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January 1940

Test 351: Oliver Row-Crop 70 HC

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 351

Dates of test: August 23 to 29, 1940.

Name and model of tractor: OLIVER ROW CROP 70 HC

Manufacturer: Oliver Farm Equipment Company, Charles City, Iowa.

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	
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
31.52	1500	2.954	10.67	0.580	0.000	171	78	28.740
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
30.37	1499	2.693	11.28	0.549	0.000	180	79	28.745
*TEST D - ONE HOUR								
28.46	1500	2.532	11.24	0.551	0.000	193	81	28.730
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
28.42	1497	2.530	11.23	0.551	--	193	81	--
1.21	1667	1.178	1.03	6.025	--	195	80	--
14.69	1540	1.793	8.19	0.756	--	197	80	--
29.65	1467	2.598	11.41	0.542	--	179	80	--
7.53	1576	1.352	5.57	1.112	--	201	80	--
21.83	1527	2.118	10.31	0.601	--	196	81	--
17.22	1546	1.926	8.93	0.693	0.000	193	80	28.730

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	
TEST F - 100% MAXIMUM LOAD - Third - GEAR											
28.63	2528	4.25	1502	5.82	---- Not Recorded			----	176	72	28.700
TEST G - OPERATING MAXIMUM LOAD											
24.79	4170	2.23	1499	12.23	---- Not Recorded			----	177	67	28.705
26.14	3040	3.23	1501	7.17	---- " "			----	177	72	28.685
27.01	2376	4.26	1499	5.30	---- " "			----	176	69	28.715
27.43	1737	5.92	1499	3.66	---- " "			----	178	71	28.715
25.82	1324	7.31	1500	2.67	---- " "			----	176	75	28.690
*TEST H - TEN HOURS - Third - GEAR											
22.72	1986	4.29	1500	4.76	2.317	9.81	0.631	0.000	194	79	28.690

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

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FUEL, OIL, AND TIME

Fuel Gasoline Octane 73 Weight per gallon 6.19 pounds

Oil: S.A.E. No. 30 To motor 1.216 gal. Drained from motor 1.145 gal.

Total time motor was operated 49 hours

BRIEF SPECIFICATIONS

Advertised speeds miles per hour: First 2.56 Second 3.47

Third 4.55 Fourth 6.17 Fifth 7.61 Sixth 13.44 Reverse 2.56

Belt pulley: Diam. 12-3/4" Face 7-1/4" R.P.M. 774 Belt Speed 2584 f.p.m.

Clutch: Make Borg and Beck Type Single plate Operated by foot

Seat Canvas hammock

Total weight as tested (with operator) 6770 pounds

MOTOR

Make Own Serial No. 42120 - G3 Type 6 cylinder, vertical

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 3-1/8" x 4-3/8" Rated R.P.M. 1500

Port diameter valves: Inlet 1-3/8" Exhaust 1-1/16"

Magneto: Make American Bosch Model MJC6C-312

Carburetor: Make Zenith Model 61AXJ7 Size 1"

Governor: Make Own Type Variable speed, centrifugal

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

Oil Filter: Make Michiana Type Replaceable waste-packed element

Cooling medium temperature control: Pines radiator shutters

CHASSIS

Type Tricycle Serial No. 233706 Drive Enclosed gear

Tread width: Rear 60" - 72" Front: Top 13" Bottom 7"

Rear tires: No. 2 Size 11 x 40 - 4 ply Air pressure 16 pounds

Front tires: No. 2 Size 5.50 x 16 - 4 ply Air pressure 25 pounds

Added weight: Per rear wheel (Cast Iron 775 pounds
(Calcium Chloride Solution 432 pounds)

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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 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 96.4% of maximum belt horsepower.

	<u>DRAWBAR</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	28.63	31.52
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	30.18	33.38
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)	22.64	28.37

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 351.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers