

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

January 1947

Test 381: John Deere B All-Fuel

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 381: John Deere B All-Fuel" (1947). *Nebraska Tractor Tests*. 54.
<https://digitalcommons.unl.edu/tractormuseumlit/54>

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.

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 381

Dates of test: May 9 to May 15, 1947

Name and model of tractor: JOHN DEERE B All Fuel

Manufacturer: John Deere Tractor Company, Waterloo, Iowa

Manufacturer's rating: Not Rated

B E L T H O R S E P O W E R T E S T S

Horse- power	Crank shaft speed rpm	Fuel Consumption			Water used gal per hr	Temperature		Barometer Inches of Mercury
		gal per hr	hp-hr per gal	lb per hp-hr		Cool- ing med. °F	Air °F	

TEST B - 100% MAXIMUM LOAD - TWO HOURS

23.53	1251	2.335	10.08	0.684	0.10	198	63	29.015
-------	------	-------	-------	-------	------	-----	----	--------

TEST C - OPERATING MAXIMUM LOAD - ONE HOUR

22.17	1252	1.933	11.487	0.601	0.00	195	58	29.005
-------	------	-------	--------	-------	------	-----	----	--------

*TEST D - ONE HOUR

20.75	1253	1.874	11.07	0.623	0.00	196	61	28.770
-------	------	-------	-------	-------	------	-----	----	--------

TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

20.70	1251	1.892	10.94	0.630	--	199	61	-- --
1.83	1327	0.809	2.26	3.049	--	200	60	-- --
10.80	1299	1.214	8.90	0.775	--	201	61	-- --
20.98	1227	1.827	11.48	0.601	--	195	62	-- --
5.46	1312	0.944	5.78	1.192	--	207	63	-- --
16.03	1286	1.553	10.32	0.668	--	194	64	-- --
12.63	1283	1.373	9.20	0.750	0.00	199	62	28.830

*Formerly called RATED LOAD; see REMARKS 4, page 5

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 381

D R A W B A R H O R S E P O W E R T E S T S

Horse- power	Draw bar pull lb	Speed mph	Crank shaft speed rpm	Slip on drive wheels %	Fuel Consumption			Water used gal per hr	Temperature		Barometer Inches of Mercury
					gal per hr	hp-hr per gal	lb per hp-hr		Cool- ing med. °F	Air °F	

Rear wheels, tires and added weight used in Tests F, G, and H: Cast Iron wheels; 10-38, 4-ply tires and 290 lb. added weight per wheel.

TEST F - 100% MAXIMUM LOAD - 3rd GEAR

21.14	2467	3.21	1251	8.37	-----	Not Recorded	-----	204	71	28.800
-------	------	------	------	------	-------	--------------	-------	-----	----	--------

TEST G - OPERATING MAXIMUM LOAD - GEARS 1 to 6

13.05	3689	1.33	1252	14.94	-----	Not Recorded	-----	205	76	28.815
19.40	3200	2.27	1256	11.90	"	"	"	205	70	28.815
20.63	2404	3.22	1252	8.32	"	"	"	207	73	28.820
20.14	1792	4.28	1250	5.32	"	"	"	210	75	28.810
21.04	1440	5.48	1248	3.99	"	"	"	203	75	28.810
19.78	744	9.97	1250	1.94	"	"	"	210	76	28.810

*TEST H - TEN HOURS - 3rd GEAR

6.82	1908	3.31	1252	5.83	1.655	10.16	0.679	0.02	201	78	28.852
------	------	------	------	------	-------	-------	-------	------	-----	----	--------

TEST J - OPERATING MAXIMUM LOAD

Same wheels and tires as used in Tests F, G, and H. All added weight removed from tractor (liquid, cast iron, or any other added forms) 3rd gear.

9.76	2418	3.06	1253	12.70	-----	Not Recorded	-----	206	78	28.810
------	------	------	------	-------	-------	--------------	-------	-----	----	--------

formerly called RATED LOAD; see REMARKS 4, page 5.

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 381

FUEL, OIL, AND TIME

Fuel Tractor Fuel Octane 41.5* Weight per gallon 6.896 pounds
Oil S.A.E. No. 20-20W To motor 1.662 gallons Drained from motor 1.344 gal.
Total time motor was operated 50 hours

TIRES, WHEELS, AND WEIGHT

	Tests F, G, & H	Test J
Rear Wheel; Type and Weight (each)	Cast Iron 325 lb	Cast Iron 325 lb
Liquid Ballast	None	None
Added Cast Iron	290 lb	None
Rear Tires; No., Size & Ply	2 10x38 4-ply	2 10x38 4-ply
Type of Tread	Champion Ground Grip	Champion Ground Grip
Make	Firestone	Firestone
Air Pressure	14 lb	12 lb
Front Wheel; Type and Weight (each)	Steel Disc 28 lb	Steel Disc 28 lb
Liquid Ballast	None	None
Added Cast Iron	None	None
Front Tires; No., Size & Ply	2 5.50x16 4-ply	2 5.50x16 4-ply
Type of Tread	Guide Grip Tractor	Guide Grip Tractor
Make	Firestone	Firestone
Air Pressure	28 lb	28 lb
Height of Drawbar	16.5 inches	16.5 inches
Static Weight; Rear End	3762 lb	3182 lb
Front End	1056 lb	1056 lb
Total Weight as Tested With Operator	4996 lb	4416 lb

*Octane rating from Oil Company's Typical Inspection Data.

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 381

CHASSIS

Type Tricycle Serial No. B201320 Drive Enclosed Gear
Tread width: Rear 56" - 88" Front Top 11 1/8" Bottom 7 1/4"
Advertised speeds, miles per hour: First 1 1/2 Second 2 1/2 Third 3 1/2
Fourth 4 1/2 Fifth 5 3/4 Sixth 10 Reverse 2 1/2
Belt pulley: Diameter 9 11/16" Face 7 1/4" RPM 1250 Belt speed 3110 fpm
Clutch: Make Own Type Dry disc Operated by Hand
Seat Spring cushion with padded back rest
Brakes: Make Own Type Internal expanding shoe
Location On independent shafts geared to each rear axle
Gear reduction (brake drum to rear wheel) 6.000 - 1
Operated by One foot pedal on each brake
Locked by Latches anchored on tractor platform
Equalization None

ENGINE Make Own Serial No. B201320 Type 2 cylinder, horizontal

Head I Mounting Crankshaft crosswise Lubrication Pressure
Bore and stroke 4 11/16" x 5 1/2" Rated RPM 1250
Port diameter valves: Inlet 1 9/16" Exhaust 1 3/8"
Magnetos: Make Wico Model No. C-1042B Type CR
Carburetor: Make Marvel Schebler Model DLTX-73 Size 1 1/2"
Governor: Make Own Type Flyball
Air Cleaner: Make Donaldson Type Oil washed wire screen filter
Oil Filter: Make Purolator Type Full flow filter with by-pass
using impregnated replaceable
paper element

Cooling medium temperature control Radiator shutter

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 381

REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

- All results shown on page 1 of this report were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with carburetor set for 100% maximum belt horsepower and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, and H were made with an operating setting of the carburetor (selected by the manufacturer) of 93.8% of maximum belt horsepower.
- Observed maximum horsepower (tests F & B)

	DRAWBAR	BELT
2. Observed maximum horsepower (tests F & B)	21.14	23.53
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	22.19	24.33
4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings)	16.64	20.68
- Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)
- Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings)

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 381.

L. F. Larsen
Engineer-in-Charge

E. E. Brackett, Chairman

C. W. Smith

F. D. Yung
BOARD OF TRACTOR TEST ENGINEERS