

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

1-1-1997

Test 1727: John Deere 7710 Powershift Diesel 19-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 1727: John Deere 7710 Powershift Diesel 19-Speed" (1997). *Nebraska Tractor Tests*. 2035.

<https://digitalcommons.unl.edu/tractormuseumlit/2035>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

NEBRASKA OECD TRACTOR TEST 1727—SUMMARY 227

JOHN DEERE 7710 POWERSHIFT DIESEL

19 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—1007 rpm) | | | | | |
| 130.91 (97.62) | 2100 | 7.94 (30.05) | 0.426 (0.259) | 16.49 (3.25) | |
| Maximum Power (2 hours) | | | | | |
| 146.26 (109.07) | 1700 | 7.99 (30.23) | 0.383 (0.233) | 18.31 (3.61) | |

VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|-------------------|------|-----------------|--------------------|-----------------|-----------------------|
| 130.91 (97.62) | 2100 | 7.94 (30.05) | 0.426 (0.259) | 16.49 (3.25) | Air temperature |
| 114.73 (85.55) | 2166 | 7.39 (27.97) | 0.452 (0.275) | 15.52 (3.06) | 79°F (26°C) |
| 87.05 (64.91) | 2191 | 6.11 (23.12) | 0.493 (0.300) | 14.25 (2.81) | Relative humidity |
| 58.92 (43.93) | 2226 | 5.00 (18.92) | 0.596 (0.362) | 11.79 (2.32) | 51% |
| 29.90 (22.30) | 2259 | 3.93 (14.88) | 0.923 (0.561) | 7.61 (1.50) | Barometer |
| 1.04 (0.78) | 2287 | 2.73 (10.35) | 18.835 (11.183) | 0.38 (0.08) | 28.81" Hg (97.56 kPa) |

Maximum Torque 496 lb.-ft. (672 Nm) at 1250 rpm

Maximum Torque Rise 51.3%

Torque rise at 1699 engine rpm 37%

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—9th Gear | | | | | | | | | |
| 111.37 (83.05) | 9560 (42.52) | 4.37 (7.03) | 2100 | 3.40 | 0.501 (0.305) | 14.01 (2.76) | 193 (89) | 64 (18) | 29.14 (98.68) |
| 75% of Pull at Maximum Power—9th Gear | | | | | | | | | |
| 86.74 (64.68) | 7169 (31.89) | 4.54 (7.30) | 2160 | 2.20 | 0.539 (0.328) | 13.04 (2.57) | 190 (88) | 67 (19) | 29.12 (98.61) |
| 50% of Pull at Maximum Power—9th Gear | | | | | | | | | |
| 59.43 (44.32) | 4778 (21.25) | 4.67 (7.51) | 2204 | 1.51 | 0.647 (0.393) | 10.86 (2.14) | 185 (85) | 68 (20) | 29.12 (98.61) |
| 75% of Pull at Reduced Engine Speed—11th Gear | | | | | | | | | |
| 86.75 (64.69) | 7189 (31.98) | 4.53 (7.28) | 1648 | 2.29 | 0.468 (0.285) | 15.00 (2.95) | 184 (84) | 68 (20) | 29.12 (98.61) |
| 50% of Pull at Reduced Engine Speed—11th Gear | | | | | | | | | |
| 59.33 (44.24) | 4780 (21.26) | 4.65 (7.49) | 1682 | 1.60 | 0.522 (0.318) | 13.45 (2.65) | 181 (83) | 68 (20) | 29.11 (98.58) |

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

Dates of Test: May 15 to June 18, 1997

Manufacturer: John Deere Tractor Works, P.O.
Box 270, Waterloo, Iowa 50704

FUEL OIL and TIME: Fuel No. 2 Diesel Cetane
No. 50.6 Specific gravity converted to 60°/60°
F (15°/15°C) 0.8435 Fuel weight 7.023 lbs/gal
(0.842 kg/l) Oil SAE 15W-40 API service
classification CD, CE, CF-4 To motor 5.510 gal
(20.860 l) Drained from motor 5.399 gal
(20.437 l) Transmission and hydraulic lubricant
John Deere Hy-Gard fluid Front axle lubricant
John Deere Hy-Gard fluid and API GL-5 Gear
Lubricant Total time engine was operated 32.0
hours.

