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2016

## Test 2145: John Deere 6135E

Nebraska Tractor Test Laboratory

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# NEBRASKA OECD TRACTOR TEST 2145—SUMMARY 1008

## JOHN DEERE 6135E DIESEL

### 24 SPEED

#### POWER TAKE-OFF PERFORMANCE

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)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>						
<b>Rated Engine Speed—(PTO speed—1065 rpm)</b>						
114.23 (85.18)	2199	7.25 (27.46)	0.445 (0.271)	15.75 (3.10)	0.12 (0.45)	Fuel used during active exhaust regeneration-0.71 gal (2.69 l) (see note 1, p.2)
<b>Power at 2100 engine rpm</b>						
119.37 (89.01)	2100	7.31 (27.67)	0.429 (0.261)	16.33 (3.22)	0.13 (0.51)	
<b>Standard Power Take-off Speed (1000 rpm)</b>						
119.61 (89.20)	2065	7.26 (27.50)	0.426 (0.259)	16.47 (3.24)	0.13 (0.51)	
<b>Maximum Power (1 hour)</b>						
122.19 (91.12)	1900	7.15 (27.07)	0.410 (0.249)	17.09 (3.37)	0.14 (0.55)	

#### VARYING POWER AND FUEL CONSUMPTION

114.23 (85.18)	2199	7.25 (27.46)	0.445 (0.271)	15.75 (3.10)	0.12 (0.45)	Air temperature
98.17 (73.20)	2226	6.45 (24.42)	0.461 (0.280)	15.22 (3.00)	0.11 (0.41)	74°F (23°C)
74.24 (55.36)	2245	5.31 (20.10)	0.501 (0.305)	13.99 (2.76)	0.09 (0.34)	Relative humidity
49.96 (37.26)	2266	4.26 (16.11)	0.597 (0.363)	11.74 (2.31)	0.04 (0.17)	18%
25.44 (18.97)	2299	3.18 (12.03)	0.876 (0.533)	8.00 (1.58)	0.01 (0.03)	Barometer
1.08 (0.80)	2301	2.30 (8.71)	14.978 (9.111)	0.47 (0.09)	0.03 (0.13)	28.75" Hg (97.37 kPa)

Maximum torque - 373 lb.-ft. (506 Nm) at 1401 rpm  
 Maximum torque rise - 36.8%  
 Torque rise at 1759 engine rpm - 30%  
 Power increase at 1900 engine rpm - 7.0%

#### 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)	D.E.F Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
<b>Power at Rated Engine Speed—8th (B1H) Gear</b>										
102.75 (76.62)	9100 (40.48)	4.24 (6.82)	2200	6.3	0.496 (0.302)	14.13 (2.78)	0.009 (0.005)	187 (86)	56 (13)	28.35 (96.00)
<b>75% of Pull at Rated Engine Speed—8th (B1H) Gear</b>										
80.46 (60.00)	6831 (30.39)	4.42 (7.11)	2233	3.7	0.514 (0.313)	13.64 (2.69)	0.007 (0.004)	186 (85)	56 (13)	28.37 (96.07)
<b>50% of Pull at Rated Engine Speed—8th (B1H) Gear</b>										
55.01 (41.02)	4560 (20.28)	4.53 (7.28)	2256	2.3	0.603 (0.367)	11.62 (2.29)	0.007 (0.005)	185 (85)	56 (13)	28.36 (96.04)
<b>75% of Pull at Reduced Engine Speed—11th (B2H) Gear</b>										
80.34 (59.91)	6851 (30.47)	4.40 (7.08)	1481	3.8	0.421 (0.256)	16.64 (3.28)	0.018 (0.011)	185 (85)	56 (13)	28.37 (96.07)
<b>50% of Pull at Reduced Engine Speed—11th (B2H) Gear</b>										
54.93 (40.96)	4531 (20.15)	4.55 (7.32)	1510	2.4	0.448 (0.273)	15.64 (3.08)	0.019 (0.012)	183 (84)	56 (14)	28.38 (96.11)

