

NEBRASKA OECD TRACTOR TEST 2108-SUMMARY 971

JOHN DEERE 9420R 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						
SEE NOTE 1 - PAGE 2						
Rated Engine Speed—(PTO speed—1108 rpm)						
331.67 (247.33)	2099	20.40 (77.20)	0.432 (0.263)	16.26 (3.20)	0.37 (1.39)	Fuel used during active exhaust regeneration-2.98 gal (11.29 l) (see note 2, p.2)
Standard Power Take-off Speed(1000 rpm)						
363.31 (270.92)	1895	20.47 (77.48)	0.396 (0.241)	17.75 (3.50)	0.34 (1.30)	
Maximum Power (1 hour)						
369.02 (275.18)	1700	19.83 (75.08)	0.378 (0.230)	18.61 (3.67)	0.34 (1.30)	

VARYING POWER AND FUEL CONSUMPTION

331.67 (247.33)	2099	20.40 (77.20)	0.432 (0.263)	16.26 (3.20)	0.37 (1.39)	Air temperature
288.94 (215.46)	2150	19.20 (72.67)	0.467 (0.284)	15.05 (2.96)	0.39 (1.46)	73°F (23°C)
216.63 (161.54)	2150	15.74 (59.57)	0.511 (0.311)	13.77 (2.71)	0.28 (1.07)	Relative humidity
144.30 (107.60)	2150	12.46 (47.18)	0.607 (0.369)	11.58 (2.28)	0.25 (0.94)	47%
72.33 (53.94)	2150	9.38 (35.51)	0.912 (0.555)	7.71 (1.52)	0.24 (0.92)	Barometer
1.29 (0.96)	2150	6.75 (25.55)	36.929 (22.463)	0.19 (0.04)	0.19 (0.73)	28.59" Hg (96.82 kPa)

Maximum Torque - 1224 lb.-ft. (1660 Nm) at 1550 rpm

Maximum Torque Rise - 47.5%

Torque rise at 1679 engine rpm - 39%

Power increase at 1700 rpm - 11.3%

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—7th Gear- Manual mode								
325.79 (242.94)	25719 (114.40)	4.75 (7.64)	2100	3.9	0.457 (0.278)	15.40 (3.03)	192 (89)	59 (15)
75% of Pull at Maximum Power—7th Gear - Manual mode								
254.82 (190.02)	19285 (85.78)	4.96 (7.98)	2165	2.7	0.500 (0.304)	14.05 (2.77)	191 (88)	63 (17)
50% of Pull at Maximum Power—7th Gear- Manual mode								
173.59 (129.45)	12860 (57.20)	5.06 (8.14)	2186	1.6	0.588 (0.357)	11.97 (2.36)	190 (88)	64 (18)
75% of Pull at Reduced Engine Speed—5.0 mph (8.0 km/h)-Auto mode								
254.47 (189.76)	19104 (84.98)	5.00 (8.04)	1595	2.7	0.414 (0.252)	17.00 (3.35)	191 (88)	64 (18)
50% of Pull at Reduced Engine Speed—5.1 mph (8.2 km/h)-Auto mode								
173.01 (129.01)	12850 (57.16)	5.05 (8.13)	1297	1.6	0.423 (0.257)	16.63 (3.28)	191 (88)	64 (18)

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

Dates of Tests: April 2-15, 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)** 0.8447 **Fuel weight** 7.033 lbs/gal (0.843 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:** 32.0 hours

ENGINE: Make John Deere **Diesel Type** six cylinder vertical with two turbochargers, air to air aftercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** *RG6135U002033* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 5.197" x 6.496" (132.0 mm x 165.0 mm) **Compression ratio** 16.0 to 1 **Displacement** 826 cu in (13548 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** 3 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: Stationary PTO operation (395 engine hp) 137.3 - 148.8 lb/h (62.3 - 67.5 kg/h), (420 engine hp) 143.1 - 154.8 lb/h (64.9 - 70.2 kg/h) **High idle:** 2150 - 2250 rpm (2125 - 2175 rpm with PTO engaged) **Turbo boost:** (420 engine hp) nominal 27.5 - 31.9 psi (190 - 220 kPa) as measured 29.5 psi (205 kPa)

CHASSIS: Type four wheel drive with duals **Serial No.** *1RW9420RCEP016017* **Tread width** rear 59.1" (1500 mm) to 131.8" (3348 mm), front 59.1" (1500 mm) to 131.8" (3348 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) tenth 6.74 (10.84) eleventh 7.46 (12.01) twelfth 8.25 (13.27) thirteenth 9.18 (14.77)

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. ^o F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
					1st Gear					
235.79 (175.83)	41673 (185.37)	2.13 (3.42)	2156	13.6	0.559 (0.340)	12.59 (2.48)	0.013 (0.008)	191 (88)	45 (7)	29.03 (98.31)
					2nd Gear					
285.78 (213.10)	39949 (177.70)	2.68 (4.31)	2100	8.7	0.496 (0.302)	14.18 (2.79)	0.011 (0.007)	191 (88)	44 (7)	29.03 (98.31)
					3rd Gear					
295.67 (220.48)	36940 (164.32)	3.00 (4.83)	2100	7.7	0.481 (0.292)	14.63 (2.88)	0.011 (0.007)	191 (88)	48 (9)	29.03 (98.31)
					4th Gear					
300.12 (223.80)	33047 (147.00)	3.41 (5.49)	2099	6.4	0.474 (0.289)	14.83 (2.92)	0.013 (0.008)	192 (89)	63 (17)	28.63 (96.95)
					5th Gear					
321.77 (239.94)	31979 (142.25)	3.77 (6.07)	2100	5.8	0.461 (0.281)	15.25 (3.00)	0.011 (0.007)	194 (90)	64 (18)	28.61 (96.88)
					6th Gear					
321.13 (239.46)	28219 (125.52)	4.27 (6.87)	2100	4.6	0.461 (0.280)	15.25 (3.00)	0.012 (0.007)	193 (89)	61 (16)	28.65 (97.02)
					7th Gear					
325.79 (242.94)	25719 (114.40)	4.75 (7.64)	2100	3.9	0.457 (0.278)	15.40 (3.03)	0.011 (0.007)	192 (89)	59 (15)	28.64 (96.99)
					8th Gear					
326.46 (243.44)	23056 (102.56)	5.31 (8.55)	2100	3.5	0.455 (0.277)	15.46 (3.05)	0.011 (0.007)	191 (88)	56 (13)	28.63 (96.95)
					9th Gear					
325.06 (242.40)	20636 (91.79)	5.91 (9.51)	2100	3.2	0.456 (0.277)	15.44 (3.04)	0.012 (0.007)	192 (89)	59 (15)	28.64 (96.99)
					10th Gear					
324.93 (242.30)	18497 (82.28)	6.59 (10.61)	2100	2.9	0.455 (0.277)	15.44 (3.04)	0.012 (0.007)	193 (89)	61 (16)	28.64 (96.99)
					11th Gear					
325.04 (242.38)	16694 (74.26)	7.30 (11.75)	2099	2.4	0.457 (0.278)	15.39 (3.03)	0.012 (0.008)	192 (89)	61 (16)	28.65 (97.02)
					12th Gear					
327.69 (244.35)	15083 (67.09)	8.15 (13.11)	2100	2.0	0.452 (0.275)	15.58 (3.07)	0.012 (0.008)	192 (89)	61 (16)	28.64 (96.99)

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At no load in 7th gear	70.8
Transport speed - no load - 18th gear	72.7
Bystander in 18th gear	87.4

TIRES, BALLAST AND WEIGHT

Rear Tires - No., size, ply & psi(kPa)
Front Tires - No., size, ply & psi(kPa)
Height of Drawbar
Static Weight with operator - Rear
- Front
- Total

Tested Without Ballast

Four 480/80R46;***;17(115)
Four 480/80R46;***;19(130)
20.0 in (510 mm)
19955 lb (9051 kg)
23185 lb(10517 kg)
43140 lb(19568 kg)

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
(12.00) **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**
42965 lb (19488 kg)

REPAIRS AND ADJUSTMENTS: No repairs or
adjustments.

NOTE 1. In stationary PTO operation, this model
operates in a derated power mode. With stationary
PTO operation, using FieldCruise™, an
isochronous governor is utilized. All PTO tests
were conducted with FieldCruise™ engaged.

NOTE 2. The manufacturer declares that the
average time between active regenerations is 50
hours, while operated in Auto Filter Cleaning
Mode, at rated speed, full PTO load, under steady
state conditions.

NOTE 3. The 9420R engine has an electronic
control system which provides a vehicle protection
system to avoid overloading the drive train. This
system provides two different engine power levels.
At 2100 rpm the engine produces up to 395 hp
when the transmission is in forward gears 1 through
4. The engine produces 420 hp at 2100 rpm for
all other gears.

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.
2108, Nebraska Summary 971, July 5, 2015.

