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Test 033: Moline Universal Model D 9-18

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA
 AGRICULTURAL ENGINEERING DEPARTMENT
 UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 33

Dates of test July 14 to July 17, 1920.

Name, model and rating of tractor Moline Universal Model D 9-18

Serial No. Engine OR 50554 Serial No. Chassis 28268

Manufacturer Moline Plow Co., Moline, Illinois.

Tractor equipment used Remy Governor-Generator, Ignition, Starter; Holly Carb.

Style and dimensions of wheel lugs Spade $3\frac{3}{4}$ " x $2\frac{1}{4}$ "

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												
18.27	1840	120	Gasol	2.24	8.15	1.00	0.00	1.00	212	93	71	29.0
	Belt	Slippage	C. 44%									
VARYING LOAD TEST												
18.19	1838	10	Gasol									
19.00	1827	10	"									
1.67	1873	10	"									
4.56	1863	10	"									
9.10	1862	10	"									
13.98	1910	10	"									
Aver. 11.15	1862	60	Gasol	1.77	6.30	0.75	0.00	0.75	213	96	66	29.0
MAXIMUM LOAD TEST												
27.45	1788	60	Gasol	3.09	8.88	7.00	0.00	7.00	215	97	44	28.95
	Belt	Slippage	0.29%									
HALF LOAD TEST												
9.23	1892	60	Gasol	1.62	5.70	0.625	0.00	0.625	214	97	60	29.0

*Taken in discharge line from engine.

Remarks Gasoline used for fuel in the rated and varying load test weighed 6.15# per gallon. Gasoline used for fuel in all other tests on this tractor weighed 6.16# per gallon.

The governor hunted on rated load.

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.												
9.61	1041	3.46	1695	4.5	Gas	2.08	4.63	0.14	212	85	50	28.8
MAXIMUM LOAD TEST (145.3 ft.)												
17.40	1778	3.67	1820	6.1	Gas	---Not	Recorded---		212	90	50	28.75

*Taken in discharge line from engine.

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

The condition of the track was better than usual when these drawbar tests were made.

Oil Consumption:

During the complete test consisting of about 31 hours running the following oil was used:

For the engine, 4-5/8 gallons of Veedol Special Heavy.

For the transmission, none added gallons of _____

Repairs and Adjustments. Endurance:

The tractor of this model first submitted for test was damaged by the rear carrying truck turning over when a short turn was made with the tractor pulling a load. Due to this damage and also unsatisfactory working of the governor the manufacturer requested and was granted privilege of submitting another tractor.

The fan belt was tightened once.

One spark plug was replaced.

Adjustment of dashpot regulation on governor was changed once.

Carburetor was cleaned once.

When the tractor was being backed out of the building and the carrying truck wheels struck the door sill the rear end of the tractor reared throwing the driver off. Two clamp bolts in the rear carrying truck were broken and had to be replaced.

Ten wheel lugs were broken pulling over steel door sills.

At the end of the test the tractor was apparently in good condition (except wheel lugs mentioned above) 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 Moline Universal 9-18 H.P. Tractor.

Engine: Four-cylinder, vertical, valve-in-head. Bore $3\frac{1}{2}$ " stroke 5". Rated speed 1800 r.p.m.

Chassis: Two drive wheels in front, two wheel truck in rear. Rated speed 3.58 mi. per hour.

Total weight 3590 lbs.

General Remarks:

This tractor when equipped with the rear carrying truck as tested here, has so little weight on the rear that it is likely to rear up when backed.

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:

"The governor on the Moline Universal tractor does not permit engine speed to vary more than 50 r.p.m. under any condition." (The engine speed in the test varied more than this even with the load constant.)

"It gets every mite of power from every drop of gasoline----".

"At all tests--- it has shown a greater excess power over its rated horse power than any other tractor." (We do not approve this statement for the reason that it is likely at any time to be proved incorrect.)

We, the undersigned, certify that above is a true and correct report of official tractor test No. 33

Claude K. Shedd
Engineer-in-Charge

Oscar V. Jorgensen
E. E. Brackett
Jiles W. Haney
Board of Tractor Test Engineers.