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January 1921

Test 080: Eagle 16-30

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA AGRICULTURAL ENGINEERING DEPARTMENT

LINCOLN

Copy of Report of Official Tractor Test No. 80

Dates of test: August 17 to 25, 1921

Name, model and rating of tractor: Eagle 16-30.

Serial No. Engine: 1037 Serial No. Chassis: None

Manufacturer: Eagle Manufacturing Co., Appleton, Wis.

Tractor equipment used: Schebler Mod. A. Carburetor; Dixie Mod. 462 Magneto

Style and dimensions of wheel lugs: Spada 3 3/8" x 2 1/4" at base; 3 3/8" high, concave faces.

BRAKE HORSE POWER TESTS

H.P.	Crank Dev.	Time of Test	Kind of Fuel	Fuel Consumption		H. P. @ Hrs.	Cool- In ing	Fuel Total	Temp. in deg. F. Air	Average Humidity Height of Barometer Inches
				Gals.	@ Hour					

RATED LOAD TEST

30.25	: 505	: 120	: Kero.	: 3.65	: 8.285	: 0.04	: 2.31	: 2.35	: 185	: 95	: 49.5	: 28.78
Belt slippage 1.65%												

**VARYING LOAD TEST

30.45	: 508	: 10	: Kero.:	:	:	:	:	:	:	:	:	:	
30.48	: 496.5	: 10	: " :	:	:	:	:	:	:	:	:	:	
1.69	: 605.5	: 10	: " ::	:	:	:	:	:	:	:	:	:	
8.95	: 591.5	: 10	: " :	:	:	:	:	:	:	:	:	:	
17.32	: 573.5	: 10	: " :	Average Belt Slippage 1.44%				:	:	:	:		
25.06	: 554.5	: 10	: " :	:	:	:	:	:	:	:	:	:	
19.82	: 555	:	:	:	2.745	: 7.22	: 0.00	: 0.691	: 0.691	: 179	: 100	: 49.5	: 28.78

MAXIMUM LOAD TEST

31.80	: 503	: 60	: Kero.	: 4.238	: 7.504	: 0.00	: 2.68	: 2.68	: 172	: 87	: 65.0	: 28.69
Belt Slippage 1.42%												

HALF LOAD TEST

17.02	: 562	: 60	: Kero.	: 2.126	: 8.005	: 0.00	: 0.00	: 0.00	: 173	: 89	: 65.0	: 28.69
Belt Slippage 1.19%												

*Taken in discharge line from engine

**The last line of this test is the average for the hour.

Remarks: The kerosene used for fuel in these tests weighed 6.82 pounds per gallon. It was necessary to close the water valve of the carburetor after the first 20 minutes of the varying load test.

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Drawbar Horse Power Tests

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

Rated Load Test, Ten Hours

17.15	: 2116	: 3.04	: 460	**7-7.64	: ***4.74	: Kero.:	3.121	: 5.495	: 1.10	: 194	: 87	: 68.0	: 28.77
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Maximum Load Test

17.50	: 2200	: 3.00	: 455	**7-7.64	: ***4.74	: Kero.:	--Not Recorded	--	: 196	: 83	: 58.0	: 28.69
19.97	: 3615	: 2.07	: 494	**5.35	: ***6.78	: Kero.:	"	"	: 195	: 88	: 58.0	: 28.69

* Taken in discharge line from engine.

** At surface of wheel rim.

*** At points of lugs.

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

Oil Consumption: During the complete test consisting of about 36 hours running the following oil was used:
For the engine, 3 1/2 gallons of Stanolind and 2 pounds of cup grease.
For the transmission, 3/4 gallon of 600 W and 1 pound of cup grease.

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Repairs and Adjustments:

Tightened clutch. Cap came off automatic grease cup on left connecting rod. Right connecting rod crank bearing burned out; cap had come off the automatic grease cup lubricating this bearing; this cup was replaced by a new one at the end of the test.

Brief Specifications: Eagle 16-30

Motor: own, twin cylinder, horizontal, valve-in-head; bore 8", stroke 8"; rated speed, 500 r.p.m.

Chassis:- 4 wheel; two speed and reverse sliding gear transmission; expanding shoe clutch. Rated speeds; high, 3 miles per hour, low, 2 miles per hour.

Total Weight: 7210 pounds.

General Remarks:

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

Exhibit A- Specifications, Pages 8 and 9.

"Air cleaner- dry centrifugal."

"Our air pipe opening being close enough to the exhaust practically keeps the air entering carburetor, free from dust."

Exhibit B- Page 5, Par.2.

"Years of experience have shown that any twin-cylinder engine, if properly designed, will burn kerosene as perfectly as gasoline."

"Eagle twin-cylinder engines burn kerosene perfectly."

Page 10, Par. 3.

"---the speed of the motor is always kept constant."

Page 10, Par. 4.

"---the motor governing perfectly at all speeds."

Page 15.

Description does not conform to specifications.

We, the undersigned, certify that above is a true and correct copy of report of official tractor test No. 80.

E. E. Brackett
Engineer-in-Charge

Oscar W. Sjogren

C. W. Smith

F. R. Nohavec

Board of Tractor Test Engineers