Dimension or range | | Settings used on test | |
|---|---|---|---|---|---|
| | | [mm] | [in] | [mm] | [in] |
| Lift category | | III | | | |
| Rear Tire - Radius Index | (r) | 855 | 33.7 | | |
| Front Tire - Radius Index | (r') | 855 | 33.7 | | |
| Length of lift arms | (A) | 533 | 21.0 | same | |
| Length of lower links | (B) | 1067 | 42.0 | same | |
| Distance of lift arm pivot from: horizontal | (a) | 197 | 7.8 | same | |
| rear wheel axis: vertical | (b) | 637 | 25.1 | same | |
| Horizontal distance between the 2 lower link points | (u) | 627 | 24.7 | same | |
| Horizontal distance between the 2 lift arm end points | (v) | 719 | 28.3 | same | |
| Length of upper link | (S) | 722 to 848 | 28.4 to 33.4 | 744 | 29.3 |
| Distance of upper link pivot from: horizontal | (c) | 617<br>642 | 24.3<br>25.3 | 642 | 25.3 |
| rear wheel axis: vertical | (d) | 187<br>289 | 7.4<br>11.4 | 289 | 11.4 |
| Distance of lower link pivot from: horizontal | (e) | 322 | 12.7 | same | |
| rear wheel axis: vertical | (f) | 251 | 9.9 | same | |
| Distance of lower link pivot points to lift rod pivot pts on lower links. | (D) | 584 | 23.0 | same | |
| Length of lift rods | (L) | 869 to 965 | 34.2 to 38.0 | 953 | 37.5 |
| Height of lower hitch points relative to rear wheel axis In low position | (h) | 518 to 718 | 20.4 to 28.3 | 688 | 27.1 |
| In high position | (H) | 105 to 273 | 4.1 to 10.7 | 117 | 4.6 |
| Height above ground of lower hitch points when locked in transport position. | | 960 to 1128 | 37.8 to 41.4 | 972 | 38.3 |

*Assuming (r) with a dynamic tire index of 855 mm (33.7 in)
ISO 4251/1-1984

## SWINGING DRAWBAR.

| | |
|---|---|
| Type | Swings for hook-up only |
| Height above ground: | Maximum 633 mm (24.9 in)<br>Minimum 366 mm (14.4 in) |
| Adjustments | inverting drawbar |
| Distance of hitch point from rear wheel axis, horizontal | 1230 mm (48.4 in) |
| Distance of hitch point from PTO shaft end | |
| Vertically | 253 mm (10.0 in) |
| Horizontally | 508 mm (20.0 in) |
| Lateral adjustment (center of clevis) | |
| Right hand | none |
| Left hand | none |
| Distance of pivot point from rear wheel axle;horizontally | 560 mm (22.0 in) |
| Diameter of drawbar pin hole | 46 mm (1.8 in) |
| Maximum vertical permissible load | 56.7 kN (12750 lb) |

## STEERING

| | |
|---|---|
| Make/Model/Type | Front-Eaton hydrostatic steering control unit |
| Method of operation | Front-hand wheel,Rear-automatic or manual (crabbed,centered) by toggle switch |
| Pump | Front-Cessna axial piston,pressure and flow compensated<br>Rear-Eaton gear pump |
| Rams | Front-two, Rear-two |
| Working pressure | 15.9 MPa (2300 psi) |

## BRAKES

| | |
|---|---|
| Service brake. | |
| Make/Model/Type | Kelsey Hayes,caliper,dry disc |
| Method of operation | manual/hydraulic,operated by foot pedal. |
| Trailer braking take-off | none |
| Parking brake. | |
| Type | caliper/dry disc |
| Method of operation | mechanically by hand lever |

## WHEELS

| | |
|---|---|
| Number. | |
| Front | Four; Driving and steering |
| Rear | Four; Driving and steering |
| Wheel base | 3150 mm (124.0 in) |

Track width adjustment

| | Minimum [mm] | Minimum [in] | Maximum [mm] | Maximum [in] | Adjustment method |
|---|---|---|---|---|---|
| Front | 2135 | 84.0 | 3550 | 139.7 | reversible rims and spacers |
| Rear | 2135 | 84.0 | 3550 | 139.7 | same as front |

## PROTECTIVE STRUCTURE

| | |
|---|---|
| Make/Model/Type | Case IH,4CSF-2 |
| Manufacturer's name/address | Case IH<br>3401 First Avenue North<br>Fargo, North Dakota |
| Protective device | Cab,Case IH,4CSF-2,4 post with charpy v-notch certified material |
| Tiltable | No |
| OECD approval number | CSS 076/16 - for Case IH 9240<br>CSS 076/17 - for Steiger 9240 |

## DRIVER'S SEAT

| | |
|---|---|
| Make/Model/Type | Sears, P108 Air seat,9100 |
| Type of suspension | air suspension |
| Type of damping | fore/aft and lateral |
| Range of adjustment | |
| Longitudinal | 152 mm (6.0 in) |
| Vertical | 76 mm (3.0 in) |

## LIGHTING.

| | Height above ground of center [mm] | Height above ground of center [in] | Size [mm] | Distance from outside edge of lights to median plane of tractor. [mm] | Distance from outside edge of lights to median plane of tractor. [in] |
|---|---|---|---|---|---|
| Headlights | 1823 | 71.8 | 102 x 165 | 419 | 16.5 |
| Cab-lights(rear) | 3301 | 130.0 | 90 x 140 | 968 | 38.1 |
| (front) | 3336 | 131.3 | 90 x 140 | 762 | 30.0 |
| Rearlights | 1984 | 78.1 | 102 x 165 | 940 | 37.0 |
| Reflectors | N/A | | | | |

**TEST CONDITIONS.**

Overall dimensions.

| Length | Width minimum | Width maximum | Height at top of protective structure | Height at top of exhaust silencer |
|---|---|---|---|---|
| 6517 mm | 2661 mm | 4115 mm | 3198 mm | 3350 mm |

| | |
|---|---|
| Ground clearance (unballasted) | 340 mm (13.4 in) |
| Clearance-limiting part | bottom of drawbar |

