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Nebraska Tractor Tests

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Larsen

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January 1949

## Test 430: Case Vac (Tractor Fuel)

Tractor Museum

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**BELT HORSE POWER TESTS**

H. P.	Crank shaft speed R.P.M.	Fuel Consumption			Water used Gal. per hour	Temp. Deg. F.		Barometer Inches of Mercury
		Gal. per hour	H.P. hr. per gal.	Lb. per H.P. hour		Cooling med.	Air	
<b>TEST B—100% MAXIMUM LOAD—TWO HOURS</b>								
17.92	1425	1.724	10.39	0.643	0.01	178	67	28.880
<b>TEST C—OPERATING MAXIMUM LOAD—ONE HOUR</b>								
16.98	1425	1.570	10.82	0.618	0.01	181	69	28.875
<b>*TEST D—ONE HOUR</b>								
15.93	1425	1.480	10.76	0.621	0.01	189	67	28.870
<b>TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)</b>								
16.12	1427	1.489	10.83	0.618	---	195	66	---
1.01	1614	0.767	1.32	5.079	---	197	64	---
8.52	1519	1.094	7.79	0.859	---	186	66	---
16.33	1334	1.458	11.20	0.597	---	180	66	---
4.43	1557	0.911	4.86	1.375	---	182	66	---
12.36	1472	1.269	9.74	0.687	---	197	65	---
9.80	1487	1.165	8.41	0.795	0.01	191	65	28.870

**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			Water used Gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
					Gal. per hour	Hp.-hr. per Gal.	Lb. per Hp.-hr.		Cooling med.	Air	
<b>TEST F—100% MAXIMUM LOAD— 3rd GEAR</b>											
15.63	1493	3.93	1424	5.26	Not Recorded				183	77	28.750
<b>TEST G—OPERATING MAXIMUM LOAD</b>											
12.91	2394	2.02	1424	16.49	Not Recorded				169	66	28.820
15.24	1911	2.99	1425	7.22	"				171	66	28.835
15.33	1462	3.93	1425	5.88	"				175	76	28.750
14.05	619	8.51	1424	2.86	"				164	69	28.815
<b>*TEST H—TEN HOURS— 3rd GEAR</b>											
12.54	1183	3.97	1424	4.83	1.375	9.12	0.733	0.00	172	54	28.974
<b>TEST I—OPERATING MAXIMUM LOAD— 3rd GEAR</b>											
13.73	1314	3.92	1427	6.66	Not Recorded				179	52	29.130

**TIRES, WHEELS and WEIGHT**

	Tests F, G & H	Test I
Rear Wheel: Type and Weight (each)	Cast Iron Spoke	Cast Iron Spoke
Liquid Ballast	None	None
Added Cast Iron	492 lb	None
Rear Tires: No., Size and Ply	2 10-28 4 ply	2 10-28 4 ply
Type of Tread	Sure Grip	Sure Grip
Make	Goodyear	Goodyear
Air Pressure	14 lb	12 lb
Front Wheel: Type and Weight (each)	Cast Iron	Cast Iron
Liquid Ballast	None	None
Added Cast Iron	61 lb	None
Front Tires: No., Size and Ply	2 5.50-15 4 ply	2 5.50-15 4 ply
Type of Tread	Triple Rib	Triple Rib
Make	Goodyear	Goodyear
Air Pressure	28 lb	28 lb
Height of Drawbar	13 inches	13 1/2 inches
Static Weight: Rear End	3024 lb	2040 lb
Front End	1106 lb	984 lb
Total Weight as Tested (With operator)	4305 lb	3199 lb

\* Formerly called RATED LOAD, see horsepower summary.

FUEL, OIL and TIME Fuel: Tractor fuel; octane 41.5 (octane rating taken from oil company's typical inspection data); weight per gallon 6.688 lb. Oil: SAE 20; to motor 1.007 gal; drained from motor 0.953 gal. Total time motor was operated 42 hours.

SPECIFICATIONS Type tricycle; Serial No. VAC 5258734; Drive enclosed gear. Tread Width: Rear 4 1/2" to 88"; Front 5 1/2" and 10 1/2". Wheel Base 83". Hydraulic Lift Control yes. Advertised speeds, mph: First 2.32; Second 3.08; Third 4.00; Fourth 8.40; Reverse 3.20. Belt Pulley: Diam 10 1/4"; Face 6"; RPM 969; Belt Speed 2600 fpm. Clutch: Make Atwood Vacuum; Type single dry plate; Operated by foot pedal. Seat pressed steel. Brakes: Make Auto Specialties; Type disc; Location differential; Gear Reduction (brake drum to rear wheel) 5.077:1; Operated by foot pedals; Locked by latch on tractor platform; Equalization none, brakes may be locked together.

ENGINE Make own; Serial No. 74807313; Type 4 cylinder vertical; Head I; Mounting crankshaft lengthwise; Lubrication pressure; Bore and Stroke 3 1/4" x 3 3/4"; Rated RPM 1425; Compression Ratio 5.01:1. Port Diameter Valves: Inlet 1 3/16"; Exhaust 1 3/32". Governor: Make Novi; Type centrifugal, variable speed. Carburetor: Make Marvel-Schebler; Model TSX-253; Size 7/8". Starter Auto-Lite. Generator Auto-Lite. Distributor and Coil Auto-Lite. Battery Exide. Air Cleaner: Make Vortex; Type oil washed wire screen. Oil Filter: Make Duo-Flow Michiana; Type replaceable unit. Cooling medium temperature control: Shutter and thermostat.

REPAIRS AND ADJUSTMENTS Starter button stuck and developed a short during Test "A".

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 95.0% of maximum belt horsepower.

**HORSEPOWER SUMMARY**

	Draw-bar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	16.53	18.69
2. Observed maximum horsepower (tests F & B)	15.63	17.92
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)	12.40	15.89

We, the undersigned, certify that this is a true and correct report of official tractor test No. 430.

L. F. Larsen  
 Engineer in Charge

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