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January 1936

Test 253: Caterpillar Model RD-7 (Diesel) 61 h.p. at 850 r.p.m.

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 254

Dates of test: May 16 to 20, 1936.

Name and model of tractor: CATERPILLAR DIESEL RD-7. (69 H. P. - 850 R. P. M.)

Manufacturer: Caterpillar Tractor Company, Peoria, Illinois.

Manufacturer's rating: 69 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 : : gallons per hour :	Temp. : : Deg. F. :	: Barometer
: speed : : R.P.M. :	: Gals. : : per : : hour :	: H.P. : : lbs. per : : H. P. : : hour :	: Cool- : : ing : : fuel : : Total : : med. :	: In : : fuel : : Total : : ing : : Air : : Mercury	: Inches of

TESTS B & C 100% MAXIMUM LOAD. TWO HOURS

77.47	: 850	: 5.287	: 14.65	: 0.474	: 0.000	: 0.000	: 0.000	: 189	: 81	: 28.830
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TEST D RATED LOAD. ONE HOUR

69.96	: 850	: 4.637	: 15.09	: 0.461	: 0.000	: 0.000	: 0.000	: 179	: 80	: 28.785
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TEST E *VARYING LOAD. TWO HOURS

70.05	: 849	: 4.614	: 15.18	: 0.458	: ---	: --	: ---	: 179	: 80	: --
1.17	: 933	: 1.563	: 0.75	: 9.282	: ---	: --	: ---	: 159	: 80	: --
36.40	: 898	: 2.935	: 12.49	: 0.560	: ---	: --	: ---	: 162	: 80	: --
74.38	: 836	: 5.076	: 14.65	: 0.474	: ---	: --	: ---	: 183	: 80	: --
19.16	: 910	: 2.219	: 8.63	: 0.805	: ---	: --	: ---	: 162	: 80	: --
52.87	: 877	: 3.647	: 14.50	: 0.479	: ---	: --	: ---	: 166	: 80	: --
42.34	: 874	: 3.342	: 12.67	: 0.549	: 0.000	: 0.000	: 0.000	: 168	: 80	: 28.790

*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 : : hour :	Crank : : shaft : : speed : : R.P.M. :	Slip : : on : : drive : : wheels : : % :	Fuel Consumption : : H.P. : : lbs. : : per : : per : : H.P. : : per : : hour : : gal. :	Water : : used : : Gals. : : per : : hour :	Temp. : : : : Cool- : : Air : : ing : : med. :	: Barometer	: Inches of	: Mercury
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TESTS F AND G MAXIMUM LOAD.

65.22	: 16098	: 1.52	: 850	: 3.75	: ----	: Not Recorded	: ----	: 180	: 86	: 28.700
65.73	: 10236	: 2.41	: 849	: 1.81	: ----	: " "	: ----	: 181	: 74	: 28.710
60.84	: 6792	: 3.36	: 849	: 0.97	: ----	: " "	: ----	: 194	: 93	: 28.685
56.62	: 4564	: 4.65	: 853	: 1.03	: ----	: " "	: ----	: 190	: 88	: 28.685

TEST H RATED LOAD. TEN HOURS Second GEAR.

52.34	: 8135	: 2.41	: 849	: 1.60	: 4.301	: 12.17	: 0.571	: 0.000	: 172	: 71	: 28.965
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Corrected Copy of Report of Official Tractor Test No. 254

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 diameter valves: Inlet 2 1/16" Exhaust 2 1/16"
 Belt pulley: Diameter 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 1/8"
 Seat Upholstered
 Total weight as tested (with operator) 21,020 pounds.

FUEL AND OIL:

Fuel Dieseline Weight per gallon, pounds 6.95
 Oil S.A.E. Viscosity No. 30
 Total oil to motor 4.518 gallons
 Total drained from motor 3.927 gallons
 Total time motor was operated 27 hours

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

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Copy of Report of Official Tractor Test No. 254.

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. Test B and F were made with fuel pumps set to develop 69 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 65.73	Belt 77.47
Sea Level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	Drawbar 69.41	Belt 82.04
Highest permissible horsepower ratings (as recommended by A.S.A.E. and S.A.E. codes)	Drawbar 52.06	Belt 69.73

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 254.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
 Board of Tractor Test Engineers