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January 1939

Test 337: Allis-Chalmers Model WS

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 337

Dates of test: November 18 to 24, 1939.

Name and model of tractor: ALLIS-CHALMERS "WS"

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

Manufacturer's rating: NOT RATED.

B E L T H O R S E P O W E R T E S T S

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

84.34	1050	8.210	10.27	0.587	0.000	136	47	29.040
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*TEST D - ONE HOUR

72.92	1049	7.028	10.38	0.581	0.000	167	74	29.130
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

72.73	1048	7.030	10.35	0.583	--	169	78	--
1.82	1158	2.950	0.62	9.775	--	135	74	--
38.93	1119	4.940	7.88	0.765	--	155	77	--
80.49	1011	7.537	10.68	0.565	--	138	49	--
19.93	1138	3.950	5.05	1.195	--	150	76	--
55.96	1076	5.950	9.41	0.641	--	164	79	--
44.98	1092	5.393	8.34	0.723	0.000	152	72	29.135

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 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

68.72	17843	1.44	1054	5.00	-----	Not Recorded	-----	142	55	29.070
68.86	11367	2.27	1049	2.67	-----	"	"	143	52	29.030
67.44	7900	3.20	1050	2.08	-----	"	"	133	48	28.990
62.20	5152	4.53	1049	1.03	-----	"	"	146	57	28.960
55.14	3245	6.37	1052	0.71	-----	"	"	148	56	29.005

*TEST H - TEN HOURS - Second - GEAR

53.80	8828	2.29	1050	2.10	6.677	8.06	0.748	0.043	165	46	28.965
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*Formerly called RATED LOAD; see REMARKS 4, page 3.

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FUEL, OIL, AND TIME

Fuel Gasoline Octane 71 Weight per gallon 6.03 pounds
Oil: S.A.E. No. 30 To motor 5.866 gal. Drained from motor 4.856 gal.

Total time motor was operated 36 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.52 Second 2.32

Third 3.25 Fourth 4.55 Fifth 6.37 Reverse 1.76

Belt pulley: Diam. 13 3/8" Face 10" R.P.M. 770 Belt Speed 2700 f.p.m.

Clutch: Make Rockford Type Single plate Operated by hand

Seat Upholstered

Total weight as tested (with operator) 20330 pounds

MOTOR

Make Own Serial No. 269 G Type 4 cylinder, vertical

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 5 3/4" x 6 1/2" Rated R.P.M. 1050

Port diameter valves: Inlet 2.08" Exhaust 1.90"

Ignition: Type 12 volt Battery Make Delco-Remy Distributor Model 1111510 9F5

Generator: Make Auto-Lite Model GAE 4045

Starter: Make Auto-Lite Model ML 4185

Carburetor: Make Zenith Model 62A-12 Size 1 1/2"

Governor: Make Pierce Type Variable-speed, centrifugal

Air Cleaner: Make United Type Oil-washed steel wool filter with United
pre-cleaner

Oil Filter: Make Purolator Type Double unit, partial flow, metal element

Cooling medium temperature control: Bishop and Babcock thermostat with hand
operated by-pass

CHASSIS

Type Tracklayer Serial No. WS901 Drive Enclosed gear

Tread width 74" Measured length of track 21.0403'

Cleats: Type Integral with shoes No. per track 32

Size 2 1/2" high x 18" 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 carburetor set for 100% maximum belt horsepower 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 an operating setting of the carburetor (selected by the manufacturer) of 100% of maximum belt horsepower.

	<u>DRAWBAR</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	68.86	84.34
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	70.44	85.77
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)	52.83	72.90

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 337.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers