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January 1920

## Test 055: Allis-Chalmers 18-30

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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**UNIVERSITY OF NEBRASKA**  
**AGRICULTURAL ENGINEERING DEPARTMENT**  
**UNIVERSITY FARM, LINCOLN**

Report of Official Tractor Test No. 55

Dates of test August 23 to Sept. 6, 1920.

Name, model and rating of tractor Allis-Chalmers 18-30

Serial No. Engine 5729 Serial No. Chassis 5729

Manufacturer Allis-Chalmers Mfg. Co., Milwaukee, Wisconsin.

Tractor equipment used Dixie Model 46 Magneto; Kingston Dual Carburetor.

Style and dimensions of wheel lugs Spade 2 $\frac{3}{4}$ " high x 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ "

**Brake Horse Power Tests**

Horse Power Developed	Crank Shaft Speed R. P. M.	Length of Test Min.	Fuel Consumption			Water Consumption Gallons per Hour			Temperature *Cooling Fluid Deg. F.	Temperature of Atmosphere Deg. F.	Humidity %	Barometric Pressure Inches Mercury
			Kind of Fuel	Amount Used per Hour Gallons	Horse Power Hours per Gallon	In Radiator	In Fuel Mixture	Total				
RATED LOAD TEST												
30.58	839	120	Kero	3.29	9.30	0.125	0.500	0.675	179	83	68	28.8
Belt Slippage 1.37%												
VARYING LOAD TEST												
30.86	846	10	Kero.									
30.45	834	10	"									
1.75	1000	10	"									
8.97	998	10	"									
18.24	989	10	"									
26.40	962	10	"									
20.30	938	60	Kero	2.46	8.25	0.00	0.00	0.00	166	84	63	28.8
MAXIMUM LOAD TEST												
33.41	842	60	Kero	4.61	7.24	0.00	1.00	1.00	164	88	55	28.8
Belt Slippage 1.33%												
HALF LOAD TEST												
17.87	973	60	Kero	2.31	7.75	0.00	0.00	0.00	156	84	60	28.8
Belt Slippage 1.26%												

\*Taken in discharge line from engine.

Remarks Kerosene used for fuel in this test weighed 6.72# per gallon.

Report of Official Tractor Test No. 55

### Drawbar Horse Power Tests

Horse Power Developed	Draw Bar Pull Pounds	Speed Miles per Hour	Crank Shaft Speed R. P. M.	** Slippage of Drive Wheels %	Fuel Consumption			Water Used per Hour Gallons	*Temperature of Cooling Fluid Deg. F.	Temperature of Atmosphere Deg. F.	Average Humidity %	Barometric Pressure Inches Mercury
					Ind of Fuel Used	Amount Used per Hour Gallons	Horse Power Hours per Gallon					
RATED LOAD TEST. TEN HOURS												
20.55	2704	2.85	879	12.7	Kero	3.47	5.93	0.05	182	72	69	29.0
MAXIMUM LOAD TEST (1st 130.2 ft; 2nd 128.2 ft.)												
19.33	2450	2.95	876	10.4	Kero	----Not Recorded----			198	68	56	28.7
20.19	3500	2.18	822	14.8	"	" "			180	68	56	28.7

\*Taken in discharge line from engine.

Remarks \*\* For computing slippage, the circumference of the drive wheels was taken at points of lugs.

In the rated and first maximum test the tractor was run in high gear; in the second maximum test the tractor was run in low gear.

### Oil Consumption:

During the complete test consisting of about 33 hours running the following oil was used:

For the engine, 7 gallons of Sinclair Extra Heavy.

For the transmission, None added. gallons of

Report of Official Tractor Test No. 55.

Repairs and Adjustments. Endurance:

After about 14 hours of running the fuel line and spark plugs were cleaned.

The clutch was tightened just before the rated drawbar test.

At the end of the test the tractor apparently in good condition and there was no indication of undue wear in any part.

The repairs and adjustments necessary during this test are of only minor importance and do not indicate any serious mechanical defect

Brief Specifications Allis-Chalmers 18-30 H.P. Tractor.

Engine: Own, 4-cylinder, vertical, valve-in-head, Bore  $4\frac{3}{4}$ " stroke  $6\frac{1}{2}$ ". Rated speed 830 r.p.m. Rated H.P. belt 30, drawbar 18.

Chassis: 4-wheel, own clutch, rated speeds: low 2.31, high 2.82 miles per hour.

Total weight 6000#

General Remarks:

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

We, the undersigned, certify that above is a true and correct report of official tractor test No. 55.

Fred R. Mohever.

Engineer-in-Charge

Oscar W. Jorgensen

E. E. Brackett

C. W. Smith

Board of Tractor Test Engineers.