2022

Test 2256: John Deere 5115M

Nebraska Tractor Test Lab

NEBRASKA OECD TRACTOR TEST 2256–SUMMARY 1219
JOHN DEERE 5115M PowrReverser DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	D.E.F. Consumption Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption Gal/hr *(l/h)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—566 rpm)						
101.89 *(75.98)*	2201	6.02 *(22.79)*	0.416 *(0.253)*	16.92 *(3.33)*	0.13 *(0.49)*	Fuel used during active exhaust regeneration-0.96 gal *(3.62 l)* (see note 1, p.2)
Standard Power Take-off Speed (540 rpm)						
105.77 *(78.88)*	2100	6.05 *(22.91)*	0.403 *(0.245)*	17.48 *(3.44)*	0.12 *(0.47)*	
Maximum Power (1 hour)						
109.96 *(82.00)*	1951	6.07 *(22.96)*	0.388 *(0.236)*	18.13 *(3.57)*	0.14 *(0.53)*	
VARYING POWER AND FUEL CONSUMPTION						
101.89 *(75.98)*	2201	6.02 *(22.79)*	0.416 *(0.253)*	16.92 *(3.33)*	0.13 *(0.49)*	Air temperature
88.68 *(66.13)*	2255	5.53 *(20.94)*	0.439 *(0.267)*	16.03 *(3.16)*	0.13 *(0.48)*	72°F *(22°C)*
67.36 *(50.23)*	2281	4.78 *(18.09)*	0.499 *(0.303)*	14.10 *(2.78)*	0.12 *(0.45)*	Relative humidity
45.23 *(33.73)*	2300	3.60 *(13.63)*	0.560 *(0.341)*	12.56 *(2.47)*	0.08 *(0.31)*	34%
22.59 *(16.85)*	2300	2.66 *(10.07)*	0.828 *(0.504)*	8.49 *(1.67)*	0.05 *(0.20)*	Barometer
0.31 *(0.23)*	2300	1.86 *(7.04)*	42.095 *(25.605)*	0.17 *(0.03)*	0.05 *(0.17)*	29.14" Hg *(98.67 kPa)*

Maximum torque - 331 lb.-ft. *(449 Nm)* at 1600 rpm
Maximum torque rise - 36.1%
Torque rise at 1760 engine rpm - 31%
Power increase at 1951 engine rpm - 7.9%

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)*	Fuel Consumption 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)*
Power at Rated Engine Speed—8th(B4) Gear										
96.34 *(71.84)*	6211 *(27.63)*	5.82 *(9.37)*	2200	3.8	0.440 *(0.268)*	15.99 *(3.15)*	0.012 *(0.007)*	199 *(93)*	44 *(7)*	28.87 *(97.77)*
75% of Pull at Rated Engine Speed—8th(B4) Gear										
75.15 *(56.04)*	4670 *(20.77)*	6.03 *(9.70)*	2260	2.8	0.497 *(0.302)*	14.15 *(2.79)*	0.016 *(0.010)*	199 *(93)*	64 *(18)*	28.87 *(97.77)*
50% of Pull at Rated Engine Speed—8th(B4) Gear										
51.27 *(38.23)*	3108 *(13.83)*	6.19 *(9.96)*	2296	2.0	0.594 *(0.361)*	11.84 *(2.33)*	0.018 *(0.011)*	198 *(92)*	65 *(18)*	28.87 *(97.77)*
75% of Pull at Reduced Engine Speed— 10th(C2) Gear										
75.12 *(56.02)*	4660 *(20.73)*	6.05 *(9.74)*	1554	2.9	0.401 *(0.244)*	17.55 *(3.46)*	0.018 *(0.011)*	192 *(89)*	69 *(21)*	28.87 *(97.77)*
50% of Pull at Reduced Engine Speed— 10th(C2) Gear										
51.56 *(38.45)*	3113 *(13.85)*	6.21 *(9.99)*	1582	2.0	0.442 *(0.269)*	15.92 *(3.14)*	0.017 *(0.010)*	187 *(86)*	70 *(21)*	28.87 *(97.77)*

