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January 1920

Test 048: Twin City 40-65

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 48

Dates of test August 5 to August 14, 1920

Name, model and rating of tractor Twin City 40-65

Serial No. Engine 3009 Serial No. Chassis 1766

Manufacturer Minneapolis Steel & Machinery Co., Minneapolis, Minnesota.

Tractor equipment used Holly Model 257 Carb; KW Model HK Magneto.

Style and dimensions of wheel lugs Angle 3" x 16"; 12" 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												
65.96	534	120	Kero	7.875	8.38	x	x	10.50	212	85	84	28.8
Belt Slippage				2.68%								
VARYING LOAD TEST												
65.69	531.5	10	Kero									
65.96	534	10	"									
2.01	752	10	"									
19.49	621.5	10	"									
35.57	575.5	10	"									
49.91	543	10	"									
43.10	593	60	Kero	6.39	6.74	x	x	5.00	212	80	70	28.85
MAXIMUM LOAD TEST												
65.53	530	60	Kero	7.88	8.32	x	x	6.00	212	80	62	28.7
Belt Slippage				2.61%								
HALF LOAD TEST												
33.48	542	60	Kero	5.58	6.00	0.25	0.00	0.25	200	85	70	28.85
Belt Slippage				2.06%								

*Taken in discharge line from engine.

Remarks Kerosene used for fuel in this test weighed 6.74 lbs. per gallon.

x Water to radiator and fuel mixture 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												
41.19	7736	2.00	548	9.8	Kero	7.18	5.73	3.94	201	80	65	28.9
MAXIMUM LOAD TEST (101.6 ft.)												
49.71	10820	1.72	460	13.75	Kero	-----Not Recorded-----			168	73	46	28.9

*Taken in discharge line from engine.

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

Oil Consumption:

During the complete test consisting of about 28 hours running the following oil was used:

For the engine, 15 1/4 gallons of Mobil Oil B

For the transmission, 3/4 gallons of 600 W, 2# hard cup grease.

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Repairs and Adjustments. Endurance:

Fan belt was tightened three times during test.

Clutch was tightened once.

After about 18 hours of running the venturi in carburetor was changed from 1-5/8 to 1 1/4", either one being standard, depending upon locality and motor.

After about 20 hours of running air valve was changed in carburetor to larger one, this one being measured and found to be correct size and standard.

Valves were ground and timing checked after about 22 hours running.

Welded cap on push rod, same being broken by company representative hammering on it.

Adjusted butterfly valve control.

At the end of the test the tractor was apparently in good condition. There was no indication of undue wear in any part nor of any weakness which might require early repair.

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 Twin City 40-65 H.P. Tractor.

Motor: 4-cylinder, L-head, Bore 7 1/4", stroke 9", rated speed 535 r.p.m. Vertical.

Chassis: 4-wheel, 2 clutches of contracting band type. Rated speed forward: 1.9 Miles per hour, reverse 1.9 miles per hour.

Total Weight: 25550 lbs.

General Remarks:

In the advertising literature submitted with the application 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 claims or statements are unreasonable or excessive except the following:

"This 65 H.P. engine is perfectly governed".

We, the undersigned, certify that above is a true and correct report of official tractor test No. 48.

Fred R. Mohaver
Engineer-in-Charge

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