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January 1920

Test 017: Heider Model "D" 9-16

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UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 17

Dates of test June 1, to June 9, 1920.

Name, model and rating of tractor Heider Model "D" 9-16

Serial No. Engine 44962 Serial No. Chassis 12531

Manufacturer Rock Island Plow Co., Rock Island, Ill.

Tractor equipment used Dixie Model 46 Mag. Kingston Model L3 Carb.

Style and dimensions of wheel lugs Angle 2" x 2" x 5/16" x 13" long.

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												
15.96	1001	120	Kero	2.18	7.32	0.05	0.25	0.30	182.5	70	64	28.8
	Belt Slippage		1.09%									
VARYING LOAD TEST												
15.95	1000	10	Kero									
16.34	988	10	"									
1.10	1002.5	10	"									
4.04	991	10	"									
8.06	1002	10	"									
12.28	1004	10	"									
9.74	998	60	Kero	1.75	5.57	0.00	0.18	0.18	164	70.5	64	28.8
MAXIMUM LOAD TEST												
19.54	1003	60	Kero	2.89	6.75	0.00	1.575	1.575	185.5	73	35	28.8
	Belt Slippage		1.22%									
HALF LOAD TEST												
8.03	1006	60	Kero	1.62	4.96	----	none	----	159	72	48	28.8
	Belt Slippage		0.53%									

*Taken in discharge line from engine.

Remarks Kerosene used in this test weighed 6.74 lbs per gallon.

It was necessary to re-adjust water feed to fuel mixture several times during the maximum load test.

In the varying load test it was necessary to shut off water feed to fuel mixture for 0, 1/4, 1/2, and 3/4 loads.

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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 %	Barom. Press. Incl. Merc.
					Kind of Fuel Used	Amount Used per Hour Gallons	Horse Power Hours per Gallon					
RATED LOAD TEST. TEN HOURS (10 Hr. 1 Min)												
9.88	1472	2.52	977	8.5	Kero	2.18	4.53	0.93	202	91.5	52	28.
MAXIMUM LOAD TEST (1st 130.7 ft., 2nd 136.2 ft.)												
11.76	1900	2.32	910	13.9	Kero	---Not	Recorded	-----	172	70	52	28.
11.49	1392	3.10	1020	10.3	"	"	"	94	170	70	52	28.

*Taken in discharge line from engine.

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

Oil Consumption:

During the complete test consisting of about 33 hours running the following oil was used:

For the engine, 4-3/8 gallons of Veodol Special Heavy.

For the transmission, None added. gallons of _____

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Repairs and Adjustments. Endurance.

The carburetor was cleaned once.

At the end of the test the float for indicating the oil level in the crank case would register only when the engine was running. The oil tube to the left master gear teeth was cut off by wearing against the fender and the oil tube to the right master gear teeth was clogged. These defects are of minor importance.

With the exceptions noted above the tractor was in good condition at the end of the test and there was no indication of undue wear in any part nor of any weakness which might require early repairs.

Brief Specifications Heider Model "D" 9-16 H.P. Tractor.

Engine: Four cylinder, vertical, L-head. Bore $4\frac{1}{4}$ " stroke $5\frac{3}{4}$ ", rated speed 1000 r.p.m.

Chassis: Four wheel. Rated speeds 2.5, 2.75, 3, 3.25, 3.5, 3.75 and 4 mi. per Hr.

Total weight: 4100 lbs.

General Remarks:

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

Page 3. "The Heider tractor --- is equally efficient, equally economical, on either light or heavy work."

"It is a real all-purpose tractor----. The man who owns one needs no other power."

Page 5. "Under all conditions and in all competitive tests it has proved its superiority beyond all question."

Page 9. "And when burning kerosene, the Heider burns it all."

Page 23. "Both of the Heider are equipped with the famous four cylinder, heavy duty Waukesha motor, which has proven to be the best power plant for tractor service."

The catalog statements referred to above are made with specific reference to the Heider Model "C" 12-20, but it evidently is intended to make the same claims for the Model "D" 9-16 since on page 18 it is stated that "It (the Model "D") is --- an exact duplicate of the Model "C" 12-20 except for size."

We, the undersigned, certify that above is a true and correct report of official tractor test No. 17.

Claude K. Shedd
Engineer-in-Charge

Orsareus J. J. J.
E. E. Brackett
J. B. W. Hancey
Board of Tractor Test Engineers.