January 1920

Test 063: Townsend 15-30

Nebraska Tractor Test Lab
University of Nebraska-Lincoln, tractortestlab@unl.edu

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 63

Dates of test September 9 to September 23, 1920

Name, model and rating of tractor Townsend 15-30

Serial No. Engine 1348 Serial No. Chassis

Manufacturer Townsend Mfg. Co., Janesville, Wisconsin

Tractor equipment used Dixie Model 462 "C" Mag.; Own Carburetor.

Style and dimensions of wheel lugs Steel angles 1½" 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	Water Consumption Gallons per Hour: In Fuel Mixture	Water Consumption Gallons per Hour: Total	Temperature *Cooling Fluid Deg. F.	Temperature of Atmosphere Deg. F.	Humidity %	Barometric Pressure Inches Mercury
RATED LOAD TEST													
	28.35	526	120	Kero.	3.02	9.38	8.00	xx	8.00	210	90	45	28.6
			Belt slippage 1.14%.										
VARYING LOAD TEST													
	27.43	510.5	10	Kero.									
	27.12	501.5	"	"									
	1.96	582	"	"									
	7.73	571.5	"	"									
	15.19	564.5	"	"									
	22.35	554	"	"									
Aver.	17.54	547	60	Kero.	2.42	7.26	4.00	--	4.00	210	90.5	41	28.55
MAXIMUM LOAD TEST													
	29.51	533	60	Kero.	3.90	7.58	7.00	--	7.00	203	79	46	28.6
				Belt slippage 1.52%.									
HALF LOAD TEST													
	15.17	563	60	Kero.	1.75	8.66	5.00	--	5.00	210	90	41	28.5
				Belt slippage 1.13%.									

*Taken in discharge line from engine.

Remarks Kerosene used for fuel in this test weighed 6.78 lbs. per gal

xx Water to fuel and radiator 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.	** 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 (9 hrs. 26 min.)												
15.26	2559	2.24	544	15.4	Kero.	3.23	4.73	6.83	202	81	65	28.3
MAXIMUM LOAD TEST (135.1 Ft.)												
17.85	2681	2.50	575	12.6	Kero.	Not	Recorded		180	81	46	28.6

*Taken in discharge line from engine.

Remarks ** For computing slippage, circumference of drive wheels was taken at points of lugs.

Brief Specifications: Motor: 2 cylinder, horizontal, automatic intake valve, valve-in-head, own make. Bore 7", stroke 8". Rated speed 525 r.p.m.

Chassis: 4 wheel, boiler type frame, Rated speeds 2.3 miles per hour.

Total weight: 7,000 Lbs.

Oil Consumption:

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

For the engine, 2 gallons of Mobiloil "BB", and $\frac{3}{4}$ gal. Mobiloil B.

For the transmission, None added: gallons of

Repairs and Adjustments. Endurance:

After about 14 hours running the connecting-rod bearing was adjusted and new grease-cup put on.

After about 16 hours running magneto was replaced by a new one. The old one was thought to be defective by the president of the company as the motor was not developing its power. Change made no difference in power.

Globe valve in cooling system was repaired, and during this stop cylinder heads were taken off to inspect valves, and in replacing heads a new gasket was put on.

After about 20 hours run both spark plugs were replaced.

During the drawbar test the clutch was adjusted 4 times, and at each stop the lugs were cleaned, a light dampness of track causing them to clog and this acted as a brake on the engine fly-wheel due to small clearance between lugs and fly-wheel. This braking action stalled the motor and necessitated the above mentioned clutch adjustment.

Water connection to carburetor came off and plug in bowl was lost and replaced.

During this test the packing around water pump-shaft and fuel pump plunger was tightened.

At the end of the test the tractor was apparently in good condition, and no undue wear was noticeable, except that counter gears were striking on riveted joint of drive-wheel.

It is our opinion that the above repairs and adjustments do not indicate in themselves mechanical defects so serious as to disqualify the tractor.

General Remarks:

In the advertising literature submitted with the applications for test of this tractor, we find some statements or claims which can not 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:

1-(Leaflet) -"The Townsend transmission is as near frictionless --- All power is delivered at the drawbar, etc. --- ".

2-"That it will stand the hardest use without falter or need of repair or attention."

3-Exhibit A, page 5. "Townsend patented carburetor is one of the most economical and thorough burners of kerosene possible to obtain. There is a remarkable freedom from carbon or smoke, etc.

We, the undersigned, certify that above is a true and correct report of official tractor test No. 63.

Fred R Mohaver
Engineer-in-Charge

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