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January 1940

Test 361: Allis-Chalmers Model WD-10W (Wide Tread)

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. 361

Dates of test: October 15 to 25, 1940.

Name and model of tractor: ALLIS-CHALMERS HD-10W(Wide Tread)

Manufacturer: Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin.

Manufacturer's rating: NOT RATED.

BELT HORSEPOWER TESTS

H. P.	Crank shaft speed R.P.M.	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.		Cool- ing med.	Air	

TESTS B AND C - 100% MAXIMUM LOAD - TWO HOURS

98.47	1600	6.832	14.41	0.486	0.000	171	59	28.975
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*TEST D - ONE HOUR

86.45	1601	6.114	14.14	0.496	0.000	173	68	28.975
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

86.69	1603	6.090	14.23	0.492	--	176	75	--
1.70	1729	2.311	0.74	9.529	--	159	74	--
45.88	1690	4.262	10.76	0.651	--	174	74	--
96.67	1566	6.621	14.60	0.480	--	171	75	--
22.96	1686	3.163	7.26	0.966	--	166	73	--
66.63	1642	5.110	13.04	0.538	--	173	74	--
53.42	1653	4.593	11.63	0.603	0.000	170	74	28.815

DRAWBAR HORSEPOWER TESTS

H. P.	Draw bar pull pounds	Speed miles per hr.	Crank shaft speed R.P.M.	Slip on drive wheels %	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
					Gal. per hr.	H.P. per gal.	Lb. per H.P. hr.		Cool- ing med.	Air	

TESTS F AND G - 100% MAXIMUM LOAD

81.25	19002	1.60	1596	4.83	-----	Not Recorded	-----	172	84	28.800
82.19	15507	1.99	1599	3.68	-----	"	-----	174	75	28.805
80.47	11421	2.64	1600	2.13	-----	"	-----	168	66	28.865
78.24	7867	3.73	1600	1.88	-----	"	-----	166	65	28.870
75.78	6190	4.59	1599	1.21	-----	"	-----	165	62	28.815
66.69	4157	6.02	1600	1.01	-----	"	-----	166	66	28.820

*TEST H - TEN HOURS - Second - GEAR

65.55	12159	2.02	1601	2.13	5.640	11.62	0.603	0.000	168	72	28.935
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*Formerly called RATED LOAD; see REMARKS 4, page 3.

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FUEL, OIL, AND TIME

Fuel Commercial diesel fuel Weight per gallon 7.01 pounds

Oil: S.A.E. No. 20 To motor 3.608 gal. Drained from motor 2.845 gal.

Total time motor was operated 63 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.69 Second 2.06

Third 2.68 Fourth 3.78 Fifth 4.62 Sixth 6.03

Reverse 1.86 - 4.17

Belt pulley: Diam. 13-3/8" Face 10" R.P.M. 929 - 413

Belt speed 3250 - 1445 f.p.m.

Clutch: Make Rockford Type Single plate Operated by hand

Seat Upholstered

Total weight as tested (with operator) 21,630 pounds

MOTOR
Make General Motors Serial No. 471877 Type 4 cylinder, vertical,
2 cycle, diesel

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 4-1/4" x 5" Rated R.P.M. 1600

Port diameter valves: Inlet Multiple ports Exhaust 1-1/4"

Fuel Injection System: Make General Motors

Governor: Make Handy Type Variable speed, centrifugal
Oil-washed, crimped wire,

Air Cleaners: No. 2 Make United Type filter with United pre-cleaner
Combination full flow Purolator metal element and

Oil Filter: partial flow AC renewable absorption type element
Bishop and Babcock thermostat

Cooling medium temperature control: and Pines radiator shutters

CHASSIS

Type Tracklayer Serial No. HD10W-201 Drive Enclosed gear

Tread width: 74" Measured length of track 21.0027'

Cleats: Type Integral with shoes No. per track 32

Size 2-10/32" high x 20" long

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

1. 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 as set and sealed by the manufacturer and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, and H were made with the same setting.

	<u>DRAWBAR</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	82.19	98.47
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	86.63	101.62
4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings)	64.97	86.38

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 361.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers