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January 1939

Test 322: Caterpillar Model D-2 (Diesel)

Tractor Museum

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 322

Dates of test: July 24 to August 4, 1939.

Name and model of tractor: CATERPILLAR DIESEL D-2

Manufacturer: Caterpillar Tractor Company, Peoria, Illinois.

Manufacturer's rating: 25.5 Drawbar horsepower maximum in second gear (standard 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.		Cooling med.	Air	
TESTS B AND C - 100% MAXIMUM LOAD - TWO HOURS								
29.98	1526	2.264	13.24	0.528	0.000	174	94	28.950
*TEST D - ONE HOUR								
27.46	1525	2.062	13.32	0.525	0.000	172	96	28.950
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
27.49	1528	2.064	13.32	0.525	--	172	95	--
1.29	1617	0.880	1.47	4.767	--	160	95	--
14.35	1590	1.391	10.32	0.677	--	162	94	--
29.45	1506	2.202	13.37	0.523	--	172	94	--
7.08	1594	1.094	6.47	1.081	--	161	92	--
21.03	1567	1.721	12.22	0.572	--	163	92	--
16.78	1567	1.559	10.76	0.650	0.000	165	94	28.915

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.		Cooling med.	Air	
TESTS F AND G - 100% MAXIMUM LOAD											
25.15	5903	1.60	1529	5.71	-----Not Recorded-----			160	86	28.890	
24.12	3798	2.38	1526	4.65	----- " " -----			170	93	28.780	
24.25	3069	2.96	1526	1.13	----- " " -----			164	88	28.900	
23.53	2485	3.55	1525	0.83	----- " " -----			165	86	28.900	
21.47	1585	5.08	1525	0.83	----- " " -----			164	88	28.900	

*TEST H - TEN HOURS - Second - GEAR

19.45	2993	2.44	1525	2.36	1.880	10.35	0.676	0.000	163	85	28.905
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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 6.99 pounds
Oil: S.A.E. No. 20 To motor 4.040 gal. Drained from motor 3.336 gal.
Total time motor was operated 41 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.7 Second 2.5
Third 3.0 Fourth 3.6 Fifth 5.1 Reverse 2.1
Belt pulley: Diam. 12" Face 7 1/2" R.P.M. 850 Belt speed 2670 f.p.m.
Clutch: Make Own Type Dry disc Operated by hand
Seat Upholstered
Total weight as tested (with operator) 7420 pounds
MOTOR: Make Own Serial No. 5J1509 Type 4 cylinder, vertical, diesel
Head I Mounting Crankshaft lengthwise Lubrication Pressure
Bore and stroke 3 3/4" x 5" Rated R.P.M. 1525
Port diameter valves: Inlet 1 1/4" Exhaust 1 5/32"
Fuel injection system: Own Serial No. 10P4418
Governor: Make Own Type Variable-speed, centrifugal
Air cleaner: Make Donaldson Type Oil-washed wire screen, filter with
collector per-cleaner
Oil Filter: Combination Purolator full flow metal element and own
by-pass renewable cotton yarn type element
Cooling medium temperature control: Fulton thermostat
CHASSIS: Type Tracklayer Serial No. 5J1509 Drive Enclosed gear
Tread width: 50" Measured length of track 15.4486'
Cleats: Type Integral with shoes No. per track 30
Size 1 7/8" high x 16" 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 approximately 25.5 drawbar horsepower maximum in second gear under standard 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.

	DRAWBAR	BELT
2. Observed maximum horsepower (tests F & B)	24.12	29.98
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	25.86	31.99
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)	19.40	27.19

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 322.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers