

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

January 1920

Test 047: Frick Model A 12-20

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 047: Frick Model A 12-20" (1920). *Nebraska Tractor Tests*. 664.
<https://digitalcommons.unl.edu/tractormuseumlit/664>

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
UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 47

Dates of test August 3. to August 10, 1920.
 Name, model and rating of tractor Frick Model "A" 12-20
 Serial No. Engine T-8299 Serial No. Chassis 1010
 Manufacturer Frick Co., Inc., Waynesboro, Pa.
 Tractor equipment used Kingston Model L Mag; Kingston Model L Carb.
 Style and dimensions of wheel lugs Spade 3" x 3".

Brake Horse Power Tests

Horse Power Developed	Crank Shaft Speed R. P. M.	Length of Test Min.	Fuel Consumption			Water Consumption Gallons per Hour			Temperature *Cooling Fluid Deg. F.	Temperature of Atmosphere Deg. F.	Humidity %	Barometric Pressure Inches Mercury
			Kind of Fuel	Amount Used per Hour Gallons	Horse Power Hours per Gallon	In Radiator	In Fuel Mixture	Total				
* * RATED LOAD TEST												
22.40	906	120	Kero	3.35	6.69	0.08	0.00	0.08	196	84	58	28.85
			Belt Slippage	1.23%								
VARYING LOAD TEST												
22.55	913	10	Kero									
22.53	904	10	"									
2.06	966	10	"									
5.97	962.5	10	"									
11.87	958	10	"									
17.75	956	10	"									
14.00	943	60	Kero	2.55	5.50	0.00	0.00	0.00	172	89.5	58	28.9
MAXIMUM LOAD TEST												
22.31	903	60	Kero	3.39	6.59	0.08	0.00	0.08	197	88	58	28.85
			Belt Slippage	1.24%								
HALF LOAD TEST												
11.87	958	60	Kero	1.49	7.95	0.00	0.00	0.00	173	91	58	28.9
			Belt Slippage	0.93%								

*Taken in discharge line from engine.

Remarks Kerosene used for fuel in this test weighed 6.74 lbs per gallon.

**Rating was changed after test was completed

Report of Official Tractor Test No. 47

Drawbar Horse Power Tests

Horse Power Developed	Draw Bar Pull Pounds	Speed Miles per Hour	Crank Shaft Speed R. P. M.	** Slippage of Drive Wheels %	Fuel Consumption			Water Used per Hour Gallons	*Temperature of Cooling Fluid Deg. F.	Temperature of Atmosphere Deg. F.	Average Humidity %	Barometric Pressure Inches Mercury
					Ind of Fuel Used	Amount Used per Hour Gallons	Horse Power Hours per Gallon					
RATED LOAD TEST. TEN HOURS (10 Hr. 13 Min.)												
12.10	1900	2.39	900	7.5	Kero	2.97	4.07	0.20	191	88.5	46	28.75
MAXIMUM LOAD TEST (1st 160.1 ft; 2nd 162.1 ft.)												
14.37	2340	2.30	850	7.35	Kero	---- Not Recorded ----			190	93	41	28.7
10.31	1113	3.48	800	6.2	"	"	"		185	93	41	28.7

*Taken in discharge line from engine.

Remarks ** For computing slippage, the circumference of the drive wheels was taken at points of lugs.
In the ten-hour test and first maximum test the tractor was run in low gear; in the second maximum test the tractor was run in high gear.

Oil Consumption:

During the complete test consisting of about 30 hours running the following oil was used:

For the engine, 5 gallons of Mobiloil B

For the transmission, none added. gallons of

Report of Official Tractor Test No. 47

Repairs and Adjustments. Endurance:

Tightened fan belt once.

Put in new spark plug.

The repairs and adjustment are of only minor importance and do not indicate any mechanical defect.

Brief Specifications Frick Model "A" 12-20 H.P. tractor.

Motor: 4-cylinder, vertical, valve-in-head. Erd. Bore 4" stroke 6", rated speed 900 r.p.m.

Chassis: 4 wheel, shoe clutch. Rated speeds: low 2.3, high 3.8 and reverse 2 mi. per hour.

Total weight 5800 lbs.

General Remarks:

In the advertising literature submitted with the application for test of this tractor we find some claims & statements which cannot be directly compared with this test.

It is our opinion that these are not excessive or unreasonable except the following:

"Surplus power, perfect kerosene burning qualities and durability under strain are three factors which have enabled the Frick to win outstanding victories over all leading tractors on the Market."

"Erd motor delivers continuous power without showing distress at full load or overload."

"Because of its design, the Erd motor is the only kerosene motor which consumes no more kerosene than if operated on gasoline."

We do not approve the above statements because proof is lacking

We, the undersigned, certify that above is a true and correct report of official tractor test No. 47

Fred R. Mohave
Engineer-in-Charge

Oscar V. Sjogren
E. E. Brachett
C. W. Smith
Board of Tractor Test Engineers.