January 1920

Test 011: Oil Pull 20-40 Model "G"

Nebraska Tractor Test Lab
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UNIVERSITY OF NEBRASKA

AGRICULTURAL ENGINEERING DEPARTMENT

UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 11

Dates of test May 6 to May 22, 1920

Name, model and rating of tractor Oil Pull 20-40 Model "G"

Serial No. Engine 10535 Serial No. Chassis

Manufacturer Advance-Rumely Co., La Porte, INd.

Tractor equipment used Bosch DU 2 Magneto; Own Carburetor

Style and dimensions of wheel lugs Angle 3" high

Brake Horse Power Tests

	Horse Power Developed	Crank Shaft Speed R. P. M.	Length of Test Min.	Fuel Consumption: Kind of Fuel	Fuel Consumption: Amount Used per Hour Gallons	Fuel Consumption: Horse Power Hours per Gallon	Water Consumption Gallons per Hour: In Radiator	In Cyl Mixture	Total	Temperature *Cooling Fluid Deg. F.	Temperature of Atmosphere Deg. F.	Humidity %	Barometric Pressure Inches Mercury
				RATED LOAD TEST									
**	39.90	462	120	Kero	4.288	9.30	none	4.63	4.63	193	76	62	28.4
	Belt slippage 1.23%												
				VARYING LOAD TEST									
	39.73	460.0	10	Kero									
	41.56	458.5	10	"									
	1.47	482.5	10	"									
	10.41	480.5	10	"									
	20.46	472.0	10	"									
	30.53	471.5	10	"									
verage	24.32	471.0	60	Kero	3.00	8.16	none	2.70	2.70	204	82	57	28.3
				MAXIMUM LOAD TEST									
	46.19	465	60	Kero	5.706	8.10	none	6.31	6.31	165	63	91	28.5
	Belt slippage 1.22%												
				HALF LOAD TEST									
	20.58	475	60	Kero	2.276	9.04	none	1.74	1.74	217	82	51	28.3

*Taken in discharge line from engine.

Remarks The kerosene used in this test weighed 6.80 lbs per gallon. The horsepower in the rated load test being less than the rated horsepower was due to the operator of the dynamometer not applying quite enough load. The tractor would have maintained a 40 HP load without difficulty.

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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: Kind of Fuel Used	Fuel Consumption: Amount Used per Hour Gallons	Fuel Consumption: Horse Power Hours per Gallon	Water Used per Hour Gallons	*Temperature of Cooling Fluid Deg. F	Temperature of Atmosphere Deg. F.	Average Humidity %	Barometric Pressure Inches Mercury
RATED LOAD TEST. TEN HOURS (10 hr., 2min.)												
20.87	3913	2.00	455	9.09	Kero	4.577	4.56	4.80	163	79	74	28.5
MAXIMUM LOAD TEST												
30.07	6365	1.77	435	16.6	Kero	--- Not recorded ---			170	78	54	28.7
25.11	3101	3.04	430	6.7	Kero	"	"	"	178	78	54	28.7

*Temp. in discharge line from engine.

Marks **For computing slippage the circumference of the driver wheels was taken at points of the lugs.

The rated load test and the first maximum test were made with the tractor in low gear. The second maximum test was made with the tractor in high gear.

Consumption:

During the complete test consisting of about 36 hours running the following oil was used:

the engine, 9½ gallons of Veedol extra heavy

the transmission, none added ~~xxxxxxxx~~ except 1½ gallons of 600 W and 1-3/4 gal. of used crank case oil

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Miscellaneous Tests: None

Repairs and Adjustments. Endurance:

May 6. Adjusted steering gear.

May 20. Replaced gasket which had blown out at connection of kerosene and water heater to exhaust.

Repaired leak in gasoline line between hand pump and carburetor.

May 23. At the end of the test, the gasoline line between hand pump and carburetor leaked. With the above mentioned exception 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.

It is our opinion that the repairs and adjustments necessary during this test do not indicate any mechanical defect of more than minor importance.

Brief Specifications Oil Pull 20-40 Model "G" Tractor.

Engine: Twin cylinder, opposed cranks, horizontal, valve-in-head. Bore 8", stroke 10" rated speed 450 r.p.m.

Chassis: Four wheel. Rated speeds, low gear 2.0 mi. per Hr. high gear 3.2 mi. per Hr.

Total weight 12969 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 directly compared with results of the test as reported above. It is our opinion that none of these statements or claims are unreasonable or excessive except the following statements quoted from their general catalog:

Page 6. "And the proper weight, plus proper distribution of weight gives 100 per cent traction even under adverse conditions."

Page 8. "---the two cylinder, low speed engines are much better suited to tractor use than any other types now in use--that the former show an advantage of approximately 20% greater drawbar efficiency."

Page 9. "Its record of .7 lbs kerosene per brake horse power has not been equalled in public demonstrations by any other kerosene burning tractor, before or since."

"Take any official tests or demonstrations held since 1912--figure the average on any and all tests and you will find that the Oil Pull not only hold the record for the best average and uniformity, on maximum power developed and low fuel consumption--but that no tractor has yet demonstrated by consecutive tests its ability to rank second to the Oil Pull".

Page 13. "--our own and public tests have proved it to be without exception, the most efficient and economical system of oil combustion."

Page 14. "--All air going into the engine must first pass thru a patented air cleaner which removes all dirt and grit."

We, the undersigned, certify the above is a true and correct report of Official Tractor Test No. 11.

Claude K. Shedd
Engineer-in-Charge

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