January 1951

Test 455: Massey-Harris 55

The Experiment Station
University of Nebraska College of Agriculture
W. V. Lambert, Director, Lincoln, Nebraska

Department of Agricultural Engineering
Dates of test: April 16 to May 7, 1951.
Manufacturer: THE MASSEY-HARRIS COMPANY, RACINE, WISCONSIN
Manufacturer's rating: Not rated.

NEBRASKA TRACTOR TEST NO. 455

MASSEY-HARRIS 55

BELT HORSEPOWER TESTS

Hp	Crank shaft speed rpm	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer inches of mercury
		Gal per hour	Hp-hr per gal	Lb per hp-hour		Cooling med	Air	
TEST B—100% MAXIMUM LOAD—TWO HOURS								
66.91	1350	5.907	11.33	0.531	0.00	173	45	28.928
TEST C—OPERATING MAXIMUM LOAD—ONE HOUR								
63.50	1351	5.225	12.15	0.495	0.00	170	47	28.923
TEST D—RATED LOAD—ONE HOUR								
58.05	1350	4.810	12.07	0.498	0.00	170	52	28.900
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
57.99	1349	4.803	12.07	0.498	...	170	52	.....
1.49	1460	1.531	0.97	6.181	...	162	53	.....
31.52	1460	3.262	9.66	0.622	...	165	53	.....
58.98	1343	4.833	12.20	0.493	...	172	53	.....
16.11	1486	2.374	6.79	0.886	...	165	52	.....
45.73	1414	4.055	11.28	0.533	...	170	54	.....
35.30	1419	3.476	10.16	0.592	0.00	167	53	28.858

DRAWBAR HORSEPOWER TESTS

Hp	Draw bar pull lb	Speed miles per hr	Crank shaft speed rpm	Slip of drive wheels %	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer inches of mercury
					Gal per hour	Hp-hr per gal	Lb per hp-hr		Cooling med	Air	
TEST F—100% MAXIMUM LOAD—3rd GEAR											
57.55	4135	5.22	1350	5.39	Not Recorded				177	74	28.865
TEST G—OPERATING MAXIMUM LOAD											
44.70	6377	2.63	1353	16.42	Not Recorded				160	73	28.850
54.95	4957	4.16	1351	7.01	Not Recorded				170	77	28.850
54.91	3928	5.24	1352	5.18	Not Recorded				169	73	28.860
50.52	1507	12.57	1354	1.76	Not Recorded				166	69	28.850
TEST H—RATED LOAD—TEN HOURS—3rd GEAR											
45.66	3252	5.26	1349	4.63	4.397	10.38	0.579	0.00	157	65	28.855
TEST J—OPERATING MAXIMUM LOAD—3rd Gear											
54.76	4066	5.05	1350	9.86	Not Recorded				160	66	28.860
TEST K—OPERATING MAXIMUM LOAD—3rd GEAR											
46.71	3866	4.53	1350	15.45	Not Recorded				158	63	28.860

TIRES, WHEELS AND WEIGHT

	Tests F, G, & H	Test J	Test K
Rear wheels			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	785 lb each	None	None
Added cast iron	675 lb each	None	None
Rear tires			
No and size	Two 15-34	Two 15-34	Two 14-34
Ply	8	8	6
Air pressure	12 lb	12 lb	12 lb
Front wheels			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	None	None	None
Added cast iron	None	None	None
Front tires			
No and size	Two 750-18	Two 750-18	Two 750-18
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
Height of drawbar	18½ inches	19 inches	17 inches
Static weight			
Rear end	8020 lb	5095 lb	4846 lb
Front end	2240 lb	2250 lb	2242 lb
Total weight as tested with operator	10,435 lb	7520 lb	7263 lb

FUEL, OIL and TIME Gasoline octane No ASTM 76 Research 82 (rating taken from oil company's typical inspection data); weight per gallon 6.015 lb **Oil** SAE 10; to motor 2.476 gal; drained from motor 1.949 gal **Total time motor was operated** 42 hours.

CHASSIS Type standard **Serial No** 55GS6184 **Tread width** rear 57" front 52" **Wheel base** 88½" **Hydraulic control system** none available **Advertised speeds mph** first 2.96 second 4.22 third 5.22 fourth 12.07 reverse 2.54 **Belt pulley** diam 16" face 8½" rpm 730 **Belt speed** 3059 fpm **Clutch** dry disc clutch operated by foot pedal **Seat** pressed steel on coil spring with shock absorber **Brakes** internal expanding shoe operated by two pedals on right hand side of tractor **Equalized** can be locked together **Power take-off** standard type.

ENGINE Make Massey-Harris **Type** 4 cylinder vertical **Serial No** MJA382G8726 **Crankshaft mounted** lengthwise **Head** I **Lubrication** pressure **Bore and Stroke** 4½" x 6" **Rated rpm** 1350 **Compression ratio** 5.82 to 1 **Displacement** 382 cu in **Port Diameter Valves** inlet 1.609" exhaust 1.489" **Governor** variable speed centrifugal **Carburetor Size** 1¼" **Ignition System** battery **Starting System** 6 volt electric **Air Cleaner** oil washed wire mesh **Muffler** was used **Oil Filter** replaceable paper element **Cooling medium temperature control** thermostat.

REPAIRS AND ADJUSTMENTS No repairs or adjustments.

REMARKS All test results were determined from observed data 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, H, J and K were made with an operating setting of the carburetor (selected by the manufacturer) of 95.1% of maximum belt horsepower.

HORSEPOWER SUMMARY

	Drawbar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" Hg)	60.45	68.20
2. Observed maximum horsepower (tests F and B)	57.55	66.91
3. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings)	45.34	57.97

We, the undersigned, certify that this is a true and correct report of official tractor test No. 455.

L. F. Larsen
Engineer in Charge

C. W. Smith
F. D. Yung
L. W. Hurlbut
Board of Tractor Test Engineers