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January 1935

## Test 242: Caterpillar Model 40 (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. 242

Dates of test: August 19 to September 9, 1935.

Name and model of tractor: CATERPILLAR DIESEL FORTY

Manufacturer: Caterpillar Tractor Co., Peoria, Ill.

Manufacturer's rating: 52 Drawbar Horsepower Maximum in 2nd gear (standard conditions)

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

H. P.	:Crank : :shaft :	Fuel Consumption :Gals. : H. P. :Lbs.Per:	Water Consumption : per hour gallons :	Temp. : : Deg. F. :	:Barometer
:speed :	:R.P.M.:	:hrs. per :	:H. P.:	:Cool- : In : : fuel : Total :	:Cool- : Inches of : Air:Mercury
:	: hour :	: Gal. :	: hour :	:	: med : :

TESTS B AND C 100% MAXIMUM LOAD. TWO HOURS

56.05	: 1000	: 4.087	: 13.71	: 0.510	: 0.000	: 0.000	: 0.000	: 167	: 78	: 28.935
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TEST D RATED LOAD. ONE HOUR

50.43	: 1001	: 3.721	: 13.55	: 0.516	: 0.000	: 0.000	: 0.000	: 162	: 76	: 28.925
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TEST E \*VARYING LOAD. TWO HOURS

50.60	: 1002	: 3.734	: 13.55	: 0.516	: --	: --	: --	: 162	: 76	: --
0.76	: 1063	: 1.438	: 0.53	: 13.224	: --	: --	: --	: 150	: 73	: --
25.79	: 1032	: 2.472	: 10.43	: 0.670	: --	: --	: --	: 151	: 72	: --
55.92	: 979	: 4.064	: 13.76	: 0.508	: --	: --	: --	: 160	: 71	: --
13.10	: 1046	: 1.983	: 6.61	: 1.058	: --	: --	: --	: 151	: 69	: --
38.34	: 1020	: 3.099	: 12.37	: 0.565	: --	: --	: --	: 152	: 65	: --
30.75	: 1024	: 2.798	: 10.99	: 0.636	: 0.000	: 0.000	: 0.000	: 154	: 69	: 28.915

\*20 minute runs. Last line is average for two hours.

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 :	Speed : : miles :	Crank : : shaft :	Slip : : on :	Fuel Consumption : H. P. : Lbs. :	Water: : used :	Temp. : : :	:Barometer
: pull :	: per :	: speed :	: drive:	: Gal.:	: hour :	: per :	: Gal. :	:Cool-:Air:Inches of
:pounds:	: hour :	: R.P.M.:	:wheels:	: per :	: per :	: H.P.:	:per :	:Mercury
:	:	:	: % :	: hour:	: gal. :	: hour :	:hour :	:med. : :

TESTS F AND G MAXIMUM LOAD.

50.26	: 9750	: 1.93	: 1001	: 3.01	: -----	: Not Recorded	: -----	: 161	: 71	: 28.790
50.44	: 6716	: 2.82	: 1000	: 3.74	: -----	: " "	: -----	: 158	: 66	: 28.855
49.64	: 4991	: 3.73	: 1004	: 2.53	: -----	: " "	: -----	: 157	: 54	: 28.925
47.91	: 3348	: 5.37	: 1003	: 1.22	: -----	: " "	: -----	: 160	: 78	: 28.925

TEST H RATED LOAD. TEN HOURS Second GEAR.

39.83	: 5173	: 2.89	: 1000	: 1.32	: 3.384	: 11.77	: 0.594	: 0.000	: 157	: 70	: 28.870
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Copy of Report of Official Tractor Test No. 242

BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 5E8501 Type 3 cylinder, vertical diesel  
 Head I Mounting Crankshaft lengthwise  
 Bore and stroke: 5 3/4" x 8" Rated R. P. M. 1000  
 Port Diam. Valves: Inlet 2 1/16" Exhaust 2 1/16"  
 Belt pulley: Diam. 12" Face 8 1/2" R. P. M. 1000  
 Fuel System: Own  
 Governor: Own No. None Type Centrifugal  
 Air Cleaner: Donaldson Type Combination - oil and wire screen  
labyrinth  
 Lubrication: Pressure

CHASSIS: Type tracklayer Serial No. 5E8501 Drive enclosed gear  
 Clutch: Own Type single plate - dry Operated by hand  
 Advertised speeds, miles per hour: First 2.0 Second 2.9  
 Third 3.8 Fourth 5.4 Reverse 2.2  
 Measured length of track 19.778 feet Face 16"  
 Lugs: Type Cleats integral with shoes No. per track 35  
 Size 16" x 1 3/4"  
 Seat Upholstered  
 Total weight as tested (with operator) 15,642 pounds.

FUEL AND OIL:

Fuel: Dieseline Weight per gallon 6.99  
 Oil: S.A.E. #40  
 Total oil to motor 3.664 gallons  
 Total drained from motor 3.413 gallons  
 Total time motor was operated 51 hours

The oil was drained once - at the end of the test.

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT  
AGRICULTURAL COLLEGE, LINCOLNCopy of Report of Official Tractor Test No. 242REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

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 the fuel pumps set to deliver 52 drawbar horsepower maximum in second gear, under standard conditions. These figures were used in determining the ratings recommended by the A.S.A.E. and S.A.E. tractor rating codes. Tests C, D, E, G, and H were made with the same setting.

Observed maximum horsepower (tests B &amp; F) Drawbar 50.44 Belt 56.05

Sea level (calculated) maximum horsepower Drawbar 52.61 Belt 58.96  
(Based on 60° F. and 29.92" Hg.)Highest permissible horsepower ratings Drawbar 39.46 Belt 50.12  
(As recommended by A.S.A.E. and S.A.E.  
codes)

The 100% maximum belt and drawbar tests were not included in reports issued from 1928 to 1934 inclusive, except in those cases where the 100% maximum setting was used throughout the complete test.

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 242.

Carlton L. Zink  
Engineer-in-charge

E. E. Brackett

C. W. Smith

E. B. Lewis

Board of Tractor Test Engineers