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

**Dates of tests:** March 29 to April 12, 2016

**Manufacturer:** Industrious John Deere, Boulevard Valdez Sanchez # 470, Saltillo, Coahuila CP25005 Mexico

**CONSUMABLE Fluids, OIL and TIME: Fuel** No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8417 **Fuel weight** 7.008 lbs/gal (0.840 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil** SAE 15W-40 **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:** 22.5 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.** \*PE4045 U 022958\* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.19 x 5.00" (106.5 mm x 127.0 mm) **Compression ratio** 16.8 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** two paper elements **Fuel cooler** radiator for pump return 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** two thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate:** 48.3 - 52.2 lb/h (21.9 - 23.7 kg/h) **High idle:** 2280 - 2320 rpm **Turbo boost:** nominal 19.6 - 22.5 psi (135 - 155 kPa) as measured 20.8 psi (143 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** \*1P06135EEF0001028\* **Tread width** rear 59.5" (1512 mm) to 79.2" (2012 mm) front 60.1" (1527 mm) to 80.3" (2039 mm) **Wheelbase** 96.5" (2450 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.58 (2.54) second 1.87 (3.01) third 2.37 (3.81) fourth 2.80 (4.51) fifth 3.22 (5.18) sixth 3.80 (6.12) seventh 3.82 (6.14) eighth 4.51 (7.26) ninth 5.70 (9.18) tenth 6.49 (10.44) eleventh 6.76 (10.88) twelfth 7.69 (12.37) thirteenth 7.77 (12.50) fourteenth 9.20 (14.81) fifteenth 9.73 (15.66) sixteenth 10.15 (16.34) seventeenth 11.53 (18.56) eighteenth 12.03 (19.36) nineteenth 13.24 (21.31) twentieth 15.23 (24.51)

**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 Consumption (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)
6th (B1L) Gear										
91.84 (68.48)	10485 (46.64)	3.29 (5.29)	2203	13.9	0.552 (0.335)	12.71 (2.50)	0.010 (0.006)	186 (85)	56 (13)	29.04 (98.34)
7th (A3H) Gear										
94.34 (70.35)	10332 (45.96)	3.43 (5.51)	2206	10.6	0.528 (0.321)	13.27 (2.61)	0.010 (0.006)	186 (85)	58 (14)	29.02 (98.27)
8th (B1H) Gear										
102.75 (76.62)	9100 (40.48)	4.24 (6.82)	2200	6.3	0.496 (0.302)	14.13 (2.78)	0.009 (0.005)	187 (86)	56 (13)	28.35 (96.00)
9th (B2L) Gear										
102.98 (76.79)	7021 (31.23)	5.50 (8.85)	2200	3.8	0.493 (0.300)	14.21 (2.80)	0.010 (0.006)	185 (85)	54 (12)	28.36 (96.04)
10th(C1L) Gear										
103.09 (76.87)	6144 (27.33)	6.29 (10.12)	2200	3.3	0.493 (0.300)	14.21 (2.80)	0.010 (0.006)	185 (85)	56 (13)	28.37 (96.07)
11th (B2H) Gear										
104.47 (77.90)	5958 (26.50)	6.58 (10.59)	2200	2.9	0.485 (0.295)	14.44 (2.84)	0.009 (0.006)	185 (85)	52 (11)	28.34 (95.97)
12th(C1H) Gear										
103.68 (77.31)	5183 (23.06)	7.50 (12.07)	2200	2.6	0.490 (0.298)	14.29 (2.82)	0.010 (0.006)	185 (85)	56 (13)	28.36 (96.04)
13th(B3L) Gear										
100.87 (75.22)	4980 (22.15)	7.60 (12.22)	2200	2.4	0.505 (0.307)	13.87 (2.73)	0.010 (0.006)	187 (86)	49 (9)	28.36 (96.04)
14th(B3H) Gear										
100.71 (75.10)	4179 (18.59)	9.04 (14.54)	2200	2.0	0.503 (0.306)	13.93 (2.74)	0.010 (0.006)	186 (85)	50 (10)	28.33 (95.94)

