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January 1923

## Test 097: Hart-Parr 40

Nebraska Tractor Test Lab

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

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# UNIVERSITY OF NEBRASKA AGRICULTURAL ENGINEERING DEPARTMENT

## AGRICULTURAL COLLEGE, LINCOLN

### Copy of Report of Official Tractor Test No. 97

Dates of test: July 10th to 19th, 1923.

Name, model and rating of tractor: Hart-Parr 40

Serial No. Engine: 70006 Serial No. Chassis 70006

Manufacturer: Hart-Parr Company, Charles City, Iowa.

Tractor equipment used: KV (TK) No. 0172406 Magneto - Schebler "D" Carburetor

Style and dimensions of wheel lugs: Spades 3-1/2" high - 18 to the wheel.

### BRAKE HORSE POWER TESTS

|      |        |      | Fuel Consumption |       | Water Consump. |       | Temp. |       | Deg.  |     | Average | Humidity % | Height of | D.rometer | Inches. |
|------|--------|------|------------------|-------|----------------|-------|-------|-------|-------|-----|---------|------------|-----------|-----------|---------|
| H.P. | Crank  | Time | Gals.            | H. P. | Cool-          | In    | Total | Cool- | Air   | F.  |         |            |           |           |         |
| Dev. | Shaft  | of   | Kind             | Gals. | H. P.          | Cool- | In    | Total | Cool- | Air | Average | Humidity % | Height of | D.rometer | Inches. |
|      | Speed  | Test | of               | @     | Hrs. @         | ing   | Fuel  |       | ing   |     |         |            |           |           |         |
|      | R.P.M. | Min. | Fuel             | Hour  | Gal.           |       |       |       | Fluid |     |         |            |           |           |         |

### RATED LOAD TEST

40.66 : 802 : 120 : Kero : 4.959 : 8.20 : 2.50 : 2.50 : 5.00 : 210 : 91 : 57 : 28.75  
Belt Slippage 1.43%

### VARYING LOAD TEST \*\*\*

|       |        |      |        |         |                             |        |        |        |       |      |      |         |   |   |   |
|-------|--------|------|--------|---------|-----------------------------|--------|--------|--------|-------|------|------|---------|---|---|---|
| 40.57 | :800.5 | : 10 | : Kero | :       | :                           | :      | :      | :      | :     | :    | :    | :       | : | : | : |
| 41.26 | :798.0 | : 10 | : "    | :       | :                           | :      | :      | :      | :     | :    | :    | :       | : | : | : |
| 1.22  | :854.0 | : 10 | : "    | :       | :                           | :      | :      | :      | :     | :    | :    | :       | : | : | : |
| 10.69 | :838.0 | : 10 | : "    | :       | Average Belt Slippage 1.06% |        | :      | :      | :     | :    | :    | :       | : | : | : |
| 21.16 | :831.0 | : 10 | : "    | :       | :                           | :      | :      | :      | :     | :    | :    | :       | : | : | : |
| 51.09 | :815.0 | : 10 | : "    | :       | :                           | :      | :      | :      | :     | :    | :    | :       | : | : | : |
| 24.77 | :823.0 | : 60 | : "    | : 3.726 | : 6.65                      | : 1.00 | : 1.00 | : 2.00 | : 198 | : 92 | : 57 | : 28.75 | : | : | : |

### MAXIMUM LOAD TEST

46.40 : 798.0 : 60 : Kero : 7.416 : 6.26 : 0.00 : 4.50 : 4.50 : 196 : 88 : 60 : 28.85  
Belt Slippage 1.37%

### HALF LOAD TEST

21.16 : 831.0 : 60 : Kero : 2.546 : 8.31 : 1.50 : 0.25 : 1.75 : 210 : 92 : 58 : 28.75  
Belt Slippage 0.99%

\* Taken in discharge line from engine.

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

REMARKS: The kerosene used as fuel for this test weighed 6.78 pounds per gallon.

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DRAWBAR HORSE POWER TESTS

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

RATED LOAD, TEN HOURS

|       |        |         |       |          |        |        |        |        |       |      |      |         |
|-------|--------|---------|-------|----------|--------|--------|--------|--------|-------|------|------|---------|
| 21.62 | : 2447 | : 3.313 | : 807 | : - 3.60 | : Kero | : 4.74 | : 4:55 | : 1.82 | : 205 | : 87 | : 62 | : 28.88 |
|-------|--------|---------|-------|----------|--------|--------|--------|--------|-------|------|------|---------|

MAXIMUM LOAD TEST

|       |        |        |       |         |        |         |                |       |      |      |         |
|-------|--------|--------|-------|---------|--------|---------|----------------|-------|------|------|---------|
| 28.23 | : 3750 | : 2.82 | : 749 | : 14.93 | : Kero | : 3.71  | : Not Recorded | : 210 | : 90 | : 58 | : 28.85 |
| 24.71 | : 4830 | : 1.90 | : 850 | : 26.09 | : "    | : 16.35 | : " " "        | : 210 | : 90 | : 58 | : 28.85 |

\*Taken in discharge line from engine.

\*\*\*The first figure denotes slippage at the points of the lugs, the second figure denotes slippage at the rim of the wheel.

REMARKS: The rated load and the first maximum test were made in high gear. The second maximum test was made in low gear.

OIL CONSUMPTION:

During the complete test consisting of about 34 hours running the following oil was used:  
For the engine, 12 gallons of Mobiloil "B"  
For the transmission, none.

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REPAIRS AND ADJUSTMENTS

July 16: Before any official data were taken the water circulating pump was replaced by a larger one (outside diameter of shell 11 inches) which is to be standard equipment for this tractor. The fan shroud was set closer to the radiator. Spark plug No. 2 was found to be broken and was replaced. Plug No. 3 had bad points and was replaced.

July 18: During the rated drawbar test plug No. 1 broke and was replaced. Plug No. 3 had bad points and was replaced.

At the end of the test the tractor was in good running order and there were no indications of undue wear nor of any weakness which might require early repair.

BRIEF SPECIFICATIONS

Hart-Parr 40

Motor: Own, four cylinder, horizontal, valve-in-head. Bore - 5-1/2", stroke - 6-1/2". Rated speed 800 r.p.m.

Chassis: Four wheel, contracting band clutch. Two speeds forward, low - 2.14 miles per hour, high 3.12 miles per hour.

Total weight - 8300 pounds.

REMARKS

In the advertising literature submitted with the application for test of this tractor, we find 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.

We, the undersigned, certify that above is a true and correct report of official tractor test No. 97.

E. E. Brackett  
Engineer in Charge

Oscar W. Sjogren

C. W. Smith

Fred R. Nohavec

Board of Tractor Test Engineers.