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January 1940

## Test 357: Caterpillar Model D-8 (Diesel)

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. 357

Dates of test: October 11 to 16, 1940.

Name and model of tractor: CATERPILLAR DIESEL D-8

Manufacturer: Caterpillar Tractor Company, Peoria, Illinois.

Manufacturer's rating: 26,200 pounds pull in low gear (observed conditions)

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.		Barometer Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.		Cool- ing med.	Air	
TESTS B AND C - 100% MAXIMUM LOAD - TWO HOURS								
127.93	950	8.611	14.86	0.471	0.000	167	62	29.270
*TEST D - ONE HOUR								
111.37	949	7.413	15.02	0.466	0.000	163	68	29.200
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
111.45	948	7.414	15.03	0.466	--	165	71	--
1.86	1031	2.473	0.75	9.306	--	151	69	--
57.35	973	4.616	12.42	0.563	--	155	70	--
122.04	937	8.083	15.10	0.464	--	166	68	--
29.77	1008	3.557	8.37	0.836	--	154	68	--
84.70	961	5.914	14.32	0.489	--	157	68	--
67.86	976	5.343	12.70	0.551	0.000	158	69	29.150

D R A W B A R H O R S E P O W E R T E S T S

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.		Barometer Inches of Mercury
					Gal. per hr.	H.P. per gal.	Lb. per H.P. hr.		Cool- ing med.	Air	
TESTS F AND G - 100% MAXIMUM LOAD											
104.12	26208	1.49	950	6.58	-----	Not Recorded	-----	169	67	28.870	
110.06	19537	2.11	949	4.25	-----	"	"	163	53	28.905	
108.91	15973	2.56	950	1.11	-----	"	"	184	92	28.820	
108.41	13707	2.97	950	1.03	-----	"	"	189	93	28.815	
106.58	11266	3.55	950	0.91	-----	"	"	187	92	28.820	
102.92	7995	4.83	950	0.62	-----	"	"	186	89	28.830	

\*TEST H - TEN HOURS - Second - GEAR

85.33	14728	2.17	951	1.67	6.541	13.05	0.537	0.000	162	56	29.085
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\*Formerly called RATED LOAD; see REMARKS 4, page 3.

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FUEL, OIL, AND TIME

Fuel Commercial diesel fuel Weight per gallon 7.00 pounds

Oil: S.A.E. No. 20 To motor 8.123 gal. Drained from motor 6.980 gal.

Total time motor was operated 32 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.6 Second 2.2

Third 2.6 Fourth 3 Fifth 3.6 Sixth 4.9 Reverse 1.6 - 2.6

Belt pulley: Diam. 14-1/4" Face 15" R.P.M. 804 Belt Speed 3049 f.p.m.

Clutch: Make Own Type Single plate Operated by hand

Seat Upholstered

Total weight as tested (with operator) 35,000 pounds

MOTOR

Make Own Serial No. 617 Type 6 cylinder, vertical, diesel

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 5-3/4" x 8" Rated R.P.M. 950

Port diameter valves: Inlet 2-1/16" Exhaust 2-1/16"

Fuel Injection System: Own Serial No. 13P3638

Governor: Make Own Type Variable speed, centrifugal  
Oil-washed wire screen filter

Air Cleaner: Make Donaldson Type with collector pre-cleaner

Oil Filter: Combination Purolator full flow metal element and own by-pass re-  
newable cotton yarn type element

Cooling medium temperature control: Fulton thermostat

CHASSIS

Type Tracklayer Serial No. IH6852 Drive Enclosed gear

Tread width: 78" Measured length of track 25.3329'

Cleats: Type Integral with shoes No. per track 38

Size 2-1/2" high x 24" long

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

1. All results shown on page 1 of this report were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with fuel pumps set to develop 26,200 pounds pull in low gear (observed conditions) 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 the same setting.

	<u>DRAWBAR</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	110.06	127.93
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	113.14	131.00
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)	84.86	111.35

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 357.

Carlton L. Zink  
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut  
Board of Tractor Test Engineers