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January 1937

Test 286: Allis-Chalmers Model S-0

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. 286

Dates of test: September 16 to 25, 1937.

Name and model of tractor: ALLIS-CHALMERS S-O

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

Manufacturer's rating: NOT RATED.

B R A K E 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 Consumption per hour gallons			Temp. Deg. F.		Barometer Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.	Cool- ing	In Fuel	Total	Cool- ing med.	Air	
TESTS B AND C - MAXIMUM LOAD - TWO HOURS										
74.82	1051	6.050	12.37	0.564	0.000	0.000	0.000	136	61	28.840
*TEST D - ONE HOUR										
66.64	1050	5.712	11.67	0.598	0.000	0.000	0.000	134	60	28.900
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)										
67.08	1049	5.738	11.69	0.597	--	--	--	132	60	--
0.56	1136	2.115	0.26	26.357	--	--	--	156	58	--
34.28	1085	3.898	8.79	0.794	--	--	--	158	57	--
72.90	1009	5.802	12.56	0.556	--	--	--	136	60	--
17.58	1109	2.987	5.89	1.186	--	--	--	157	61	--
50.91	1070	4.775	10.66	0.655	--	--	--	135	63	--
40.55	1076	4.219	9.61	0.726	0.000	0.000	0.000	145	60	28.900

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. hr. gal.	Lb. per H.P. hr.		Cool- ing med.	Air	
TESTS F AND G - MAXIMUM LOAD											
62.97	16732	1.41	1049	6.33	-----	Not Recorded	-----	137	62	29.260	
62.39	10218	2.29	1050	1.42	-----	" "	-----	131	58	29.280	
59.02	6829	3.24	1050	0.42	-----	" "	-----	167	84	28.680	
50.20	4136	4.55	1050	0.11	-----	" "	-----	170	86	28.740	
39.94	2343	6.39	1052	0.00	-----	" "	-----	171	86	28.710	

*TEST H - TEN HOURS - Second GEAR

47.78	7786	2.30	1050	0.97	5.117	9.34	0.747	0.000	137	66	28.930
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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 6.98 pounds
Oil: S.A.E. No. 30 To motor 4.583 gal. Drained from motor 3.857 gal.
Total time motor was operated 44 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.51 Second 2.32 Third 3.25
Fourth 4.55 Fifth 6.37 Reverse 1.76

Belt pulley: Diameter 13 3/8" Face 10" R.P.M. 770

Clutch: Make Rockford Type Single-plate, dry Operated by hand

Seat Upholstered

Total weight as tested (with operator) 20100 pounds
4 cylinder, vertical fuel
MOTOR: Make Own Serial No. SO 10263 Type injection, spark ignition

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 2.25" Exhaust 2"

Fuel system: Make Deco Model PB - 100 - 5

Ignition system: Make Mallory Model MO 4 Type 178

Governor: Make Pierce Type Variable-speed, centrifugal

Air cleaner: Make United Type Oil-washed, steel-wool filter

CHASSIS: Type Tracklayer Serial No. SO 218 Drive Enclosed gear

Tread width 74" Measured length of track 20.945'

Cleats: Type Integral with shoes No. per track 32

Size 2 1/2" high x 18" long

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REPAIRS AND ADJUSTMENTS

On the completion of the belt test, the water pump gland nut was tightened one-third turn.

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 set to develop 10200 pounds observed maximum drawbar pull in second gear (selected 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.
2. Observed maximum horsepower (tests F & B) Drawbar 62.39 Belt 74.82
3. Sea level (calculated) maximum horsepower Drawbar 63.64 Belt 77.66 (based on 60° F. and 29.92" Hg.)
4. Seventy-five per cent of calculated maximum Drawbar 47.73 Belt 66.01 drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings)

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 286.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

Ivan D. Wood

L. W. Hurlbut
Board of Tractor Test Engineers