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## Test 416: Caterpillar Model D-6

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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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 23, 1949

Manufacturer: CATERPILLAR TRACTOR COMPANY, PEORIA, ILLINOIS

Manufacturer's rating: Drawbar 65 H. P. in second gear corrected. Belt not rated.

NEBRASKA TRACTOR TEST NO. 416

CATERPILLAR D-6

**BELT HORSE POWER TESTS**

H. P.	Crank shaft speed R.P.M.	Fuel Consumption			Water used Gal. per hour	Temp. Deg. F.		Barometer Inches of Mercury
		Gal. per hour	H. P. hr. per gal.	Lb. per H. P. hour		Cooling med.	Air	
TEST B and C—100% MAXIMUM LOAD—TWO HOURS								
76.90	1400	5.542	13.88	0.500	0.00	170	77	28.898
*TEST D—ONE HOUR								
68.48	1396	4.795	14.28	0.486	0.00	165	71	28.915
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
68.73	1395	4.793	14.35	0.484	- - -	164	72	-- ---
2.02	1533	1.726	1.17	5.926	- - -	163	71	-- ---
36.69	1488	3.145	11.67	0.594	- - -	163	68	-- ---
75.50	1387	5.304	14.23	0.487	- - -	167	68	-- ---
18.89	1511	2.474	7.64	0.908	- - -	163	68	-- ---
54.39	1468	3.988	13.64	0.509	- - -	163	66	-- ---
42.70	1463	3.572	11.95	0.579	0.00	164	69	28.935

**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.		Cool- ing med.	Air	
TEST F and G—100% MAXIMUM LOAD—											
58.25	16222	1.35	1402	7.38	Not Recorded				172	94	28.820
61.76	10399	2.23	1401	2.00	"	"			171	86	28.845
57.79	6910	3.14	1400	0.72	"	"			175	91	28.800
53.84	4623	4.37	1401	0.54	"	"			172	91	28.750
50.03	3276	5.73	1402	0.46	"	"			170	90	28.745
					"	"					
*TEST H—TEN HOURS— 2nd GEAR											
49.35	8250	2.24	1402	1.37	4.288	11.51	0.603	0.00	168	84	28.675

\* Formerly called RATED LOAD, see horsepower summary.

**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 5.421 gals; drained from motor 4.397 gals. Total time motor was operated 33 hours.

**SPECIFICATIONS** Type tracklayer; Serial No. 9U2914; Drive enclosed gear; Tread Width: 74"; Measured Length of Track 22.52 ft. Cleats: Type integral with shoes; No. per track 40; Size 2 1/8" x 18". Advertised speeds, mph: First 1.4; Second 2.3; Third 3.2; Fourth 4.4; Fifth 5.8; Reverse: First 1.8; Second 2.8; Third 3.9; Fourth 5.4. Belt Pulley: Diam 13 3/8"; Face 13"; RPM 913; Belt Speed 3197 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 drum; Gear Reduction (brake drum to sprocket) 4.917:1; Operated by foot pedals; Locked by latches on tractor frame. Steering hand levers controlling multiple disc clutches (with hydraulic booster).

**ENGINE** Make own; Serial No. 9U2914; Type 6 cylinder vertical; Head I; Mounting crankshaft lengthwise; Lubrication pressure; Bore and Stroke 4 1/2" x 5 1/2"; Rated rpm 1400; Compression Ratio 17.3:1. Port Diameter Valves; Inlet 1.813"; Exhaust 1.625". 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 (2 used); Type two permanent full flow metal elements, two replaceable by-pass elements. Fuel Filter: Make own; Type four replaceable cotton yarn wound elements. Cooling medium temperature control: Thermostat.

**STARTING ENGINE** Make own; Type 2 cylinder horizontal opposed; Mounting behind diesel engine; Mfg. Rating 15 hp at 3000 rpm; Bore and Stroke 3 1/8" x 3 1/2"; Magneto: Bosch; Carburetor: Zenith; Air Cleaner: Donaldson. Starter: hand rope.

**TOTAL WEIGHT AS TESTED** (with operator) 18,805 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 65 (corrected) drawbar horsepower in second gear and data from this test were used in determining the horsepower to be developed in tests D and H, respectively. Tests B, C, D, E, G and H were made with the same setting.

**HORSEPOWER SUMMARY**

	Draw- bar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	65.64	80.91
2. Observed maximum horsepower (tests F & B)	61.76	76.90
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).	49.23	68.77

We, the undersigned, certify that this is a true and correct report of official tractor test No. 416.

L. F. Larsen  
Engineer in Charge

C. W. Smith  
F. D. Yung  
L. W. Hurlbut  
Board of Tractor  
Test Engineers



