11-19-1986

Test 1605: John Deere 2755 Diesel 16-Speed Also 8-Speed (TSS Transmission)

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1605— JOHN DEERE 2755 DIESEL 16 SPEED ALSO 8 SPEED (TSS TRANSMISSION)

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed — Two hours (PTO Speed — 1059 rpm)								
76.57 (57.10)	2300	4.400 (16.656)	0.401 (0.244)	17.40 (3.428)	201 (94.1)	58 (14.6)	75 (23.9)	28.75 (97.07)
Standard Power Take-off Speed (1000 rpm) — One Hour								
77.63 (57.89)	2172	4.357 (16.494)	0.392 (0.238)	17.82 (3.510)	202 (94.4)	59 (15.0)	75 (23.9)	28.71 (96.95)
VARYING POWER AND FUEL CONSUMPTION — Two Hours								
67.44 (50.29)	2383	4.033 (15.268)	0.417 (0.254)	16.72 (3.294)	196 (90.8)	59 (15.0)	75 (23.9)	....
0.00 (0.00)	2475	1.337 (5.062)	....	....	180 (81.9)	59 (14.7)	75 (23.9)	....
34.47 (25.71)	2436	2.606 (9.864)	0.527 (0.321)	13.23 (2.606)	185 (84.7)	59 (14.7)	76 (24.2)	....
76.94 (57.37)	2300	4.390 (16.618)	0.398 (0.242)	17.52 (3.452)	201 (93.6)	59 (15.0)	75 (23.9)	....
17.38 (12.96)	2456	1.999 (7.569)	0.803 (0.488)	8.69 (1.712)	182 (83.1)	59 (14.7)	75 (23.9)	....
51.14 (38.14)	2410	3.259 (12.338)	0.445 (0.270)	15.69 (3.091)	189 (86.9)	59 (14.7)	75 (23.9)	....
Av 41.23	**2410**	**2.938**	**0.497**	**14.04**	**188**	**59**	**75**	**28.71**
Av (30.74)		***(11.120)***	***(0.302)***	***(2.765)***	***(86.9)***	***(14.8)***	***(23.9)***	***(96.93)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power — Two Hours 10th(5H) Gear											
65.22 (48.63)	4726 (21.02)	5.18 (8.33)	2300	7.94	4.386 (16.602)	0.469 (0.285)	14.87 (2.929)	194 (90.0)	54 (11.9)	57 (13.6)	28.52 (96.31)
75% of Pull at Maximum Power — Ten Hours 10th(5H) Gear											
52.91 (39.45)	3587 (15.96)	5.53 (8.90)	2396	5.58	3.729 (14.117)	0.492 (0.299)	14.19 (2.795)	186 (85.6)	29 (-1.6)	30 (-1.1)	29.13 (98.37)
50% of Pull at Maximum Power — Two Hours 10th(5H) Gear											
36.35 (27.11)	2392 (10.64)	5.70 (9.17)	2426	3.89	2.996 (11.339)	0.575 (0.350)	12.14 (2.391)	185 (85.0)	54 (12.2)	57 (13.9)	28.48 (96.16)
50% of Pull at Reduced Engine Speed — Two Hours 12th(6H) Gear											
36.33 (27.09)	2391 (10.64)	5.70 (9.17)	1616	3.72	2.401 (9.088)	0.461 (0.280)	15.13 (2.981)	183 (83.6)	33 (0.6)	40 (4.4)	28.94 (97.71)
MAXIMUM POWER IN SELECTED GEARS											
60.94 (45.45)	7498 (33.35)	3.05 (4.91)	2319	14.98	6th(3H) Gear			188 (86.7)	35 (1.7)	42 (5.6)	28.93 (97.69)
62.53 (46.63)	6648 (29.57)	3.53 (5.68)	2299	12.62	7th(4L) Gear			193 (89.2)	52 (11.1)	54 (12.2)	28.58 (96.51)
64.38 (48.01)	6130 (27.27)	3.94 (6.34)	2300	10.90	8th(5L) Gear			194 (90.0)	52 (11.1)	54 (12.2)	28.60 (96.58)
65.01 (48.47)	5199 (23.13)	4.69 (7.55)	2300	8.74	9th(4H) Gear			194 (90.0)	51 (10.6)	53 (11.7)	28.62 (96.65)
66.05 (49.25)	4783 (21.27)	5.18 (8.33)	2299	7.81	10th(5H) Gear			194 (90.0)	51 (10.6)	53 (11.7)	28.63 (96.68)
65.96 (49.18)	3998 (17.78)	6.19 (9.96)	2299	6.54	11th(6L) Gear			192 (88.9)	52 (11.1)	55 (12.8)	28.57 (96.48)
65.81 (49.08)	3077 (13.68)	8.02 (12.91)	2300	4.90	12th(6H) Gear			191 (88.3)	52 (11.1)	55 (12.8)	28.56 (96.44)

Department of Agricultural Engineering

Dates of Test: November 5-19, 1986

Manufacturer: JOHN DEERE WERKE MANNHEIM, 6800 Mannheim, Windeck str. 90, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 49.5 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F *(15/15°C)*** 0.8379 **Fuel weight** 6.977 lbs/gal *(0.836 kg/l)* **Oil SAE** 15W40 **API service classification** CD,CC,SD **To motor** 2.852 gal *(10.795 l)* **Drained from motor** 2.408 gal *(9.114 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 43.5 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger **Serial No.** *CD4239T715075* **Crankshaft** lengthwise **Rated rpm** 2300 **Bore and stroke** 4.19″ × 4.33″ *(106.5 mm × 110 mm)* **Compression ratio** 17.8 to 1 **Displacement** 239 cu in *(3920 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and tranmission oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat and variable speed fan.

CHASSIS: Type standard **Serial No.** *LO2755T600182* **Tread width** rear 61.8″ *(1570 mm)* to 96.1″ *(2440 mm)* front 59.7″ *(1517 mm)* to 77″ *(1955 mm)* **Wheel base** 89.2″ *(2266 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 28.4″ *(721 mm)* Vertical distance above roadway 36.3″ *(922 mm)* Horizontal distance from center of rear wheel tread 0″ *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph *(km/h)*** first 1.2 *(2.0)* second 1.5 *(2.5)* third 1.8 *(2.9)* fourth 2.3 *(3.7)* fifth 2.8 *(4.5)* sixth 3.6 *(5.8)* seventh 4.1 *(6.5)* eighth 4.4 *(7.1)* ninth 5.2 *(8.3)* tenth 5.7 *(9.1)* eleventh 6.7 *(10.7)* twelfth 8.5 *(13.6)* thirteenth 10.3 *(16.5)* fourteenth 13.1 *(21.0)* fifteenth 14.8 *(23.8)* sixteenth 18.9 *(30.4)* reverse 1.9 *(3.1)*, 2.5 *(4.0)*, 2.9 *(4.6)*, 3.7 *(5.9)*, 4.5 *(7.2)*, 5.7 *(9.1)*, 6.4 *(10.4)*, 8.2 *(13.2)* **Clutch** single dry disc hydraulically actuated and operated by foot pedal **Brakes** wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete

LUGGING ABILITY IN 10th(5H) GEAR

Crankshaft Speed rpm	2299	2065	1840	1608	1378	1156
Pull—lbs *(kN)*	4783 *(21.27)*	5421 *(24.11)*	5846 *(26.00)*	5880 *(26.16)*	5591 *(24.87)*	5396 *(24.00)*
Increase in Pull %	0	13	22	23	17	13
Power—Hp *(kW)*	66.05 *(49.25)*	66.28 *(49.42)*	63.06 *(47.02)*	55.34 *(41.27)*	45.39 *(33.85)*	36.89 *(27.51)*
Speed—Mph *(km/h)*	5.18 *(8.33)*	4.58 *(7.38)*	4.05 *(6.51)*	3.53 *(5.68)*	3.04 *(4.90)*	2.56 *(4.13)*
Slip %	7.81	9.11	10.07	10.31	9.59	9.23

TRACTOR SOUND LEVEL WITH CAB	**dB(A)**
Maximum Available Power—Two Hours	76.5
75% of Pull at Maximum Power—Ten Hours	76.5
50% of Pull at Maximum Power—Two Hours	76.0
50% of Pull at Reduced Engine Speed—Two Hours	71.5
Bystander in 16th(8H) gear	84.0

TIRES, BALLAST AND WEIGHT		**With Ballast**	**Without Ballast**
Rear Tires	—No., size, ply & psi *(kPa)*	Two 18.4-30; 8; 16 *(110)*	Two 18.4-30; 8; 16 *(110)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	565 lb *(256 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11L-15; 6; 32 *(220)*	Two 11L-15; 6; 32 *(220)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	20 lb *(9 kg)*	None
Height of Drawbar		20.5 in *(520 mm)*	20.5 in *(520 mm)*
Static Weight with Operator	—Rear	6985 lb *(3168 kg)*	5855 lb *(2656 kg)*
	—Front	2730 lb *(1238 kg)*	2690 lb *(1220 kg)*
	—Total	9715 lb *(4406 kg)*	8545 lb *(3876 kg)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi *(kPa)*	2325 *(16030)*
Location	remote outlet
Hydraulic oil temperature °F *(°C)*	147 *(64)*
Location	pump inlet

	Maximum Lift Capacity		**Lift Capacity for Transport**	
QUICK ATTACH	no		no	
CATEGORY	II		II	
LOAD lbs *(kg)*	3720	*(1687)*	2730	*(1238)*
TIME sec	4.94		1.98	
HITCH POINT MOVEMENT in *(mm)*				
Lowest position	14.9	*(378)*	8.0	*(203)*
Top of timed range	35.9	*(912)*	29.0	*(737)*
Highest position	*36.2	*(919)*	29.0	*(737)*
LOAD CG MOVEMENT in *(mm)*				
Lowest position	14.0	*(356)*	6.8	*(173)*
Top of timed range	40.9	*(1039)*	31.3	*(795)*
Highest position	41.3	*(1049)*	31.3	*(795)*

*The observed power range, 21.3 in. *(541 mm)* is less than the minimum power range for Cat II, 24 in. *(610 mm)* specified by ASAE Standard S217.10

surface with brake applied) right 131″ *(3.33 m)* left 131″ *(3.33 m)*(on concrete surface without brake) right 150″ *(3.81 m)* left 150″ *(3.81 m)* **Turning space diameter** (on concrete surface with brake applied) right 274″ *(6.96 m)* left 274″ *(6.96 m)*(on concrete surface without brake) right 310″ *(7.87 m)* left 310″ *(7.87 m)* **Power take-off** 540 rpm at 2071 engine rpm and 1000 rpm at 2172 engine rpm **Unladen tractor mass** 8370 lb *(3797 kg)*.

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 148°F *(64.3°C)*. Seven gears were chosen between 15% slip and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. **1605,** December 12, 1986.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
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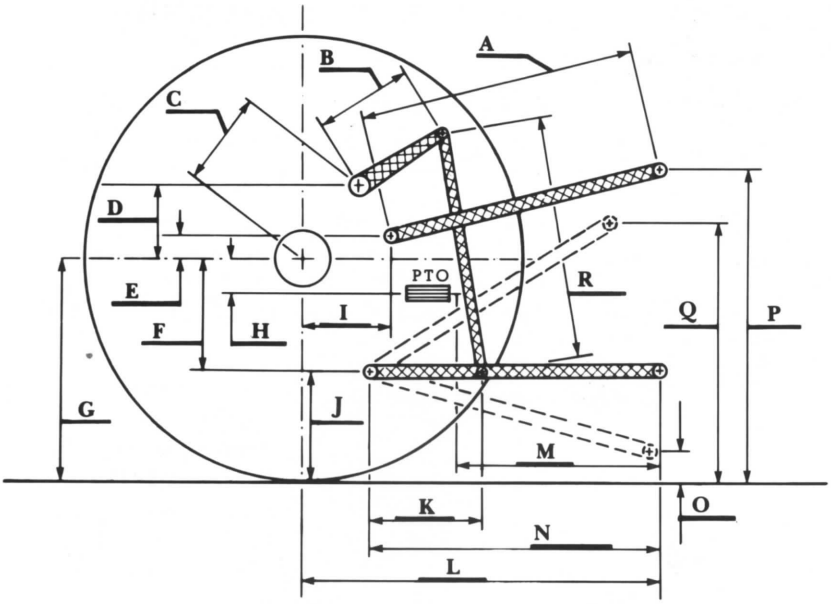

	inch	*mm*
A	26.3	*667*
B	10.0	*254*
C	10.9	*277*
D	10.9	*277*
E	7.6	*193*
F	7.9	*200*
G	27.6	*700*
H	2.8	*71*
I	11.9	*301*
J	19.7	*500*
K	18.3	*465*
L	38.3	*973*
M	21.7	*551*
N	33.8	*858*
O	8.0	*203*
P	38.7	*983*
Q	31.3	*794*
R	26.3	*667*

Hitch Dimensions as Tested — No Load

John Deere 2755 Diesel

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