ENGINE: Make John Deere Diesel Type six
cylinder vertical with turbocharger Serial No.
RG6081T014113 Crankshaft lengthwise Rated
engine speed 2100 Bore and stroke (as specified)
4.56" × 5.06" (115.9 mm × 128.5 mm) Compression
ratio 16.5 to 1 Displacement 496 cu in (8132 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 one paper element and
prestrainer Fuel cooler radiator for return fuel
Muffler underhood Exhaust vertical Cooling
medium temperature control two thermostats
and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel
rate: 55.0-57.2 lb/h (24.9-26.0 kg/h) High idle:
2225-2325 rpm Turbo boost nominal 13.1-17.4 psi
(90-120 kPa) as measured 16.8 psi (116 kPa)

CHASSIS: Type front wheel assist Serial No.
RW7710P001637 Tread width rear 60.0" (1525
mm) to 130.6" (3318 mm) front 60.0" (1524 mm) to 88.0"
(2235 mm) Wheel base 110.2" (2800 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 1.00 (1.60) second 1.43 (2.30) third 1.79
(2.88) fourth 2.17 (3.49) fifth 2.50 (4.02) sixth 2.83
(4.56) seventh 3.26 (5.25) eighth 3.88 (6.25) ninth 4.48
(7.20) tenth 5.08 (8.17) eleventh 5.85 (9.42) twelfth
6.72 (10.81) thirteenth 7.74 (12.45) fourteenth 8.78
(14.13) fifteenth 10.11 (16.28) sixteenth 11.33 (18.23)
seventeenth 14.02 (22.56) eighteenth 19.58 (31.52)
nineteenth 24.23 (38.99) reverse 1.60 (2.58), 2.29
(3.69), 3.48 (5.60), 4.01 (6.45), 4.55 (7.32), 5.24 (8.44),
10.15 (16.33) Clutch multiple wet disc hydraulically
actuated by foot pedal Brakes wet multiple disc
hydraulically actuated by two foot pedals which can be
locked together Steering hydrostatic Power take-
off 540 rpm at 2072 engine rpm and 1000 rpm at 2086
engine rpm Unladen tractor mass 15448 lb (7007
kg)

**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) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|---|-----------------------|--------------------------------------|--------------------|-------------------------------|
| 5th Gear | | | | | | | | | |
| 97.33 (72.58) | 15741 (70.02) | 2.32 (3.73) | 2154 | 10.20 | 0.547 (0.333) | 12.84 (2.53) | 183 (84) | 55 (13) | 29.12 (98.61) |
| 6th Gear | | | | | | | | | |
| 106.81 (79.65) | 15108 (67.20) | 2.65 (4.27) | 2120 | 8.12 | 0.518 (0.315) | 13.57 (2.67) | 188 (86) | 58 (14) | 29.12 (98.61) |
| 7th Gear | | | | | | | | | |
| 113.62 (84.73) | 14649 (65.16) | 2.91 (4.68) | 2022 | 8.27 | 0.493 (0.300) | 14.24 (2.80) | 190 (88) | 62 (17) | 29.14 (98.68) |
| 8th Gear | | | | | | | | | |
| 120.75 (90.04) | 14321 (63.70) | 3.16 (5.09) | 1833 | 7.59 | 0.473 (0.288) | 14.85 (2.93) | 193 (89) | 63 (17) | 29.14 (98.68) |
| 9th Gear | | | | | | | | | |
| 123.70 (92.25) | 13577 (60.39) | 3.42 (5.50) | 1699 | 6.34 | 0.456 (0.278) | 15.39 (3.03) | 199 (93) | 64 (18) | 29.14 (98.68) |
| 10th Gear | | | | | | | | | |
| 126.46 (94.30) | 11992 (53.34) | 3.95 (6.36) | 1700 | 4.64 | 0.446 (0.271) | 15.75 (3.10) | 199 (93) | 65 (18) | 29.13 (98.65) |
| 11th Gear | | | | | | | | | |
| 127.91 (95.38) | 10431 (46.40) | 4.60 (7.40) | 1698 | 3.73 | 0.440 (0.268) | 15.95 (3.14) | 200 (93) | 65 (18) | 29.13 (98.65) |
| 12th Gear | | | | | | | | | |
| 126.17 (94.09) | 8923 (39.69) | 5.30 (8.53) | 1694 | 2.97 | 0.446 (0.271) | 15.75 (3.10) | 201 (94) | 66 (19) | 29.12 (98.61) |
| 13th Gear | | | | | | | | | |
| 126.55 (94.37) | 7705 (34.27) | 6.16 (9.91) | 1699 | 2.55 | 0.445 (0.270) | 15.80 (3.11) | 201 (94) | 66 (19) | 29.12 (98.61) |
| 14th Gear | | | | | | | | | |
| 126.06 (94.00) | 6750 (30.02) | 7.00 (11.27) | 1696 | 2.46 | 0.446 (0.271) | 15.75 (3.10) | 206 (96) | 66 (19) | 29.12 (98.61) |
| 15th Gear | | | | | | | | | |
| 125.47 (93.57) | 5817 (25.88) | 8.09 (13.02) | 1698 | 1.94 | 0.449 (0.273) | 15.63 (3.08) | 205 (96) | 66 (19) | 29.12 (98.61) |

