

January 1953

## Test 508: Case 500

Nebraska Tractor Laboratory Submitted by Larsen Museum  
*University of Nebraska-Lincoln*

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NEBRASKA TRACTOR TEST NO. 508, CASE MODEL 500

Department of Agricultural Engineering, University of Nebraska  
 Dates of test: October 5 to October 10, 1953  
 Manufacturer: J. I. CASE COMPANY, RACINE, WISCONSIN  
 Manufacturer's rating: Not Rated

BELT HORSEPOWER TESTS

Hp	Crank shaft speed rpm	Fuel Consumption			Water used Gal per hr	Temp Deg F.		Barometer inches of Mercury
		Gal per hr	Hp hr per gal	Lb per hp hour		Cooling med	Air	
TESTS B & C - 100% MAXIMUM LOAD - TWO HOURS								
63.81	1350	4.042	15.79	0.442	0.00	199	48	29.120
TEST D - RATED LOAD - ONE HOUR								
55.14	1350	3.439	16.03	0.436	0.00	199	55	29.130
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
55.18	1350	3.432	16.08	0.434	---	198	54	---
1.71	1470	0.996	1.72	4.070	---	181	53	---
29.03	1416	2.220	13.08	0.534	---	198	55	---
61.72	1298	3.943	15.65	0.446	---	198	55	---
14.80	1439	1.611	9.19	0.760	---	197	58	---
42.47	1383	2.787	15.24	0.458	---	200	56	---
34.15	1392	2.498	13.67	0.511	0.00	195	55	29.133

TORQUE (At Dynamometer)

ENG. RPM	1347	1272	1202	1120	1048	962	894	814	750	670
LB. FT.	379.9	388.9	398.1	404.4	411.3	406.9	403.4	402.0	385.9	383.3

DRAWBAR HORSEPOWER TESTS

Hp	Draw bar pull lbs	Speed miles per hr	Crank shaft speed rpm	Slip of drive wheels %	Fuel Consumption			Water used Gal per hr	Temp deg F.		Barometer inches of Mercury
					Gal per hr	Hp hr per gal	Lb per hp hr		Cooling med	Air	
TESTS F & G - 100% MAXIMUM LOAD - 3rd Gear											
47.82	7409	2.42	1354	15.89	-----Not Recorded-----			186	66	29.000	
55.96	5762	3.64	1352	7.66	-----Not Recorded-----			195	68	28.970	
56.32	4252	4.98	1352	5.17	-----Not Recorded-----			199	68	29.000	
51.99	1827	10.67	1357	2.05	-----Not Recorded-----			190	69	28.980	
TEST H - RATED LOAD - TEN HOURS - 3rd Gear											
44.24	3302	5.02	1350	4.00	3.086	14.34	0.487	0.00	195	71	28.958
TEST J - OPERATING MAXIMUM LOAD - 3rd Gear											
54.61	4262	4.80	1353	8.10	-----Not Recorded-----			190	76	28.950	
TEST K - OPERATING MAXIMUM LOAD - 3rd Gear											
51.19	4470	4.29	1356	14.57	-----Not Recorded-----			190	74	28.950	

TIRES, WHEELS and WEIGHT

	Tests F, G, & H	Test J	Test K
<u>Rear wheels</u>			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	1034 lb each	none	none
Added cast iron	700 lb each	none	none
<u>Rear tires</u>			
No and size	two 15-30	two 15-30	two 14-30
Ply	8	8	6
Air pressure	16 lb	12 lb	12 lb
<u>Front wheels</u>			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	none	none	none
Added cast iron	none	none	none
<u>Front tires</u>			
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
<u>Height of drawbar</u>	17 $\frac{1}{2}$ inches	17 $\frac{1}{2}$ inches	16 inches
<u>Static weight</u>			
Rear end	8950 lb	5482 lb	5372 lb
Front end	2480 lb	2471 lb	2468 lb
<u>Total weight as tested with operator</u>	11,605 lb	8128 lb	8015 lb

FUEL, OIL and TIME Diesel Fuel cetane No 50 (rating taken from oil company's typical inspection data); weight per gallon 6.985 lb OIL SAE 20; to motor 2.940 gal; drained from motor 2.633 gal; Total time motor was operated 40 1/2 hours.

CHASSIS TYPE Standard Serial No. 8032765 Tread width rear 60 3/4" front 62" Wheel Base 88" Hydraulic control system driven by continuous running power take-off with independent clutch Advertised speeds mph first 2.69 second 3.70 third 4.91 fourth 10.10 reverse 2.94 Belt pulley diam 13" face 8 1/4" rpm 956 Belt speed 3254 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 to-gether Power take-off continuous running with independent clutch Steering aided by hydraulic power steering.

ENGINE Make J. I. Case Type 6 cylinder vertical Diesel Serial No. 8032765 Crankshaft mounted lengthwise Head I Lubrication pressure Bore and Stroke 4" x 5" Rated rpm 1350 Compression ratio 15 to 1 Displacement 377 cu. in. Port Diameter Valves Inlet 1.375" Exhaust 1.219" Governor variable speed centrifugal Starting System two 6 volt batteries Air Cleaner oil washed wire mesh Muffler was used Oil Filter replaceable treated paper element Fuel Filter one fuel tank breather filter, one fine mesh filler screen, one fuel tank water trap, one edge wound metal filter removeable for cleaning, one filter with replaceable element and one replaceable sealed filter Cooling medium temperature control thermostat and 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 fuel pump set to develop approximately 65 corrected 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 the same setting.

#### HORSEPOWER SUMMARY

	DRAWBAR	BELT
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" HG)	58.55	64.81
2. Observed maximum horsepower (tests F & B)	56.32	63.81
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)	43.91	55.09

We, the undersigned certify that this is a true and correct report of official tractor test No. 508.

L. J. Larsson  
Engineer-in-Charge

C. H. Smith  
H. B. Gault  
F. D. Young  
BOARD OF TRACTOR TEST ENGINEERS