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
Dates of tests: October 6 - 12, 2022

Manufacturer: John Deere India Private Limited, Gat No. 166-167, 217-291, Pune Nagar Road Sanaswadi Village, Pune - 412208

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.8447 **Fuel weight** 7.034 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** 10W30 **API service classification** CJ-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** John Deere Hy-Gard fluid **Total time engine was operated** 18.0 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** *PE4045U146245* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.19" x 5.00" *(106.5 mm x 127.0 mm)* **Compression ratio** 16.9 to 1 **Displacement** 276 cu in *(4525 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 **Fuel cooler** radiator for return fuel **Exhaust** regenerative aftertreatment system consisting of DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) and regenerative DPF (diesel particulate filter) with an underhood muffler and vertical exhaust **Cooling medium temperature control** 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 39.9 - 43.8 lb/h *(18.1 - 19.9 kg/h)* **High idle:** 2250 - 2350 rpm **Turbo boost:** nominal 18.1 - 21.0 psi *(125 - 145 kPa)* as measured 19.5 psi *(135 kPa)*

CHASSIS: Type front wheel assist **Serial No.** *1PY5115MJNB000640* **Tread width** rear 58.9" *(1497 mm)* to 70.7" *(1795 mm)* front 55.0" *(1398 mm)* to 78.7" *(1998 mm)* **Wheelbase** 92.5" *(2350 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.17 *(1.89)* second 1.61 *(2.59)* third 1.98 *(3.19)* fourth 2.54 *(4.08)* fifth 2.83 *(4.56)* sixth 3.88 *(6.25)* seventh 4.78 *(7.69)* eighth 6.11 *(9.84)* ninth 6.51 *(10.47)* tenth 8.91 *(14.34)* eleventh 10.91 *(17.56)* twelfth 10.97 *(17.65)* thirteenth 14.03 *(22.58)* fourteenth 14.94 *(24.05)* fifteenth 18.39 *(29.60)* sixteenth 23.53 *(37.87)*

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE ENGAGED-2200 ENGINE RPM
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)*
					5th(B1) Gear					
66.42	9921	2.52	2261	12.9	0.558	12.61	0.017	200	63	28.57
(49.53)	*(44.13)*	*(4.05)*			*(0.339)*	*(2.48)*	*(0.010)*	*(93)*	*(17)*	*(96.75)*
					6th(B2) Gear					
88.13	9701	3.41	2209	11.7	0.485	14.50	0.012	203	62	28.57
(65.71)	*(43.15)*	*(5.49)*			*(0.295)*	*(2.86)*	*(0.007)*	*(95)*	*(17)*	*(96.75)*
					7th(B3) Gear					
95.62	8007	4.48	2200	5.3	0.444	15.84	0.011	199	44	28.87
(71.30)	*(35.62)*	*(7.21)*			*(0.270)*	*(3.12)*	*(0.007)*	*(93)*	*(7)*	*(97.77)*
					8th(B4) Gear					
96.34	6211	5.82	2200	3.8	0.440	15.99	0.012	199	44	28.87
(71.84)	*(27.63)*	*(9.37)*			*(0.268)*	*(3.15)*	*(0.007)*	*(93)*	*(7)*	*(97.77)*
					9th(C1) Gear					
96.86	5855	6.20	2200	3.5	0.438	16.06	0.011	200	48	28.87
(72.23)	*(26.04)*	*(9.98)*			*(0.266)*	*(3.16)*	*(0.007)*	*(93)*	*(9)*	*(97.77)*
					10th(C2) Gear					
96.20	4202	8.59	2200	2.6	0.441	15.94	0.012	202	52	28.88
(71.74)	*(18.69)*	*(13.82)*			*(0.268)*	*(3.14)*	*(0.007)*	*(94)*	*(11)*	*(97.80)*