Tractor Mass (with Cab, full fuel tank)

| | | Without driver [kg] | Without driver [lb] | With driver [kg] | With driver [lb] |
|---|---|---|---|---|---|
| Unballasted | Front | 6582 | 14510 | 6621 | 14596 |
| | Rear | 6216 | 13704 | 6252 | 13784 |
| | Total | 12798 | 28214 | 12873 | 28380 |

Tire and track width specifications.

| | Front | Rear |
|---|---|---|
| Make | Goodyear | Goodyear |
| Dimensions | 20.8R38 | 20.8R38 |
| Ply rating | 1 star (6,8 ply) | 1 star (6,8 ply) |
| Type | Radial | Radial |
| Max.load (tire manufacturer) | 25.35 kN (5700 lb) | 25.35 kN (5700 lb) |
| Max.load(tractor manufacturer) | same | same |
| Inflation pressure (tire mfr) | 124 kPa (18 psi) | 124 kPa (18 psi) |
| Dynamic Radius Index | 855 mm (33.7 in) | 855 mm (33.7 in) |
| Chosen track width - inner | 2134 mm (84.0 in) | 2134 mm (84.0 in) |
| - outer | 3548 mm(139.7 in) | 3548 mm(139.7 in) |

## Oils and Lubrication.

Capacity and change interval:

| | Capacity liter | Capacity quart | Oil change hours | Filter change hours |
|---|---|---|---|---|
| Engine | 22 | 23 | 250 | 250 |
| Gear Box | 34 | 36 | 1000 | 1000 |
| Front and Rear axle | 21 | 22 | 1000 | --- |
| Hydraulic system (includes steering and 3 point lift) | 68 | 72 | 1000 | 1000 |

Specifications:

| | Recommended | Used during test |
|---|---|---|
| Engine oil | | |
| Type | SAE 15W40 | same |
| Viscosity | 14.8 cSt at 100'C | |
| Classification | API CE/CD | |
| Transmission oil | | |
| Type | Case IH Hytran Plus | same |
| Viscosity | 6.2 cSt at 100'C | |
| Classification | NA | |
| Hydraulic fluid | | |
| Type | Case IH Hytran Plus | same |
| Viscosity | 6.2 cSt at 100'C | |
| Classification | NA | |
| Steering oil | same as hydraulic | same |
| Grease | NLGI No.2 Lithium | |
| Number of lubrication points: | 46 (includes 17 for PTO and three point hitch) | |

Fuel

| | |
|---|---|
| Type | Grade 2-D, in conformity with the national standard |
| Density (Pto test) | 0.838 g/cubic-cm (6.993 lb/gallon) at 15'C (59'F) |
| (Drawbar test) | Same as Pto test. |
| Cetane number | 53.9 |
| Viscosity | 2.40 cST at 38'C (100'F) |

## III.TEST RESULTS

### COMPULSORY TESTS RESULTS

**(1) MAIN POWER TAKE-OFF**

Date of tests : 10 June 1991
Location of tests : Nebraska Tractor Test Laboratory
University of Nebraska, Lincoln, Nebraska.
Type of Dynamometer: Eaton Dynamatic 2025 D.G.

| Power kW (hp) | Speeds engine rev/min | Speeds PTO rev/min | Fuel Consumption hourly l/h (gal/h) | Fuel Consumption hourly kg/h (lb/h) | Fuel Consumption specific kg/kW.h (lb/hp.h) | Specific energy kW.h/l (hp.h/gal) |
|---|---|---|---|---|---|---|
| 1.1 Maximum Power- 2 hour test. | | | | | | |
| 160.97 (215.87) | 2001 | 954 | 44.71 (11.81) | 37.46 (82.60) | 0.233 (0.383) | 3.60 (18.28) |
| 1.2 Power at rated engine speed. (1 hour) | | | | | | |
| 149.53 (200.53) | 2199 | 1048 | 44.20 (11.68) | 37.04 (81.66) | 0.248 (0.407) | 3.38 (17.17) |
| 1.3 Maximum power at standard PTO speed.(1000 rev/min) | | | | | | |
| 158.15 (212.08) | 2098 | 1000 | 44.99 (11.88) | 37.70 (83.11) | 0.238 (0.392) | 3.52 (17.85) |

1.4 Part Loads - governor hand lever set for maximum power at rated engine speed

| Power kW (hp) | Speeds engine rev/min | Speeds PTO rev/min | Fuel Consumption hourly l/h (gal/h) | Fuel Consumption hourly kg/h (lb/h) | Fuel Consumption specific kg/kW.h (lb/hp.h) | Specific energy kW.h/l (hp.h/gal) |
|---|---|---|---|---|---|---|
| (i) Torque obtained at maximum power at rated engine speed. | | | | | | |
| 149.53 (200.53) | 2199 | 1048 | 44.20 (11.68) | 37.04 (81.66) | 0.248 (0.407) | 3.38 (17.17) |
| (ii) 85% of the torque obtained in (i) | | | | | | |
| 132.12 (177.18) | 2290 | 1092 | 41.09 (10.85) | 34.43 (75.90) | 0.261 (0.428) | 3.22 (16.32) |
| (iii) 75% of the torque defined in (ii) | | | | | | |
| 97.21 (130.36) | 2323 | 1107 | 33.78 (8.92) | 28.30 (62.40) | 0.291 (0.479) | 2.88 (14.61) |
| (iv) 50% of the torque defined in (ii) | | | | | | |
| 65.40 (87.70) | 2355 | 1123 | 25.98 (6.86) | 21.77 (48.00) | 0.333 (0.547) | 2.52 (12.78) |
| (v) 25% of the torque defined in (ii) | | | | | | |
| 33.92 (45.49) | 2380 | 1135 | 19.32 (5.11) | 16.19 (35.70) | 0.477 (0.785) | 1.76 (8.91) |
| (vi) Unloaded | | | | | | |
| 0.49 (0.66) | 2407 | 1148 | 12.34 (3.26) | 10.34 (22.80) | 21.159 (34.784) | 0.04 (0.20) |

