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January 1940

Test 360: Allis-Chalmers Model HD-7W (Wide Tread)

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA * AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 360

Dates of test: October 15 to 21, 1940.

Name and model of tractor: ALLIS-CHALMERS HD-7W (Wide Tread)

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

Manufacturer's rating: NOT RATED.

BELT HORSEPOWER TESTS

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

68.68	1499	4.835	14.20	0.493	0.000	164	66	29.065
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*TEST D - ONE HOUR

60.52	1499	4.330	13.98	0.501	0.000	185	56	29.145
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TEST E - VARYING LOAD * TWO HOURS (20 minute runs; last line average)

60.36	1500	4.331	13.94	0.503	--	187	59	--
1.81	1612	1.464	1.24	5.669	--	180	61	--
32.36	1581	2.850	11.35	0.617	--	191	61	--
66.39	1484	4.729	14.04	0.499	--	175	63	--
15.88	1556	2.136	7.43	0.943	--	171	60	--
46.52	1523	3.492	13.32	0.526	--	183	60	--
37.22	1542	3.167	11.75	0.596	0.000	178	61	29.180

DRAWBAR HORSEPOWER TESTS

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

TESTS F AND G - 100% MAXIMUM LOAD

57.31	12171	1.77	1502	4.43	-----	Not Recorded	-----	178	80	28.825
57.29	8570	2.51	1499	1.86	-----	" "	-----	176	75	28.925
55.56	6167	3.38	1499	2.36	-----	" "	-----	170	65	29.250
51.19	3311	5.80	1501	0.81	-----	" "	-----	170	70	29.215

*TEST H - TEN HOURS - Second - GEAR

45.45	6753	2.52	1500	1.24	4.015	11.32	0.619	0.000	170	71	28.850
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*Formerly called RATED LOAD; see REMARKS 4, page 3.

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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 3.168 gal. Drained from motor 2.777 gal.

Total time motor was operated 49 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.84 Second 2.55

Third 3.45 Fourth 5.82 Reverse 2.19

Belt pulley: Diam. 12" Face 8-3/4" R.P.M. 1031 Belt speed 3240 f.p.m.

Clutch: Make Atwood Type Single plate Operated by hand

Seat Upholstered

Total weight as tested (with operator) 14,175 Pounds

MOTOR

Make General Motors Serial No. 3711064 Type 3 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
Oil-washed, crimped wire filter

Air Cleaner: Make United Type 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. HD7W-176 Drive Enclosed gear

Tread width: 63" Measured length of track 18.4973'

Cleats: Type Integral with shoes No. per track 34

Size 2" high x 18" long

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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)	57.29	68.68
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	60.10	71.08
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)	45.08	60.42

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 360.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers