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Test 254: Caterpillar Model RD-7 (Diesel) 69 h. p. at 850 r. p. m.

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Corrected Copy of Report of Official Tractor Test No. 253

Dates of test: May 5 to 15, 1936.

Name and model of tractor: CATERPILLAR DIESEL RD-7. (61 H. P. - 850 R.P.M.)

Manufacturer: Caterpillar Tractor Company, Peoria, Illinois.

Manufacturer's rating: 61 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 & C 100% MAXIMUM LOAD. TWO HOURS

68.24 ; 851 ; 4.686 ; 14.56 : 0.479 : 0.000 : 0.000 : 0.000 : 171 : 67 : 28.820

TEST D RATED LOAD. ONE HOUR

61.22 : 850 : 4.122 : 14.85 : 0.470 : 0.000 : 0.000 : 0.000 : 172 : 77 : 28.830

TEST E *VARYING LOAD. TWO HOURS

61.35 : 850 : 4.117 : 14.87 : 0.468 : -- : -- : -- : 173 : 78 : --

0.81 : 925 : 1.539 : 0.53 : 13.259 : -- : -- : -- : 161 : 79 : --

32.06 : 896 : 2.798 : 11.46 : 0.609 : -- : -- : -- : 163 : 80 : --

62.29 : 829 : 5.239 : 11.89 : 0.587 : -- : -- : -- : 179 : 83 : --

16.75 : 905 : 2.128 : 7.87 : 0.887 : -- : -- : -- : 164 : 83 : --

46.84 : 879 : 3.438 : 13.62 : 0.512 : -- : -- : -- : 167 : 84 : --

36.68 : 880 : 3.210 : 11.43 : 0.611 : 0.000 : 0.000 : 0.000 : 168 : 81 : 28.815

*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 :	per :	speed :	drive:	Gal.:	hour :	per :	Gal. :	Cool-:	:Inches of	
:pounds:	hour :	R.P.M.:	wheels:	per :	per :	H.P.:	per :	per :	ing :	Air :	Mercury
:	:	:	% :	hour:	gal. :	hour :	hour :	hour :	med. :	:	:

TEST G OPERATING MAXIMUM LOAD.

60.32 : 14746 : 1.53 : 850 : 2.70 : -----Not Recorded----- : 168 : 66 : 29.070

59.89 : 9248 : 2.43 : 851 : 1.03 : ----- " " ----- : 166 : 63 : 29.110

55.99 : 6209 : 3.38 : 852 : 0.66 : ----- " " ----- : 169 : 67 : 29.105

51.68 : 4162 : 4.66 : 850 : 0.60 : ----- " " ----- : 170 : 68 : 29.100

TEST H RATED LOAD. TEN HOURS Second GEAR

46.48 : 7186 : 2.43 : 849 : 1.07 : 3.888 : 11.95 : 0.584 : 0.000 : 166 : 67 : 29.055

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BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 9G687 Type 4 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. 13 3/8" Face 12 1/2" R. P. M. 753
 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. 9G687 Drive Enclosed gear
 Clutch Own Type Single plate, dry Operated by Hand
 Advertised speeds, miles per hour: First 1.6 Second 2.4
 Third 3.4 Fourth 4.7 Reverse 1.9
 Measured length of track 21.9844 feet Face 18"
 Lugs: Type Cleats integral with shoes No. per track 35
 Size 18" x 2 1/4"
 Seat Upholstered
 Total weight as tested (with operator) 21020 pounds.

FUEL AND OIL:

Fuel Dieseline Weight per gallon 6.98 pounds.
 Oil S. A. E. No. 30
 Total oil to motor 4.465 gallons
 Total drained from motor 4.241 gallons
 Total time motor was operated 45 hours

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

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REPAIRS AND ADJUSTMENTS

The starting motor clutch was adjusted once during the test.

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 61 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 59.89 Belt 68.24

Sea Level (calculated) maximum horsepower Drawbar 61.75 Belt 71.31
 (Based on 60° F. and 29.92" Hg)

Highest permissible horsepower ratings Drawbar 46.31 Belt 60.61
 (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. 253.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
 Board of Tractor Test Engineers