1.5 Part Loads - governor hand lever set for maximum power at standard pto speed.

| Power kW (hp) | Speeds engine rev/min | PTO rev/min | Fuel Consumption hourly l/h (gal/h) | hourly kg/h (lb/h) | specific kg/kW.h (lb/hp.h) | Specific energy kW.h/l (hp.h/gal) |
|---|---|---|---|---|---|---|
| (i) Torque obtained at standard pto speed. | | | | | | |
| 158.15 (212.08) | 2098 | 1000 | 44.99 (11.88) | 37.70 (83.11) | 0.238 (0.392) | 3.52 (17.85) |
| (ii) 85% of the torque obtained in (i) | | | | | | |
| 142.48 (191.07) | 2189 | 1044 | 42.22 (11.15) | 35.38 (78.00) | 0.248 (0.408) | 3.37 (17.13) |
| (iii) 75% of the torque defined in (ii) | | | | | | |
| 106.66 (143.04) | 2225 | 1060 | 34.43 (9.09) | 28.85 (63.60) | 0.270 (0.445) | 3.10 (15.73) |
| (iv) 50% of the torque defined in (ii) | | | | | | |
| 72.97 (97.86) | 2250 | 1073 | 26.63 (7.04) | 22.32 (49.20) | 0.306 (0.503) | 2.74 (13.91) |
| (v) 25% of the torque defined in (ii) | | | | | | |
| 35.10 (47.07) | 2284 | 1089 | 18.68 (4.93) | 15.65 (34.50) | 0.446 (0.733) | 1.88 (9.54) |
| (vi) Unloaded | | | | | | |
| 0.31 (0.42) | 2323 | 1108 | 11.69 (3.09) | 9.80 (21.60) | 31.153 (51.216) | 0.03 (0.14) |

| | |
|---|---|
| No-load maximum engine speed | 2407 rev/min |
| Equivalent engine torque: | |
| at rated engine speed | 649 Nm(2199 rev/min) |
| at maximum power | 768 Nm(2001 rev/min) |
| at maximum torque | 818 Nm(1699 rev/min) |
| Mean atmospheric conditions: | |
| Temperature-dry bulb | 22'C (71'F) |
| Relative Humidity | 83 % |
| Barometer | 98.02 kPa(28.94 in Hg) |

| | | |
|---|---|---|
| Maximum temperatures: | | |
| | Thermostat housing | 84'C (184'F) |
| | Engine oil pan | 118'C (244'F) |
| | Fuel at pump inlet | 56'C (132'F) |
| | Engine air intake | 29'C (85'F) |
| | Hydraulic oil | 59'C (139'F) |
| Turbocharger boost pressure | | |
| | at rated engine speed | 107 kPa (15.5 psi) |
| | at maximum power | 114 kPa (16.5 psi) |

## 2. HYDRAULIC POWER AND LIFTING FORCE

Date of test: 7 June 1991
Location: TTL/UNL, Lincoln, Nebr.

### 2.1 HYDRAULIC POWER TEST - Hydraulic pump performance

| | |
|---|---|
| i. Sustained pressure with pump stalled | 17.58 MPa (2550 psi) |
| ii. Pump delivery rate at minimum pressure and rated engine speed | 110.2 l/m (29.1 gpm) |

iii.

| | Flow Rate l/min (gal/min) | Pressure MPa (psi) | Power kW (hp) |
|---|---|---|---|
| At 90% of relief valve setting. | 96.5 (25.5) | 15.93 (2310) | 25.6 (34.4) |
| At maximum hydraulic power. | 95.8 (25.3) | 16.20 (2350) | 25.9 (34.7) |

| | |
|---|---|
| Tapping point(s) | Two hydraulic outlets combined |
| Hydraulic fluid temperature at flow meter | 65'C (149'F) |

## 2.2 POWER LIFT TEST.

| | | Hitch Points | Frame |
|---|---|---|---|
| Lower hitch points above ground - down position. | [mm/in] | 167/6.6 | 211/8.3 |
| Vertical movement without load | [mm/in] | 805/31.7 | 806/31.7 |
| Vertical movement with load | [mm/in] | 769/30.3 | 714/28.1 |
| Maximum corrected force through full range | [kN/lbf] | 53.9/12123 | 58.8/13212 |
| Corresponding pressure | [kPa/psi] | 15699/2277 | |
| Moment about rear axle | [kN.m/ft.lb] | 80.0/58999 | 123.0/90722 |
| Maximum mast tilt angle | [degrees] | -- | 7.2 |

Lifting height relative to the horizontal position of lower links

| | | | | | |
|---|---|---|---|---|---|
| [mm] | -424 | -343 | -201 | -99 | 0 |
| [in] | -16.7 | -13.5 | -7.9 | -3.9 | 0 |

Corrected lifting forces.

| | | | | | |
|---|---|---|---|---|---|
| hitch points | [kN] | 53.9 | 56.7 | 60.0 | 63.0 | 65.4 |
| | [lb] | 12123 | 12740 | 13478 | 14166 | 14702 |
| at frame | [kN] | -- | 74.3 | 63.9 | 64.0 | 63.6 |
| | [lb] | -- | 16709 | 14355 | 14391 | 14297 |

Lifting height relative to the horizontal position of lower links

| | | | | | |
|---|---|---|---|---|---|
| [mm] | 99 | 201 | 300 | 345 | 371 |
| [in] | 3.9 | 7.9 | 11.8 | 13.6 | 14.6 |

Corrected lift forces.

| | | | | | |
|---|---|---|---|---|---|
| hitch points | [kN] | 67.6 | 69.6 | 70.6 | 70.8 | -- |
| | [lb] | 15188 | 15638 | 15881 | 15912 | -- |
| at frame | [kN] | 63.2 | 62.2 | 60.2 | 59.7 | 58.8 |
| | [lb] | 14211 | 13982 | 13523 | 13419 | 13212 |

