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January 1923

Test 094: Russell Model C 20-40

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA AGRICULTURAL ENGINEERING DEPARTMENT

AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 94.

Dates of test: May 16th to May 25th, 1923.

Name, model and rating of tractor; Russell C 20 - 40

Serial No. Engine; 3272 Serial No. Chassis X2186

Manufacturer; The Russell & Company, Massillon, Ohio.

Tractor equipment used; Splitdorf Aroo Model 448 Magneto. Kingston L Carburettor

Style and dimensions of wheel lugs; Spade - 3-1/4" high, 3" wide - 64 on each drive wheel.

BRAKE HORSE POWER TESTS

			Fuel Consumption			Water Consump.			Temp. in		
			Gals. Per hour			deg. F.					
H.P.	Crank	Time	Kind	Gals.	H. P.	Cool-	In	Total	Cool-	Air	Average
Dev.	Shaft	of	Kind	@	Hrs.	@	ing	Fuel	ing		Humidity %
Speed	Test	of	@	Hrs.	@	ing	Fuel	ing	ing		Height of
R.P.M.	Min.	Fuel	Hour	Gel.				Fluid			Barometer
											Inches

RATED LOAD TEST***

40.21 : 900 : 120 : Kero : 5.453 : 7.37 : 0.077 : 1.790 : 1.867 : 196 : 81 : 68 : 28.53
Belt Slippage - 1.85%

VARYING LOAD TEST***

40.40 : 903 : 10 : Kero : : : : : : : : : :
40.38 : 896 : 10 : " : : : : : : : : : :
1.15 : 936 : 10 : " : Average Belt Slippage 1.46% : : : : : :
10.47 : 931 : 10 : " : : : : : : : : : :
20.58 : 918 : 10 : " : : : : : : : : : :
30.37 : 907 : 10 : " : : : : : : : : : :
24.17 : 915 : 60 : Kero : 3.749 : 6.45 : 0.00 : 0.567 : 0.567 : 183 : 82 : 50 : 28.53

MAXIMUM LOAD TEST

43.00 : 898 : 60 : Kero : 6.475 : 6.54 : 0.00 : 0.706 : 0.706 : 177 : 71 : 74 : 28.65
Belt Slippage 1.89%

HALF LOAD TEST

20.77 : 926 : 60 : Kero : 2.958 : 7.27 : 0.00 : 0.00 : 0.00 : 171 : 83 : 50 : 28.53
Belt Slippage 1.41%

*Taken in discharge line from engine.

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

REMARKS: The kerosene used as fuel in this test weighed 6.78 pounds.

Copy of Report of Official Tractor Test No. 94

DRAWBAR HORSE POWER TESTS

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

RATED LOAD TEST, TEN HOURS

21.48	:	3211	:	2.51	:	873	:	5.99	:	4.17	:	Kero	:	3.575	:	6.01	:	0.347	:	182	:	81	:	49	:	28.85
-------	---	------	---	------	---	-----	---	------	---	------	---	------	---	-------	---	------	---	-------	---	-----	---	----	---	----	---	-------

MAXIMUM LOAD TEST

	:	:	:	:	11.05	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
32.05	:	5070	:	2.37	:	881	:	1.43	:	Kero	:	***:Not Recorded	:	180	:	70	:	53	:	:	:	:	:	28.65
	:	:	:	:	:	:	:	4.47	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
30.90	:	3590	:	3.23	:	733	:	5.88	:	"	:	"	:	"	:	182	:	70	:	53	:	:	:	28.65

*Taken in discharge line from engine

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

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

Oil Consumption: During the complete test consisting of about 32 hours running the following oil was used:
 For the engine, 3 gallons of Mobiloil "BB" to fill crank case, none was added.
 For the transmission, none.
 For the gears, 1-1/2 gallons of Stanolind.

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REPAIRS AND ADJUSTMENTS

May 19th: Before any data were taken the fan belt was tightened.

May 22nd: Before the maximum drawbar test the clutch was adjusted.

There were no other repairs or adjustments necessary. 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

Russell C 20 - 40

Motor: Climax, four cylinder, vertical, L head. Bore - 5-1/2", stroke - 7". Rated speed 900 r.p.m. Climax governor with elliptical butterfly valve.

Chassis: four wheel, shoe clutch. Two speeds, low - 2.4 miles per hour, high 3.7 miles per hour.

Total weight - 8000 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. 94.

E. E. Brackett
Engineer-in-Charge

Oscar W. Sjogren

C. W. Smith

Fred R. Nohavec
Board of Tractor Test Engineers.