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Nebraska Tractor Tests

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January 1921

## Test 082: Allis-Chalmers 12-20

Nebraska Tractor Test Lab

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

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## LINCOLN

Dates of test: Sept. 13 to Sept. 24, 1921.

Serial No. Engine: 10998      Serial No. Chassis 20134

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

Tractor equipment used: Kingston (L) Carburetor; Dixie (46 c) magneto, own governor.

## BRAKE HORSE POWER TESTS

H. P.		Crank: Time		Fuel Consumption		Water Consump.		Temp. in		Average Humidity %	Height of Barometer Inches
Dev.	Shaft	of	Kind	Gals.	H. P.	Gals. Per Hour	Per Hour	Deg. F.	Deg. F.		
	Speed:	Test	of	@	Hrs. @						
	R.P.M.	Min.	Fuel	Hour	Gal.						

27.28 : 1102 : 120 : Gaso. : 2.811 : 9.71 : 0.00 : .528 : .528 : 180 : 98 : 70 : 28.65  
Belt slippage 1.19 %

27.29	:1104 :	10	(Gas.	:	:	:	:	:	:	:	:
26.56	:1074 :	10	"	:	:	:	:	:	:	:	:
1.27	:1238 :	10	"	:	Belt Slippage	,92%	:	:	:	:	:
7.51	:1209 :	10	"	:	:	:	:	:	:	:	:
14.61	:1177 :	10	"	:	:	:	:	:	:	:	:
21.23	:1140 :	10	"	:	:	:	:	:	:	:	:
Over 16.95	:1158 :	:	:	:	2.136	:	7.94	:	.098	:	.21 : .308:175 : 99: 68 :28.65

33.18 : 1105 :	60 :	Gasol :	3,857 :	8.60 :	0.00 :	.345 :	.345 : 181 :	85 :	34 :	28.70
Belt Slippage 1.59 %										

14.64 : 1179 : 60 : Gaso. : 1.994 : 7.34 : 0.00 : .27 ; .27 : 173 : 99 : 56 : 28.60  
Belt Slippage 1.87 %

Remarks: The fuel used in these tests weighed 6.17 pounds per gallon.

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Drawbar Horse Power Tests

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

Rated Load Test. Ten Hours

15.13	1771	3.20	1094	***7.53	Gasol	2.601	5.82	0.23	168	91	45	28.65
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Maximum Load Test

21.42	2560	3.14	1114	***11.74	Gasol	---	Not Recorded---	150	75	45	28.75
20.40	3000	2.55	1297	***16.27	Gasol	---	Not Recorded---	150	75	45	28.75

\*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 load 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,  $6\frac{1}{2}$  gallons of Sinclair Aero.  
For the transmission, 1 gallon of Mobiloil C.

Copy of Report of Official Tractor Test No. 82.

Repairs & Adjustments:

During the limber-up run the gasoline feed pipe broke at tank connection. After rated, varying and half load brake tests and before maximum brake test:- carburetor was disassembled and cleaned; all valves were ground; magneto timing retarded, two new spark plugs installed and all spark plug points adjusted; cylinder blocks removed and top rings on pistons No. 1 and No. 2 found sticking in grooves due to too close fit.

During rated draw bar horse power test oil pipe broke at its connection on front of engine.

At the end of the test the tractor was apparently in good condition and there were no evidences of undue wear or weakness that might require early repairs.

Specifications: Allis-Chalmers 12-20.

Rating: Draw bar, 14 H. P.; Belt, 27 H. P.

Fuel: Gasoline.

Motor: Midwest, 4 cylinder, vertical, valve-in-head; bore, 4 1/8"; stroke, 5 1/4"; rated speed, 1100 r.p.m.

Chassis: 4 wheel, two speed and reverse sliding gear transmission. Expanding shoe clutch; rated speeds: high gear, 3.1 miles per hour; low gear, 2.3 miles per hour.

Total Weight: 4550 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 nor unreasonable.

We, the undersigned, certify that above is a true and correct report of official tractor test No. 82.

E. E. Brackett  
Engineer-in-Charge

Oscar W. Sjogren

C. W. Smith

Fred R. Nohavec  
Board of Tractor Test Engineers.