Date of tests: 10–Jun–91 Fuel density: 0.838 kg/l
11–Jun–91 Test # 1650

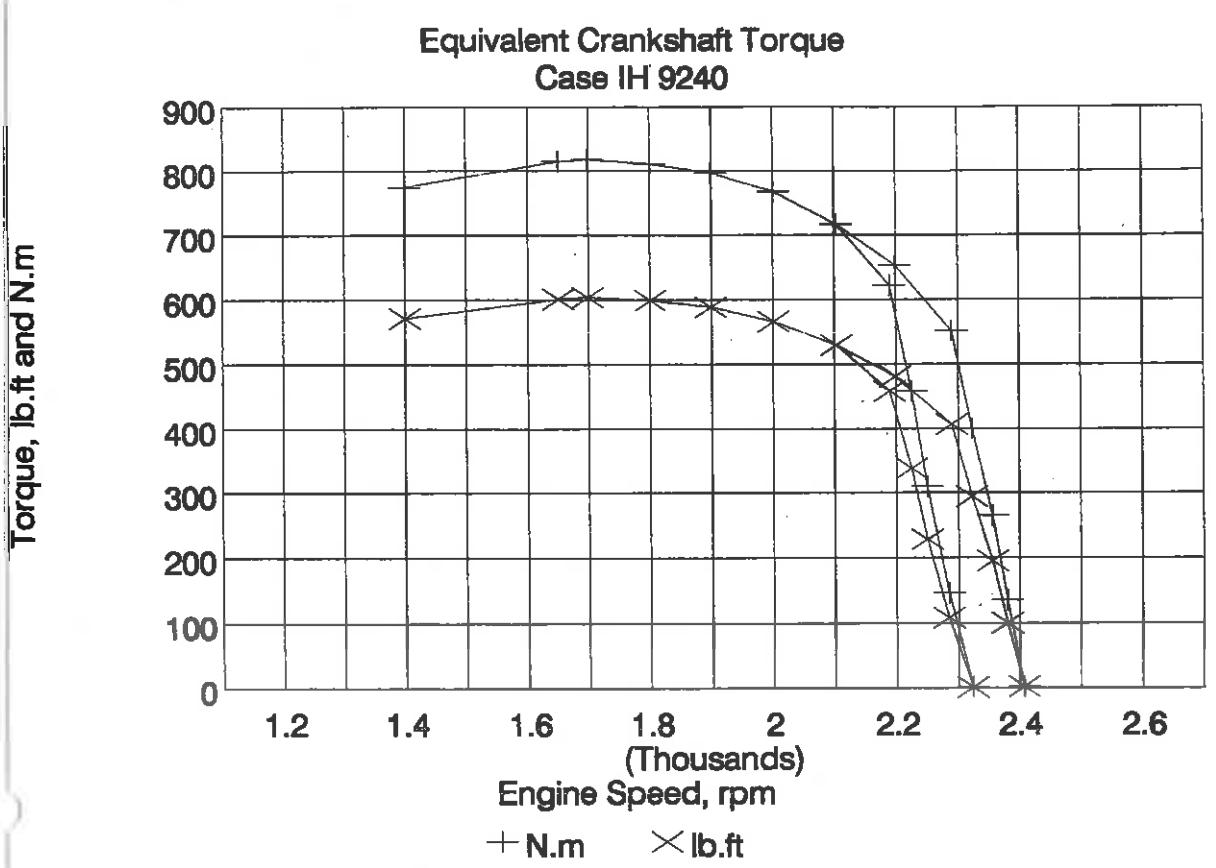
Type of track: Concrete Engine

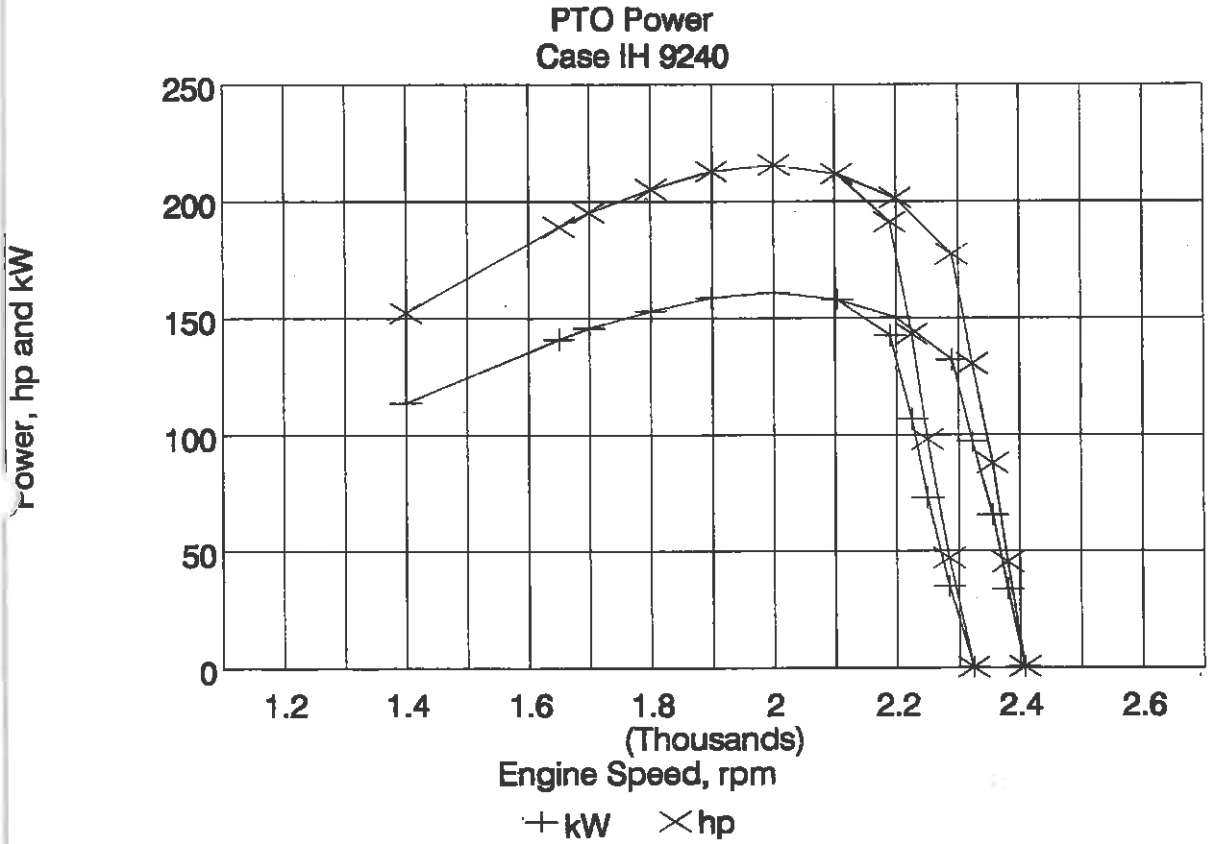
| Gear | Power kW | Pull kN | Speed km/h | Speed rev/min | Slip | SFC kg/kW.h | SFE kW.h/l | Temperature, deg C Fuel | Coolant | Oil | Dry | Wet | Relative humidity | Barometric Pressure kPa |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I. Maximum Power (unballasted, 4wd at 2200 rev/min) | | | | | | Tire pressure: | | 97 kPa, rear (inner) | | | 97 kPa, front (inner) | | | |
| | | | Drawbar height: | | 368 mm | | | 83 kPa, rear (outer) | | | 83 kPa, front (outer) | | | |
| 1 | 119.88 | 127.87 | 3.38 | 2240 | 10.86% | 0.308 | 2.72 | 53 | 82 | 103 | 22 | 20 | 83% | 97.93 |
| 2 | 129.70 | 120.27 | 3.88 | 2082 | 8.88% | 0.292 | 2.87 | 55 | 83 | 104 | 25 | 21 | 70% | 97.93 |
| 3 | 137.88 | 103.88 | 4.78 | 2001 | 5.14% | 0.275 | 3.05 | 56 | 83 | 103 | 26 | 21 | 64% | 97.93 |
| 4 | 139.68 | 85.25 | 5.90 | 2002 | 3.65% | 0.271 | 3.09 | 57 | 83 | 106 | 26 | 22 | 71% | 97.93 |
| 5 | 141.91 | 70.98 | 7.20 | 2000 | 2.72% | 0.266 | 3.15 | 54 | 83 | 105 | 21 | 20 | 91% | 98.04 |
| 6 | 140.59 | 56.79 | 8.91 | 2002 | 2.30% | 0.269 | 3.12 | 54 | 83 | 105 | 22 | 20 | 83% | 98.00 |
| 7 | 139.76 | 47.72 | 10.54 | 2001 | 1.86% | 0.271 | 3.10 | 54 | 83 | 105 | 22 | 20 | 83% | 98.00 |
| 8 | 138.50 | 38.90 | 12.82 | 2002 | 1.60% | 0.274 | 3.06 | 54 | 84 | 106 | 27 | 22 | 65% | 97.93 |
| 9 | 135.61 | 30.82 | 15.84 | 2004 | 1.25% | 0.278 | 3.01 | 55 | 84 | 106 | 27 | 22 | 65% | 97.93 |
| Note: Pull in 1st gear limited due to excessive tractor bounce. | | | | | | | | | | | | | | |
| II. Part Loads (unballasted, 4wd at 2200 rev/min) | | | | | | Tire pressure: | | 97 kPa, rear (inner) | | | 97 kPa, front (inner) | | | |
| | | | Drawbar height: | | 368 mm | | | 83 kPa, rear (outer) | | | 83 kPa, front (outer) | | | |
