

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.
Larsen

January 1972

Test 1101: John Deere 7520 Diesel 16-Speed

Tractor Museum

University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

Follow this and additional works at: <http://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Applied Mechanics Commons](#)

Museum, Tractor, "Test 1101: John Deere 7520 Diesel 16-Speed" (1972). *Nebraska Tractor Tests*. 1425.
<http://digitalcommons.unl.edu/tractormuseumlit/1425>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

NEBRASKA TRACTOR TEST 1101 – JOHN DEERE 7520 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Hp	Crankshaft speed rpm	Fuel Consumption		Hp-hr per gal	Temperature Degrees F			Barometer inches of Mercury
		Gal per hr	Lb per hp-hr		Cooling medium	Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1005 rpm)								
175.82	2100	11.586	0.456	15.18	191	60	75	28.990
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
153.92	2165	10.562	0.475	14.57	189	60	75	.....
0.00	2260	3.068	.....	.....	174	59	75	.....
78.52	2210	6.726	0.593	11.67	183	59	75	.....
177.91	2100	11.732	0.456	15.17	193	59	75	.....
39.54	2225	5.019	0.879	7.89	177	60	76	.....
116.67	2190	8.677	0.515	13.45	187	60	75	.....
Av. 94.43	2192	7.631	0.559	12.37	184	60	75	28.990

DRAWBAR PERFORMANCE

Hp	Drawbar pull lbs	Speed miles per hr	Crankshaft speed rpm	Slip of drivers %	Fuel Consumption		Hp-hr per gal	Temp Degrees F			Barometer inches of Mercury
					Gal per hr	Lb per hp-hr		Cooling med	Air wet bulb	Air dry bulb	
VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITHOUT BALLAST											
Maximum Available Power—Two Hours—7th Gear (4 Lo)											
160.46	10580	5.69	2098	3.21	11.665	0.503	13.76	194	66	76	28.925
75% of Pull at Maximum Power—Ten Hours—7th Gear (4 Lo)											
129.16	8159	5.94	2171	2.36	10.076	0.540	12.82	187	70	86	28.760
50% of Pull at Maximum Power—Two Hours—7th Gear (4 Lo)											
86.38	5323	6.08	2203	1.43	7.873	0.630	10.97	182	69	78	28.930
50% of Pull at Reduced Engine Speed—Two Hours—10th Gear (5 Hi)											
86.28	5314	6.09	1541	1.43	6.519	0.523	13.24	187	75	89	28.910
MAXIMUM POWER WITHOUT BALLAST											
131.80	22517	2.20	2177	14.98	2nd Gear (1 Hi)		183	70	78	29.030	
159.95	13702	4.38	2099	4.27	5th Gear (3 Lo)		184	53	65	29.000	
161.21	11938	5.06	2097	3.59	6th Gear (3 Hi)		186	53	65	28.980	
165.21	10882	5.69	2099	3.14	7th Gear (4 Lo)		189	53	65	28.980	
164.44	9366	6.58	2101	2.60	8th Gear (4 Hi)		190	54	68	28.980	
163.31	8574	7.14	2099	2.37	9th Gear (5 Lo)		190	54	68	28.980	

VARYING DRAWBAR PULL AND TRAVEL SPEED WITHOUT BALLAST—7th Gear—(4 Lo)

Pounds Pull	10882	12114	12825	12595	11531	10187
Horsepower	165.21	164.18	154.83	132.25	105.00	78.23
Crankshaft Speed rpm	2099	1881	1682	1461	1263	1059
Miles Per Hours	5.69	5.08	4.53	3.94	3.41	2.88
Slip of Drivers %	3.14	3.52	3.97	3.82	3.52	2.91

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power 2 Hours	88.0
75% of Pull at Max. Power 10 Hours	87.5
50% of Pull at Max. Power 2 Hours	88.5
50% of Pull at Reduced Engine Speed 2 Hours	85.0
Bystander 16th gear (8 Hi)	85.0

TIRES, BALLAST AND WEIGHT

		Tested Without Ballast
Rear Tires	—No., size, ply & psi	Four 23.1-30; 8; 12
Ballast	—Liquid	None
	Cast Iron	None
Front Tires	—No., size, ply & psi	Four 23.1-30; 8; 12
Ballast	—Liquid	None
	Cast Iron	None
Height of drawbar		14½ inches
Static weight with operator—rear		11040 lb
	front	11280 lb
	total	22320 lb

Department of Agricultural Engineering

Dates of Test: May 25 to June 6, 1972

Mnaufacturer: JOHN DEERE WATERLOO TRACTOR WORKS, Waterloo, Iowa

FUEL, OIL AND TIME Fuel No. 2 Diesel Cetane No. 50.1 rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8314 Weight per gallon 6.922 lb Oil SAE 30 API service classification John Deere TORQ-GARD or MS DG DM DS To motor 5.497 gal Drained from motor 5.242 gal Transmission and final drive lubricant John Deere Special 303 Oil Total time engine was operated 41½ hours

ENGINE Make John Deere Diesel Type 6 cylinder vertical with turbo-charger and inter-cooler Serial No. 6531AR-01 281611R Crankshaft Mounted lengthwise Rated rpm 2100 Bore and stroke 4.75" x 5.00" Compression ratio 15.4 to 1 Displacement 531 cu. in. Cranking system 12 volt electrical Lubrication pressure Air cleaner two paper elements with aspirator Oil filter full flow with replaceable paper primary and secondary filter elements Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Muffler was used Cooling medium temperature control 3 thermostats.

CHASSIS Type four-wheel drive with duals Serial No. T923R001274R Tread width rear 72" to 131" front 72" to 131" Wheel base 125" Center of gravity (without operator or ballast, with minimum tread, with fuel tank filled with tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 63" Vertical distance above roadway 55" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial range synchro-mesh Advertis speeds mph first 2.08, second 2.39, third 3.23, fourth 3.82, fifth 4.39, sixth 5.04, seventh 5.64, eighth 6.48, ninth 7.02, tenth 8.07, eleventh 9.20, twelfth 10.58, thirteenth 11.91, fourteenth 13.70, fifteenth 19.44, sixteenth 22.35, reverse 4.27, 4.91, 6.84, 7.86 Clutch dry dual disc operated by a foot pedal Brakes wet disc hydraulically power actuated by a foot pedal Steering hydrostatic and articulated Turning radius (on concrete surface without brake) right 214" left 214" Turning space diameter (on concrete surface without brake) right 451" left 451" Power take-off 1005 rpm at 2100 engine rpm or 1000 rpm at 1818 engine rpm.

REPAIRS AND ADJUSTMENTS: During the last part of the 10 hour run it was necessary to stop the tractor and reset the hub bolts on the outer left rear wheel before completing the test.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Six gears were chosen between 15% slip and 15 mph.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1101.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers