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January 1920

Test 050: Flour City 18-35

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 50

Dates of test August 9 to August 25, 1920
 Name, model and rating of tractor Flour City 18-35
 Serial No. Engine 2016 Serial No. Chassis _____
 Manufacturer Kinnard & Sons Mfg. Co., Minneapolis, Minn.
 Tractor equipment used Schebler Model A Carb.; K W Model TK Mag.
 Style and dimensions of wheel lugs Spade 3" high x 2½" 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												
35.23	805	120	Kero	4.59	7.68	x	x	2.00	207	64	84	28.8
			Belt slippage 2.67%.									
VARYING LOAD TEST												
35.05	802	10	Kero.	3.01	7.33							
34.77	785	10	"									
1.07	920	10	"									
9.27	838	10	"									
18.52	840	10	"									
27.77	845	10	"									
21.83	839	60	"	3.01	7.28	x	x	0.75	192	66	84	28.85
MAXIMUM LOAD TEST												
35.46	807	60	Kero	4.68	7.58	x	x	2.50	211	71	56	28.85
			Belt slippage 2.29%.									
HALF LOAD TEST												
18.91	857	60	Kero	2.245	8.42	x	x	x	188	69	70	28.85

*Taken in discharge line from engine.

Remarks Kerosene used for fuel in these brake tests weighed 6.74#
per gallon. Kerosene used for fuel in drawbar tests weighed 6.72#
per gallon. Water to radiator and fuel mixture could not be
measured separately.

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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.	XX Slippage of Drive Wheels %	Fuel Consumption			Water Used per Hour Gallons	*Temperature of Cooling Fluid Deg. F.	Temperature of Atmosphere Deg. F.	Average Humidity %	Barometric Pressure Inches Mercury
					Ind of Fuel Used	Amount Used per Hour Gallons	Horse Power Hours per Gallon					
RATED LOAD TEST. TEN HOURS												
18.29	3784	1.81	752.5	6.33	Kero	4.575	4.00	3.65	212	78	56	28.8
MAXIMUM LOAD TEST (1st 85.4' - 2nd, 89.8')												
18.80	4116	1.71	700	16.46	Kero	Not recorded	--	--	196	81	55	28.9
19.51	2964	2.47	790	12.05	Kero	"	"	--	196	82	55	28.9

*Taken in discharge line from engine.

Remarks xx For computing slippage, circumference of drive-wheels was taken at points of lugs.
 In the rated load and first maximum test the tractor was operated in low gear; in the second maximum test the tractor was operated in high gear.

Oil Consumption:

During the complete test consisting of about 30 hours running the following oil was used:

For the engine, 12-3/4 gallons of Mobiloil "B"

For the transmission, 1 1/2 gallons of Polarine Heavy

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Repairs and Adjustments. Endurance:

Adjusted one valve-spring.

Five new spark-plugs on rated drawbar test.

Ground valves once.

New fan belt.

Counter-shaft bearing was cut out at end of drawbar test due to lack of oil. Bearing is oiled by grease-cup and altho oil-cup was screwed down during test the rear side of bearing was not lubricated. With the exception of this bearing, tractor was in good condition at close of test, and there were no other indications of undue wear or weakness which might need early repair.

We do not consider these repairs and adjustments to be so serious as to disqualify the tractor.

Brief Specifications Flour City 18-35 H.P. Tractor.

Motor: Four cylinder, vertical, valve-in-head, own make.

Bore $5\frac{1}{2}$ ", stroke 6", rated speed 800 r.p.m.

Chassis: Four wheel, friction drive, shoe clutch. Rated speeds: forward $2\frac{1}{4}$ low, high 3 M.P.H.

Total weight 10,000 lbs.

General Remarks:

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

Page 11--"The gears are made from drop forgings of high carbon steel accurately machined and hardened, enclosed and running in oil, and they are unequalled for substantiality and long life."

Page 12--"There is an entire absence of vibration in Flour City tractors."

We, the undersigned, certify that above is a true and correct report of official tractor test No. 50.

Fred R. Mohave
Engineer-in-charge

Oscar W. Sjogren
E. E. Bradbitt
C. W. Smith
Board of Tractor Test Engineers.