| II.1 in selected gear at maximum power | | | | | | | | | | | | | | |
| 5 | 141.91 | 70.98 | 7.20 | 2000 | 2.72% | 0.266 | 3.15 | 54 | 83 | 105 | 21 | 20 | 91% | 98.04 |
| II.1.1 75% of pull at maximum power at rated speed | | | | | | | | | | | | | | |
| 5 | 102.72 | 44.51 | 8.31 | 2287 | 1.78% | 0.311 | 2.70 | 54 | 84 | 105 | 31 | 23 | 51% | 97.77 |
| II.1.2 50% of pull at maximum power at rated speed | | | | | | | | | | | | | | |
| 5 | 69.97 | 29.68 | 8.49 | 2325 | 1.25% | 0.359 | 2.33 | 54 | 82 | 103 | 31 | 23 | 51% | 97.77 |
| II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1 | | | | | | | | | | | | | | |
| 6 | 102.74 | 44.49 | 8.31 | 1860 | 1.78% | 0.275 | 3.05 | 54 | 83 | 104 | 31 | 23 | 51% | 97.77 |
| II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2 | | | | | | | | | | | | | | |
| 6 | 70.07 | 29.68 | 8.50 | 1892 | 1.16% | 0.309 | 2.71 | 54 | 82 | 102 | 31 | 23 | 51% | 97.77 |
| II.2 in selected gear nearest to 7.5 km/h | | | | | | | | | | | | | | |
| 5 | 141.91 | 70.98 | 7.20 | 2000 | 2.72% | 0.266 | 3.15 | 54 | 83 | 105 | 21 | 20 | 51% | 98.04 |
| II.2.1 75% of pull at maximum power at rated speed | | | | | | | | | | | | | | |
| 5 | 102.72 | 44.51 | 8.31 | 2287 | 1.78% | 0.311 | 2.70 | 54 | 84 | 105 | 31 | 23 | 51% | 97.77 |
| II.2.2 50% of pull at maximum power at rated speed | | | | | | | | | | | | | | |
| 5 | 69.97 | 29.68 | 8.49 | 2325 | 1.25% | 0.359 | 2.33 | 54 | 82 | 103 | 31 | 23 | 51% | 97.77 |
| II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1 | | | | | | | | | | | | | | |
| 6 | 102.74 | 44.49 | 8.31 | 1860 | 1.78% | 0.275 | 3.05 | 54 | 83 | 104 | 31 | 23 | 51% | 97.77 |
| II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2 | | | | | | | | | | | | | | |
| 6 | 70.07 | 29.68 | 8.50 | 1892 | 1.16% | 0.309 | 2.71 | 54 | 82 | 102 | 31 | 23 | 51% | 97.77 |

