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January 1920

Test 040: Avery 6 cylinder Motor Cultivator

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 40

Dates of test July 21, to July 28, 1920

Name, model and rating of tractor Avery 6 cylinder Motor Cultivator.

Serial No. Engine GL 2186 Serial No. Chassis 2730

Manufacturer Avery Co., Peoria, Ill.

Tractor equipment used KW Model T Mag; Kingston Model L Carb.

Style and dimensions of wheel lugs Angle 2" x 2" x 12".

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												
15.54	1243	120	Gasol	2.50	6.22	0.165	0.00	0.165	202	87	50	28.8
	Belt	Slippage	0.475%									
VARYING LOAD TEST												
15.72	1262	10	Gasol									
15.66	1259	10	"									
1.69	1950	10	"									
5.225	1608	10	"									
8.70	1388	10	"									
13.04	1370	10	"									
11.03	1472	60	Gasol	2.195	5.02	0.25	0.00	0.25	199	90	45	28.75
MAXIMUM LOAD TEST												
15.77	1240	60	Gasol	2.54	6.22	0.167	0.00	0.167	202	90	50	28.8
	Belt	Slippage	0.52%									
HALF LOAD TEST												
9.20	1469	60	Gasol	1.40	6.59	0.125	0.00	0.125	200	88	47	28.7
	Belt	Slippage	0.32%									

*Taken in discharge line from engine.

Remarks Gasoline used for fuel in these brake tests weighed 6.16 lbs per gallon.

Aver.

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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 %	Barometric Pressure Inches Mercury
					Ind of Fuel Used	Amount Used per Hour Gallons	Horse Power Hours per Gallon					
RATED LOAD TEST. TEN HOURS												
8.51	1213	2.63	1291	10.55	Gasol.	2.545	3.34	0.06	203	83	58	28.9
MAXIMUM LOAD TEST (1st 109.5 ft., 2nd 99.3 ft.)												
8.59	1423	2.26	1185	4.95	Gasol	----Not Recorded----			200	90	53	28.9
8.99	1674	2.01	1330	13.8	"	"	"		210	90	53	28.9

*Taken in discharge line from engine.

Remarks ** For computing slippage, the circumference of the drive wheels was taken at points of lugs.

Gasoline used for fuel in these drawbar tests weighed 6.15 lbs. per gallon.

During the ten-hour and the first maximum test, the tractor was operated in intermediate gear; during the second maximum test the tractor was operated in low gear.

Oil Consumption:

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

For the engine, 3 $\frac{3}{4}$ gallons of Mobiloil "A"

For the transmission, 1 gallons of Used oil on gears.

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Repairs and Adjustments. Endurance:

After about 17 hours run the collar on the governor shaft broke and was replaced.

After about 6 hours additional run the governor shaft cut out and was replaced.

Oil tube from engine oil pump started leak and was repaired.

The fan belt was tightened once and broke once requiring replacement with a new belt.

The bolts holding the motor to the frame sheared off, the bolt at the right rear corner of engine three time and the bolt at the left rear corner once.

At the end of the test the tractor was apparently in good condition. With the exceptions mentioned above 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 so serious as to disqualify this model of tractor.

Brief Specifications Avery Six Cylinder Model "C" Motor Cultivator

Engine: Six cylinder, vertical, L-head, Bore 3", stroke 4", rated speed: 1250 r.p.m.

Chassis: Two drive wheels in rear, one guide wheel in front, also guide by differential brakes. Rated speeds: 2, 2½, and 5-1/3 mi. per Total weight. 3450 lbs. (Reverse 2 mi. per hr.)

General Remarks:

In the advertising literature submitted with the application for test of this tractor we find the following statement: "Fuel: Gasoline. Many customers report using kerosene, however, with satisfactory results." We do not interpret this statement as being a claim that this is a kerosene tractor and therefore kerosene was not used in this test.

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

"The Avery motor cultivator is the only real successful cultivator on the market today, and it leads the field in power, durability, simplicity, etc, over any other cultivator built."

"The Avery motor cultivator is adapted to more kinds of farm work than any other machine,----"

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. 40

Claude K. Shedd
Engineer-in-Charge

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