

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

January 1921

Test 083: Allis Chalmers 18-30

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 083: Allis Chalmers 18-30" (1921). *Nebraska Tractor Tests*. 702.
<https://digitalcommons.unl.edu/tractormuseumlit/702>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

UNIVERSITY OF NEBRASKA AGRICULTURAL ENGINEERING DEPARTMENT

LINCOLN

Copy of Report of Official Tractor Test No. 83.

Dates of test: Sept. 15 to Sept. 24, 1921.

Name, model and rating of tractor; Allis-Chalmers 18-30. Gasoline Rating 22-38.

Serial No. Engine; 30450 Serial No. Chassis 5929.

Manufacturer; Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Tractor equipment used: Eisemann G-4 Magneto; Kingston Model L Carburetor.

Style and dimensions of wheel lugs: Spade $2\frac{1}{2}$ " x $2\frac{1}{2}$ " at base, 3" high.

BRAKE HORSE POWER TESTS

H.P.	Crank	Time	Fuel Consumption			Water Consump.		Temp. in		Air	Average Humidity %	Height of Barometer Inches
			Kind	Gals.	H. P.	Gals. Per Hour	In	deg. F.	deg. F.			
Dev.	Shaft	of	of	@	Hrs. @	Cool- In	Total	* Cool-	ing	ing	Fluid	
Speed	Test	of				Fuel						
R.P.M.	Min.	Fuel	Hour	Gal.								

RATED LOAD TEST

38.62	942	: 120	: Gaso.	: 3.937	: 9.81	: 0.25	: 0.91	: 1.16	: 169	: 87	: 53	: 28.64
Belt slippage 1.08%												

VARYING LOAD TEST

38.79	946.5	: 10	: Gaso.	:	:	:	:	:	:	:	:	:
38.99	937.0	: 10	: "	:	:	:	:	:	:	:	:	:
2.03	1080.5	: 10	: "	:	:	:	:	:	:	:	:	:
10.99	1068.5	: 10	: "	Average belt slippage 0.74%			:	:	:	:	:	:
21.64	1056.5	: 10	:	:	:	:	:	:	:	:	:	:
31.90	1041.0	: 10	:	:	:	:	:	:	:	:	:	:
Aver. 24.92	1022.0	:	:	: 3.086	: 8.08	: 0.00	: 0.33	: 0.33	: 158	: 80	: 53	: 28.64

MAXIMUM LOAD TEST

43.73	937.	: 60	: Gaso.	: 4.716	: 9.27	: 0.00	: 0.97	: 0.97	: 173	: 77	: 45	: 28.67
Belt slippage 1.03%												

HALF LOAD TEST

21.39	1044.5	: 60	: Gaso.	: 2.940	: 7.28	: 0.00	: 0.16	: 0.16	: 173	: 73	: 45	: 28.67
Belt slippage 0.73%												

*Taken in discharge line from engine

Remarks: The gasoline used for fuel weighed 6.17 pounds per gallon.

Water to fuel mixture was supplied via air washer.

Radiator was 1/3 covered during half load test.

1024-W

Copy of Report of Official Tractor Test No. 83

Drawbar Horse Power Tests

H.P.	Draw	Speed	Crank	Slip	Fuel Consumption	Water	Temp. Deg. F.						
Dev.	Bar	Miles	Shaft	on	Amt. H.P.	Used	*					Average	Height
	Pull	Per	Speed	Drive	Kind	Per	Hrs.	Per	Cooling	Air		of	
	Lbs.	Hour	R.P. M.	Wheels	Used	Hour	Per.	hour	Fluid			Humidity	Barometer
				%	Gal.	Gal.	Gal.					in	inches

Rated Load Test, Ten Hours

23.72	2730	3.20	951	** 0.15	10.8	Gasol.	4.00	5.92	0.27	167	79	40	28.65
-------	------	------	-----	---------	------	--------	------	------	------	-----	----	----	-------

Maximum Load Test

25.45	3075	3.10	947	** 1.11	11.70	Gasol.	---	Not Recorded	---	170	80	50	28.60
23.62	3510	2.52	1065	** 15.8	24.8	Gasol.	---	"	"	170	81	53	28.66

*Taken in discharge line from engine.

**At surface of wheel rim.

***At points of lugs.

Remarks: The rated load test and first maximum load test were run in high gear. The second maximum test was run in low gear.

Oil Consumption: During the complete test consisting of about 41 hours running the following oil was used:
For the engine, 8 gallons of Veedol Special Heavy.
For the transmission, 1 gallon of Mobile C.

Copy of Report of Official Tractor Test No. 83

A. Repairs & Adjustments

During limber-up run carburetor float came loose from float arm. After limber-up run and before any official data were taken one clutch link was found broken; a new one was made to replace it.

During preliminary belt tests it was found that holes in carburetor flange were not properly placed causing misalignment of carburetor and manifold; new carburetor of same make and size was substituted. Preliminary runs showed excessive consumption of water from air washer causing irregular running at certain water levels. Volume of air space in washer was increased about 286 cubic inches by means of a spacer, and one additional baffle plate was also installed. Water compartment of fuel tank was connected to air washer so that level of water in washer could be kept constant during tests. These changes made standard for Nebraska.

At the end of the test the tractor was apparently in good condition and there were no evidences of undue wear nor weakness that might require early repairs.

Brief Specifications:- Allis-Chalmers 18-30 (Gasoline).

Rating: Draw bar 22, Belt 38.

Fuel: Gasoline.

Motor: Own, 4 cylinder, vertical, valve-in-head; bore $4\frac{3}{4}$ " , stroke $6\frac{1}{2}$ "; rated speed, 930 r.p.m.

Chassis: 4 wheel, two speed and reverse sliding gear transmission, expanding shoe clutch.

Rated Speeds: high, 3.16 miles per hour; low, 2.58 miles per hour.

Total Weight; 6,640 pounds.

General Remarks:-

In the advertising literature and specifications submitted with the application for the test of this tractor, we find some statements and claims which cannot be directly compared with the results of the test as reported above. It is our opinion that none of these claims are excessive or unreasonable.

We, the undersigned, certify that above is a true and correct report of official tractor test No. 83.

E. E. Brackett
Engineer-in-Charge

Oscar W. Sjogren

C. W. Smith

1024-W

Fred R. Nohavec
Board of Tractor Test Engineers.