January 1941

Test 378: John Deere AR

Tractor Test Museum
University of Nebraska

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 378**

Dates of test: October 27 to November 3, 1941
Name and model of tractor: John Deere AR
Manufacturer: John Deere Tractor Company, Waterloo, Iowa.
Manufacturer's rating: NOT RATED

BRAKE HORSEPOWER TESTS

HP.	Crank-Shaft Speed R.P.M.	Fuel Consumption			Water used gal. per Hr.	Temperature Deg. F.		Barometer Inches of Mercury
		Gal. per hr.	Hp.-hr. per Gal.	Lb. per Hp.-hr.		Cooling Medium	Air	
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
30.33	975	3.116	9.73	0.711	0.000	206	55	29.180
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
28.71	976	2.582	11.12	0.622	0.000	205	61	29.190
*TEST D - ONE HOUR								
26.37	975	2.370	11.13	0.622	0.000	205	58	29.120
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
26.40	977	2.376	11.11	0.623	-----	204	58	------
1.73	1046	0.993	1.74	3.971	-----	204	57	------
13.79	1018	1.530	9.01	0.768	-----	205	61	------
28.04	941	2.545	11.02	0.628	-----	207	66	------
7.02	1036	1.361	5.16	1.342	-----	205	69	------
20.19	996	1.903	10.61	0.652	-----	205	70	------
16.20	1002	1.785	9.08	0.762	0.000	205	63	29.100

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

**Last Tractor Tested By Carlton Zink - 1941.

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DRAWBAR HORSEPOWER TESTS

HP	Draw bar pull lbs.	Speed Miles per Hr.	Crank-shaft speed R.P.M.	Slip of Drive Wheels %	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F.		Barom-eter Inches of Mercury
					Gal. per hr.	Hp.-hr. per Gal.	Lb. per Hp.-hr.		Cool-ing Med.	Air	

Rear wheels, tires and added weight used in Tests F, G and H: Case iron wheels: 12-26, 6 ply tires and 753 lbs. added weight per wheel.

TEST F - 100% MAXIMUM LOAD - Third GEAR

26.52	2417	4.11	976	5.84	---Not Recorded---			201	49	28.925

TEST G - OPERATING MAXIMUM LOAD

19.86	4248	1.75	975	17.56	---Not Recorded---			203	40	29.160
25.57	3124	3.07	974	7.87	" "			203	49	28.925
25.01	2270	4.13	974	5.23	" "			205	48	28.920
24.58	1390	6.63	975	3.06	" "			202	49	28.925

*TEST H - TEN HOURS - Third GEAR

20.66	1861	4.16	975	460	2.139	9.66	0.716	0.000	205	40	29.170

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). Third gear.

24.83	2291	4.06	976	7.66	---Not Recorded---			197	42	28.675

TEST K - OPERATING MAXIMUM LOAD
Rear wheels, tires and added weight used: Cast iron wheels; 11-26, 6 ply tires and no added weight per wheel (**Combination No. 1). Third gear.

24.22	2372	3.83	975	9.91	---Not Recorded---			204	41	28.675

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

**Combination No. 1: Includes wheels, tires and added weight recommended in the manufacturer's published specifications.
Combination No. 2: When the manufacturer does not make a specific recommendation, then the tires used are the smallest size and ply and the wheels are the lightest listed in published specifications or the application for test.
See Page 3 for specifications on wheels, tires and weight.

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FUEL, OIL and TIME

Fuel Distillate Octane 38 Weight per gallon 6.93 pounds
Oil: S.A.E. No. 20 To motor 2.729 gal. Drained from motor 2.300 gal.
Total time motor was operated 44 hours.

TIRES, WHEELS and WEIGHT

		Tests F, G & H	Test J	Test K
Rear Wheel: (each)	Type and Weight	Cast Iron 339 lbs	Cast Iron 339 lbs	Cast Iron 339 lbs
	Liquid Ballast	333 lbs	None	None
	Added Cast Iron	420 lbs	None	None
Rear Tires:	No., Size & Ply	2, 12-26, 6 ply	2, 12-26, 6 ply	2, 11-26, 6 ply
	Type of Tread	Ground Grip	Ground Grip	Ground Grip
	Make	Firestone	Firestone	Firestone
	Air Pressure	16 lbs	16 lbs	16 lbs
Front Wheel: (each)	Type and Weight	Pressed Steel, 18 lbs.	Pressed Steel, 18 lbs.	Pressed Steel, 18 lbs.
	Liquid Ballast	None	None	None
	Added Cast Iron	None	None	None
Front Tires:	No., Size & Ply	2, 6.00-16, 4 ply	2, 6.00-16, 4 ply	2, 6.00-16, 4 ply
	Type of Tread	Guide Grip	Guide Grip	Guide Grip
	Make	Firestone	Firestone	Firestone
	Air Pressure	28 lbs	28 lbs	28 lbs
Height of Drawbar		16"	16 1/2"	15"
Static Weight:	Rear End	4765 lbs.	3250 lbs.	3160 lbs.
	Front End	1405 lbs.	1415 lbs.	1405 lbs.
Total Weight as Tested (With Operator)		6350 lbs.	4815 lbs.	4745 lbs.

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CHASSIS

Type Standard Serial No. 260725 Drive Enclosed Gear

Tread width: Rear 51 7/8" Front 48"

Advertised speeds, miles per hour: First 2 Second 3 Third 4

Fourth 6 1/2 Reverse 3

Belt Pulley: Diam 12 3/4" Face 7 3/8" R.P.M. 975 Belt speed 3270 f.p.m

Clutch: Make Own Type Dry disc Operated by Hand

Seat Pressed Steel

Brakes: Make Own Type Single external contracting band

Location On Differential shaft

Gear reduction (brake drum to rear wheel) 4.533 to 1

Operated by Left foot

Locked by Ratch and slot in platform

Equalization None

MOTOR

Make Own Serial No. 260725 Type 2 cylinder, horizontal

Head I Mounting Crankshaft crosswise Lubrication Pressure

Bore and stroke 5 1/2" x 6 3/4" Rated R.P.M. 975

Port diameter valves: Inlet 1 15/16" Exhaust 1 49/64"

Magneto: Make Wico Model C-1042

Carburetor: Make Marvel-Schebler Model DLTX-41 Size 1 1/2"

Governor: Make Own Type Variable speed, centrifugal

Air Cleaner: Make Vortex Type Oil-washed wire filter

Oil Filter: Make Purolator Products, inc. Type Full-flow filter with by-pass using impregnated replaceable paper element

Cooling medium temperature control: Pines radiator shutters

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments

REMARKS

1. All results shown on pages 1 and 2 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, H, J and K were made with an operating setting of the carburetor (selected by the manufacturer) of 95.2% of maximum belt horsepower.

		Drawbar	Belt
2.	Observed maximum horsepower (tests F and B)	26.52	30.33
3.	Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	27.13	30.94
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)	20.35	26.30

We, the undersigned, certify that the above is a true and correct report of official tractor test 378.

Carlton L. Zink
Engineer-in-Charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers