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Larsen

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January 1938

## Test 309: Case Model L

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT  
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 309

Dates of test: October 10 to 24, 1938.

Name and model of tractor: CASE "L"

Manufacturer: J. I. Case Company, Racine, Wisconsin.

Manufacturer's rating: NOT RATED.

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

H. P.	Crank shaft speed R.P.M.	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F.		Baremeter Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.		Cool- ing med.	Air	
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
47.04	1101	4.462	10.54	0.656	0.000	204	78	28.950
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
45.02	1102	3.876	11.62	0.595	0.415	211	90	28.900
*TEST D - ONE HOUR								
42.10	1101	3.758	11.20	0.617	0.000	200	83	28.835
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
42.16	1103	3.738	11.28	0.613	--	197	80	--
1.55	1265	1.520	1.02	6.774	--	183	79	--
23.59	1227	2.692	8.76	0.788	--	182	78	--
43.59	1102	3.721	11.71	0.590	--	198	78	--
11.94	1232	2.041	5.85	1.181	--	179	78	--
33.35	1157	3.122	10.68	0.647	--	184	77	--
26.03	1181	2.805	9.28	0.745	0.000	187	78	28.820

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

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DRAWBAR HORSEPOWER TESTS

H. P.	Draw bar pull pounds	Speed miles per hr.	Crank shaft speed R.P.M.	Slip on drive wheels %	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F. Cool- ing Air	Barometer Inches of Mercury
					Gal. per hr.	H. P. per gal.	Lb. per H.P. hr.			

RUBBER TIRES

TEST F - 100% MAXIMUM LOAD - Second - GEAR

40.80	3635	4.21	1099	8.79	-----	Not Recorded	-----	210	72	28.900
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TEST G - OPERATING MAXIMUM LOAD

36.81	4474	3.09	1097	14.79	-----	Not Recorded	-----	209	75	28.900
39.90	3506	4.27	1101	7.68	-----	" "	-----	212	75	28.900
39.73	2736	5.45	1100	5.50	-----	" "	-----	203	70	28.875

\*TEST H - TEN HOURS - Second - GEAR

32.14	2768	4.35	1100	5.77	3.198	10.05	.688	0.014	197	74	28.925
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FUEL ECONOMY TEST - FOUR HOURS - Third - GEAR

32.05	2186	5.50	1099	4.45	3.245	9.88	.700	0.000	197	74	28.850
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STEEL WHEELS

TEST G - OPERATING MAXIMUM LOAD

31.64	4472	2.65	1102	11.75	-----	Not Recorded	-----	204	82	28.470
31.94	3394	3.53	1102	6.68	-----	" "	-----	176	54	29.135
29.41	2470	4.46	1098	5.00	-----	" "	-----	177	54	29.110

FUEL ECONOMY TESTS - FOUR HOURS EACH - Second and Third - GEARS

25.74	2657	3.63	1098	3.62	3.240	7.94	0.870	0.053	191	76	28.570
23.62	1921	4.61	1099	2.02	3.224	7.33	0.943	0.063	181	51	28.645

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

FUEL, OIL, AND TIME

Fuel Distillate Octane 38 Weight per gallon 6.91 pounds

Oil: To motor: S.A.E. No. 20 2.986 gal.; S.A.E. No. 40 1.466 gal.

Drained from motor 3.266 gal. Total time motor was operated 62 hours

In accordance with the manufacturer's instructions, the crank case was filled with S.A.E. No. 20 oil at the start of the test. After approximately each 10 hours of operation, the oil was drained down to a point one quart below the full mark and then one quart of S.A.E. No. 40 was added.

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BRIEF SPECIFICATIONS

Advertised speeds, miles per hour (rubber tires): First 3.52

Second 4.48 Third 5.58 Reverse 3.78

Belt pulley: Diameter 13" Face 8 1/4" R.P.M. 781

Clutch Twin Disc Type Single disc Operated by hand lever

Seat Pressed steel

Total weight as tested (with operator): (Steel 5300 pounds  
(Rubber 8025 pounds)

MOTOR: Make Own Serial No. L4210443 Type 4 cylinder, vertical

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 4 5/8" x 6" Rated R.P.M. 1100

Port diameter valves: Inlet 1 3/4" Exhaust 1 3/4"

Magneto: Make Own Model --

Carburetor: Make Zenith Model K-6-A Size 1 1/2"

Governor: Make Own Type Variable speed, centrifugal

Air cleaner: Make Own Type Oil-washed, wire screen

CHASSIS: Type Standard Serial No. 4210443 Drive Enclosed gear and chain

Tread width: Rear 59 1/2" Front 55"

Steel: Drive wheels: Type Standard No. 2 Diameter 48" Face 11 1/4"

Lugs: Type Spade No. per wheel 28 Size 5" x 3 3/8"

Front wheels: Type Standard No. 2 Diameter 30" Face 5 1/2"

Rubber: Rear tires: No. 2 Size 13.50" x 28" - 6 ply Air pressure 16 pounds

Front tires: No. 2 Size 7.50" x 20" - 4 ply Air pressure 25 pounds

Added weight: Per rear wheel: (Cast Iron 471 pounds  
(Water 422 pounds)

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REPAIRS AND ADJUSTMENTS

After approximately 35 hours of operation the cooling medium temperature indicator ceased to function properly and was reading about 70 degrees higher than it should.

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, and H were made with an operating setting of the carburetor (selected by the manufacturer) of 95.7% of maximum belt horsepower.

	<u>DRAWBAR</u>	<u>RUBBER TIRES</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	40.80		47.04
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	42.72		49.44
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).	32.04		42.02

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 309.

Carlton L. Zink  
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut  
 Board of Tractor Test Engineers