

NEBRASKA OECD TRACTOR TEST 2135—SUMMARY 1005

JOHN DEERE 9620R DIESEL

18 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption		Mean Atmospheric Conditions
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Gal/hr (l/h)	
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1109 rpm)						
322.64 (240.59)	2101	19.68 (74.49)	0.427 (0.260)	16.40 (3.23)	0.72 (2.74)	Fuel used during active exhaust regeneration-0.85 gal (3.21 l) (see note 1, p.2)
Standard Power Take-off Speed(1000 rpm)						
358.23 (267.13)	1895	20.13 (76.20)	0.394 (0.239)	17.80 (3.51)	0.77 (2.92)	
Maximum Power (1 hour)						
365.74 (272.73)	1701	19.71 (74.62)	0.377 (0.230)	18.55 (3.66)	0.78 (2.95)	

VARYING POWER AND FUEL CONSUMPTION

322.64 (240.59)	2101	19.68 (74.49)	0.427 (0.260)	16.40 (3.23)	0.72 (2.74)	Air temperature
276.31 (206.05)	2118	17.32 (65.55)	0.439 (0.267)	15.96 (3.14)	0.62 (2.34)	73°F (23°C)
208.10 (155.18)	2128	14.19 (53.70)	0.477 (0.290)	14.67 (2.89)	0.53 (2.01)	Relative humidity
139.48 (104.01)	2138	11.19 (42.34)	0.562 (0.342)	12.47 (2.46)	0.44 (1.66)	50%
70.03 (52.22)	2148	8.49 (32.14)	0.849 (0.516)	8.25 (1.62)	0.26 (0.98)	Barometer
3.48 (2.60)	2157	6.06 (22.92)	12.173 (7.404)	0.58 (0.11)	0.17 (0.64)	28.40" Hg (96.18 kPa)

Maximum Torque - 1194 lb.-ft. (1619 Nm) at 1501 rpm

Maximum Torque Rise - 48.0%

Torque rise at 1680 engine rpm - 40%

Power increase at 1701 rpm - 13.4%

DRAWBAR PERFORMANCE (Unballasted)

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)	D.E.F. Consumption Hp.hr/gal (kW.h/l)	Temp. °F (°C)	Barom. inch Hg (kPa)
Maximum Power—8th Gear- Manual mode								
495.25 (369.30)	35076 (156.02)	5.30 (8.52)	2100	5.2	0.436 (0.265)	16.07 (3.17)	0.014 (0.008)	211 60 28.55 (99) (16) (96.68)
75% of Pull at Maximum Power—8th Gear - Manual mode								
390.81 (291.43)	26336 (117.15)	5.56 (8.96)	2175	3.8	0.442 (0.269)	15.86 (3.12)	0.020 (0.012)	209 56 28.85 (99) (13) (97.70)
50% of Pull at Maximum Power—8th Gear- Manual mode								
267.57 (199.53)	17558 (78.10)	5.71 (9.20)	2204	2.5	0.482 (0.293)	14.53 (2.86)	0.028 (0.017)	208 56 28.86 (98) (13) (97.73)
75% of Pull at Reduced Engine Speed—5.7 mph (9.2 km/h)-Auto mode								
390.45 (291.16)	26366 (117.28)	5.55 (8.94)	1594	3.8	0.394 (0.240)	17.77 (3.50)	0.028 (0.017)	208 56 28.86 (98) (13) (97.73)
50% of Pull at Reduced Engine Speed—5.8 mph (9.4 km/h)-Auto mode								
266.96 (199.07)	17403 (77.41)	5.75 (9.26)	1324	2.5	0.415 (0.253)	16.86 (3.32)	0.021 (0.013)	196 56 28.87 (91) (13) (97.77)

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

Dates of tests: November 10 - 20, 2015

Manufacturer: John Deere Tractor Works, 3500 East Donald St., P.O. Box 270, Waterloo Ia, 50704-0270

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8412 **Fuel weight** 7.004 lbs/gal (0.839 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil SAE 10W-30 API service classification** CJ-4 **Transmission, hydraulic and final drive lubricant** John Deere Hy-Gard fluid **Total time engine was operated:** 30.5 hours

ENGINE: Make Cummins **Diesel Type** six cylinder vertical with turbocharger, air to air aftercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** *79808604* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 5.394" x 6.654" (137.0 mm x 169.0 mm) **Compression ratio** 17.2 to 1 **Displacement** 912 cu in (14948 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 transmission/hydraulic oil also feeding front and rear axles **Fuel filter** two paper cartridges **Fuel cooler** radiator for returned fuel **Exhaust** DOC (diesel oxidation catalyst), SCR (selective catalyst reduction) and regenerative DPF (diesel particulate filter) integrated within a vertical muffler **Cooling medium temperature control** thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: Stationary PTO operation (395 engine hp) 130.3 - 141.0 lb/h (59.1 - 64.0 kg/h), Drawbar operations (620 engine hp) 209.9 - 226.6 lb/h (95.2 - 102.8 kg/h) **High idle:** 2215 - 2265 rpm (2125 - 2175 rpm with PTO engaged) **Turbo boost:** (620 engine hp) nominal 29.0 - 31.9 psi (200 - 220 kPa) as measured 30.0 psi (207 kPa)

CHASSIS: Type four wheel drive with triples **Serial No.** *1RW9620RJFP016416* **Tread width** rear 59.1" (1500 mm) to 163.8" (4160 mm), front 59.1" (1500 mm) to 163.8" (4160 mm) **Wheelbase** 137.8" (3500 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled power shift **Nominal travel speeds mph (km/h)** first 2.37 (3.81) second 2.91 (4.69) third 3.23 (5.19) fourth 3.60 (5.79) fifth 3.96 (6.38) sixth 4.42 (7.12) seventh 4.90 (7.89) eighth 5.47 (8.81) ninth 6.03 (9.71)

DRAWBAR PERFORMANCE
(Unballasted at 2100 rpm, Manual mode)

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)	D.E.F Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cooling med	Air dry bulb	Barom. inch Hg (kPa)
418.33 (311.95)	47285 (210.33)	3.32 (5.34)	2100	10.4	4th Gear 0.460 (0.280)	15.23 (3.00)	0.020 (0.012)	210 (99)	55 (13)	28.85 (97.70)
448.26 (334.27)	45231 (201.20)	3.72 (5.98)	2100	8.9	5th Gear 0.449 (0.273)	15.60 (3.07)	0.018 (0.011)	211 (99)	55 (13)	28.85 (97.70)
477.69 (356.21)	42691 (189.90)	4.20 (6.76)	2099	8.4	6th Gear 0.453 (0.276)	15.45 (3.04)	0.014 (0.008)	212 (100)	59 (15)	28.54 (96.65)
488.56 (364.32)	39006 (173.51)	4.70 (7.56)	2100	7.0	7th Gear 0.445 (0.270)	15.75 (3.10)	0.014 (0.008)	212 (100)	59 (15)	28.55 (96.68)
495.25 (369.30)	35076 (156.02)	5.30 (8.52)	2100	5.2	8th Gear 0.436 (0.265)	16.07 (3.17)	0.014 (0.008)	211 (99)	60 (16)	28.55 (96.68)
492.21 (367.04)	31235 (138.94)	5.91 (9.51)	2099	4.4	9th Gear 0.440 (0.268)	15.91 (3.13)	0.013 (0.008)	212 (100)	60 (15)	28.55 (96.68)
495.90 (369.79)	28119 (125.08)	6.61 (10.64)	2100	3.8	10th Gear 0.433 (0.263)	16.19 (3.19)	0.013 (0.008)	211 (99)	60 (16)	28.55 (96.68)
495.75 (369.68)	25321 (112.63)	7.34 (11.81)	2099	3.4	11th Gear 0.433 (0.264)	16.16 (3.18)	0.014 (0.008)	211 (99)	60 (16)	28.56 (96.72)
496.82 (370.48)	22735 (101.13)	8.20 (13.19)	2099	3.0	12th Gear 0.438 (0.267)	15.98 (3.15)	0.014 (0.009)	211 (99)	60 (16)	28.56 (96.72)

tenth 6.74 (10.84) eleventh 7.46 (12.01) twelfth 8.25 (13.27) thirteenth 9.18 (14.77) fourteenth 10.15 (16.33) fifteenth 12.54 (20.18) sixteenth 15.43 (24.83) seventeenth 19.08 (30.70) eighteenth 23.48 (37.78) reverse 2.37 (3.81), 3.23 (5.19), 3.60 (5.79), 4.90 (7.89), 5.47 (8.81), 7.46 (12.01) **Clutch** wet multiple disc hydraulically actuated by a foot pedal **Brakes** wet multiple disc hydraulically actuated by a foot pedal **Steering** hydrostatic and articulated **Power take-off** 1000 rpm at 1895 engine rpm **Unladen tractor mass** 47895 lb (21725 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1. The manufacturer declares that the average time between active regenerations is 60 hours.