Date of tests: 10–Jun–91 Fuel density: 6.993 lb/gal
11–Jun–91 Test # 1650

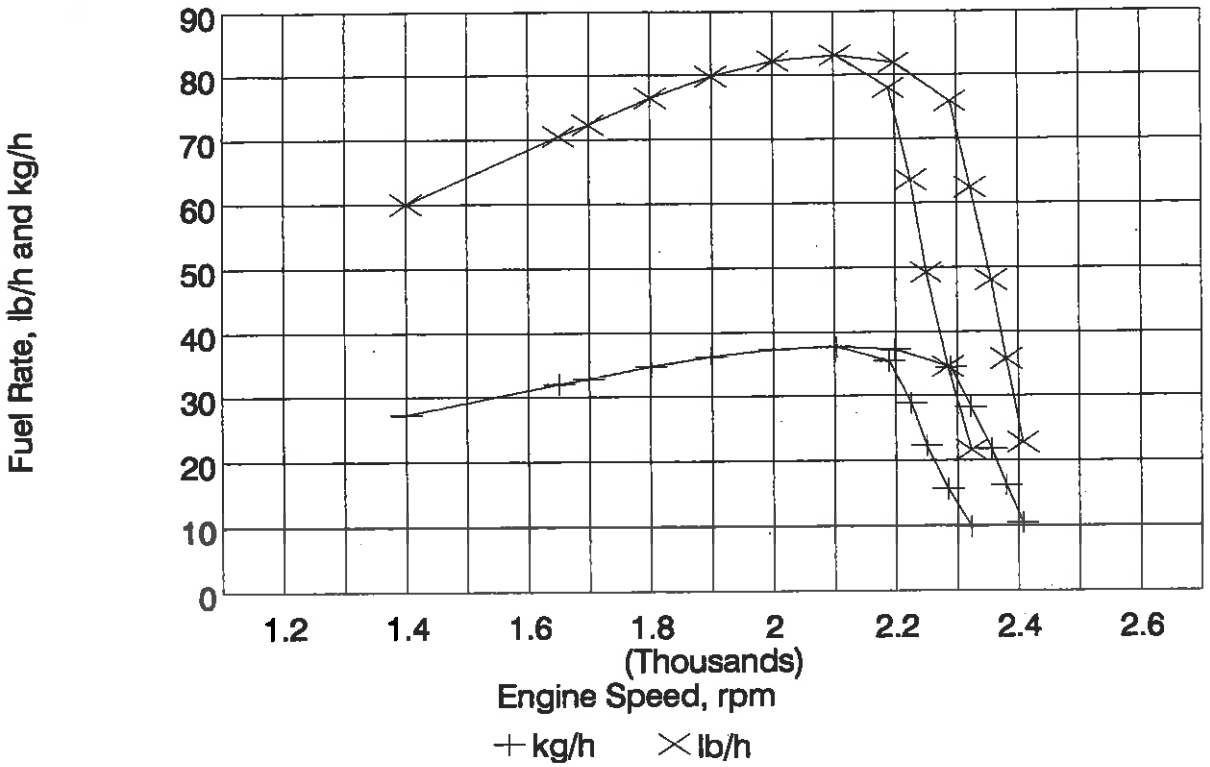
Type of track: Concrete Engine

| Gear | Power hp | Pull lb | Speed mph | Speed rpm | Slip | SFC lb/hp.h | SFE hp.h/gal | Temperature, deg F Fuel | Coolant | Oil | Dry | Wet | Relative humidity | Barometric Pressure in Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I. Maximum Power (unballasted, 4wd at 2200 rev/min) | | | | | | Tire pressure: | | 14 psi, rear (inner) | | | 14 psi, front (inner) | | | |
| | | | Drawbar height: | | 14.5 in | | | 12 psi, rear (outer) | | | 12 psi, front (outer) | | | |
| 1 | 160.76 | 28747 | 2.10 | 2240 | 10.86% | 0.507 | 13.79 | 128 | 180 | 217 | 71 | 68 | 83% | 28.92 |
| 2 | 173.93 | 27039 | 2.41 | 2082 | 8.88% | 0.480 | 14.58 | 131 | 181 | 219 | 77 | 70 | 70% | 28.92 |
| 3 | 184.90 | 23353 | 2.97 | 2001 | 5.14% | 0.452 | 15.47 | 132 | 181 | 218 | 78 | 70 | 64% | 28.92 |
| 4 | 187.32 | 19164 | 3.67 | 2002 | 3.65% | 0.445 | 15.70 | 134 | 182 | 223 | 79 | 71 | 71% | 28.92 |
| 5 | 190.31 | 15956 | 4.47 | 2000 | 2.72% | 0.437 | 16.01 | 129 | 182 | 222 | 70 | 68 | 91% | 28.95 |
| 6 | 188.54 | 12767 | 5.54 | 2002 | 2.30% | 0.442 | 15.82 | 129 | 181 | 221 | 71 | 68 | 83% | 28.94 |
| 7 | 187.42 | 10728 | 6.55 | 2001 | 1.86% | 0.445 | 15.72 | 129 | 182 | 221 | 71 | 68 | 83% | 28.94 |
| 8 | 185.74 | 8746 | 7.96 | 2002 | 1.60% | 0.451 | 15.52 | 130 | 184 | 223 | 80 | 71 | 65% | 28.92 |
| 9 | 181.86 | 6929 | 9.84 | 2004 | 1.25% | 0.457 | 15.29 | 131 | 184 | 222 | 81 | 71 | 65% | 28.92 |
| Note: Pull in 1st gear limited due to excessive tractor bounce. | | | | | | | | | | | | | | |
| II. Part Loads (unballasted, 4wd at 2200 rev/min) | | | | | | Tire pressure: | | 14 psi, rear (inner) | | | 14 psi, front (inner) | | | |
| | | | Drawbar height: | | 14.5 in | | | 12 psi, rear (outer) | | | 12 psi, front (outer) | | | |
| II.1 in selected gear at maximum power | | | | | | | | | | | | | | |
| 5 | 190.31 | 15956 | 4.47 | 2000 | 2.72% | 0.437 | 16.01 | 129 | 182 | 222 | 70 | 68 | 91% | 28.95 |
| II.1.1 75% of pull at maximum power at rated speed | | | | | | | | | | | | | | |
| 5 | 137.75 | 10006 | 5.16 | 2287 | 1.78% | 0.511 | 13.70 | 129 | 183 | 221 | 88 | 74 | 51% | 28.87 |
| II.1.2 50% of pull at maximum power at rated speed | | | | | | | | | | | | | | |
| 5 | 93.83 | 6672 | 5.27 | 2325 | 1.25% | 0.591 | 11.84 | 129 | 180 | 218 | 88 | 74 | 51% | 28.87 |
| II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1 | | | | | | | | | | | | | | |
| 6 | 137.78 | 10002 | 5.17 | 1860 | 1.78% | 0.451 | 15.49 | 130 | 182 | 219 | 88 | 74 | 51% | 28.87 |
| II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2 | | | | | | | | | | | | | | |
| 6 | 93.97 | 6672 | 5.28 | 1892 | 1.16% | 0.508 | 13.78 | 129 | 179 | 215 | 88 | 74 | 51% | 28.87 |
| II.2 in selected gear nearest to 4.6 mph | | | | | | | | | | | | | | |
| 5 | 190.31 | 15956 | 4.47 | 2000 | 2.72% | 0.437 | 16.01 | 129 | 182 | 222 | 70 | 68 | 91% | 28.95 |
| II.2.1 75% of pull at maximum power at rated speed | | | | | | | | | | | | | | |
| 5 | 137.75 | 10006 | 5.16 | 2287 | 1.78% | 0.511 | 13.70 | 129 | 183 | 221 | 88 | 74 | 51% | 28.87 |
| II.2.2 50% of pull at maximum power at rated speed | | | | | | | | | | | | | | |
| 5 | 93.83 | 6672 | 5.27 | 2325 | 1.25% | 0.591 | 11.84 | 129 | 180 | 218 | 88 | 74 | 51% | 28.87 |
| II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1 | | | | | | | | | | | | | | |
| 6 | 137.78 | 10002 | 5.17 | 1860 | 1.78% | 0.451 | 15.49 | 130 | 182 | 219 | 88 | 74 | 51% | 28.87 |
| II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2 | | | | | | | | | | | | | | |
| 6 | 93.97 | 6672 | 5.28 | 1892 | 1.16% | 0.508 | 13.78 | 129 | 179 | 215 | 88 | 74 | 51% | 28.87 |

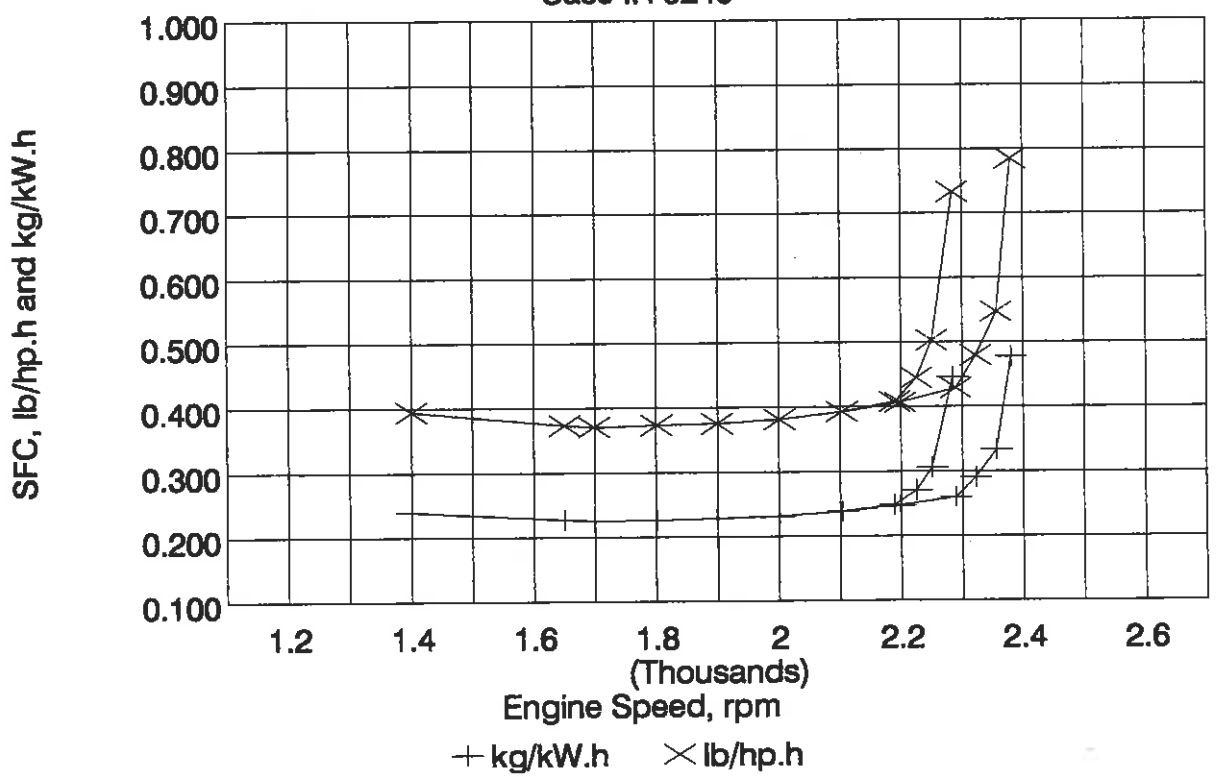

Equivalent Crankshaft Torque
Case IH 9240
Torque, lb.ft and N.m
900
800
700
600
500
400
300
200
100
0
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
(Thousands)
Engine Speed, rpm
N.m
lb.ft