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 140°F (60°C). The pull in 4th gear (ballasted tractor) and 5th gear (unballasted tractor) was limited to avoid excessive tractor bouncing. This tractor did not meet the manufacturers claim of 72.0 dB (A) cab sound levels. 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. **1727**, Summary 227, July 11, 1997.

LOUIS I. LEVITICUS
Engineer-in-Charge

L.L. BASHFORD
R.D. GRISSE
M.F. KOCHER
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE **(BALLASTED—FRONT DRIVE DISENGAGED)** **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—9th Gear | | | | | | | | | |
| 110.89 (82.69) | 9488 (42.20) | 4.38 (7.05) | 2100 | 2.38 | 0.501 (0.305) | 14.02 (2.76) | 194 (90) | 55 (13) | 29.03 (98.31) |
| 75% of Pull at Maximum Power—9th Gear | | | | | | | | | |
| 85.81 (63.98) | 7086 (31.52) | 4.54 (7.31) | 2164 | 1.95 | 0.550 (0.335) | 12.76 (2.51) | 189 (87) | 56 (13) | 28.96 (98.07) |
| 50% of Pull at Maximum Power—9th Gear | | | | | | | | | |
| 58.74 (43.80) | 4727 (21.03) | 4.66 (7.50) | 2211 | 1.34 | 0.666 (0.405) | 10.55 (2.08) | 186 (85) | 56 (13) | 28.96 (98.07) |
| 75% of Pull at Reduced Engine Speed—11th Gear | | | | | | | | | |
| 85.77 (63.96) | 7114 (31.64) | 4.52 (7.28) | 1649 | 2.03 | 0.470 (0.286) | 14.93 (2.94) | 185 (85) | 56 (13) | 28.96 (98.07) |
| 50% of Pull at Reduced Engine Speed—11th Gear | | | | | | | | | |
| 58.73 (43.80) | 4723 (21.01) | 4.66 (7.50) | 1692 | 1.34 | 0.532 (0.324) | 13.19 (2.60) | 183 (84) | 56 (13) | 28.96 (98.07) |

MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | |
|-------------------|------------------|-----------------|------|-------|------------------|-----------------|-------------|------------|------------------|
| 5th Gear | | | | | | | | | |
| 102.34 (76.31) | 17360 (77.22) | 2.21 (3.56) | 2110 | 12.16 | 0.544 (0.331) | 12.91 (2.54) | 187 (86) | 54 (12) | 29.03 (98.31) |
| 6th Gear | | | | | | | | | |
| 110.62 (82.49) | 15463 (68.78) | 2.68 (4.32) | 2098 | 5.45 | 0.507 (0.308) | 13.85 (2.73) | 188 (87) | 54 (12) | 29.03 (98.31) |
| 7th Gear | | | | | | | | | |
| 113.14 (84.37) | 13496 (60.03) | 3.14 (5.06) | 2097 | 3.89 | 0.491 (0.299) | 14.29 (2.81) | 193 (89) | 55 (13) | 29.02 (98.27) |
| 8th Gear | | | | | | | | | |
| 110.97 (82.75) | 10990 (48.89) | 3.79 (6.09) | 2099 | 2.89 | 0.503 (0.306) | 13.97 (2.75) | 192 (89) | 55 (13) | 29.02 (98.27) |
| 9th Gear | | | | | | | | | |
| 110.89 (82.69) | 9488 (42.20) | 4.38 (7.05) | 2100 | 2.38 | 0.501 (0.305) | 14.02 (2.76) | 194 (90) | 55 (13) | 29.03 (98.31) |
| 10th Gear | | | | | | | | | |
| 111.84 (83.40) | 8421 (37.46) | 4.98 (8.02) | 2098 | 2.21 | 0.501 (0.305) | 14.02 (2.76) | 194 (90) | 55 (13) | 29.02 (98.27) |
| 11th Gear | | | | | | | | | |
| 110.35 (82.29) | 7181 (31.94) | 5.76 (9.27) | 2101 | 1.86 | 0.505 (0.307) | 13.92 (2.74) | 197 (91) | 55 (13) | 29.00 (98.21) |
| 12th Gear | | | | | | | | | |
| 106.59 (79.49) | 6046 (26.89) | 6.61 (10.64) | 2095 | 1.69 | 0.521 (0.317) | 13.49 (2.66) | 194 (90) | 55 (13) | 29.00 (98.21) |
| 13th Gear | | | | | | | | | |
| 105.58 (78.73) | 5175 (23.02) | 7.65 (12.31) | 2101 | 1.60 | 0.528 (0.321) | 13.30 (2.62) | 193 (89) | 55 (13) | 28.99 (98.17) |
| 14th Gear | | | | | | | | | |
| 104.53 (77.95) | 4520 (20.10) | 8.67 (13.94) | 2095 | 1.34 | 0.530 (0.322) | 13.25 (2.61) | 194 (90) | 55 (13) | 28.97 (98.10) |

| TRACTOR SOUND LEVEL WITH CAB | Front Wheel Drive | |
|-------------------------------------|-----------------------------|--------------------------|
| | Disengaged dB(A) | Engaged dB(A) |
| At 75% load in 10th Gear | 73.1 | 73.1 |
| Bystander 19th Gear | 83.7 | — |

TIRES, BALLAST AND WEIGHT

| | With Ballast | Without Ballast |
|------------------------------------|--------------------------|--------------------------|
| Rear Tires | | |
| —No., size, ply & psi (kPa) | Four 18.4R42:***; 8 (55) | Two 18.4R42: **; 13 (90) |
| Ballast | | |
| —Duals (total) | 1524 lb (691 kg) | None |
| —Cast Iron (total) | 1082 lb (491 kg) | None |
| Front Tires | | |
| —No., size, ply & psi (kPa) | Two 14.9R30:***; 12 (85) | Two 14.9R30:***; 12 (85) |
| Ballast | | |
| —Liquid (total) | None | None |
| —Cast Iron (total) | None | None |
| Height of Drawbar | 22.0 in (560 mm) | 21.0 in (535 mm) |
| Static Weight with Operator | | |
| —Rear | 12710 lb (5765 kg) | 10104 lb (4583 kg) |
| —Front | 5510 lb (2499 kg) | 5510 lb (2499 kg) |
| —Total | 18220 lb (8264 kg) | 15614 lb (7082 kg) |

