

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

January 1936

Test 271: Caterpillar Model 30 (Distillate)

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 271: Caterpillar Model 30 (Distillate)" (1936). *Nebraska Tractor Tests*. 874.

<https://digitalcommons.unl.edu/tractormuseumlit/874>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 271

Dates of test: October 13 to 24, 1936.

Name and model of tractor: CATERPILLAR THIRTY (Distillate).

Manufacturer: Caterpillar Tractor Company, Peoria, Illinois.

Manufacturer's rating: NOT RATED.

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. : : R.P.M. : : per	H. P. : : hrs. per : : gal. :	Lbs. per: : H.P. : : hour :	Cool- : : ing :	In : : fuel :	Total : : : :	Temp. : : Deg. F. : : Cool- : : ing : : med. :	: : Barometer : Inches of : Mercury
-------	----------------------	--	-------------------------------------	-----------------------------------	--------------------	------------------	---------------------	--	--

TEST B 100% MAXIMUM LOAD. TWO HOURS

36.37 : 1400 : 4.447 : 8.18 : 0.849 : 0.000 : 0.000 : 0.000 : 203 : 68 : 28.890

TEST C OPERATING MAXIMUM LOAD. ONE HOUR

34.13 : 1400 : 3.660 : 9.33 : 0.744 : 0.000 : 0.000 : 0.000 : 206 : 70 : 28.865

TEST D RATED LOAD. ONE HOUR

32.64 : 1401 : 3.621 : 9.01 : 0.770 : 0.000 : 0.000 : 0.000 : 206 : 70 : 28.865

TEST E *VARYING LOAD. TWO HOURS

32.70 : 1399 : 3.458 : 9.46 : 0.734 : -- : -- : -- : 206 : 70 : --

0.78 : 1539 : 1.781 : 0.44 : 15.846 : -- : -- : -- : 204 : 73 : --

17.35 : 1496 : 2.594 : 6.69 : 1.037 : -- : -- : -- : 205 : 69 : --

33.48 : 1398 : 3.597 : 9.31 : 0.746 : -- : -- : -- : 206 : 70 : --

8.79 : 1514 : 2.170 : 4.05 : 1.713 : -- : -- : -- : 205 : 71 : --

25.43 : 1464 : 3.069 : 8.29 : 0.838 : -- : -- : -- : 204 : 70 : --

19.76 : 1468 : 2.778 : 7.11 : 0.976 : 0.000 : 0.000 : 0.000 : 205 : 70 : 28.900

*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 : : per	Crank : : shaft : : speed : : R.P.M. :	Slip : : on : : drive : : wheels : : % :	Fuel Consumption : Gal. : : per	H. P. : : Lbs. : : per	Water: : used : : Gal. : : per	Temp. : : : : Cool- : : ing : : med. :	: : Barometer : Inches of : Mercury
-------	---------------------	-------------------------------	---	--	---------------------------------------	------------------------------	---	--	--

TEST F 100% MAXIMUM LOAD. Second GEAR

30.88 : 5032 : 2.30 : 1401 : 2.67 : -----Not Recorded----- : 202 : 59 : 28.505

TEST G OPERATING MAXIMUM LOAD

26.71 : 6120 : 1.64 : 1398 : 3.94 : -----Not Recorded----- : 202 : 47 : 28.765

26.15 : 4264 : 2.30 : 1398 : 2.48 : ----- " " ----- : 204 : 68 : 28.500

28.26 : 3642 : 2.91 : 1402 : 2.19 : ----- " " ----- : 201 : 55 : 28.525

24.77 : 2536 : 3.66 : 1401 : 1.40 : ----- " " ----- : 199 : 51 : 28.540

23.93 : 1680 : 5.34 : 1402 : 1.22 : ----- " " ----- : 201 : 49 : 28.590

TEST H RATED LOAD. TEN HOURS Second GEAR.

24.46 : 3968 : 2.31 : 1400 : 2.15 : 3.145 : 7.78 : 0.892 : 0.012 : 204 : 56 : 28.910

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 271

BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 6G427W Type 4 cylinder, vertical
 Head I Mounting Crankshaft lengthwise
 Bore and stroke: 4 1/4" x 5 1/2" Rated R.P.M. 1400
 Port Diam. Valves: Inlet 1 13/16" Exhaust 1 1/2"
 Belt pulley: Diam. 12" Face 8 1/2" R.P.M. 840
 Magneto Eisemann Model CM-4
 Carburetor Zenith Model K5A Size 1 1/4"
 Governor Own Type Centrifugal
 Air Cleaner: Donaldson Type Oil-washed wire-screen filter
 Lubrication Pressure

CHASSIS: Type Tracklayer Serial No. 6G427W Drive Enclosed gear
 Clutch Own Type Single-plate, dry Operated by Hand
 Advertised speeds, miles per hour: First 1.7 Second 2.4
 Third 3.0 Fourth 3.7 Fifth 5.4 Reverse 1.9
 Measured length of track 17.501 feet Face 13"
 Lugs: Type Cleats integral with shoes No. per track 31
 Size 2" high x 13" face
 Seat Upholstered
 Total weight as tested (with Operator) 9975 pounds.

FUEL AND OIL:

Fuel Distillate Weight per gallon 6.94 pounds.
 Oil S.A.E. Viscosity No. 30
 Total oil to motor 7.597 gallons
 Total drained from motor 8.183 gallons
 Total time motor was operated 72 hours

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 271

REPAIRS AND ADJUSTMENTS

The water pump packing nut was tightened one-third turn before the rated load drawbar test was run.

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 carburetor set for 100% maximum horsepower and these figures were used in determining the ratings as recommended by the A.S.A.E. and S.A.E. tractor rating codes. Tests C, D, E, G and H were made with an operating setting of the carburetor (selected by the manufacturer) of 93.8% of maximum horsepower.

Observed maximum horsepower (tests F & B) Drawbar 30.88 Belt 36.37

Sea level (calculated) maximum horsepower Drawbar 32.39 Belt 37.97
 (based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 24.29 Belt 32.27
 (as recommended by A.S.A.E. and S.A.E. codes)

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 271.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
 Board of Tractor Test Engineers