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January 1921

Test 071: Avery 12-25

Tractor Museum

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UNIVERSITY OF NEBRASKA AGRICULTURAL, ENGINEERING DEPARTMENT

LINCOLN

Copy of Report of Official Tractor Test No. 71.

Dates of test: March 25 to June 13, 1921.
 Name, model and rating of Tractor: Avery 12-25.
 Serial No. Engine: WB-6445. Serial No. Chassis: 27189.
 Manufacturer: Avery Company, Peoria, Ill.
 Tractor equipment used: KW (155369) TK, Magneto; Kingston E carburetor.
 Style and dimensions of wheel lugs: Universal cleats 2 $\frac{1}{2}$ " high.

BRAKE HORSE POWER TESTS

		:Fuel Consump.		: Water Consump.		: Temp.							
		:		: Gals. Per Hour		: Deg. F.							
H.P.	: Crank	: Time:	:	:	:	:	:	:	:	Average	Humidity	Height	of
Dev.	: Shaft	: of	: Kind:	: Gals.,	: H.P.,	: Cool-:	: In	:	: Cool-:	:	:	:	Barometer.
	: Speed	: Test	: of	: @	: Hrs. @	: ing	: Fuel	: Total:	: ing	: Air	:	:	:
	: R.P.M.	: Min.	: Fuel:	: Hour	: Gal.:	:	:	:	: Fluid:	:	:	:	:

RATED LOAD TEST

25.20	:	704	:	120	:	Gasol.:	3.12:	8.08:	7.5	:	0.50	:	8.00:	210	:	70	:	59	:	28.75
Belt slippage 1.69%																				

**VARYING LOAD TEST

25.03	:	700	:	10	:	Gasol.:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
24.85	:	695	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
1.45	:	893	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
7.62	:	790	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Belt slippage 1.60%																				
13.87	:	773	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
21.31	:	774	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
16.49	:	771	:	60	:	Gasol.:	2.68:	6.15:	3.00:	X	:	3.00:	205	:	68	:	55	:	29.00	

MAXIMUM LOAD TEST

25.08	:	703	:	60	:	Gasol.:	3.46:	7.25:	8.00:	X	:	8.00:	210	:	79	:	62	:	28.75	
Belt slippage 2.00%																				

HALF LOAD TEST

15.69	:	875	:	60	:	Gasol.:	2.35:	6.69:	4.00:	X	:	4.00:	210	:	73	:	55	:	29.00	
Belt slippage 1.67%																				

*Taken in discharge line from engine.

Remarks: The fuel used in this test weighed 6.17 pounds per gallon.

**Note: The last line in this test is an average for the hour.

** The speed of the motor was controlled by hand throttle on no load, $\frac{1}{4}$ and $\frac{1}{2}$ loads.

Copy of Report of Official Tractor Test No. 71

Drawbar Horse Power Tests

						:Fuel Consump.		: Temp. Deg. F.				
H.P.	:Draw	: Speed	:Crank	: Slip	: Amt.	: H. P.	:Used	: *	: Cooling	: Average	: Height	
Dev.	:Bar	: Miles	:Shaft	: Drive	: Kind	: Per	: Hrs.	: Per	: Fluid	: Air	: Humidity	: Barometer
	:Pull	: Per	:Speed	:Wheels	:Used	:Hour	:Per	:Hour	: Fluid	: Air	: Humidity	: Barometer
	:Lbs.	: Hour	:R.P.M.	: % **	: Gals.	:Gal.	:Gals.					

Rated Load Test, 10 Hours

13.77	: 2441	: 2.12	: 684	: ^{1.7} 0.02 9.6	: Gaso:	3.87	: 3.56	: 5	: 210	: 83	: 54	: 28.87
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Maximum Load Test

13.46	: 2500	: 2.02	: 667	: ^{4.4} 12.7	: Gaso:	---Not Recorded---			: 210	: 89	: 53	: 28.69
11.14	: 1300	: 3.21	: 680	: ^{2.25} 10.3	: "	: "	: "		: 210	: 89	: 53	: 28.69

*Taken in discharge line from engine.

Remarks: The rated load and first maximum tests were made in low gear.
The second maximum was made in high gear.

**Two figures are given denoting slippage in each test; the first shows slippage at the rim of the wheel, and the second shows slippage at the point of the lugs.

Oil Consumption: During the complete test consisting of about 35 hours running, the following oil was used: For the engine, $8\frac{1}{2}$ gallons of Mobiloil B and Polarine medium; for the transmission, none.

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Repairs and Adjustments:

Before any official data was taken the rear exhaust valve was ground, and both spark plugs were replaced by long skirted plugs. The pistons were also taken out and turned down about .005 of an inch.

At the end of the maximum draw bar test the compression of rear cylinder was weak. Otherwise the tractor was in good working condition and there were no indications of undue wear in any part, nor of any weakness that might require early repair.

Brief Specifications: Avery 12-25

Motor: Own, 2 cylinder, horizontal, valve-in-head; bore $6\frac{1}{2}$, stroke 7, rated speed 700 r.p.m.

Chassis: 4 wheel, shoe clutch; rated speeds forward, low $2\frac{1}{6}$ miles per hour, high $3\frac{1}{3}$ miles per hour.

Total Weight - 7500 lbs.

Fuel: Changed from kerosene to gasoline because tractor would not develop rating on kerosene.

General Remarks:

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

1921 Catalogue - "It is perfectly balanced - does not shake tractor" etc.
page 25 "It has better water space for cooling than vertical motor".

We, the undersigned, certify that above is a true and correct copy of report of official tractor test No. 71.

Fred R. Nohavec
Engineer-in-Charge

Oscar W. Sjogren

E. E. Brackett

C. W. Smith

Board of Tractor Test Engineers.