DRAWBAR PERFORMANCE
(BALLASTED —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) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|--|-----------------------|--------------------------------------|--------------------|-------------------------------|
| 4th Gear | | | | | | | | | |
| 102.51 (76.44) | 18789 (83.58) | 2.05 (3.29) | 2139 | 7.72 | 0.533 (0.324) | 13.17 (2.59) | 185 (85) | 53 (12) | 29.03 (98.31) |
| 5th Gear | | | | | | | | | |
| 110.93 (82.72) | 18067 (80.36) | 2.30 (3.71) | 2056 | 6.32 | 0.500 (0.304) | 14.05 (2.77) | 188 (87) | 53 (12) | 29.03 (98.31) |
| 6th Gear | | | | | | | | | |
| 118.60 (88.44) | 17552 (78.07) | 2.53 (4.08) | 1978 | 5.44 | 0.478 (0.291) | 14.68 (2.89) | 191 (88) | 53 (12) | 29.03 (98.31) |
| 7th Gear | | | | | | | | | |
| 126.34 (94.21) | 17436 (77.56) | 2.72 (4.37) | 1840 | 5.44 | 0.455 (0.277) | 15.42 (3.04) | 196 (91) | 54 (12) | 29.03 (98.31) |
| 8th Gear | | | | | | | | | |
| 127.02 (94.72) | 15678 (69.74) | 3.04 (4.89) | 1702 | 3.97 | 0.446 (0.271) | 15.75 (3.10) | 200 (93) | 55 (13) | 29.03 (98.31) |
| 9th Gear | | | | | | | | | |
| 128.00 (95.45) | 13609 (60.53) | 3.53 (5.68) | 1700 | 3.22 | 0.442 (0.269) | 15.88 (3.13) | 205 (96) | 55 (13) | 29.03 (98.31) |
| 10th Gear | | | | | | | | | |
| 128.32 (95.69) | 11938 (53.10) | 4.03 (6.49) | 1703 | 2.71 | 0.440 (0.267) | 15.98 (3.15) | 200 (93) | 55 (13) | 29.02 (98.27) |
| 11th Gear | | | | | | | | | |
| 128.84 (96.08) | 10381 (46.18) | 4.65 (7.49) | 1700 | 2.20 | 0.439 (0.267) | 16.01 (3.15) | 203 (95) | 55 (13) | 29.01 (98.24) |
| 12th Gear | | | | | | | | | |
| 126.42 (94.27) | 8827 (39.26) | 5.37 (8.64) | 1705 | 1.94 | 0.446 (0.272) | 15.73 (3.10) | 199 (93) | 55 (13) | 28.99 (98.17) |
| 13th Gear | | | | | | | | | |
| 126.01 (93.97) | 7612 (33.86) | 6.21 (9.99) | 1706 | 1.76 | 0.447 (0.272) | 15.70 (3.09) | 201 (94) | 55 (13) | 28.98 (98.14) |
| 14th Gear | | | | | | | | | |
| 125.06 (93.26) | 6676 (29.70) | 7.02 (11.31) | 1698 | 1.50 | 0.451 (0.274) | 15.58 (3.07) | 202 (94) | 55 (13) | 28.98 (98.14) |
| 15th Gear | | | | | | | | | |
| 123.66 (92.21) | 5719 (25.44) | 8.11 (13.05) | 1699 | 1.42 | 0.457 (0.278) | 15.37 (3.03) | 201 (94) | 55 (13) | 28.97 (98.10) |

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: Walterscheid lower link ends

Maximum Force Exerted Through Whole Range:

10161 lbs (45.2 kN)

i) Opening pressure of relief valve:

NA

Sustained pressure with pump stalled:

2880 psi (199 bar)

ii) Pump delivery rate at minimum pressure and rated engine speed:

26.8 GPM (101.4 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

25.3 GPM (95.8 l/min)

Delivery pressure:

2530 psi (174 bar)

Power:

37.3 HP (27.8 kW)

THREE POINT HITCH PERFORMANCE (SAE Static Test)

Observed Maximum Pressure psi. (bar)

2950 (203)

Location

lift cylinder

Hydraulic oil temperature °F (°C)

144 (62)