Roger M. Hoy
Director

M.F. Kocher
P.J. Jasa
J.D. Luck
Board of Tractor Test Engineers

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	
2.4 mph (3.8 km/h)										
229.48 (171.12)	40951 (182.16)	2.11 (3.39)	1375	11.8	0.447 (0.272)	15.73 (3.10)	0.011 (0.007)	192 (89)	47 (8)	29.03 (98.31)
2.9 mph (4.6 km/h)										
281.60 (209.99)	40557 (180.41)	2.61 (4.19)	1664	9.6	0.438 (0.266)	16.07 (3.17)	0.010 (0.006)	192 (89)	45 (7)	29.03 (98.31)
3.2 mph (5.2 km/h)										
295.35 (220.24)	36762 (163.52)	3.01 (4.84)	1711	7.9	0.429 (0.261)	16.40 (3.23)	0.009 (0.006)	191 (88)	47 (8)	29.02 (98.27)
3.6 mph (5.8 km/h)										
299.80 (223.56)	33024 (146.90)	3.40 (5.47)	1706	6.5	0.427 (0.260)	16.48 (3.25)	0.011 (0.006)	194 (90)	63 (17)	28.62 (96.92)
4.0 mph (6.4 km/h)										
320.57 (239.05)	31843 (141.64)	3.78 (6.08)	1702	5.9	0.417 (0.254)	16.86 (3.32)	0.010 (0.006)	196 (91)	63 (17)	28.63 (96.95)
4.5 mph (7.2 km/h)										
321.09 (239.43)	27959 (124.37)	4.31 (6.94)	1724	4.6	0.410 (0.249)	17.15 (3.38)	0.010 (0.006)	193 (89)	60 (16)	28.88 (97.78)
4.8 mph (7.8 km/h)										
325.18 (242.49)	25990 (115.61)	4.69 (7.55)	1686	4.0	0.412 (0.251)	17.08 (3.36)	0.009 (0.005)	194 (90)	59 (15)	28.64 (96.99)
5.5 mph (8.8 km/h)										
326.49 (243.46)	22972 (102.18)	5.33 (8.58)	1712	3.5	0.412 (0.251)	17.05 (3.36)	0.009 (0.005)	193 (89)	57 (14)	28.64 (96.99)
6.0 mph (9.6 km/h)										
324.91 (242.28)	20883 (92.89)	5.84 (9.39)	1868	3.2	0.425 (0.259)	16.55 (3.26)	0.010 (0.006)	193 (89)	60 (15)	28.64 (96.99)
6.7 mph (10.8 km/h)										
325.04 (242.38)	18488 (82.24)	6.59 (10.61)	1901	2.6	0.427 (0.259)	16.49 (3.25)	0.009 (0.006)	193 (89)	61 (16)	28.64 (96.99)
7.5 mph (12.0 km/h)										
325.59 (242.79)	16615 (73.91)	7.35 (11.83)	1899	2.3	0.424 (0.258)	16.60 (3.27)	0.010 (0.006)	193 (89)	61 (16)	28.65 (97.02)
8.2 mph (13.2 km/h)										
327.45 (244.18)	15147 (67.38)	8.11 (13.05)	1888	2.0	0.430 (0.261)	16.36 (3.22)	0.010 (0.006)	193 (89)	61 (16)	28.65 (97.02)

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)
1st Gear										
234.95 (175.20)	41514 (184.66)	2.13 (3.42)	2156	13.6	0.562 (0.342)	12.51 (2.46)	0.014 (0.009)	190 (88)	46 (8)	29.03 (98.31)
2nd Gear										
286.60 (213.72)	39818 (177.12)	2.70 (4.34)	2101	8.3	0.495 (0.301)	14.21 (2.80)	0.010 (0.006)	190 (88)	44 (7)	29.03 (98.31)
3rd Gear										
304.52 (227.08)	38486 (171.19)	2.97 (4.78)	2074	7.8	0.472 (0.287)	14.89 (2.93)	0.010 (0.006)	192 (89)	48 (9)	28.83 (97.63)
4th Gear										
323.04 (240.89)	37192 (165.44)	3.26 (5.25)	2020	7.1	0.453 (0.275)	15.54 (3.06)	0.011 (0.007)	193 (89)	47 (8)	28.82 (97.60)
5th Gear										
343.88 (256.43)	35945 (159.89)	3.59 (5.78)	2016	6.6	0.444 (0.270)	15.83 (3.12)	0.012 (0.007)	192 (89)	49 (10)	28.84 (97.66)
6th Gear										
356.90 (266.14)	35060 (155.95)	3.82 (6.15)	1914	6.4	0.432 (0.263)	16.29 (3.21)	0.010 (0.006)	192 (89)	50 (10)	28.83 (97.63)
7th Gear										
370.93 (276.60)	34117 (151.76)	4.08 (6.57)	1843	6.2	0.419 (0.255)	16.77 (3.30)	0.009 (0.006)	194 (90)	52 (11)	28.84 (97.66)
8th Gear										
374.03 (278.91)	31486 (140.06)	4.46 (7.17)	1800	5.5	0.414 (0.252)	16.99 (3.35)	0.009 (0.006)	193 (89)	53 (12)	28.84 (97.66)
9th Gear										
372.84 (278.03)	28096 (124.97)	4.98 (8.01)	1799	4.6	0.412 (0.251)	17.06 (3.36)	0.010 (0.006)	194 (90)	54 (12)	28.85 (97.70)
10th Gear										
375.72 (280.17)	25314 (112.60)	5.57 (8.96)	1800	4.2	0.410 (0.249)	17.16 (3.38)	0.010 (0.006)	193 (89)	55 (13)	28.85 (97.70)
11th Gear										
376.51 (280.76)	22842 (101.60)	6.18 (9.95)	1800	3.7	0.410 (0.249)	17.17 (3.38)	0.010 (0.006)	193 (89)	56 (13)	28.85 (97.70)
12th Gear										
378.77 (282.45)	20560 (91.46)	6.91 (11.12)	1801	3.2	0.407 (0.248)	17.28 (3.40)	0.010 (0.006)	194 (90)	56 (14)	28.85 (97.70)
13th Gear										
373.72 (278.68)	18262 (81.23)	7.68 (12.35)	1801	2.8	0.412 (0.251)	17.07 (3.36)	0.009 (0.006)	194 (90)	57 (14)	28.85 (97.70)
14th Gear										
377.71 (281.66)	16560 (73.66)	8.56 (13.77)	1800	2.4	0.407 (0.248)	17.27 (3.40)	0.009 (0.006)	195 (91)	58 (15)	28.86 (97.73)

