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January 1921

## Test 078: Russell Giant 30-60

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# UNIVERSITY OF NEBRASKA AGRICULTURAL ENGINEERING DEPARTMENT

## LINCOLN

Copy of Report of Official Tractor Test No. 78.

Dates of Test: June 6 to June 25, 1921.

Name, model and rating of tractor: Russell Giant 30-60

Serial No. Engine: 188 Serial No. Chassis: X2146

Manufacturer: The Russell and Company, Massillon, Ohio.

Tractor equipment used: Bosch (3346611) DU4 Magneto; Kingston Dual E Carburetor

Style and dimensions of wheel lugs: Angle  $2\frac{1}{2}$ " high.

### BRAKE HORSE POWER TESTS

		: Water Consumption: Temp. :															
		: Fuel Consumption :		Gal. Per Hour :		Deg. F. :											
H.P.:	Crank	Time	:	:	:	:	:	:	:	:	:	:	:	:	:	Average	Barometer
Dev. :	Shaft	of	Kind	Gals.:	H.P.:	Cool-:	In :	Cool-:	:	:	:	:	:	:	:	Humidity	
:	Speed	Test	of	@	Hrs.:	ing	Fuel	Total:	ing	:	Air:	:	:	:	:	Height	
R.P.M.	Min.	Fuel	Hour	Gal.	:	:	:	:	:	:	Fluid	:	:	:	:	of	

### RATED LOAD TEST

60.35:	534	:	120	:	Kero.:	11.98	:	5.04:	1.75	:	13.50:	15.25:	200	:	100	:	37	:	28.70
Belt Slippage 2.56%																			

### \*\*VARYING LOAD TEST

60.42:	535	:	10	:	Kero.:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
60.21:	529	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
1.36:	597	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
15.13:	531	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
34.14:	600	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
48.88:	575	:	10	:	"	:	:	:	:	:	:	:	:	:	:	:	:	:	:
37.54:	561	:	60	:	Kero.:	11.00:	3.41:	1.00:	2.00:	3.00:	175	:	93	:	45	:	28.63	:	

### MAXIMUM LOAD TEST

66.13:	532	:	60	:	Kero.:	16.18:	4.09:	1.00:	5.00:	6.00:	200	:	107	:	47	:	28.74	:	
Belt Slippage 2.51%																			

### HALF LOAD TEST

30.10:	530	:	60	:	Kero.:	6.33:	4.76:	0.25:	0.75:	1.00:	189	:	100	:	47	:	28.74	:	
Belt Slippage 2.06%																			

\*Taken in discharge line from engine.

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

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

The water to fuel mixture was shut off on no load,  $\frac{1}{4}$ ,  $\frac{1}{2}$  and  $\frac{3}{4}$  loads.

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Drawbar Horse Power Tests

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

RATED LOAD TEST, TEN HOURS

30.60	5656	2.03	574	-0.553	5.15	Kero	11.94	2.56	5.45	166	79	61	28.62
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MAXIMUM LOAD TEST

43.53	8800	1.85	524	-2.10	7.71	Kero	---	Not Recorded	---	170	77	56	28.63
40.00	4615	3.25	505	-0.86	4.83	"	"	"	"	178	79	56	28.63

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

\*\*Two figures are given denoting slippage in each test; the first shows slippage at the rim of the wheel, the second shows slippage at the points of the lugs.

Oil Consumption: During the complete test consisting of about 40 hours running the following oil was used:  
For the engine, 19½ gallons of Mobiloil B; For the transmission, 1¼ gallons of Mobiloil C -  
2½ gallons Polarine for gears.

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Repairs and Adjustments

At the end of the limber-up run the fan belt was replaced with a new one.

After about 4 hours additional running, the fan belt was tightened.

During the first rated load belt test, lagging came off the belt pulley and was not replaced. Test was repeated.

On preliminary belt tests, engine as submitted was found to overheat. Larger radiator was substituted and made standard equipment before any official data were taken. All valves were ground at this time.

Clutch was tightened at beginning of maximum draw bar test.

One exhaust valve spring broke during maximum draw bar test and was repaired.

Brief Specifications

Motor: Own, 4 cylinder, vertical, L head, Bore - 8", Stroke - 10",  
Rated speed - 525 r.p.m.

Chassis: 4 wheel, shoe clutches (two), rated speeds, low - 2  
miles per hour, high - 3.2 miles per hour.

Total Weight: 23,380 pounds.

General Remarks:

In the advertising literature submitted with applications for test of this tractor, we find some 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 except the following:

Catalogue, page 28, last paragraph, 2nd line - "The Motor - It is perfectly balanced, "etc.

We, the undersigned, certify that above is a true and correct copy of report of official tractor test No. 78.

Fred R. Nohavec  
Engineer-in Charge

Oscar W. Sjogren

E. E. Brackett

C. W. Smith  
Board of Tractor Test Engineers.