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January 1921

Test 079: Hart Parr 20

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA AGRICULTURAL ENGINEERING DEPARTMENT

LINCOLN

Copy of Report of Official Tractor Test No. 79

Dates of test: June 11 to June 17.
 Name, model and rating of tractor: Hart-Parr 20.
 Serial No. Engine: 35144 Serial No. Chassis: 35144
 Manufacturer: Hart-Parr Company, Charles City, Iowa.
 Tractor equipment used: KW (0154521) T.K. Magneto; Stromberg MB3 Carburetor.
 Style and dimensions of wheel lugs: Spade 3 1/2" high.

BRAKE HORSE POWER TESTS

H.P. Dev.	Crank Shaft	Time of Test	Kind of Fuel	Gals. @ Hour	H.P. @ Gal.	Cooling Fuel	In Fuel	Cooling Total	Air	Average Humidity	Height of	Barometer	Water Consump.	
													Gals. Per Hour	*Cooling

RATED LOAD TEST

20.12	: 808	: 120	: Kero	: 2.27	: 8.86	: 2.00	: X	: 2.00	: 190	: 87	: 83	: 28.58		
Belt slippage 1.89%														

**VARYING LOAD TEST

20.22	: 812	: 10	: Kero	:	:	:	:	:	:	:	:	:	:	:
20.81	: 808	: 10	: "	:	:	:	:	:	:	:	:	:	:	:
1.13	: 858	: 10	: "	:	:	:	:	:	:	:	:	:	:	:
5.32	: 849	: 10	: "	:	Belt Slippage 1.76%		:	:	:	:	:	:	:	:
10.48	: 840	: 10	: "	:	:	:	:	:	:	:	:	:	:	:
15.37	: 822	: 10	: "	:	:	:	:	:	:	:	:	:	:	:
12.41	: 832	: 60	: Kero	: 1.78	: 6.93	: 0.36	: X	: 0.36	: 166	: 83	: 83	: 28.58		

MAXIMUM LOAD TEST

23.01	: 811	: 60	: Kero	: 2.56	: 9.00	: 1.29	: X	: 1.29	: 183	: 84	: 83	: 28.58		
Belt Slippage 1.98%														

HALF LOAD TEST

10.44	: 837	: 60	: Kero	: 1.74	: 6.02	: 0.13	: X	: 0.13	: 167	: 82	: 83	: 28.58		
Belt Slippage 1.72%														

*Taken in discharge line from engine.

Remarks: The kerosene used as fuel in this test weighed 6.80 pounds per gallon.

***The water used in fuel mixture could not be weighed separately.

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

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(Corrected)

Drawbar Horse Power Tests

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

Rated Load Test, Ten Hours

11.23	1406	3.00	760	5.98	7.04	Kero:	2.07	5.42	0.56	190	87	73	28.55
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Maximum Load Test

13.36	1690	2.97	769	5.76	8.09	Kero:---	Not Recorded	---	---	186	88	59	28.55
14.08	2500	2.11	826	3.94	16.53	"	---	Not Recorded	--	188	88	59	28.55

*Taken in discharge line from engine.

Remarks: ***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 points of the lugs.
The rated load test and first maximum test were made in high gear. The second maximum test was run in low gear.

Oil Consumption: During the complete test consisting of about 30 hours running the following oil was used:
For the engine, 2½ gallons of Mabiloil B; for the transmission, none.

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Repairs & Adjustments

During the rated draw bar test the fuel line was cleaned, also the breaker points on magneto were filed.

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

Brief Specifications. Hart-Parr 20

Motor: own, two cylinder, horizontal, valve in head; bore - $5\frac{1}{4}$ " , stroke - $6\frac{1}{2}$ " , rated speed - 800 r.p.m.

Chassis: 4 wheel, contracting band clutch, rated speeds: low - 2 miles per hour, high - 3 miles per hour.

Total Weight: 3990 pounds.

General Remarks:

In the advertising literature submitted with the applications 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 are excessive or unreasonable.

The clutch on this tractor grabbed making smooth, gradual starting practically impossible.

We, the undersigned, certify that above is a true and correct copy of report of official tractor test No. 79.

Fred R. Nohavec
Engineer-in-Charge

Oscar W. Sjogren

E. E. Brackett

C. W. Smith
Board of Tractor Test Engineers.