Lugging ability in 11th gear

Crankshaft speed rpm	2100	2000	1900	1800	1700	1399	1300	1100
Pull-lbs (kN)	16568 (73.70)	19198 (85.40)	20924 (93.07)	22553 (100.32)	23558 (104.79)	24171 (107.52)	24017 (106.83)	22807 (101.45)
Increase in pull %	0	16	26	36	42	46	45	38
Power-Hp (kW)	322.89 (240.78)	355.14 (264.83)	366.85 (273.56)	373.49 (278.51)	367.94 (274.37)	310.21 (231.32)	286.37 (213.55)	230.65 (172.00)
Speed-mph (km/h)	7.31 (11.76)	6.94 (11.17)	6.57 (10.57)	6.21 (9.99)	5.86 (9.43)	4.81 (7.74)	4.47 (7.19)	3.79 (6.10)
Slip %	2.1	2.6	2.7	3.1	3.2	3.3	3.2	3.1

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>
	16084 lbs(71.5 kN)	(1 x 90 mm and 1x100 mm)
	21408 lbs(95.2 kN)	(2 x 110 mm)
	<u>Category 4</u>	
	15769 lbs(70.1 kN)	(1 x 90 mm and 1x100 mm)
	21384 lbs(95.1 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:	2898 psi (200 bar)	2881 psi (199 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	60.5 GPM(229.0 l/min)	57.2 GPM (216.4 l/min)
Combined flow:	117.7 GPM (445.4 l/min)	

iii) Pump delivery rate at maximum hydraulic power:	60.7 GPM(229.7 l/min)	57.7 GPM (218.5 l/min)
Delivery pressure:	2486 psi (171 bar)	2371 psi (163 bar)
Power:	88.0 HP (65.6 kW)	79.9 HP (59.5 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)	2884 psi (199 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	43.7 GPM(165.5 l/min)	36.5 GPM(138.1 l/min)
iii) Pump delivery rate at maximum hydraulic power:	42.8 GPM(162.2 l/min)	34.6 GPM(131.1 l/min)
Delivery pressure:	2217 psi (153 bar)	2265 psi (156 bar)
Power:	55.4 HP (43.1 kW)	45.8 HP (34.1 kW)

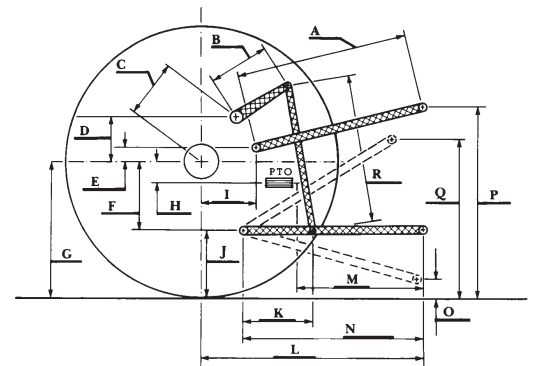
Category 4N

Category 4

	inch	mm	inch	mm
A	31.7	805	30.3	770
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	52.8	1342	52.8	1342
*L'	58.7	1491	59.6	1515
M	22.8	579	22.8	579
N	45.6	1159	45.6	1159
O	9.1	230	9.1	230
P	50.8	1290	50.8	1291
Q	41.1	1045	40.9	1040
R	47.0	1195	47.2	1200

*L' to Quick Attach ends

HITCH DIMENSIONS AS TESTED—NO LOAD



JOHN DEERE 9420R DIESEL