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January 1935

Test 241: Caterpillar Model 50 (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. 241

Dates of test: August 29 to September 16, 1935.
 Name and model of tractor: CATERPILLAR DIESEL FIFTY
 Manufacturer: Caterpillar Tractor Co., Peoria, Ill.
 Manufacturer's rating: 64 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- : :	: 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

71.81 : 1002 : 5.105 : 14.07 : 0.497 : 0.000 : 0.000 : 0.000 : 171 : 83 : 28.795

TEST D RATED LOAD, ONE HOUR

65.01 : 1000 : 4.668 : 13.93 : 0.502 : 0.000 : 0.000 : 0.000 : 170 : 87 : 28.800

TEST E *VARYING LOAD, TWO HOURS

65.10	: 1003	: 4.674	: 13.93	: 0.502	: --	: --	: --	: 170	: 87	: --
0.81	: 1087	: 1.695	: 0.48	: 14.630	: --	: --	: --	: 168	: 88	: --
34.30	: 1050	: 3.335	: 10.28	: 0.680	: --	: --	: --	: 162	: 89	: --
68.56	: 972	: 4.914	: 13.95	: 0.501	: --	: --	: --	: 171	: 87	: --
18.25	: 1068	: 2.502	: 7.29	: 0.958	: --	: --	: --	: 160	: 87	: --
50.53	: 1035	: 3.948	: 12.80	: 0.546	: --	: --	: --	: 164	: 87	: --
39.59	: 1035	: 3.537	: 11.19	: 0.625	: 0.000	: 0.000	: 0.000	: 166	: 87	: 28.800

*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 :	Speed :	Crank :	Slip :	Fuel Consumption :	Water :	Temp. :	: Barometer
: pull :	bar :	miles :	shaft :	on :	: H. P. :	Lbs. :	used :	: :
: pounds :	per :	hour :	speed :	drive :	Gal. :	hour :	per :	: Gal. :
:	:	:	R.P.M. :	wheels :	per :	per :	H.P. :	per :
:	:	:	:	% :	hour :	Gal. :	hour :	hour :
:	:	:	:	:	hour :	Gal. :	hour :	mod. :

TESTS F AND G MAXIMUM LOAD.

64.38	: 13490	: 1.79	: 1000	: 3.49	: -----	: Not Recorded	: -----	: 165	: 79	: 28.740
60.62	: 7976	: 2.85	: 1000	: 1.26	: -----	: " "	: -----	: 166	: 81	: 28.740
57.01	: 5380	: 3.97	: 1001	: 0.60	: -----	: " "	: -----	: 167	: 77	: 28.875
52.10	: 3576	: 5.46	: 997	: 0.54	: -----	: " "	: -----	: 164	: 74	: 28.850

TEST H RATED LOAD. TEN HOURS Second GEAR.

48.71 : 6401 : 2.85 : 1000 : 1.09 : 4.313 : 11.29 : 0.619 : 0.000 : 163 : 79 : 28.790

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BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 5E7522 Type 4 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. 13 3/8" Face 10" R. P. M. 885
 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. 5E7522 Drive enclosed gear
 Clutch: Own Type Single plato - dry Operated by hand
 Advertised speeds, miles per hour: First 1.8 Second 2.9
 Third 4.0 Fourth 5.5 Reverse 2.2
 Measured length of track 21.9113 foot Face 18"
 Lugs: Type Cleats intogral with shoes No. Per track 35
 Size 18" x 2 1/8"
 Seat Upholstered
 Total weight as tested (with operator) 20,790 pounds.

FUEL AND OIL:

Fuel: Diesclino Weight per gallon 6.99
 Oil: Toxaco S.A.E. No. 40 The oil was drained
 Total oil to motor 4.384 gallons once - at the end
 Total drained from motor 4.225 gallons of the test.
 Total time motor was operated 31 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 fuel pumps set to develop 64 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 60.62 Belt 71.81

Sea level (calculated) maximum horsepower Drawbar 64.38 Belt 76.26
 (Based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 48.29 Belt 64.82
 (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. 241.

Carlton L. Zink

 Engineer-in-charge

E. E. Drackott

C. W. Smith

E. B. Lewis

Board of Tractor Test Engineers