Location

hydraulic sump

Category

IIIN

Quick attach

No

SAE Static test—system pressure-2650 psi (182 bar)
lift cylinders 1 × 70 mm and 1 × 80 mm

| | | | | | |
|--------------------------------------|-----------|------------|------------|------------|-------------|
| Hitch point distance to ground level | 8.1 (206) | 16.0 (406) | 24.0 (610) | 32.0 (813) | 40.0 (1016) |
| Lift force on frame lb | 10953 | 10944 | 10629 | 9855 | 8397 |
| Lift force on frame (kN) | (48.7) | (48.7) | (47.3) | (43.8) | (37.4) |

lift cylinders 2 × 80 mm

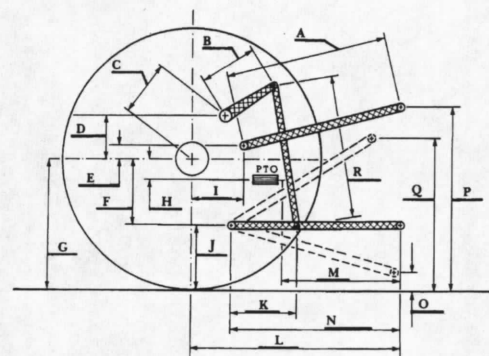
| | | | | | |
|---|-----------|------------|------------|------------|-------------|
| Hitch point distance to ground level in. (mm) | 7.7 (196) | 16.0 (406) | 24.0 (610) | 32.0 (813) | 40.0 (1016) |
| Lift force on frame lb. | 12177 | 12564 | 12177 | 11268 | 9549 |
| Lift force on frame (kN) | (54.1) | (55.9) | (54.2) | (50.1) | (42.5) |

ASAE Static test—system pressure-2860 psi (197 bar)
lift cylinders 1 × 70 mm and 1 × 80 mm

| | | | | | |
|--------------------------------------|-----------|------------|------------|------------|-------------|
| Hitch point distance to ground level | 8.1 (206) | 16.0 (406) | 24.0 (610) | 32.0 (813) | 40.0 (1016) |
| Lift force on frame lb | 11959 | 11949 | 11605 | 10760 | 9168 |
| Lift force on frame (kN) | (53.2) | (53.2) | (51.6) | (47.9) | (40.8) |

lift cylinders 2 × 80 mm

| | | | | | |
|---|-----------|------------|------------|------------|-------------|
| Hitch point distance to ground level in. (mm) | 7.7 (196) | 16.0 (406) | 24.0 (610) | 32.0 (813) | 40.0 (1016) |
| Lift force on frame lb. | 13295 | 13718 | 13295 | 12303 | 10426 |
| Lift force on frame (kN) | (59.1) | (61.0) | (59.1) | (54.7) | (46.4) |



HITCH DIMENSIONS AS TESTED—NO LOAD

| | OECD test | | SAE test | |
|---|-----------|------|----------|------|
| | inch | mm | inch | mm |
| A | 27.2 | 692 | 26.6 | 676 |
| B | 14.8 | 375 | 14.8 | 375 |
| C | 24.5 | 623 | 24.5 | 623 |
| D | 23.1 | 588 | 23.1 | 588 |
| E | 11.1 | 283 | 7.5 | 190 |
| F | 10.8 | 275 | 10.8 | 275 |
| G | 35.6 | 905 | 34.2 | 870 |
| H | 4.1 | 105 | 4.1 | 105 |
| I | 19.8 | 504 | 19.8 | 504 |
| J | 24.8 | 630 | 23.4 | 595 |
| K | 24.1 | 612 | 23.1 | 587 |
| L | 47.5 | 1206 | 46.4 | 1179 |
| M | 23.1 | 586 | 22.0 | 559 |
| N | 39.8 | 1011 | 38.7 | 984 |
| O | 9.0 | 229 | 8.0 | 203 |
| P | 51.8 | 1315 | 45.4 | 1153 |
| Q | 38.8 | 984 | 36.8 | 933 |
| R | 38.1 | 968 | 35.9 | 911 |



JOHN DEERE 7710 POWERSHIFT DIESEL

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