January 1938

Test 302: Allis-Chalmers Model B

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. 302

Dates of test: May 31 to June 8, 1938.
Name and model of tractor: ALLIS-CHALMERS B
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.		Cooling med.	Air	
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
15.68	1400	1.540	10.18	0.677	0.000	146	62	28.825
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
15.14	1400	1.360	11.13	0.619	0.000	155	63	28.890
*TEST D - ONE HOUR								
14.00	1400	1.257	11.14	0.619	0.000	169	61	28.875
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
14.00	1398	1.258	11.13	0.619	--	169	61	--
0.69	1608	0.601	1.15	6.000	--	169	60	--
7.68	1541	0.927	8.28	0.832	--	180	60	--
13.91	1291	1.245	11.17	0.617	--	183	61	--
3.77	1511	0.723	5.21	1.321	--	184	62	--
10.96	1469	1.067	10.27	0.671	--	183	62	--
8.50	1470	0.970	8.76	0.786	0.000	178	61	28.875

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. hr. per gal.	Lb. per H.P. hr.		Cooling med.	Air	
TEST F - 100% MAXIMUM LOAD - Second GEAR											
12.97	1473	3.30	1397	15.23	---- Not Recorded ----				172	71	28.965
TEST G - OPERATING MAXIMUM LOAD											
7.76	1406	2.07	1405	16.30	---- Not Recorded ----				161	74	28.920
12.68	1382	3.44	1401	11.91	---- " " ----				169	69	28.965
13.17	684	7.22	1400	4.51	---- " " ----				160	74	28.965
*TEST H - TEN HOURS - Second GEAR											
10.31	1074	3.60	1402	7.92	1.089	9.47	0.728	0.000	172	72	28.850

*Formerly called RATED LOAD; see REMARKS 4, page 3.

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FUEL, OIL, AND TIME

Fuel Distillate Octane 35 Weight per gallon 6.89 pounds

Oil: S.A.E. No. 30 To motor 1.554 gal. Drained from motor 1.685 gal.

Total time motor was operated 42 hours.

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 2.50 Second 4.00
Third 7.75 Reverse 2.00

Belt pulley: Diameter 8" Face 5 1/2" R.P.M. 1050

Clutch: Make Rockford Type Single-plate, dry Operated by foot pedal

Seat Upholstered

Total weight as tested (with operator) 2620 pounds

MOTOR: Make own Serial No. BE3483 Type 4 cylinder, vertical

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 3 1/4" x 3 1/2" Rated R.P.M. 1400

Port diameter valves: Inlet 1.265" Exhaust 1.140"

Magneto: Make Fairbanks Morse Model F.M. 4B

Carburetor: Make Zenith Model 61A7 Size 7/8"

Governor: Make Handy Type Variable-speed, centrifugal

Air cleaner: Make Donaldson Type Oil-washed, wire-screen filter

CHASSIS: Type Standard Serial No. B3712 Drive Enclosed gear

Tread width: Rear 40" to 52" Front 45"

Rear tires: No. 2 Size 7.00" x 24" - 4 ply Air pressure 12 pounds

Front tires: No. 2 Size 5.00" x 15" - 4 ply Air pressure 22 pounds

Added weight: Per rear wheel (Cast Iron 142 pounds
(Calcium Chloride Solution 136 pounds

Per front wheel (Cast Iron none pounds
(Calcium Chloride Solution 22 pounds

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REPAIRS AND ADJUSTMENTS

During the period between the 100% maximum belt test and the operating maximum belt test when no official readings were being taken, the fuel line from the auxiliary gasoline tank to the carburetor broke. This line was replaced with a new one.

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 carburetor set for 100% maximum belt horsepower 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 an operating setting of the carburetor (selected by the manufacturer) of 96.6% of maximum belt horsepower.

2. Observed maximum horsepower (tests B & F) — Drawbar 12.97 Belt 15.68

3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.) — Drawbar 13.54 Belt 16.31

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). — Drawbar 10.16 Belt 13.86

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 302.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

Ivan D. Wood

L. W. Hurlbut
Board of Tractor Test Engineers