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January 1940

## Test 362: Allis-Chalmers Model HD-14

Nebraska Tractor Test Lab

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

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3 pages-page 1

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT  
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 362

Dates of test: October 15 to November 5, 1940.  
Name and model of tractor: ALLIS-CHALMERS HD-14  
Manufacturer: Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin.  
Manufacturer's rating: NOT RATED.

B E L T 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 used gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.		Cool- ing med.	Air	

TESTS B AND C - 100% MAXIMUM LOAD - TWO HOURS

145.39	1501	9.575	15.18	0.462	0.000	175	59	28.880
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\*TEST D - ONE HOUR

128.17	1498	8.441	15.18	0.462	0.000	178	58	28.850
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

128.49	1503	8.465	15.18	0.462	--	173	58	--
2.34	1688	2.927	0.80	8.769	--	164	60	--
69.84	1640	5.846	11.95	0.587	--	174	62	--
143.42	1485	9.394	15.27	0.459	--	178	62	--
33.46	1551	3.967	8.43	0.831	--	171	59	--
98.65	1550	6.852	14.40	0.487	--	185	59	--
79.37	1569	6.242	12.72	0.551	0.000	174	60	28.830

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. per gal.	Lb. per H.P. hr.		Cool- ing med.	Air	

TESTS F AND G - 100% MAXIMUM LOAD

122.09	28019	1.63	1499	5.64	-----	Not Recorded	-----	171	68	28.850
126.98	22699	2.10	1498	4.14	-----	" "	-----	167	62	28.810
125.15	17265	2.72	1501	2.27	-----	" "	-----	205	87	28.780
126.28	13769	3.44	1501	2.23	-----	" "	-----	195	88	28.800
115.27	10074	4.29	1497	1.92	-----	" "	-----	199	86	28.780
103.43	5579	6.95	1501	1.17	-----	" "	-----	192	82	28.790

\*TEST H - TEN HOURS - Second - GEAR

99.39	17568	2.12	1501	3.29	7.898	12.58	0.557	0.000	189	40	29.160
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\*Formerly called RATED LOAD; see REMARKS 4, page 3.

3 pages-page 2

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FUEL, OIL, AND TIME

Fuel Commercial diesel fuel Weight per gallon 7.01 pounds  
Oil: S.A.E. No. 20 To motor 4.827 gal. Drained from motor 4.204 gal.  
Total time motor was operated 62 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.72 Second 2.18  
Third 2.76 Fourth 3.50 Fifth 4.36 Sixth 7.00  
Reverse 2.00 - 3.20

Belt pulley: Diam. 20" Face 15" R.P.M. 650 - 405

Belt speed 3410 - 2121 f.p.m.

Clutch: Make Rockford Type Single plate Operated by hand

Seat Upholstered

Total weight as tested (with operator) 28,750 pounds

MOTOR

Make General Motors Serial No. 6711079 Type 6 cylinder, vertical  
2 cycle, diesel

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 4-1/4" x 5" Rated R.P.M. 1500

Port diameter valves: Inlet Multiple ports Exhaust 1-1/4"

Fuel Injection System: Make General Motors

Governor: Make Handy Type Variable speed, centrifugal

Air Cleaners: No. 2 Make United Type Oil-washed, crimped wire  
filter with United pre-cleaner

Oil Filter: Combination full flow Purolator metal element and  
partial flow AC renewable absorption type element

Cooling medium temperature control: Bishop and Babcock thermostat  
and Pines radiator shutters

CHASSIS

Type Tracklayer Serial No. HD14-265 Drive Enclosed gear

Tread width: 68" Measured length of track 22.9969'

Cleats: Type Integral with shoes No. per track 35

Size 2-5/8" high x 22" long

3 pages-page 3

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

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 as set and sealed 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.

	<u>DRAWBAR</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	126.98	145.39
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	132.19	150.48
4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings)	99.14	127.91

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 362.

Carlton L. Zink  
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut  
Board of Tractor Test Engineers