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Test 429: John Deere AR

Nebraska Tractor Test Lab
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Department of Agricultural Engineering

The Experiment Station
University of Nebraska College of Agriculture
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NEBRASKA TRACTOR TEST NO. 429

Dates of test: October 11 to October 15, 1949

JOHN DEERE AR GASOLINE

Manufacturer: JOHN DEERE WATERLOO TRACTOR WORKS OF DEERE MANUFACTURING CO. Waterloo, Iowa

Manufacturer's rating: Not Rated

BELT HORSE POWER TESTS

H. P.	Crank shaft speed R.P.M.	Fuel Consumption: Gal. per hour	Fuel Consumption: H.P. hr. per gal.	Fuel Consumption: Lb. per H.P. hour	Water used Gal. per hour	Temp. Deg. F.: Cooling med.	Temp. Deg. F.: Air	Barometer Inches of Mercury
TEST B—100% MAXIMUM LOAD—TWO HOURS								
37.87	975	3.545	10.68	0.572	0.00	197	57	28.897
TEST C—OPERATING MAXIMUM LOAD—ONE HOUR								
36.13	975	3.077	11.74	0.521	0.00	194	57	28.922
***TEST D—ONE HOUR**								
33.28	975	2.889	11.52	0.531	0.00	195	62	28.925
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
33.22	974	2.874	11.56	0.529	- --	194	62	-- ---
1.81	1041	1.094	1.65	3.696	- --	207	62	-- ---
17.53	1015	1.957	8.96	0.683	- --	199	64	-- ---
35.28	936	2.982	11.83	0.517	- --	202	66	-- ---
9.06	1033	1.535	5.90	1.036	- --	201	66	-- ---
25.67	1000	2.413	10.64	0.575	- --	202	68	-- ---
20.43	1000	2.143	9.53	0.641	0.00	201	65	28.953

DRAWBAR HORSE POWER TESTS

H.P.	Draw bar pull Lbs.	Speed miles per hr.	Crank shaft speed R.P.M.	Slip of drive wheels %	Fuel Consumption: Gal. per hour	Fuel Consumption: Hp.-hr. per Gal.	Fuel Consumption: Lb. per Hp.-hr.	Water used Gal. per hr.	Temp. Deg. F.: Cooling med.	Temp. Deg. F.: Air	Barometer Inches of Mercury
TEST F—100% MAXIMUM LOAD— 4th GEAR											
34.03	2999	4.26	976	6.08	Not Recorded				184	52	28.960
TEST G—OPERATING MAXIMUM LOAD											
12.64	4372	1.08	969	18.34	Not Recorded				168	61	29.300
25.44	4431	2.15	973	16.57	"	"			190	60	29.300
31.39	3915	3.01	976	9.64	"	"			186	55	28.960
32.79	2885	4.26	975	5.87	"	"			197	50	28.960
31.62	1921	6.17	974	4.04	"	"			202	67	28.960
28.07	957	11.00	975	2.01	"	"			195	70	28.960
***TEST H—TEN HOURS— 4th GEAR**											
26.24	2279	4.32	976	4.71	2.662	9.86	0.620	0.03	197	69	28.967
TEST J—OPERATING MAXIMUM LOAD— 4th GEAR											
31.96	2886	4.15	976	9.11	Not Recorded				201	62	29.210

TIRES, WHEELS and WEIGHT

		Tests F, G & H	Test J
Rear Wheel: (each)	Type and Weight	Cast Iron	Cast Iron
	Liquid Ballast	285 lb	None
	Added Cast Iron	600 lb	None
Rear Tires:	No., Size and Ply	2 13-26 6 ply	2 13-26 6 ply
	Type of Tread	Champion Ground Grip	Champion Ground Grip
	Make	Firestone	Firestone
	Air Pressure	14 lb	12 lb
Front Wheel: (each)	Type and Weight	Pressed Steel	Pressed Steel
	Liquid Ballast	None	None
	Added Cast Iron	None	None
Front Tires:	No., Size and Ply	2 6.00-16 4 ply	2 6.00-16 4 ply
	Type of Tread	Guide Grip	Guide Grip
	Make	Firestone	Firestone
	Air Pressure	28 lb	28 lb
Height of Drawbar		14 1/2 inches	14 1/2 inches
ic Weight:	Rear End	5572 lb	3802 lb
	Front End	1620 lb	1620 lb
Total Weight as Tested (With operator)		7367 lb	5597 lb

* Formerly called RATED LOAD, see horsepower summary.

FUEL, OIL and TIME Fuel: Gasoline, octane 74 (octane rating taken from oil company's typical inspection data); weight per gallon 6.116 lb. Oil: SAE 20; to motor 2.655 gal; drained from motor 2.458 gal. Total time motor was operated 50 hours.

SPECIFICATIONS Type standard; Serial No. 272197; Drive enclosed gear. Tread Width; Rear 53 7/16" and 57 7/16"; Front 47 1/4". Wheel Base 75 3/4" Hydraulic Lift Control yes. Advertised speeds, mph: First 1 1/4; Second 2 1/2; Third 3 1/4; Fourth 4 3/8; Fifth 6 1/4; Sixth 11; Reverse 2 3/4. Belt Pulley: Diam 12 13/16"; Face 7 3/8"; RPM 975; Belt Speed 3270 fpm. Clutch: Make own; Type dry disc; Operated by hand lever. 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) 6.8:1; Operated by one foot pedal on each brake; Locked by latches; Equalization none.

ENGINE Make own; Serial No. 272197; Type 2 cylinder horizontal; Head I; Mounting crankshaft crosswise; Lubrication pressure; Bore and Stroke 5 1/2" x 6 3/4"; Rated RPM 975; Compression Ratio 5.57:1. Port Diameter Valves: Inlet 1 15/16"; Exhaust 1 49/64". Governor: Make own; Type centrifugal, variable speed. Carburetor: Make Marvel-Schebler; Model D LTX 71; Size 1 1/2". Starting System Delco-Remy, 12 volt. Generator Delco-Remy. Magneto Wico. Battery Delco 6 volt (2 used). Air Cleaner: Make Donaldson; Type oil washed wire screen. Oil Filter: Make Purolator; Type full flow filter with by-pass using replaceable impregnated paper element. Cooling medium temperature control: Radiator shutter.

REPAIRS AND ADJUSTMENTS No repairs or adjustments.

REMARKS All test results 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 and J were made with an operating setting of the carburetor (selected by the manufacturer) of 95.3% of maximum belt horsepower.

HORSEPOWER SUMMARY

	Drawbar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	34.88	39.10
2. Observed maximum horsepower (tests F & B)	34.03	37.87
3. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings)	26.16	33.24

We, the undersigned, certify that this is a true and correct report of official tractor test No. 429.

L. F. Larsen
Engineer in Charge

C. W. Smith
F. D. Yung
L. W. Hurlbut
Board of Tractor Test Engineers

JOHN DEERE
AR