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Test 1351: John Deere 2940 Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1351 — JOHN DEERE 2940 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1038 rpm)								
81.17 (60.53)	2500	5.232 (19.806)	0.455 (0.277)	15.51 (3.056)	188 (86.8)	63 (17.0)	76 (24.4)	28.703 (96.927)
Standard Power Take-off Speed (1000 rpm)—One Hour								
81.46 (60.75)	2407	5.120 (19.383)	0.444 (0.270)	15.91 (3.134)	190 (87.7)	63 (17.2)	78 (25.4)	28.750 (97.084)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
69.75 (52.01)	2529	4.758 (18.010)	0.482 (0.293)	14.66 (2.888)	186 (85.6)	63 (17.2)	79 (26.1)	..... .....
0.00 (0.00)	2632	2.060 (7.799)	..... .....	..... .....	178 (81.1)	64 (17.5)	80 (26.4)	..... .....
35.83 (26.72)	2588	3.322 (12.575)	0.655 (0.398)	10.79 (2.125)	182 (83.6)	64 (17.8)	80 (26.7)	..... .....
81.97 (61.12)	2500	5.234 (19.811)	0.451 (0.274)	15.66 (3.085)	190 (87.8)	64 (17.8)	80 (26.7)	..... .....
18.08 (13.48)	2612	2.672 (10.115)	1.044 (0.635)	6.77 (1.333)	178 (81.4)	64 (17.5)	80 (26.4)	..... .....
52.97 (39.50)	2562	4.006 (15.164)	0.534 (0.325)	13.22 (2.605)	184 (84.4)	64 (17.8)	79 (26.1)	..... .....
Av Av	43.10 2570	3.675 (13.913)	0.602 (0.366)	11.73 (2.310)	183 (84.0)	64 (17.6)	80 (26.4)	28.755 (97.101)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 9th (5L) Gear											
64.18 (47.86)	5144 (22.88)	4.68 (7.53)	2500	7.33	5.009 (18.962)	0.551 (0.335)	12.81 (2.524)	184 (84.4)	66 (18.9)	72 (22.2)	28.855 (97.439)
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
53.03 (39.54)	4118 (18.32)	4.83 (7.77)	2537	5.66	4.453 (16.858)	0.593 (0.361)	11.91 (2.346)	184 (84.3)	68 (20.2)	79 (26.1)	28.864 (97.469)
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
36.49 (27.21)	2734 (12.16)	5.01 (8.06)	2576	3.60	3.682 (13.937)	0.713 (0.433)	9.91 (1.952)	182 (83.1)	68 (20.0)	78 (25.3)	28.615 (96.629)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
36.57 (27.27)	2745 (12.21)	5.00 (8.04)	1461	3.57	2.637 (9.983)	0.509 (0.310)	13.87 (2.732)	183 (83.9)	74 (23.1)	83 (28.3)	28.755 (97.101)
MAXIMUM POWER IN SELECTED GEARS											
51.08 (38.09)	7601 (33.81)	2.52 (4.06)	2534	14.96	5th (3L) Gear			182 (83.1)	64 (17.8)	70 (21.1)	28.540 (96.375)
61.17 (45.61)	7214 (32.09)	3.18 (5.12)	2505	14.68	6th (3H) Gear			188 (86.4)	68 (20.0)	75 (23.9)	28.580 (96.510)
63.89 (47.64)	6951 (30.92)	3.45 (5.55)	2500	12.56	7th (4L) Gear			187 (86.1)	68 (20.0)	75 (23.9)	28.580 (96.510)
67.30 (50.19)	5470 (24.33)	4.61 (7.43)	2500	8.07	8th (4H) Gear			186 (85.6)	68 (20.0)	75 (23.9)	28.570 (96.477)
67.98 (50.69)	5493 (24.44)	4.64 (7.47)	2500	8.13	9th (5L) Gear			187 (85.8)	67 (19.4)	75 (23.9)	28.570 (96.477)
67.65 (50.44)	4195 (18.66)	6.05 (9.73)	2499	5.75	10th (5H) Gear			186 (85.6)	68 (20.0)	75 (23.9)	28.580 (96.510)
67.39 (50.25)	3823 (17.01)	6.61 (10.64)	2500	5.19	11th (6L) Gear			187 (85.8)	68 (20.0)	75 (23.9)	28.590 (96.544)
66.50 (49.59)	2919 (12.99)	8.54 (13.75)	2500	3.75	12th (6H) Gear			186 (85.3)	68 (20.0)	76 (24.4)	28.600 (96.578)

Department of Agricultural Engineering

Dates of Test: May 27 to June 5, 1980

Manufacturer: JOHN DEERE WERKE
MANNHEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 47.9 (rating taken from oil company's
inspection data) **Specific gravity converted to**
60°/60° (15°/15°) 0.8482 **Fuel weight** 7.062 lbs/gal
(0.846 kg/l) **Oil SAE 30 API service classifica-**
tion SD/CC-CD To motor 2.866 gal (10.848 l)
Drained from motor 2.596 gal (9.826 l) **Trans-**
mission and final drive lubricant John Deere
Hy-Gard **Front axle lubricant** SAE 90 **Total time**
engine was operated 43.0 hours

ENGINE Make John Deere **Dsl Type** six cylin-
der vertical **Serial No.** 6359DL03 447805CD
Crankshaft lengthwise **Rated rpm** 2500 **Bore**
and stroke 4.19" × 4.33" (106.5 mm × 110 mm)
Compression ratio 16.8 to 1 **Displacement** 359 cu
in (5883 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 transmission oil **Fuel filter** one
paper element and one mesh strainer **Muffler**
underhood **Exhaust** vertical **Cooling medium**
temperature control two thermostats.

