

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.
Larsen

January 1936

Test 265: Massey-Harris Challenger

Tractor Museum

University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Applied Mechanics Commons](#)

Museum, Tractor, "Test 265: Massey-Harris Challenger" (1936). *Nebraska Tractor Tests*. 868.
<https://digitalcommons.unl.edu/tractormuseumlit/868>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 265

Dates of test: August 10 to 18, 1936.
 Name and model of tractor: MASSEY-HARRIS CHALLENGER
 Manufacturer: Massey-Harris Company, Racine, Wisconsin.
 Manufacturer's rating: NOT RATED.

B R A K E H O R S E P O W E R T E S T S

H. P.	: Crank : : shaft :	Fuel Consumption	: Water Consumption :	Temp. :	: Barometer
: speed :	Gals. :	H. P. :	Lbs. per :	Cool- : In :	: Cool- : Inches of
: R.P.M. :	per :	hrs. per :	H. P. :	ing : fuel : Total :	: ing : Air: Mercury
:	: hour :	gal. :	hour :	:	: med. : :

TEST B 100% MAXIMUM LOAD. TWO HOURS

28.58	: 1199	: 3.184	: 8.98	: 6.769	: 0.000	: 0.000	: 0.000	: 135	: 91	: 28.785
-------	--------	---------	--------	---------	---------	---------	---------	-------	------	----------

TEST C OPERATING MAXIMUM LOAD. ONE HOUR

27.16	: 1202	: 2.696	: 10.07	: 0.685	: 0.000	: 0.000	: 0.000	: 206	: 102	: 28.775
-------	--------	---------	---------	---------	---------	---------	---------	-------	-------	----------

TEST D RATED LOAD. ONE HOUR

26.21	: 1201	: 2.632	: 9.96	: 0.593	: 0.000	: 0.000	: 0.000	: 207	: 106	: 28.790
-------	--------	---------	--------	---------	---------	---------	---------	-------	-------	----------

TEST E *VARYING LOAD. TWO HOURS

26.13	: 1201	: 2.596	: 10.07	: 0.685	: --	: --	: --	: 207	: 106	: --
0.81	: 1273	: 1.135	: 0.71	: 9.667	: --	: --	: --	: 175	: 106	: --
13.61	: 1258	: 1.810	: 7.52	: 0.918	: --	: --	: --	: 191	: 108	: --
26.62	: 1191	: 2.639	: 10.09	: 0.684	: --	: --	: --	: 208	: 109	: --
6.89	: 1251	: 1.391	: 4.95	: 1.393	: --	: --	: --	: 185	: 109	: --
20.64	: 1234	: 2.217	: 9.31	: 0.741	: --	: --	: --	: 199	: 109	: --
15.78	: 1234	: 1.965	: 8.03	: 0.859	: 0.124	: 0.000	: 0.124	: 194	: 108	: 28.755

*20 minute runs. Last line is average for two hours.

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 :	Speed : : miles :	Crank : : shaft :	Slip : : on :	Fuel Consumption	: Water:	Temp. :	: Barometer
: pull :	per :	per :	speed :	drive:	Gal. :	hour :	per :	: Inches of
: pounds:	hour :	R.P.M.:	wheels:	per :	per :	H.P.:	per :	: Air: Mercury
:	:	:	% :	hour:	gal. :	hour :	hour :	: med. : :

TEST F 100% MAXIMUM LOAD. Second GEAR.

20.03	: 2049	: 3.67	: 1201	: 6.66	: -----	: Not Recorded	: -----	: 190	: 90	: 28.675
-------	--------	--------	--------	--------	---------	----------------	---------	-------	------	----------

TEST G OPERATING MAXIMUM LOAD.

20.01	: 2883	: 2.60	: 1202	: 10.15	: -----	: Not Recorded	: -----	: 180	: 86	: 28.725
18.90	: 1929	: 3.67	: 1200	: 6.44	: -----	: " "	: -----	: 188	: 93	: 28.680
18.11	: 1452	: 4.66	: 1199	: 4.09	: -----	: " "	: -----	: 190	: 104	: 28.660
11.72	: 439	: 10.01	: 1198	: 1.05	: -----	: " "	: -----	: 195	: 104	: 28.650

TEST H RATED LOAD. TEN HOURS Second GEAR.

16.29	: 1638	: 3.73	: 1200	: 5.00	: 2.450	: 6.65	: 1.038	: 0.028	: 196	: 99	: 28.620
-------	--------	--------	--------	--------	---------	--------	---------	---------	-------	------	----------

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 265

BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 130656 Type 4 cylinder, vertical
 Head I Mounting Crankshaft lengthwise
 Bore and stroke: 3 7/8" x 5 1/4" Rated R. P. M. 1200
 Port Diam. Valves: Inlet 1 3/8" Exhaust 1 1/2"
 Belt pulley: Diam. 12" Face 6 1/4" R. P. M. 831
 Magneto American Bosch Model U4EL4V1
 Carburetor Kingston Size 1 1/4"
 Governor: Handy No. RD2231-C Type Centrifugal
 Air Cleaner: Own Type Oil circulated over wool
 Lubrication: Pressure

CHASSIS: Type 4 wheels, 2 drivers Serial No. 131127 Drive Enclosed gear
 Clutch Twin Disc Type Single-plate, dry Operated by Hand
 Advertised speeds, miles per hour: First 2.4 Second 3.3
 Third 4.1 Fourth 8.5 Reverse 3.0
 Drive wheels: Diameter 52" Face 8"
 Lugs: Type Spade No. per wheel 28 Size 2 1/2" face x 5" high
 Seat Pressed steel
 Total weight as tested (with operator) 4200 pounds.

FUEL AND OIL:

Fuel Distillate Weight per gallon 6.90 pounds.
 Oil S.A.E. Viscosity No. 40
 Total oil to motor 3.056 gallons
 Total drained from motor 3.693 gallons
 Total time motor was operated 44 hours

The oil was
 drained once -
 at the end of
 the test.

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 265

REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

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 horsepower and these figures were used in determining the ratings recommended by the A.S.A.E. and S.A.E. tractor rating codes. Tests C, D, E, G and H were made with an operating setting of the carburetor (selected by the manufacturer) of 95.0% of maximum horsepower.

Observed maximum horsepower (tests B & F) Drawbar 20.03 Belt 28.58

Sea level (calculated) maximum horsepower Drawbar 21.49 Belt 30.58
 (Based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 16.12 Belt 25.99
 (As recommended by A.S.A.E. and S.A.E.
 codes)

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 265.

Carlton L. Zink

 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut

 Board of Tractor Test Engineers