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Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

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January 1921

## Test 072: Avery 8-16

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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## UNIVERSITY FARM, LINCOLN

Style and dimensions of wheel lugs: Spuds  $2\frac{1}{2}$ " x  $3\frac{1}{8}$ " x  $2\frac{3}{4}$ " high.

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

16.66 : 758 : 120 : Gaso: 2.15: 7.76 : 5.5 : X : 5.5 : 210 : 76 : 52 : 28.50  
Belt slippage 1.44%

|       |   |     |   |    |   |       |   |      |               |      |   |      |       |   |   |      |   |     |   |    |   |    |   |       |
|-------|---|-----|---|----|---|-------|---|------|---------------|------|---|------|-------|---|---|------|---|-----|---|----|---|----|---|-------|
| 16.36 | : | 746 | : | 10 | : | Gasol | : | :    | :             | :    | : | :    | :     | : | : | :    | : |     |   |    |   |    |   |       |
| 16.25 | : | 740 | : | 10 | : | "     | : | :    | :             | :    | : | :    | :     | : | : | :    | : |     |   |    |   |    |   |       |
| 1.42  | : | 815 | : | 10 | : | "     | : | :    | :             | :    | : | :    | :     | : | : | :    | : |     |   |    |   |    |   |       |
| 4.45  | : | 808 | : | 10 | : | "     | : | :    | Belt slippage |      |   |      | 1.14% | : | : | :    | : |     |   |    |   |    |   |       |
| 8.84  | : | 803 | : | 10 | : | "     | : | :    | :             | :    | : | :    | :     | : | : | :    | : |     |   |    |   |    |   |       |
| 13.13 | : | 796 | : | 10 | : | "     | : | :    | :             | :    | : | :    | :     | : | : | :    | : |     |   |    |   |    |   |       |
| 10.32 | : | 784 | : | 60 | : | Gasol | : | 1.67 | :             | 6.20 | : | 5.00 | :     | X | : | 5.00 | : | 210 | : | 80 | : | 52 | : | 28.50 |

16.76 : 753 : 60 : Gaso : 2.29 : 7.33 : 4.00 : X : 4.00 : 205 : 71 : 52 : 28 : 50  
Belt slippage 1.45%

8.89 : 80% : 60 : Gaso : 1.46 : 6.09 : 3.00 : X : 3.00 : 210 : 85 : 52 : 28.50  
Belt slippage 1.14%

\*\*Note: The last line is an average for the hour.

Copy of Report of Official Tractor Test No. 72

(Corrected)

Drawbar Horse Power Tests

| H. P.<br>Dev. | Draw<br>Bar<br>Pull<br>Lbs. | Speed<br>Miles<br>Per<br>Hour | Crank:Slip<br>Shaft: on<br>Speed: Drive<br>R.P.M. Wheels | Fuel Consump.<br>: Amt. :H.P.:Used<br>: Kind :Per. :Hrs.:Per<br>: Used :Hour :Per :Hour<br>: % ** : :Gals.:Gal.:Gals.: | Temp. Deg. F.: | Water: * | Cooling: | Average :<br>Humidity: | Height<br>of<br>Barometer |
|---------------|-----------------------------|-------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------|----------|----------|------------------------|---------------------------|
|               |                             |                               |                                                          |                                                                                                                        |                |          |          |                        |                           |

Rated Load Test, Ten Hours

|      |      |      |     |      |        |      |      |      |     |    |    |       |
|------|------|------|-----|------|--------|------|------|------|-----|----|----|-------|
| 8.23 | 1366 | 2.26 | 783 | 12.0 | Gasol. | 1.92 | 4.28 | 3.55 | 209 | 71 | 73 | 28.75 |
|------|------|------|-----|------|--------|------|------|------|-----|----|----|-------|

Maximum Load Test

|      |      |      |     |     |        |                  |   |  |     |    |    |       |
|------|------|------|-----|-----|--------|------------------|---|--|-----|----|----|-------|
| 9.99 | 1690 | 2.22 | 742 | 9.4 | Gasol. | --Not Recorded-- |   |  | 208 | 89 | 41 | 28.75 |
| 7.95 | 830  | 3.59 | 751 | 1.5 | "      | "                | " |  | 210 | 89 | 41 | 28.75 |

\*Taken in discharge line from engine

Remarks: The rated load and first maximum tests were run in low gear.  
The second maximum test was run 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 lug.

Oil Consumption: During the complete test consisting of about 42 hours running the following oil was used: For the engine, 10 $\frac{3}{4}$  gallons of Mobiloil A and Polarine medium.  
For the transmission, none.

Copy of  
Report of Official Tractor Test  
No. 72

Repairs and Adjustments:

After the lamber-up run and before any official data were taken the following adjustments were made.

Removed pistons and relieved by taking off .006 inch.

Ground all valves.

Ground exhaust valve on front cylinder.

Relieved all piston rings.

Changed kerosene gasifiers to gasoline adapters in order to develop rated belt power on gasoline.

Brief Specifications:      Avery 8-16

Motor: Own, 2 cylinder, horizontal, valve-in-head, opposed, bore -  $5\frac{1}{2}$ " , stroke - 6" , rated speed - 750 r.p.m.

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

Total weight: 4900 pounds.

Fuel - Gasoline: This specification was changed from kerosene after tractor was submitted for test.

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. It is our opinion that none of these are excessive or unreasonable except the following:

1921 catalogue, page 21, "Fuel: Kerosene, Distillate or Gasoline."

" " " 25, "It is perfectly balanced,"etc.

"It has better water space for cooling than a vertical motor."

We, the undersigned, certify that above is a true and correct copy of report of official tractor test No. 72.

Fred R. Nohavec  
Engineer-in-Charge

Oscar W. Sjogren

E. E. Brackett

C. W. Smith  
Board of Tractor Test Engineers.