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Test 415: Caterpillar Model D-8

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

Department of Agricultural Engineering

Dates of test: July 11 to July 19, 1949

Manufacturer: CATERPILLAR TRACTOR COMPANY, PEORIA, ILLINOIS

Manufacturer's rating: Drawbar 130 horsepower in second gear corrected. Belt not rated.

DRAWBAR HORSE POWER TESTS

H.P.	Draw bar pull Lbs.	Speed miles per hr.	Crank shaft speed R.P.M.	Slip of drive wheels %	Fuel Consumption			Water used Gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
					Gal. per hour	Hp.-hr. per Gal.	Lb. per Hp.-hr.		Cooling med.	Air	
TEST F and G—100% MAXIMUM LOAD—											
123.60	28664	1.62	999	4.98	Not Recorded				175	80	28.630
123.89	20880	2.23	1002	1.60	"	"			173	74	28.630
119.58	16087	2.79	1000	0.89	"	"			180	82	28.700
116.54	11682	3.74	1003	0.61	"	"			183	92	28.730
106.39	8296	4.81	1001	0.54	"	"			186	94	28.750
					"	"					
***TEST H—TEN HOURS— 2nd GEAR**											
99.16	16619	2.24	1001	0.98	7.936	12.50	0.555	0.00	181	85	28.793

* Formerly called RATED LOAD, see horsepower summary.

NEBRASKA TRACTOR TEST NO. 415

CATERPILLAR D-8

FUEL, OIL and TIME Fuel: Diesel fuel, cetane 47 (cetane rating taken from oil company's typical inspection data); weight per gallon 6.935 lbs. Oil: SAE 30; to motor 8.728 gals; drained from motor 7.920 gals. Total time motor was operated 31 hours.

SPECIFICATIONS Type tracklayer; Serial No. 2U7266; Drive enclosed gear; Tread Width 78"; Measured Length of Track 25.92 ft. Cleats: Type integral with shoes; No. per track 39; Size 2 1/2" x 24". Advertised speeds, mph: First 1.7; Second 2.3; Third 2.8; Fourth 3.7; Fifth 4.8; Reverse: First 2.2; Second 3.0; Third 3.7. Belt Pulley: Diam 14 7/16"; Face 15"; RPM 846; Belt Speed 3198 fpm. Clutch: Make own; Type dry metallic friction disc; Operated by hand lever. Seat upholstered. Brakes: Make own; Type contracting band; Location on steering clutch drums; Gear Reduction (brake drum to sprocket) 5.636:1; Operated by foot pedals; Locked by latches on tractor frame. Steering hand levers controlling multiple disc clutches.

ENGINE Make own; Serial No. 2U7266; Type 6 cylinder vertical. Head I; Mounting crankshaft lengthwise; Lubrication Pressure; Bore and Stroke 5 3/4" x 8"; Rated rpm 1000; Compression Ratio 15.7:1. Port Diameter Valves: Inlet 2.0625"; Exhaust 2.0625". Governor: Make own; Type centrifugal, variable speed. Fuel Injection System: own. Air Cleaner: Make Donaldson; Type oil washed wire screen with precleaner. Oil Filter: Make Purolator (3 used); Type three permanent full flow elements and three replaceable by-pass elements. Fuel Filter: Make own; Type nine replaceable cotton yarn wound elements. Cooling medium temperature control thermostat.

STARTING ENGINE Make own; Type 2 cylinder vertical; Mounting beside engine; Mfg. rating 24 hp at 2700 rpm; Bore and Stroke 3 5/8" x 4"; Magneto: Bosch; Carburetor: Zenith; Air Cleaner: Donaldson; Starter: hand crank.

TOTAL WEIGHT AS TESTED (with operator) 36915 lbs.

REPAIRS AND ADJUSTMENTS No repairs or adjustments.

REMARKS All test results were determined from observed data and without allowances, additions, or deductions. Test F was made with a fuel pump setting, selected by the manufacturer, to develop approximately 130 (corrected) horsepower in second gear and data from this test were used in determining the horsepower to be developed in Test H. Test G was made with the same fuel pump setting. No belt tests were made on this tractor due to the limited capacity of the dynamometer used for belt testing.

HORSEPOWER SUMMARY

	Drawbar
1. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	131.20
2. Observed maximum horsepower (tests F & B)	123.89
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)	98.40

We, the undersigned, certify that this is a true and correct report of official tractor test No. 415.

L. F. Larsen
Engineer in Charge

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Board of Tractor Test Engineers