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January 1920

Test 027: Samson Model "M"

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA
 AGRICULTURAL ENGINEERING DEPARTMENT
 UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 27

Dates of test June 19 to June 30, 1920

Name, model and rating of tractor Samson Model "M"

Serial No. Engine 13490 Serial No. Chassis 12784

Manufacturer Samson Tractor Co., Janesville, Wisconsin.

Tractor equipment used Simms K4 Magneto; Kingston Model L2 Carburetor.

Style and dimensions of wheel lugs Angle 2 1/8" x 2 1/8" x 1 1/2"

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												
17.2	1111	120	Kero	2.32	7.46	0.00	0.44	0.44	197	85.5	42	28.7
	Belt Slippage		1.12%									
VARYING LOAD TEST												
17.24	1107	10	Kero									
17.59	1106	10	"									
0.79	1215	10	"									
4.56	1164	10	"									
8.74	1104	10	"									
12.91	1104	10	"									
Aver. 18.54	1135	60	Kero	1.70	6.18	0.75	0.31	1.06	185	96	42	28.8
MAXIMUM LOAD TEST												
19.39	1111	60	Kero	2.79	6.94	2.00	0.62	2.62	203	94	42	28.75
	Belt Slippage		1.12%									
HALF LOAD TEST												
8.67	1109	60	Kero	1.57	5.51	0.75	0.25	1.00	174	94	42	28.7
	Belt Slippage		0.66%									

*Taken in discharge line from engine.

Remarks Kerosene used in this test weighed 6.75 lbs per gallon.

** The manufacturer does not give any horse power rating.

In the varying load test the governor hunted on 3/4 load.

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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 %	Barometr. Pressure Inches Mercury
					Ind of Fuel Used	Amount Used per Hour Gallons	Horse Power Hours per Gallon					
*** RATED LOAD TEST. TEN HOURS												
9.32	1252	2.94	1084	14.5	Kero.	2.27	4.33	1.32	202	85	47	28.7
MAXIMUM LOAD TEST (1st 220 ft; 2nd 172.5 ft.)												
11.60	1670	2.60	975	15.1	Kero	--- Not Recorded---			212	88	57	28.7
9.18	1950	1.77	1123	33.45	"	"	"	"	212	88	57	28.7

*Taken in discharge line from engine.

Remarks ** For computing slippage the circumference of the drive wheels was taken at points of lugs.
 The 10-hour test and the first maximum test were made with the tractor in high gear, the second maximum test with the tractor in low gear.

*** The manufacturer does not give any horse power rating.

Oil Consumption:

During the complete test consisting of about 37 hours running the following oil was used:

For the engine, 9 $\frac{1}{2}$ gallons of Vealol Extra Heavy.

For the transmission, none added. gallons of

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Repairs and Adjustments. Endurance:

After twelve hours run three washers were placed back of the governor spring to increase the tension so as to hold the throttle valve open at rated speed. It was later discovered that this governor spring was too weak, so the spring and washers were taken out and a new spring put in.

New fan belt was put on after about 22 hours run.

A new air washer with an improved style of filler opening was put on to replace the washer first installed which could not be filled with the engine running under load.

Ignition distributor was cleaned after about 35 hours run.

At the end of the test the tractor was apparently in good condition. There was no indication of undue wear in any part nor of any weakness which might require early repairs.

It is our opinion that the repairs and adjustments necessary during this test do not indicate any mechanical defect of more than minor importance.

Brief Specifications Samson Model "M" Tractor.

Engine: Four cylinder, vertical, L-head. Bore 4", stroke 5½", rated speed 1100 r.p.m.

Chassis: Four wheel. Rated speeds: low gear 2.3 mi. per hour, high gear 3.19 mi. per hour.

Total weight 3300 lbs.

General Remarks:

In the advertising literature submitted with the application for test of this tractor we find some statements and claims which cannot be directly compared with the results of this test as reported above. It is our opinion that none of these statements or claims are unreasonable or excessive except the following:

"The Model "M" is capable of pulling two 14 inch plows at all times and three 14 inch plows under favorable conditions." (We would approve a two to three plow rating for this tractor, but believe that there are some extreme conditions under which it would not pull two plows.)

"The even distribution of weight, compact design, and low center of gravity give to the Samson perfect traction--"

"The motor---- is provided with a perfect governor----"

We, the undersigned, certify that above is a true and correct report of official tractor test No. 27.

Claude K. Shedd
Engineer-in-Charge

Oscar W. Sjogren
E. E. Brackett
J. L. M. Haney
Board of Tractor Test Engineers.