CHASSIS: Type front wheel assist **Serial No.**
2940-374919L **Tread width** rear 63" (1610 mm) to
91" (2300 mm) front 67" (1700 mm) to 71" (1800
mm) **Wheel base** 101.6" (2580 mm) **Center of**
gravity (without operator or ballast, with
minimum tread, with fuel tank filled and tractor
serviced for operation) Horizontal distance for-
ward from center-line of rear wheels 32.4" (822
mm) Vertical distance above roadway 40" (1016
mm) Horizontal distance from center of rear wheel
tread 0" (0 mm) to the right/left **Hydraulic control**
system direct engine drive **Transmission** selec-
tive gear fixed ratio with partial (2) range operator
controlled power shift **Advertised speeds mph**
(km/h) first 1.5 (2.3) second 1.9 (3.0) third 2.0 (3.2)
fourth 2.6 (4.1) fifth 2.9 (4.6) sixth 3.7 (5.9)
seventh 3.9 (6.2) eighth 4.9 (8.0) ninth 5.0 (8.0)
tenth 6.3 (10.2) eleventh 6.9 (11.0) twelfth 8.7
(14.0) thirteenth 9.9 (15.9) fourteenth 12.6 (20.2)
fifteenth 13.3 (21.4) sixteenth 16.9 (27.3) reverse
2.3 (3.7), 2.8 (4.6), 3.1 (5.0), 4.0 (6.3), 4.4 (7.1), 5.6
(9.1), 6.0 (9.6), 7.8 (12.5) **Clutch** single dry disc
operated by foot pedal **Brakes** wet disc hydraulically
operated by two foot pedals which can be
locked together **Steering** hydrostatic **Turning**
radius (on concrete surface with brake applied)
right 175" (4.45 m) left 175" (4.45 m) (on concrete
surface without brake) right 209" (5.30 m) left 209"
(5.30 m) **Turning space diameter** (on concrete
surface with brake applied) right 367" (9.32 m) left
367" (9.32 m) (on concrete surface without brake)
right 435" (11.05 m) left 435" (11.05 m) **Power**
take-off 1000 rpm at 2407 engine rpm and 540 at
2414 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2500	2249	2004	1749	1503	1252
Pull—lbs (kN)	5493 (24.44)	5938 (26.41)	6306 (28.05)	6557 (29.17)	6812 (30.30)	6767 (30.10)
Increase in Pull %	0	8	15	19	24	23
Power—Hp (kW)	67.98 (50.69)	65.35 (48.73)	61.02 (45.50)	54.70 (40.79)	48.30 (36.02)	39.98 (29.81)
Speed—Mph (km/h)	4.64 (7.47)	4.13 (6.64)	3.63 (5.84)	3.13 (5.03)	2.66 (4.28)	2.22 (3.57)
Slip %	8.13	8.99	10.28	11.28	12.26	12.13

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	94.0	94.0
75% of Pull at Maximum Power—Ten Hours	—	93.0
50% of Pull at Maximum Power—Two Hours	—	93.0
50% of Pull at Reduced Engine Speed—Two Hours	—	88.5
Bystander in 16th (8H) gear	—	86.5

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

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)	Cool- ing med	Temp. °F (°C) Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (5L) Gear											
65.57 (48.90)	5107 (22.72)	4.82 (7.75)	2500	5.01	5.027 (19.029)	0.541 (0.329)	13.04 (2.570)	186 (85.3)	70 (21.1)	77 (24.7)	28.820 (97.321)

MAXIMUM POWER IN SELECTED GEARS

56.49 (42.13)	9485 (42.19)	2.23 (3.59)	2522	14.87	4th (2H) Gear			183 (83.6)	64 (17.8)	69 (20.6)	28.550 (96.409)
69.20 (51.61)	5412 (24.07)	4.80 (7.72)	2500	5.44	9th (5L) Gear			186 (85.3)	66 (18.9)	73 (22.8)	28.550 (96.409)

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 18.4-34; 8; 16 (110)	Two 18.4-34; 8; 16 (110)
	—Liquid (each)	None	None
	—Cast Iron (each)	303 lb (137 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 13.6-24; 8; 14 (95)	Two 13.6-24; 8; 14 (95)
	—Liquid (each)	None	None
	—Cast Iron (each)	305 lb (138 kg)	None
Height of Drawbar		19.5 in (495 mm)	19.5 in (495 mm)
Static Weight with Operator—Rear		7090 lb (3216 kg)	6485 lb (2942 kg)
		3560 lb (1615 kg)	2950 lb (1338 kg)
		10650 lb (4831 kg)	9435 lb (4280 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 code or official Nebraska test procedure. Temperature at injection pump was 151°F (66.3°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1351**.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



John Deere 2940 Diesel

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