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January 1936

## Test 273: Caterpillar Model RD-4 (Diesel)

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT  
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 273

Dates of test: October 14 to 28, 1936.

Name and model of tractor: CATERPILLAR DIESEL RD-4

Manufacturer: Caterpillar Tractor Company, Peoria, Illinois.

Manufacturer's Rating: 35 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

39.82	: 1400	: 2.885	: 13.80	: 0.506	: 0.000	: 0.000	: 0.000	: 186	: 62	: 28.990
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TEST D RATED LOAD. ONE HOUR

35.61	: 1400	: 2.574	: 13.83	: 0.505	: 0.000	: 0.000	: 0.000	: 185	: 68	: 28.950
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TEST E \*VARYING LOAD. TWO HOURS

35.61	: 1398	: 2.584	: 13.78	: 0.507	: --	: --	: --	: 185	: 67	: --
0.77	: 1523	: 0.983	: 0.78	: 8.922	: --	: --	: --	: 169	: 67	: --
18.31	: 1439	: 1.721	: 10.64	: 0.657	: --	: --	: --	: 171	: 68	: --
37.29	: 1363	: 2.721	: 13.70	: 0.510	: --	: --	: --	: 186	: 69	: --
9.48	: 1486	: 1.330	: 7.13	: 0.981	: --	: --	: --	: 172	: 68	: --
27.08	: 1424	: 2.086	: 12.98	: 0.538	: --	: --	: --	: 176	: 68	: --
21.42	: 1439	: 1.904	: 11.25	: 0.621	: 0.000	: 0.000	: 0.000	: 176	: 68	: 28.860

\*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. :
: bar :	miles :	shaft : on :	: H. P. : Lbs. :	used :	: :Barometer
: pull :	per :	speed : drive:	Gal.:	hour :	:Gal. :Cool-: :Inches of
:pounds:	hour :	R.P.M.:	wheels: per :	per :	H.P. :per :ing :Air:Mercury
:	:	:	% :	hour: gal. :	hour :hour :med. : :

TESTS F AND G 100% MAXIMUM LOAD

33.43	: 7852	: 1.60	: 1398	: 6.17	: -----	: Not Recorded	: -----	: 172	: 45	: 29.005
35.36	: 5811	: 2.28	: 1400	: 3.27	: -----	: "	: "	: 173	: 40	: 29.075
35.06	: 4541	: 2.90	: 1400	: 2.44	: -----	: "	: "	: 174	: 45	: 29.005
33.71	: 3471	: 3.64	: 1402	: 1.90	: -----	: "	: "	: 170	: 42	: 28.985
31.76	: 2230	: 5.34	: 1402	: 1.11	: -----	: "	: "	: 168	: 42	: 29.000

TEST H RATED LOAD. TEN HOURS Second GEAR.

26.80	: 4374	: 2.30	: 1400	: 2.63	: 2.281	: 11.75	: 0.595	: 0.000	: 173	: 55	: 28.940
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BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 4G2233W Type 4 cylinder, vertical, diesel  
 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 1/2" Exhaust 1 1/2"  
 Belt pulley: Diam. 12" Face 8 1/2" R.P.M. 840  
 Fuel system Own  
 Governor Own Type Centrifugal  
 Air Cleaner: Donaldson Type Oil-washed wire-screen filter  
 Lubrication Pressure

CHASSIS: Type Tracklayer Serial No. 4G2233W 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 17.479 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) 10,100 pounds.

FUEL AND OIL:

Fuel Dieseline Weight per gallon 6.99 pounds.  
 Oil S.A.E. Viscosity No. 30  
 Total oil to motor 3.452 gallons  
 Total drained from motor 3.163 gallons  
 Total time motor was operated 57 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 develop 35 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 as B and F.

Observed maximum horsepower (tests F & B) Drawbar 35.36 Belt 39.82

Sea level (calculated) maximum horsepower Drawbar 35.68 Belt 41.17  
 (based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 26.76 Belt 34.99  
 (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. 273.

Carlton L. Zink  
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut  
 Board of Tractor Test Engineers