**UNBALLASTED - FRONT DRIVE ENGAGED-1900 ENGINE RPM**

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 Consumption (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)
6th (B1L) Gear										
92.73 (69.15)	10479 (46.61)	3.32 (5.34)	2203	13.0	0.547 (0.333)	12.82 (2.52)	0.010 (0.006)	188 (86)	56 (13)	29.02 (98.27)
7th (A3H) Gear										
94.57 (70.52)	10344 (46.01)	3.43 (5.52)	2205	10.5	0.529 (0.322)	13.25 (2.61)	0.010 (0.006)	186 (85)	57 (14)	29.01 (98.24)
8th (B1H) Gear										
104.62 (78.01)	9553 (42.49)	4.11 (6.61)	2150	6.8	0.493 (0.300)	14.23 (2.80)	0.010 (0.006)	186 (86)	56 (14)	29.04 (98.34)
9th (B2L) Gear										
107.96 (80.51)	8701 (38.70)	4.65 (7.48)	1900	5.8	0.465 (0.283)	15.06 (2.97)	0.010 (0.006)	186 (86)	55 (13)	28.36 (96.04)
10th(C1L) Gear										
109.45 (81.61)	7652 (34.04)	5.37 (8.63)	1900	4.4	0.462 (0.281)	15.17 (2.99)	0.010 (0.006)	187 (86)	56 (14)	28.37 (96.07)
11th (B2H) Gear										
110.23 (82.19)	7362 (32.75)	5.62 (9.04)	1900	4.1	0.455 (0.277)	15.42 (3.04)	0.010 (0.006)	188 (86)	54 (12)	28.34 (95.97)
12th(C1H) Gear										
109.81 (81.89)	6405 (28.49)	6.43 (10.35)	1900	3.3	0.459 (0.279)	15.27 (3.01)	0.011 (0.007)	188 (87)	56 (14)	28.36 (96.04)
13th(B3L) Gear										
109.53 (81.67)	6313 (28.08)	6.51 (10.48)	1900	3.2	0.456 (0.277)	15.37 (3.03)	0.011 (0.007)	187 (86)	52 (11)	28.34 (95.97)
14th(B3H) Gear										
109.50 (81.65)	5292 (23.54)	7.76 (12.49)	1900	2.6	0.458 (0.279)	15.29 (3.01)	0.010 (0.006)	187 (86)	50 (10)	28.33 (95.94)
15th (C2L) Gear										
108.13 (80.63)	4938 (21.96)	8.21 (13.21)	1900	2.4	0.464 (0.282)	15.09 (2.97)	0.011 (0.007)	192 (89)	56 (13)	28.34 (95.97)

twenty-first 15.70 (25.26) twenty-second 18.05 (29.05) twenty-third 20.73 (33.36) twenty-fourth 24.57 (39.54) reverse 1.70 (2.74), 2.56 (4.12), 3.48 (5.60), 4.11 (6.62), 6.17 (9.93), 7.02 (11.29), 8.39 (13.51), 10.52 (16.93), 10.98 (17.67) 14.32 (23.04), 16.47 (26.50), 22.41 (36.07) **Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc mechanically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2085 engine rpm or 1000 rpm at 2066 engine rpm **Unladen tractor mass** 10690 lb (4849 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE 1.** The manufacturer declares that the average time between active regenerations is 50 hours.

**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. **2145**, Nebraska Summary 1008, May 17, 2016.

Roger M. Hoy  
 Director

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

**DRAWBAR PERFORMANCE  
UNBALLASTED - 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 Consumption (kW.h/l)	D.E.F Consumption lb/hp.hr (kg/kW.h)	Temp.°F(°C) cool- ing dry bulb	Air dry bulb	Barom. inch Hg (kPa)
<b>Power at Rated Engine Speed—9th (B2L) Gear</b>										
100.29 (74.78)	7083 (31.51)	5.31 (8.55)	2200	7.0	0.506 (0.308)	13.84 (2.73)	0.010 (0.006)	186 (86)	55 (13)	28.38 (96.11)
<b>75% of Pull at Rated Engine Speed—9th (B2L) Gear</b>										
79.18 (59.04)	5354 (23.82)	5.55 (8.92)	2233	4.1	0.525 (0.319)	13.36 (2.63)	0.010 (0.006)	185 (85)	58 (15)	29.00 (98.21)
<b>50% of Pull at Rated Engine Speed—9th (B2L) Gear</b>										
54.12 (40.36)	3568 (15.87)	5.69 (9.16)	2256	2.6	0.615 (0.374)	11.40 (2.25)	0.010 (0.006)	185 (85)	59 (15)	29.00 (98.21)
<b>75% of Pull at Reduced Engine Speed—13th (B3L) Gear</b>										
78.47 (58.51)	5350 (23.80)	5.50 (8.85)	1627	4.0	0.438 (0.266)	16.01 (3.15)	0.017 (0.010)	185 (85)	61 (16)	28.99 (98.17)
<b>50% of Pull at Reduced Engine Speed—13th (B3L) Gear</b>										
54.15 (40.38)	3580 (15.92)	5.67 (9.12)	1653	2.5	0.484 (0.294)	14.49 (2.85)	0.016 (0.009)	182 (83)	60 (16)	29.00 (98.21)

**MAXIMUM POWER IN SELECTED GEARS**

8th (B1H) Gear										
85.10 (63.46)	8018 (35.67)	3.98 (6.41)	2220	12.4	0.552 (0.336)	12.70 (2.50)	0.010 (0.006)	185 (85)	55 (13)	29.02 (98.27)
9th (B2L) Gear										
100.29 (74.78)	7083 (31.51)	5.31 (8.55)	2200	7.0	0.506 (0.308)	13.84 (2.73)	0.010 (0.006)	186 (86)	55 (13)	28.38 (96.11)
10th (C1L) Gear										
101.63 (75.78)	6189 (27.53)	6.16 (9.91)	2200	5.2	0.502 (0.305)	13.97 (2.75)	0.010 (0.006)	186 (86)	57 (14)	28.37 (96.07)
11th (B2H) Gear										
102.89 (76.73)	5986 (26.63)	6.45 (10.37)	2201	4.8	0.492 (0.299)	14.25 (2.81)	0.009 (0.006)	185 (85)	52 (11)	28.35 (96.00)
12th (C1H) Gear										
102.35 (76.32)	5195 (23.11)	7.39 (11.89)	2200	4.0	0.496 (0.302)	14.12 (2.78)	0.010 (0.006)	186 (86)	57 (14)	28.34 (95.97)
13th (B3L) Gear										
101.42 (75.63)	5081 (22.60)	7.49 (12.05)	2200	3.7	0.501 (0.305)	13.98 (2.75)	0.010 (0.006)	185 (85)	51 (11)	28.35 (96.00)
14th (B3H) Gear										
100.05 (74.61)	4197 (18.67)	8.94 (14.39)	2200	3.0	0.508 (0.309)	13.79 (2.72)	0.010 (0.006)	186 (85)	51 (11)	28.35 (96.00)

<b>TRACTOR SOUND LEVEL WITH CAB</b>	<b>Front Wheel Drive</b>	
	<b>Engaged dB(A)</b>	<b>Disengaged dB(A)</b>
At no load in 8th (B1H) gear	77.2	77.0
Transport speed - no load - 24th (D3H) gear		80.0
Bystander in 24th (D3H) gear		81.7

**TIRES 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

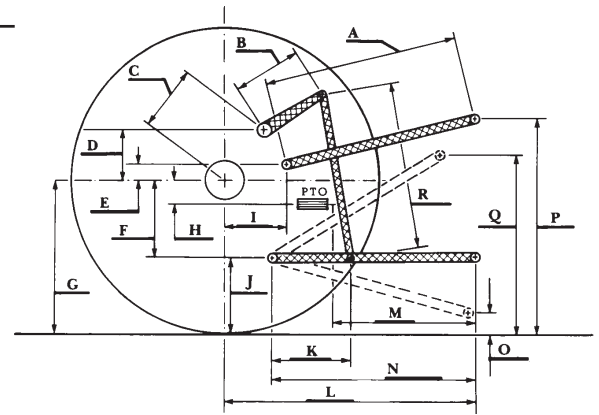
**Tested Without Ballast**

Two 460/85R38;\*\*,12(85)  
Two 380/85R24;\*\*,12(85)  
18.0 in (455 mm)  
6740 lb (3057 kg)  
4125 lb (1871 kg)  
10865 lb (4928 kg)

## HYDRAULIC PERFORMANCE

CATEGORY: II  
Quick Attach: No

	<u>Lift cylinders</u>
Maximum force exerted through whole range:	5722 lbs (25.5 kN) 2 x 70 mm 7304 lbs (32.5 kN) 2 x 80 mm
i) Maximum observed pressure:	2858 psi (197 bar) <b>three outlet sets combined</b>
ii) Pump delivery rate at minimum pressure and rated engine speed:	21.1 GPM (79.9 l/min)
iii) Pump delivery rate at maximum hydraulic power:	20.2 GPM (76.4 l/min)
Delivery pressure:	2228 psi (154 bar)
Power:	26.2 HP (19.6 kW)
	<b>single outlet set</b>
ii) Pump delivery rate at minimum pressure and rated engine speed:	21.0 GPM (79.6 l/min)
iii) Pump delivery rate at maximum hydraulic power:	20.3 GPM (76.8 l/min)
Delivery pressure:	2229 psi (154 bar)
Power:	26.4 HP (19.7 kW)



### HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	24.8	630
B	13.6	345
C	18.7	474
D	14.3	364
E	9.3	236
F	10.8	275
G	32.3	820
H	1.9	48
I	20.9	532
J	21.5	545
K	17.5	444
L	46.7	1187
M	24.9	632
N	33.1	840
O	9.0	230
P	45.5	1155
Q	38.0	965
R	30.5	775



### JOHN DEERE 6135E DIESEL

Institute of Agriculture and Natural Resources  
University of Nebraska–Lincoln