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Tractor Test and Power Museum, The Lester F. Larsen

January 1934

Test 223: Allis-Chalmers Model WC

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. 223

Dates of test: May 2 to 16, 1934.

Name and model of tractor: ALLIS-CHALMERS MODEL "WC"

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

Manufacturer's rating: NOT RATED.

Highest rating permissible under the recommendations of the A.S.A.E. and

S.A.E. Tractor Rating Codes: *Drawbar - 12.14 H.P. Belt - 20.77 H.P.

One carburetor setting (92.5% of maximum) was used thruout this test.

*Drawbar rating based on results of tests using steel wheels.

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. :	:
			:	per hour gallons :	Deg. F. :	:Barometer
	:speed : :R.P.M.:	Gals. : per	H. P. : hrs. per:	:lbs. per: H. P. :	Cool- : ing	In : fuel :
		hour	gal.	hour	:	Total : ing
					:med. :	Air : Mercury

OPERATING MAXIMUM LOAD TEST. ONE HOUR

21.48 : 1300 : 2.119 : 10.14 : 0.686 : 0.000 : 0.000 : 0.000 : 166 : 75 : 28.675

RATED LOAD TEST. ONE HOUR

20.91 : 1301 : 2.056 : 10.17 : 0.683 : 0.000 : 0.000 : 0.000 : 185 : 76 : 28.660

**VARYING LOAD TEST. TWO HOURS

20.91	: 1302	: 2.063	: 10.14	: 0.686	: --	: --	: --	: 186	: 77	: --
0.67	: 1477	: 0.954	: 0.70	: 9.896	: --	: --	: --	: 206	: 78	: --
11.37	: 1409	: 1.565	: 7.27	: 0.955	: --	: --	: --	: 187	: 76	: --
21.41	: 1261	: 2.063	: 10.38	: 0.670	: --	: --	: --	: 179	: 77	: --
5.98	: 1444	: 1.269	: 4.71	: 1.475	: --	: --	: --	: 185	: 76	: --
16.74	: 1380	: 1.839	: 9.09	: 0.765	: --	: --	: --	: 190	: 76	: --
12.84	: 1379	: 1.625	: 7.90	: 0.880	: 0.000	: 0.000	: 0.000	: 189	: 76	: 28.630

**20 minute runs. Last line is average for two hours.

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D R A W B A R H O R S E P O W E R T E S T S

STEEL WHEELS

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

RATED LOAD TEST. TEN HOURS. SECOND GEAR

12.15	: 1201	: 3.79	: 1299	: 7.80	: 1.870	: 6.50	: 1.069	: 0.100	: 189	: 77	: 29.090
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FUEL ECONOMY TEST. FOUR HOURS. THIRD GEAR

10.65	: 783	: 5.10	: 1310	: 7.37	: 1.896	: 5.62	: 1.237	: 0.232	: 194	: 76	: 29.000
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OPERATING MAXIMUM LOAD TESTS

12.84	: 1921	: 2.51	: 1308	: 14.35	: -----	: Not Recorded	: -----	: 187	: 98	: 28.860
14.36	: 1430	: 3.77	: 1299	: 10.86	: -----	: " "	: -----	: 172	: 92	: 28.880
13.34	: 984	: 5.08	: 1293	: 8.96	: -----	: " "	: -----	: 188	: 96	: 28.860

RUBBER TIRES

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

FUEL ECONOMY TEST. FOUR HOURS. SECOND GEAR

12.08	: 1402	: 3.23	: 1312	: 12.20	: 1.660	: 7.28	: 0.955	: 0.000	: 184	: 82	: 28.850
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FUEL ECONOMY TEST. FOUR HOURS. THIRD GEAR

15.15	: 1276	: 4.45	: 1310	: 8.73	: 1.853	: 8.18	: 0.850	: 0.053	: 193	: 78	: 28.970
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OPERATING MAXIMUM LOAD TESTS

9.94	: 1680	: 2.22	: 1301	: 11.58	: -----	: Not Recorded	: -----	: 182	: 87	: 28.430
14.19	: 1735	: 3.07	: 1301	: 15.92	: -----	: " "	: -----	: 190	: 84	: 28.475
17.59	: 1580	: 4.18	: 1300	: 13.76	: -----	: " "	: -----	: 189	: 76	: 28.935
19.17	: 796	: 9.03	: 1300	: 2.61	: -----	: " "	: -----	: 188	: 76	: 28.950

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BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. W 110 Type 4 Cylinder, Vertical
Head I Mounting Lengthwise
Bore and stroke: 4" x 4" Rated R.P.M. 1300
Port Diam. Valves: Inlet 1 1/2" Exhaust 1 5/16"
Belt pulley: Diam. 9" Face 6 1/2" R.P.M. 1170
Magneto: Scintilla-Bendix Model C-4
Carburetor: Zenith Model 124 1/2 TO Size 1"
Governor: Kingston No. None Type Centrifugal
Air Cleaner: United Type Oil bath
Lubrication: Pressure

CHASSIS: Type 4 wheels, 2 drivers Serial No. WC 109 Drive Enclosed gear
Clutch: Rockford Type Dry plate operated by foot
Advertised speeds, miles per hour: First 2 1/2 Second 3 1/2
Third 4 3/4 Fourth* 9 1/4 Reverse 2

Steel: Drive wheels: Diameter 40" Face 6"
Lugs: Type Spade No. per wheel 10 Size 5" high by 2" face
Extension rims: Width 5" Lugs per rim 10 Size 5" high by 2" face

Rubber: Drive wheel tires 11.25" x 24" Air Pressure 16 pounds
Front wheel tires 5.25" x 17" Air Pressure 18 pounds
Weights per drive wheel 3 Average total weight 402 pounds
Seat: Pressed steel

Total weight as tested (with operator) Steel 3190 pounds
Rubber 3792 pounds

FUEL AND OIL:

Fuel: Distillate Weight per gallon 6.95 pounds
Oil: S.A.E. Viscosity No. 40
Total oil to motor 2.795 gallons
Total drained from motor 2.897 gallons
Total time motor was operated 63 hours
*Not recommended for steel wheels.

After approximately each 10 hours of operation, the oil was drained to the bayonet gauge mark and one quart of new oil added. At the end of the test all of the oil was drained from the crankcase.

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

The tests herein reported were conducted with one carburetor setting which remained unchanged throughout the tests. This condition should be recognized when comparing this test with any Nebraska test conducted prior to 1928.

The drawbar tests were run with wheel equipment as listed on page 3 of this report.

In the advertising literature submitted with the specifications and application for test of this tractor we find no claims and statements which, in our opinion, are unreasonable or excessive.

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 223.

Carlton L. Zink
Engineer-in-Charge

E. E. Brackett

C. W. Smith

E. B. Lewis
Board of Tractor Test Engineers