NOTE 2: This tractor has a driveline protection system that limits the maximum engine torque in gears 1 through 5.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2135**, Nebraska Summary 1005, January 19, 2016.

Roger M. Hoy
Director

M.F. Kocher
P.J. Jasa
S.K. Pitla
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB

dB(A)

At no load in 6th gear	73.9
Transport speed - no load - 18th gear	74.5
Bystander in 18th gear	89.9

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires - No., size, ply & psi(kPa)	Six 480/80R46;***;14(95)	Six 480/80R46;***;12(85)
Ballast - Cast Iron(rear chassis) (total)	1100 lb (499 kg)	None
- Cast Iron(on axles) (total)	4500 lb (2041 kg)	None
Front Tires - No., size, ply & psi(kPa)	Six 480/80R46;***;22(150)	Six 480/80R46;***;16(110)
Ballast - Cast Iron(on axles) (total)	2750 lb (1247 kg)	None
- Cast Iron(front end) (total)	3580 lb (1624 kg)	None
Height of Drawbar	21.5 in (545 mm)	22.0 in (560 mm)
Static Weight with operator - Rear	23600 lb(10705 kg)	20005 lb (9074 kg)
- Front	36400 lb(16510 kg)	28065 lb(12730 kg)
- Total	60000 lb(27215 kg)	48070 lb(21804 kg)

DRAWBAR PERFORMANCE
UNBALLASTED - AUTO MODE
(Loads based on 2100 engine rpm Manual mode performance runs)
DRAWBAR POWER AT SELECTED TRAVEL SPEEDS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption		D.E.F. Consumption	Temp. °F (°C)		Barom. inch Hg (kPa)
					lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	lb/hp.hr (kg/kW.h)	cool- ing med	Air dry bulb	
4.6 mph (7.4 km/h)										
477.16 (355.82)	41655 (185.29)	4.30 (6.91)	1939	7.8	0.434 (0.264)	16.13 (3.18)	0.016 (0.010)	211 (99)	59 (15)	28.55 (96.68)
5.0 mph (8.0 km/h)										
487.85 (363.79)	39020 (173.57)	4.69 (7.55)	1886	6.9	0.423 (0.257)	16.57 (3.26)	0.016 (0.010)	211 (99)	59 (15)	28.54 (96.65)
5.6 mph (9.0 km/h)										
496.22 (370.03)	34744 (154.55)	5.36 (8.63)	1916	5.1	0.423 (0.258)	16.54 (3.26)	0.016 (0.010)	211 (99)	60 (16)	28.54 (96.65)
6.1 mph (9.8 km/h)										
492.30 (367.10)	31468 (139.97)	5.87 (9.45)	1877	4.5	0.418 (0.254)	16.77 (3.30)	0.017 (0.010)	211 (99)	60 (16)	28.54 (96.65)
6.8 mph (11.0 km/h)										
495.55 (369.53)	28060 (124.81)	6.62 (10.65)	1906	4.0	0.417 (0.254)	16.80 (3.31)	0.016 (0.010)	211 (99)	59 (15)	28.54 (96.65)
7.6 mph (12.2 km/h)										
495.91 (369.80)	25191 (112.05)	7.38 (11.88)	1901	3.6	0.413 (0.251)	16.94 (3.34)	0.016 (0.010)	211 (99)	58 (15)	28.54 (96.65)
8.3 mph (13.4 km/h)										
496.01 (369.87)	22841 (101.60)	8.14 (13.10)	1887	3.2	0.416 (0.253)	16.85 (3.32)	0.017 (0.011)	211 (99)	58 (15)	28.54 (96.65)

DRAWBAR PERFORMANCE
(Unballasted at 1800 RPM, Manual mode)
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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th Gear										
413.94 (308.67)	48387 (215.24)	3.21 (5.16)	2084	12.6	0.469 (0.285)	14.95 (2.94)	0.020 (0.012)	210 (99)	55 (13)	28.85 (97.70)
5th Gear										
451.52 (336.70)	46829 (208.31)	3.62 (5.82)	2075	10.2	0.455 (0.277)	15.39 (3.03)	0.018 (0.011)	211 (99)	56 (13)	28.85 (97.70)
6th Gear										
489.85 (365.28)	45551 (202.62)	4.03 (6.49)	2046	9.7	0.446 (0.271)	15.71 (3.09)	0.017 (0.010)	211 (100)	56 (13)	28.85 (97.70)
7th Gear										
514.40 (383.59)	44628 (198.51)	4.32 (6.96)	1973	8.7	0.429 (0.261)	16.32 (3.22)	0.018 (0.011)	211 (100)	56 (13)	28.85 (97.70)
8th Gear										
535.51 (399.33)	43112 (191.77)	4.66 (7.50)	1896	7.8	0.415 (0.252)	16.88 (3.33)	0.019 (0.011)	212 (100)	56 (13)	28.85 (97.70)
9th Gear										
536.73 (400.24)	40755 (181.29)	4.94 (7.95)	1799	7.0	0.422 (0.256)	16.61 (3.27)	0.022 (0.013)	213 (100)	56 (13)	28.85 (97.70)
10th Gear										
544.17 (405.79)	36669 (163.11)	5.57 (8.96)	1800	5.6	0.419 (0.255)	16.73 (3.29)	0.020 (0.012)	211 (100)	52 (11)	28.84 (97.66)
11th Gear										
546.88 (407.81)	33008 (146.83)	6.21 (10.00)	1800	4.8	0.416 (0.253)	16.86 (3.32)	0.021 (0.013)	211 (99)	47 (8)	28.82 (97.60)
12th Gear										
550.79 (410.73)	29783 (132.48)	6.94 (11.16)	1799	4.2	0.415 (0.253)	16.87 (3.32)	0.021 (0.013)	211 (100)	52 (11)	28.84 (97.66)
13th Gear										
547.03 (407.92)	26551 (118.10)	7.73 (12.43)	1799	3.7	0.418 (0.254)	16.77 (3.30)	0.021 (0.013)	211 (100)	53 (12)	28.84 (97.66)
14th Gear										
552.89 (412.29)	24044 (106.96)	8.62 (13.88)	1799	3.4	0.414 (0.252)	16.93 (3.34)	0.020 (0.012)	212 (100)	53 (12)	28.84 (97.66)

Lugging ability in 11th gear

Crankshaft speed rpm	2099	2000	1900	1801	1699	1600	1399	1099
Pull-lbs (kN)	25339 (112.71)	28280 (125.80)	30947 (137.66)	33033 (146.94)	34802 (154.81)	36234 (161.18)	35417 (157.54)	29774 (132.44)
Increase in pull%	0	12	22	30	37	43	40	18
Power-Hp (kW)	495.85 (369.76)	525.79 (392.08)	544.71 (406.19)	548.64 (409.12)	543.22 (405.08)	530.61 (395.67)	453.85 (338.44)	302.98 (225.94)
Speed-mph (km/h)	7.34 (11.81)	6.97 (11.22)	6.60 (10.62)	6.23 (10.02)	5.85 (9.42)	5.49 (8.84)	4.81 (7.73)	3.81 (6.14)
Slip %	3.5	3.7	4.0	4.6	4.8	5.2	5.2	4.0

DRAWBAR PERFORMANCE
(Ballasted at 1800 RPM, Manual mode)
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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F (°C) cool- ing med	Air dry bulb (8)	Barom. inch Hg (kPa)
4th Gear										
456.77 (340.61)	60455 (268.91)	2.84 (4.56)	1830	11.7	0.445 (0.270)	15.75 (3.10)	0.023 (0.014)	210 (99)	47 (8)	28.90 (97.87)
5th Gear										
495.00 (369.12)	54097 (240.63)	3.44 (5.53)	1924	7.7	0.431 (0.262)	16.27 (3.20)	0.019 (0.012)	211 (99)	47 (9)	28.90 (97.87)
6th Gear										
529.33 (394.72)	52972 (235.63)	3.75 (6.04)	1872	7.4	0.421 (0.256)	16.63 (3.28)	0.020 (0.012)	212 (100)	47 (9)	28.90 (97.87)
7th Gear										
543.21 (405.07)	50793 (225.94)	4.01 (6.45)	1800	6.8	0.409 (0.249)	17.12 (3.37)	0.022 (0.013)	212 (100)	48 (9)	28.90 (97.87)
8th Gear										
551.00 (410.88)	45862 (204.00)	4.51 (7.25)	1800	5.6	0.408 (0.248)	17.18 (3.39)	0.021 (0.013)	212 (100)	48 (9)	28.90 (97.87)
9th Gear										
547.38 (408.18)	40592 (180.56)	5.06 (8.14)	1799	4.3	0.409 (0.249)	17.14 (3.38)	0.023 (0.014)	211 (99)	44 (7)	28.92 (97.93)
10th Gear										
551.33 (411.13)	36608 (162.84)	5.65 (9.09)	1800	3.7	0.411 (0.250)	17.04 (3.36)	0.022 (0.014)	211 (99)	45 (7)	28.92 (97.93)
11th Gear										
551.02 (410.90)	32928 (146.47)	6.28 (10.10)	1800	3.2	0.409 (0.248)	17.14 (3.38)	0.023 (0.014)	211 (99)	45 (7)	28.92 (97.93)
12th Gear										
555.80 (414.46)	29757 (132.37)	7.01 (11.27)	1800	2.8	0.410 (0.249)	17.10 (3.37)	0.022 (0.014)	211 (99)	45 (7)	28.92 (97.93)
13th Gear										
550.31 (410.37)	26531 (118.02)	7.78 (12.52)	1799	2.5	0.413 (0.251)	16.94 (3.34)	0.023 (0.014)	211 (99)	46 (8)	28.92 (97.93)
14th Gear										
556.83 (415.22)	24071 (107.07)	8.68 (13.96)	1800	2.3	0.411 (0.250)	17.06 (3.36)	0.022 (0.013)	211 (99)	46 (8)	28.92 (97.93)

HYDRAULIC PERFORMANCE

CATEGORY: 4N/4
 Quick Attach: Yes
 OECD Static test

Maximum force exerted through whole range:	<u>Category 4N</u>	<u>lift cylinders</u>
	16040 lbs(71.3 kN) (1 x 90 mm and 1x100 mm) 21446 lbs(95.4 kN) (2 x 110 mm)	
	<u>Category 4</u>	
	15682 lbs(69.8 kN) (1 x 90 mm and 1x100 mm) 20997 lbs(93.4 kN) (2 x 110 mm)	

	<u>Base pump</u>	<u>Tandem pump</u>
	<u>three outlet sets combined</u>	
i) Sustained pressure at compensator cutoff:	2988 psi (206 bar)	2940 psi (203 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	60.0 GPM(227.0 l/min)	57.2 GPM (216.5 l/min)
Combined flow:	117.2 GPM (443.5 l/min)	

iii) Pump delivery rate at maximum hydraulic power:	61.0 GPM(230.9 l/min)	58.1 GPM(219.9 l/min)
Delivery pressure:	2584 psi (178 bar)	2407 psi (166 bar)
Power:	92.0 HP (68.6 kW)	81.6 HP (60.8 kW)

	<u>single outlet set</u>	
	<u>3/4" couplers</u>	<u>1/2" couplers</u>
i) Sustained pressure at compensator cutoff:	2909 psi (201 bar)	2985 psi (206 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	43.7 GPM(165.5 l/min)	37.1 GPM (140.3 l/min)

iii) Pump delivery rate at maximum hydraulic power:	42.8 GPM(162.2 l/min)	35.1 GPM(132.9 l/min)
Delivery pressure:	2217 psi (153 bar)	2349 psi (162 bar)
Power:	55.4 HP (41.3 kW)	48.1 HP (35.9 kW)

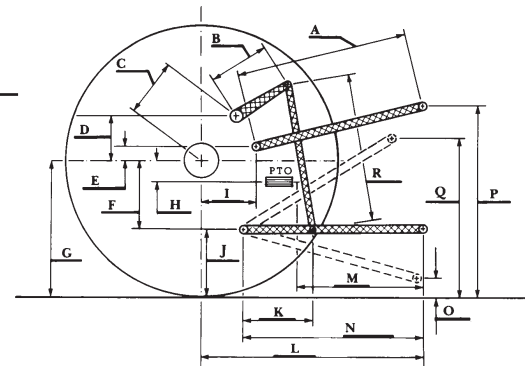
Category 4N

Category 4

	inch	mm	inch	mm
A	30.8	782	29.9	760
B	19.7	500	19.7	500
C	25.0	635	25.0	635
D	24.4	620	24.4	620
E	12.8	325	12.8	325
F	13.8	350	13.8	350
G	36.6	930	36.6	930
H	2.4	60	2.4	60
I	18.7	474	18.7	474
J	22.8	580	22.8	580
K	30.9	785	30.9	785
L	57.0	1447	57.0	1447
*L'	62.8	1596	63.8	1620
M	26.9	684	26.9	684
N	45.6	1159	45.6	1159
O	9.1	230	9.1	230
P	50.8	1290	50.8	1291
Q	41.3	1049	40.9	1039
R	50.0	1270	50.2	1275

*L' to Quick Attach ends

HITCH DIMENSIONS AS TESTED—NO LOAD



JOHN DEERE 9620R DIESEL