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January 1935

Test 243: Caterpillar Model 40 (Diesel)

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 243

Dates of test: September 10 to 12, 1935.

Name and model of tractor: CATERPILLAR DIESEL FORTY

Manufacturer: Caterpillar Tractor Co., Peoria, Ill.

Manufacturer's rating: 44 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		:	Water Consumption		:	Temp.		:	Barometer
:	speed :	Gals. :	H. P. :	Lbs. Per :	Cool- :	In :	:	Cool- :	Deg. F. :	:	Inches of
:	R.P.M. :	per :	hrs. per :	H. P. :	ing :	fuel :	Total :	ing :	Air :	:	Mercury
:	:	hour :	Gal. :	hour :	:	:	:	med. :	:	:	:

TESTS B AND C 100% MAXIMUM LOAD. TWO HOURS

48.60 : 850 : 3.381 : 14.37 : 0.486 : 0.000 : 0.000 : 0.000 : 173 : 85 : 28.720

TEST D RATED LOAD. ONE HOUR

44.14 : 850 : 3.112 : 14.18 : 0.493 : 0.000 : 0.000 : 0.000 : 159 : 75 : 28.720

TEST E *VARYING LOAD. TWO HOURS

43.85	: 849	: 3.094	: 14.17	: 0.493	: --	: --	: --	: 159	: 74	: --
0.69	: 921	: 1.206	: 0.57	: 12.217	: --	: --	: --	: 151	: 73	: --
22.97	: 885	: 2.116	: 10.86	: 0.644	: --	: --	: --	: 151	: 71	: --
47.74	: 833	: 3.545	: 13.47	: 0.519	: --	: --	: --	: 159	: 72	: --
11.86	: 896	: 1.635	: 7.25	: 0.964	: --	: --	: --	: 153	: 73	: --
33.96	: 870	: 2.575	: 13.19	: 0.530	: --	: --	: --	: 153	: 72	: --
26.85	: 875	: 2.362	: 11.37	: 0.615	: 0.000	: 0.000	: 0.000	: 154	: 73	: 28.730

*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	Water:	Temp. :	:	Barometer
:	pull :	per :	speed :	drive:	Gal.:	hour :	per :	Gal. :	Cool-:
:	pounds:	hour :	R.P.M.:	wheels:	per :	per :	H. P.:	per :	ing :
:	:	:	% :	hour:	gal. :	hour :	hour :	hour :	med. :

TESTS F AND G MAXIMUM LOAD.

42.82	: 9692	: 1.66	: 850	: 2.10	: -----	: Not Recorded	: -----	: 164	: 80	: 28.810
42.78	: 6524	: 2.46	: 849	: 0.97	: -----	: " "	: -----	: 159	: 69	: 28.860
40.55	: 4714	: 3.23	: 851	: 0.77	: -----	: " "	: -----	: 164	: 79	: 28.800
35.91	: 2939	: 4.58	: 851	: 0.58	: -----	: " "	: -----	: 161	: 79	: 28.800

TEST H RATED LOAD. TEN HOURS. Second GEAR.

33.15 : 5071 : 2.46 : 850 : 1.09 : 2.880 : 11.51 : 0.611 : 0.000 : 159 : 75 : 28.800

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLNCopy of Report of Official Tractor Test No. 243BRIEF 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. 850
 Port Diam. Valves: Inlet 2 1/16" Exhaust 2 1/16"
 Belt pulley: Diam. 12" Face 8 1/2" R. P. M. 850
 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 1.7 Second 2.5
 Third 3.2 Fourth 4.6 Reverse 1.9
 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 The oil was drained
 once - at the end of
 Total oil to motor 3.480 gallons the test.
 Total drained from motor 3.471 gallons
 Total time motor was operated 26 hours.

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REPAIRS 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 44 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 & F) Drawbar 42.78 Belt 48.60

Sea level (calculated) maximum horsepower Drawbar 44.75 Belt 51.86
 (Based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 33.56 Belt 44.08
 (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. 243.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

E. B. Lewis

Board of Tractor Test Engineers