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January 1920

Test 043: Avery 25-50

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 43

Dates of test July 26, to July 30, 1920

Name, model and rating of tractor Avery 25-50

Serial No. Engine TB 1 Serial No. Chassis 26005

Manufacturer The Avery Co., Peoria, Ill.

Tractor equipment used KW Model HK Mag; Kingston Dual Carb.

Style and dimensions of wheel lugs "Universal" 3" high; 10" Extension rims with 2 1/2" x 3" high x 10" spuds.

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												
50.40	702	120	Kero	6.37	7.91	19.00	0.50	19.50	212	88.5	62	28.9
			Belt Slippage 1.71%									
VARYING LOAD TEST												
50.26	700	10	Kero									
51.56	691	10	"									
3.12	893	10	"									
13.17	730	10	"									
25.57	709.5	10	"									
37.975	705	10	"									
Aver. 31.76	738	60	Kero	5.00	6.35	15.00	0.25	15.25	212	90	62	28.9
MAXIMUM LOAD TEST												
56.68	712	60	Kero	7.04	8.05	25.00		25.00	212	99	60	28.9
			Belt Slippage 2.03%									
HALF LOAD TEST												
25.53	710	60	Kero	4.79	5.33	15.00	0.00	15.00	212	94	62	28.9
			Belt Slippage 1.57%									

*Taken in discharge line from engine.

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

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
					Kind of Fuel Used	Amount Used per Hour Gallons	Horse Power Hours per Gallon					
RATED LOAD TEST. TEN HOURS												
27.29	3778	2.71	694	8.3	Kero	6.42	4.25	17.805	208	87	49	28.8
MAXIMUM LOAD TEST (1st 89.4 ft; 2nd 96.8 ft.)												
31.47	4415	2.67	690	8.9	Kero	---- Not Recorded ----			212	90	42	28.75
32.62	3225	3.79	620	1.4	"	"	"		212	90	42	28.75

*Taken in discharge line from engine.

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

Brief Specifications Avery 25-50 H.P. Tractor.
 Engine: Four cylinder, horizontal, opposed, valve-in-head; bore 6½", stroke 8"; rated speed 700 r.p.m.
 Chassis: Four wheel. Rated speeds: Low gear 2 mi. per Hr; high gear 3 mi. per hr.
 Total weight 12500 lbs.

Oil Consumption:

During the complete test consisting of about 32 hours running the following oil was used:

For the engine, 10½ gallons of Mobiloil "B"
 For the transmission, 4 gallons of 600 W and 2½ gallon used oil.

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Repairs and Adjustments. Endurance:

The clutch was adjusted twice.

Two spark plugs were changed.

A new governor spring was put in because the spring which came with the tractor was too weak to hold the governor valve open at full load and speed.

At the end of the test the cab needed additional bracing to hold it rigidly to the engine frame. With this exception the tractor was apparently in good condition and there was no evidence 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.

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:

"Avery tractors have---motors---with---patented gasifiers that turn kerosene or distillate into gas and burn it all."

"---Avery---is the most "direct drive" transmission system built"

"Avery---is the---most efficient belt and drawbar transmission system built."

"---a larger percentage of the power developed by the motor in the Avery tractor is delivered to the belt wheel and to the drawbar than in any other tractor built."

"---Avery opposed motors are superior to any tractor motor built."

"The opposed type of motor---is much better adapted for use in tractor work."

"The fuel system used on the Avery tractors from the 8-16 H.P. to the 40-80 H.P. size burns kerosene, distillate or any other low grade fuel more successfully than it has ever been done before."

"---Avery tractors are the simplest tractors built."

"Averys are the best all-around drawbar and belt tractors built."

We do not approve the comparisons with other tractors quoted above for the reason that proof is lacking.

We, the undersigned, certify that above is a true and correct report of official tractor test No. 43.

Claude K. Shedd
Engineer-in-Charge

Oscar W. Sjogren
E. E. Brackett
Fred R. Mohavec
Board of Tractor Test Engineers.