UNBALLASTED - FRONT DRIVE ENGAGED-1950 ENGINE RPM
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)*
					5th(B1) Gear					
66.19	9907	2.51	2262	13.1	0.560	12.57	0.017	201	64	28.57
(49.35)	*(44.07)*	*(4.03)*			*(0.340)*	*(2.48)*	*(0.010)*	*(94)*	*(18)*	*(96.75)*
					6th(B2) Gear					
88.30	9735	3.41	2207	11.8	0.485	14.52	0.012	203	62	28.57
(65.84)	*(43.30)*	*(5.48)*			*(0.295)*	*(2.86)*	*(0.007)*	*(95)*	*(17)*	*(96.75)*
					7th(B3) Gear					
97.07	8651	4.21	2090	6.3	0.438	16.07	0.011	206	62	28.57
(72.39)	*(38.48)*	*(6.78)*			*(0.266)*	*(3.17)*	*(0.007)*	*(96)*	*(17)*	*(96.75)*
					8th(B4) Gear					
102.35	7521	5.10	1950	4.8	0.414	16.98	0.010	199	46	28.87
(76.32)	*(33.46)*	*(8.21)*			*(0.252)*	*(3.34)*	*(0.006)*	*(93)*	*(8)*	*(97.77)*
					9th(C1) Gear					
102.37	7043	5.45	1950	4.4	0.414	16.97	0.010	199	50	28.87
(76.34)	*(31.33)*	*(8.77)*			*(0.252)*	*(3.34)*	*(0.006)*	*(93)*	*(10)*	*(97.77)*
					10th(C2) Gear					
102.84	5096	7.57	1950	3.0	0.412	17.06	0.011	202	52	28.88
(76.69)	*(22.67)*	*(12.18)*			*(0.251)*	*(3.36)*	*(0.007)*	*(94)*	*(11)*	*(97.80)*
					11th(D1) Gear					
101.74	4092	9.33	1950	2.5	0.415	16.96	0.011	201	57	28.87
(75.87)	*(18.20)*	*(15.02)*			*(0.252)*	*(3.34)*	*(0.007)*	*(94)*	*(14)*	*(97.77)*

Horizontal distances of drawbar hitch point behind rear wheel axis - 28.5"*(725 mm)*, 32.5"*(825 mm)*, 34.4" *(875 mm)*

TIRES AND WEIGHT

	Tested without ballast
Rear tires–No., size, ply & psi *(kPa)*	Two 460/85R30;**;12 *(85)*
Front tires–No., size, ply & psi *(kPa)*	Two 320/85R24;**;12 *(85)*
Height of drawbar	16.5 in *(420 mm)*
Static weight with operator– Rear	6040 lb *(2740 kg)*
– Front	3750 lb *(1701 kg)*
– Total	9790 lb *(4441 kg)*

reverse 1.29 *(2.08)*, 1.77 *(2.85)*, 2.18 *(3.51)*, 2.48 *(3.99)*, 3.13 *(5.03)*, 4.28 *(6.89)*, 5.27 *(8.48)*, 6.74 *(10.84)*, 7.17 *(11.54)*, 9.82 *(15.81)*, 12.03 *(19.36)*, 12.09 *(19.45)*, 15.46 *(24.88)*, 16.47 *(26.50)*, 20.28 *(32.63)*, 24.85 *(40.00)* **Clutch** wet disc hydraulically actuated by foot pedal **Brakes** wet disc hydraulically actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2100 engine rpm, Economy PTO 540 rpm at 1645 engine rpm **Unladen tractor mass** 9615 lb *(4361 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The manufacturer declares that the average time between active regenerations is over 50 hours. A 1% power increase was observed during the active exhaust regeneration.

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. **2256**, Nebraska Summary 1219, February 9, 2023.

Roger M. Hoy
Director

P.J. Jasa
J.D. Luck
S. Pitla
Board of Tractor Test Engineers

Shiftable PTO Performance

Economy mode
540 PTO rpm @1645 engine rpm

Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption Gal/hr *(l/h)*
103.45 *(77.14)*	1644	5.48 *(20.73)*	0.372 *(0.227)*	18.89 *(3.72)*	0.20 *(0.75)*
77.73 *(57.96)*	1647	4.18 *(15.82)*	0.378 *(0.230)*	18.60 *(3.66)*	0.16 *(0.59)*
51.57 *(38.46)*	1644	2.99 *(11.31)*	0.408 *(0.248)*	17.26 *(3.40)*	0.09 *(0.33)*
25.81 *(19.24)*	1645	2.11 *(7.98)*	0.575 *(0.350)*	12.24 *(2.41)*	0.04 *(0.16)*
0.17 *(0.12)*	1647	1.03 *(3.88)*	43.254 *(26.310)*	0.16 *(0.03)*	0.06 *(0.21)*

Normal mode
540 PTO rpm @2100 engine rpm

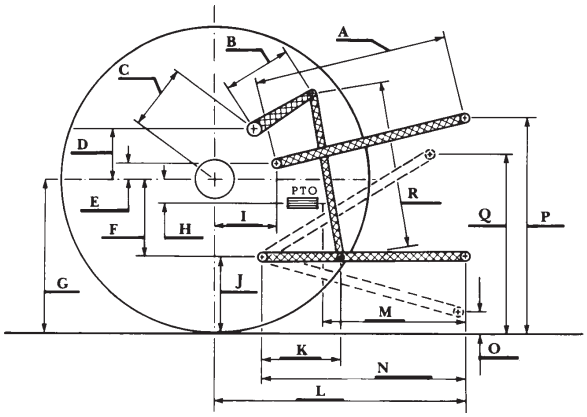
Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption Gal/hr *(l/h)*
103.55 *(77.22)*	2103	5.95 *(22.54)*	0.404 *(0.246)*	17.39 *(3.43)*	0.14 *(0.54)*
77.70 *(57.94)*	2103	4.73 *(17.89)*	0.428 *(0.260)*	16.44 *(3.24)*	0.13 *(0.51)*
51.56 *(38.45)*	2098	3.54 *(13.38)*	0.482 *(0.293)*	14.58 *(2.87)*	0.08 *(0.32)*
25.76 *(19.21)*	2099	2.55 *(9.67)*	0.697 *(0.424)*	10.09 *(1.99)*	0.05 *(0.21)*
0.15 *(0.11)*	2103	1.53 *(5.78)*	74.031 *(45.031)*	0.10 *(0.02)*	0.05 *(0.20)*

TRACTOR SOUND LEVEL WITH CAB	**Front Wheel Drive Engaged dB(A)**	**Disengaged dB(A)**
At no load in 7th(B3) gear	75.8	75.8
Transport in 16th (D4) gear		75.6
Bystander in 16th (D4) gear		80.4

HYDRAULIC PERFORMANCE

CATEGORY: 2
Quick Attach: None
OECD Static test

		lift cylinders
Maximum force exerted through whole range:	6979 lbs *(31.0 kN)* (2 x 75 mm)	
	7872 lbs *(35.0 kN)* (2 x 80 mm)	
	single outlet set	two outlet sets combined
i) Sustained pressure of the open relief valve:	2840 psi *(196 bar)*	2840 psi *(196 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	19.2 GPM *(72.7 l/min)*	19.3 GPM *(73.1 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	18.8 GPM *(71.1 l/min)*	18.6 GPM *(70.2 l/min)*
Delivery pressure:	2336 psi *(161 bar)*	2549 psi *(176 bar)*
Power:	25.6 HP *(19.1 kW)*	27.6 HP *(20.6 kW)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	26.4	*670*
B	14.1	*358*
C	17.7	*449*
D	15.0	*380*
E	14.4	*365*
F	8.8	*223*
G	31.3	*795*
H	0.2	*4*
I	14.4	*365*
J	22.5	*572*
K	17.5	*444*
L	41.7	*1060*
M	23.0	*585*
N	33.1	*840*
O	9.1	*230*
P	46.5	*1182*
Q	38.4	*975*
R	32.3	*820*

RECOMMENDED CITATION FORMAT:
NTTL.(2023). Nebraska OECD tractor test 2256 for John Deere 5115M PowrReverser Diesel. Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from http://tractortestlab.unl.edu

JOHN DEERE 5115M PowrReverser DIESEL

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