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January 1938

Test 306: Massey-Harris Model "101" S

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 306

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	

RUBBER TIRES

TEST F - 100% MAXIMUM LOAD - Third - GEAR

30.80	2612	4.42	1500	7.15	-----	Not Recorded	-----	177	64	29.090
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TEST G - OPERATING MAXIMUM LOAD

20.13	3571	2.11	1495	16.69	-----	Not Recorded	-----	155	63	29.085
27.95	3449	3.04	1498	14.49	-----	"	"	160	64	29.155
29.51	2498	4.43	1501	7.05	-----	"	"	168	63	29.110

*TEST H - TEN HOURS - Third GEAR

23.94	1987	4.52	1500	5.12	2.451	9.65	0.626	0.000	166	75	28.845
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FUEL ECONOMY TEST - FOUR HOURS - Second GEAR

23.02	2627	3.29	1500	7.63	2.388	9.64	0.640	0.000	159	69	28.855
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STEEL WHEELS

TEST G - OPERATING MAXIMUM LOAD

19.92	3076	2.43	1499	13.78	-----	Not Recorded	-----	169	77	28.930
22.85	2380	3.60	1499	8.49	-----	"	"	191	86	28.950
23.11	1703	5.09	1507	3.88	-----	"	"	170	74	28.950

FUEL ECONOMY TESTS - FOUR HOURS EACH - Second and Third GEARS

18.29	1862	3.38	1505	6.79	2.453	7.46	0.829	0.000	175	84	28.875
18.76	1405	5.01	1498	4.91	2.594	7.23	0.854	0.000	163	88	28.870

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

FUEL, OIL, AND TIME

Fuel Gasoline Octane 72 Weight per gallon { Belt, Rubber 6.17 pounds
Steel 6.18 pounds

Oil: S.A.E. No. 10 To motor 2.480 gal. Drained from motor 2.137 gal.

Total time motor was operated 33 hours

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BRIEF SPECIFICATIONS

Advertised speeds, miles per hour (rubber tires): First 2.4
Second 3.36 Third 4.5 Fourth 16.1 (1800 r.p.m.) Reverse 2.15
Belt pulley: Diam. 13 1/4" Face 6 1/4" R.P.M. (694 at 1500
(833 at 1800
Clutch: Make Borg & Beck Type Dry Disc Operated by Foot pedal
Seat Pressed steel
Total weight as tested (with operator) (Steel 3805 pounds
(Rubber 5725 pounds
MOTOR: Make Chrysler Industrial Serial No. 293
Type T57 - 503, *6 cylinder, vertical*
Head L Mounting Lengthwise Lubrication Pressure
Bore and stroke: 3 1/8" x 4 3/8" Rated R.P.M. (Drawbar 1500
(Belt 1500 - 1800
Port diameter valves: Inlet 1 5/16" Exhaust 1 5/16"
Ignition: Type Battery Make Auto-Lite Distributor Model I.G.C.-4402-1
Generator: Make Auto-Lite Model GBM - 4610 - A4 Serial No. 6-S004709
Starter: Make Auto-Lite Model MAW-4013-A Serial No. 6-S003536
Carburetor: Make Schobler Model TRX-22 Size 1"
Governor: Make Handy Type Centrifugal
Air Cleaner: Make United Type Oil-washed, crimped wire
CHASSIS: Type Standard Serial No. 355064 Drive Enclosed gear
Tread width: Rear 52" Front 47 1/2"
Steel: Drive wheels: Type Standard No. 2 Diameter 44" Face 10"
Lugs: Type Spade No. per wheel 24 Size 2 1/2" x 5"
Front wheels: Type Standard No. 2 Diameter 28" Face 4 5/8"
Rubber: Rear Tires: No. 2 Size 12.75" x 24" - 6 ply Air pressure 15 pounds
Front tires: No. 2 Size 8.00" x 16" - 4 ply Air pressure 25 pounds
Added weight: Per rear wheel: (Cast Iron 705 pounds
(Water 300 pounds

Omitted from original issue

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Copy of Report of Official Tractor Test No. 306

REPAIRS AND ADJUSTMENTS

During the preliminary rubber tires tests an intermittent miss developed in #5 cylinder which was due to a defective spark plug. The plug was replaced with a new one.

While running the preliminary steel wheel drawbar tests a piece of solder was found in and removed from the fuel tank to sediment bowl connection.

REMARKS

1. All results shown on pages 1 and 2 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 96.7% (at 1500 r.p.m.) and 98.1% (at 1800 r.p.m.) of maximum belt horsepower.

	DRAWBAR	BELT	
	Rubber Tires	1500 r.p.m.	1800 r.p.m.
2. Observed maximum horsepower (tests F & B)	30.80	35.02	40.04
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	31.79	36.84	42.36
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).	23.84	31.31	30.01

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 306.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. V. Hurlbut
Board of Tractor Test Engineers

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Copy of Report of Official Tractor Test No. 306

Dates of test: September 8 to 30, 1938.
Name and model of tractor: MASSEY-HARRIS "101" S
Manufacturer: Massey-Harris Company, Racine, 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	

1500 R.P.M.

TEST B - 100% MAXIMUM LOAD - TWO HOURS

35.02	1500	3.083	11.36	0.543	0.000	192	78	28.930
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TEST C - OPERATING MAXIMUM LOAD - ONE HOUR

33.87	1500	2.857	11.86	0.521	0.000	183	77	28.910
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*TEST D - ONE HOUR

31.50	1500	2.702	11.66	0.529	0.000	183	81	28.925
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

31.61	1503	2.718	11.63	0.531	--	184	81	--
1.26	1697	1.279	0.99	6.262	--	158	82	--
17.04	1615	1.925	8.85	0.697	--	168	82	--
33.27	1489	2.898	11.48	0.537	--	191	83	--
8.69	1642	1.566	5.55	1.112	--	164	83	--
24.80	1570	2.348	10.56	0.584	--	177	83	--
19.45	1586	2.123	9.16	0.673	0.000	174	82	28.925

1800 R.P.M.

TEST B - 100% MAXIMUM LOAD - TWO HOURS

40.04	1800	3.613	11.08	0.557	0.000	192	82	28.880
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TEST C - OPERATING MAXIMUM LOAD - ONE HOUR

39.29	1800	3.420	11.49	0.537	0.000	188	81	28.885
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*TEST D - ONE HOUR

36.15	1800	3.321	10.89	0.567	0.000	180	76	28.875
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

36.12	1802	3.321	10.88	0.567	--	179	75	--
1.43	1928	1.464	0.98	6.315	--	158	76	--
18.69	1858	2.212	8.45	0.730	--	165	75	--
38.92	1785	3.428	11.35	0.543	--	181	76	--
9.56	1900	1.794	5.33	1.158	--	162	76	--
27.50	1824	2.708	10.16	0.608	--	171	77	--
22.04	1848	2.488	8.86	0.696	0.000	169	76	28.835

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