

January 1952

Test 481: Case LA

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



Part of the [Applied Mechanics Commons](#)

"Test 481: Case LA" (1952). *Nebraska Tractor Tests*. 598.
<http://digitalcommons.unl.edu/tractormuseumlit/598>

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.

The Experiment Station
University of Nebraska College of Agriculture
W. V. Lambert, Director, Lincoln, Nebraska

NEBRASKA TRACTOR TEST NO. 481

Department of Agricultural Engineering
Dates of test: August 18 to August 29, 1952
Manufacturer: J. I. CASE COMPANY, RACINE,
WISCONSIN
Manufacturer's rating: Not rated.

CASE LA

BELT HORSEPOWER TESTS

Hp	Crank shaft speed rpm	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer inches of mercury
		Gal per hour	Hp-hr per gal	Lb per hp-hour		Cooling med	Air	
TEST B—100% MAXIMUM LOAD—TWO HOURS								
48.86	1150	5.038	9.70	0.684	0.00	161	66	29.100
TEST C—OPERATING MAXIMUM LOAD—ONE HOUR								
46.61	1150	4.332	10.76	0.617	0.00	163	63	29.120
TEST D—RATED LOAD—ONE HOUR								
43.05	1151	4.069	10.58	0.627	0.00	172	63	29.140
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
43.08	1152	4.055	10.62	0.625	...	172	63	.....
1.37	1250	1.691	0.81	8.190	...	180	66	.....
22.91	1220	3.160	7.25	0.915	...	185	67	.....
44.19	1120	4.159	10.63	0.625	...	170	69	.....
11.56	1231	2.369	4.88	1.360	...	184	70	.....
33.57	1196	3.590	9.35	0.710	...	185	71	.....
26.11	1195	3.171	8.23	0.806	0.00	179	68	29.150

TORQUE (at dynamometer)

Eng RPM	1150	1101	1048	996	947	899	854	800	753	702
Lb-ft	317.5	319.0	323.8	327.3	331.5	335.5	339.9	349.1	353.9	352.6

DRAWBAR HORSEPOWER TESTS

Hp	Draw bar pull lb	Speed miles per hr	Crank shaft speed rpm	Slip of drive wheels %	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer inches of mercury
					Gal per hour	Hp-hr per gal	Lb per hp-hr		Cooling med	Air	
TEST F—100% MAXIMUM LOAD—3rd Gear											
44.51	3563	4.68	1150	4.91	.....	Not Recorded	.....	171	76	29.130
TEST G—OPERATING MAXIMUM LOAD											
40.64	6444	2.36	1149	12.33	.....	Not Recorded	.....	175	78	29.130
42.52	4598	3.47	1153	6.59	.....	Not Recorded	.....	167	78	29.135
42.12	3361	4.70	1151	4.71	.....	Not Recorded	.....	171	80	29.135
38.40	1441	9.99	1151	2.24	.....	Not Recorded	.....	175	78	29.130
TEST H—RATED LOAD—TEN HOURS—3rd Gear											
34.99	2769	4.74	1150	3.83	3.746	9.34	0.710	0.00	189	87	28.850
TEST J—OPERATING MAXIMUM LOAD—3rd Gear											
40.40	3246	4.67	1148	5.96	.....	Not Recorded	.....	191	93	28.850
TEST K—OPERATING MAXIMUM LOAD—3rd Gear											
39.29	3401	4.33	1149	7.91	.....	Not Recorded	.....	193	96	28.820

FUEL, OIL and TIME Tractor Fuel octane No ASTM 35 (rating taken from oil company's typical inspection data); weight per gallon 6.636 lb Oil SAE 20 to motor 3.198 gal; drained from motor 2.752 gal Total time motor was operated 45½ hours.

CHASSIS Type Standard Serial No 5523273LA Tread width rear 59¾" front 62" Wheel Base 82" Hydraulic control system driven through transmission Advertised speeds mph first 2½ second 3½ third 4½ fourth 10 reverse 2½ Belt pulley diam 13" face 8¼" rpm 814 Belt speed 2770 fpm Clutch single plate wet disc operated by hand lever Seat pressed steel with sponge rubber cushion which can swing from side to side and tilt upward Brakes double disc on differential shaft operated by two foot pedals Equalized by locking brake pedals together Power take-off standard type.

ENGINE Make J. I. Case Type 4 cylinder vertical Serial No 5523273LA Crankshaft mounted lengthwise Head 1 Lubrication pressure Bore and Stroke 4⅞" x 6" Rated rpm 1150 Compression ratio 4.55 to 1 Displacement 403.2 cu in Port Diameter Valves inlet 1 25/32" exhaust 1 25/32" Governor variable speed centrifugal Carburetor Size 1½" Ignition System magneto Starting System 6 volt battery Air Cleaner oil washed metal mesh Muffler was used Oil Filter replaceable treated paper element Cooling medium temperature control thermostat and shutters.

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, J & K were made with an operating setting of the carburetor (selected by the manufacturer) of 95.0% of maximum belt horsepower.

TIRES, WHEELS and WEIGHT

	Tests F, G, & H	Test J	Test K
Rear wheels Type	Cast iron	Cast iron	Cast iron
Liquid ballast	890 lb each	None	None
Added cast iron	690 lb each	None	None
Rear tires No. and size	Two 15-30	Two 15-30	Two 14-30
Ply	8	8	6
Air pressure	14 lb	12 lb	12 lb
Front wheels Type	Cast iron	Cast iron	Cast iron
Liquid ballast	None	None	None
Added cast iron	None	None	None
Front tires No. and size	Two 7.50-18	Two 7.50-18	Two 7.50-18
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
Height of drawbar	16½ inches	17 inches	15½ inches
Static weight Rear end	8430 lb	5270 lb	5150 lb
Front end	2255 lb	2250 lb	2240 lb
Total weight as tested with operator	10860 lb	7695 lb	7565 lb

HORSEPOWER SUMMARY

	Draw-bar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" Hg)	46.42	50.53
2. Observed maximum horsepower (tests F & B)	44.51	48.86
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)	34.82	42.95

We, the undersigned, certify that this is a true and correct report of official tractor test No. 481.

L. F. LARSEN
Engineer in Charge

C. W. SMITH
F. D. YUNG
L. W. HURLBUT
Board of Tractor Test Engineers