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January 1920

Test 032: Aultman-Taylor 22-45

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UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 32

Dates of test July 1 to July 19, 1920.

Name, model and rating of tractor Aultman-Taylor 22-45

Serial No. Engine 3356 Serial No. Chassis 3356

Manufacturer Aultman-Taylor Machinery Co., Mansfield, Ohio.

Tractor equipment used Kingston Model E Carb; Eiseman Model G4 Mag.

Style and dimensions of wheel lugs Spade 4 1/4" high x 8", 10" Extension rims.

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												
44.92	600	120	Kero	5.36	8.38	x	x	5.50	202.5	80	39	28.9
	Belt	Slippage	1.18%									
VARYING LOAD TEST												
45.25	605	10	Kero									
45.53	602.5	10	"									
2.44	720	10	"									
13.48	711.5	10	"									
26.82	709.5	10	"									
38.94	695.5	10	"									
Aver. 29.96	674	60	Kero	4.00	7.49	x	x	3.00	193	105	51	28.6
MAXIMUM LOAD TEST												
46.66	607	60	Kero	6.23	7.49	x	x	5.00	177	82	37	28.9
	Belt	Slippage	1.21%									
HALF LOAD TEST												
26.97	713	60	Kero	4.14	6.51	x	x	3.00	178	83	37	28.9
	Belt	Slippage	1.02%									

*Taken in discharge line from engine.

Remarks Kerosene used for fuel in this test weighed 6.75 lbs. per gallon.

x Water for radiator and fuel mixture could not be measured separately.

In the varying load test it was necessary to readjust the water feed to

the fuel mixture for 0, 1/4, 1/2, and 3/4 loads.

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												
24.44	3723	2.46	626	3.6	Kero	4.13	5.92	1.53	184	77.	62	28.9
MAXIMUM LOAD TEST (1st 158.1 ft; 2nd 159.5 ft.)												
28.10	4986	2.11	590	3.8	Kero	---Not	Recorded	-----	176	90	68	28.7
25.58	3175	3.02	600	3.0	"	"	"		182	90	68	28.7

*Taken in discharge line from engine.

Remarks ** For computing slippage, the circumference of the drive wheels was taken at points of lugs.
The ten-hour test and the first maximum test were made with the tractor in low gear, the second maximum test with the tractor in high gear.

Oil Consumption:

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

For the engine, 16 $\frac{1}{4}$ gallons of Sinclair Liberty Aero.
 For the transmission, 1 $\frac{1}{4}$ gallons of Stanolind Tractor Oil, 2 gallons used oil.

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Repairs and Adjustments. Endurance:

Screen in fuel line was cleaned once.

Air vent in carburetor bowl was cleaned once.

Position of float in carburetor bowl was adjusted twice.

Carburetor float valve was cleaned once.

Cylinder head gasket for cylinders 3 and 4 was burned out three times. This apparently was due to the fact that an irregularity in the casting made the cylinder wall too thin at one point. A new cylinder block was put on for cylinders 3 and 4. A new gasket was also put on cylinders 1 and 2 although the old gasket was good.

The left countershaft bearing was cut out probably due to not getting sufficient lubrication. This was probably the fault of the tractor operator. The bearing was re-babbitted and the ten hour drawbar test made after this. The counter shaft drive gear was worn some due to the fact that wear in the counter shaft bearing had thrown the gears out of proper mesh.

At the end of the test the tractor was apparently in good condition. With the exception of the gear mentioned above, 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 serious mechanical defect in this model of tractor.

Brief Specifications Aultman-Taylor 22-45 H.P. Tractor.

Engine: Four cylinder, horizontal, valve-in-head. Bore $5\frac{1}{2}$ ", stroke 8", rated speed 600 r.p.m.

Chassis: Four wheel. Rated speeds: low gear 2.13 mi. per hour; high gear 2.93 mi. per hour.

Total weight, 12880 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 the results of this test as reported above. It is our opinion that none of these statements or claims are unreasonable or excessive except the following:

"In fact they (the 22-45 and 30-60) have established records for power and economy that have never even been closely approached by any other tractor".

"We can safely say that our tractors are free from any transmission trouble."

"We can safely say that they are the best designed and best built tractor motors built on any heavy duty tractor."

(We do not approve the comparisons with other tractors quoted above for the reason that proof is lacking.)

We, the undersigned, certify that above is a true and correct report of official tractor test No. 32.

Claude K. Shedd
Engineer-in-Charge

Oscar W. Gogren
E. E. Brackett
Giles W. Haney
Board of Tractor Test Engineers.