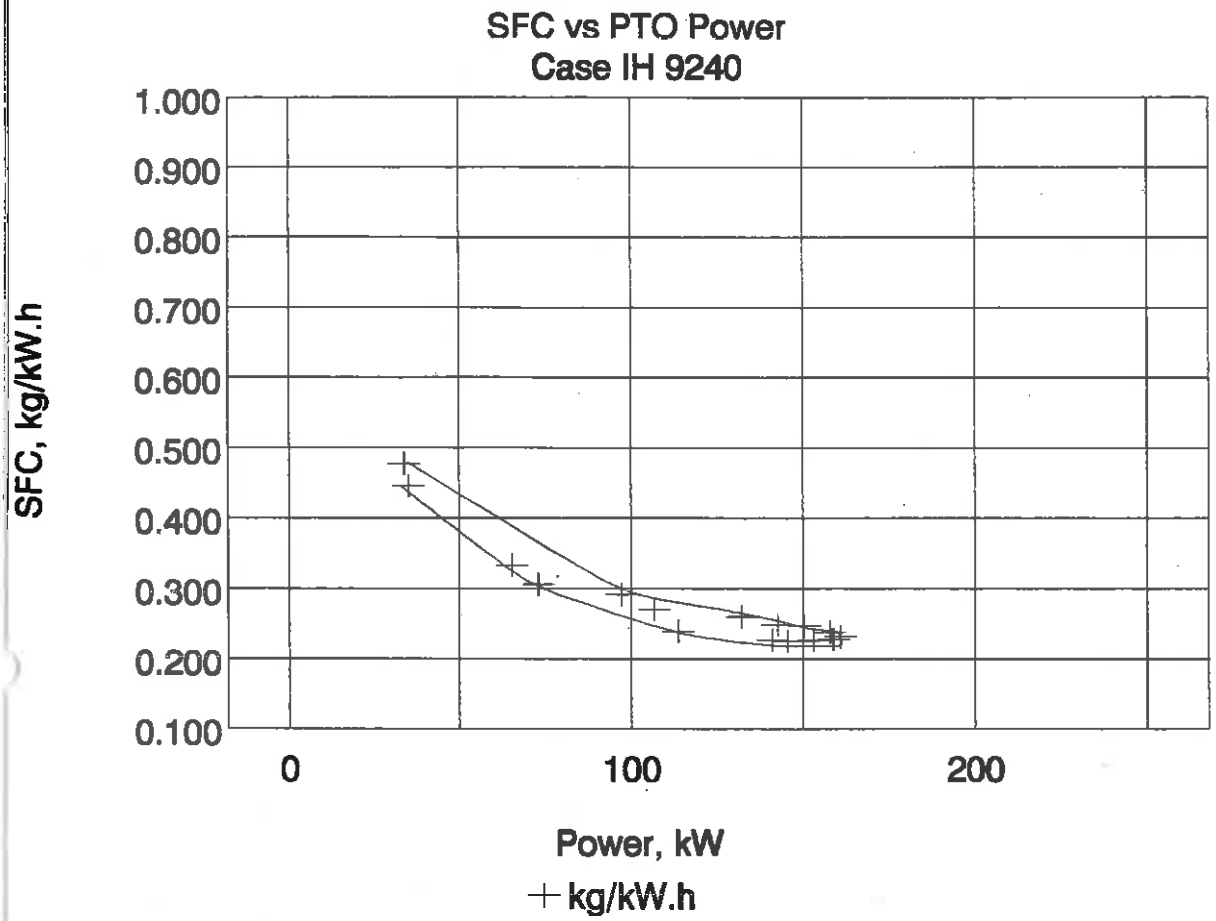

PTO Power
Case IH 9240
Power, hp and kW
250
200
150
100
50
0
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
(Thousands)
Engine Speed, rpm
kW
hp

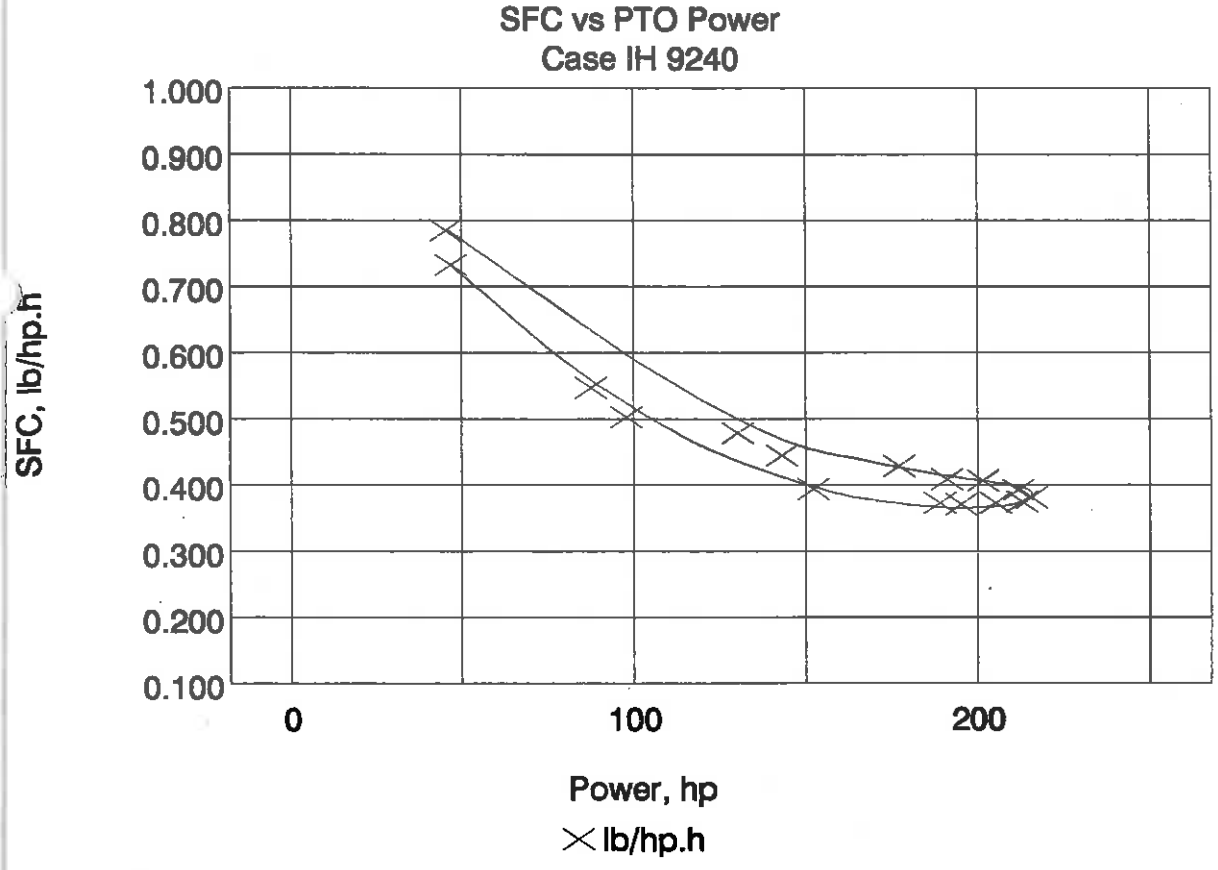
PTO Fuel Consumption
Case IH 9240




PTO Specific Fuel Consumption
Case IH 9240




SFC vs PTO Power
Case IH 9240
SFC, kg/kW.h
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0
100
200
Power, kW
+ kg/kW.h


SFC vs PTO Power
Case IH 9240
SFC, lb/hp.h
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0
100
200
Power, hp
× lb/hp.h

Repairs: None
Remarks: None