UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN

Report of Official Tractor Test No. 64

Dates of test Sept. 21 to Sept. 28, 1920.

Name, model and rating of tractor Uncle Sam 20-30

Serial No. Engine 226-2 JB Serial No. Chassis 1152

Manufacturer U. S. Tractor & Machine Co., Menasha, Wis.

Tractor equipment used Dixie Model 46C Magneto; Bennett Carburetor.

Style and dimensions of wheel lugs Spade 3½" 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												
30.75	1025	120	Kero	6.34	4.85	0.50	0.00	0.50	181	90	42	28.9
	Belt Slippage 1.73%											
VARYING LOAD TEST												
30.00	1009.5	10	Kero.									
28.40	952.5	10	"									
4.10	1099	10	"									
7.99	1074	10	"									
25.70	1054	10	"	Average belt slippage 1.42%								
23.10	1036.5	10	"									
Aver. 16.55	1037	60	Kero	3.90	4.78	0.21	0.00	0.21	186	77.5	56	28.3
MAXIMUM LOAD TEST												
32.20	1041	60	Kero	6.41	5.02	0.14	0.00	0.14	192	88	32	28.6
	Belt Slippage 1.77%											
HALF LOAD TEST												
25.17	1053	60	Kero	2.63	5.78	0.23	0.00	0.23	187	84	42	28.6
	Belt Slippage 1.39%											

*Taken in discharge line from engine.

Remarks Kerosene used for fuel in this test weighed 6.78# per gallon.

Report of Official Tractor Test No. 64

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												
21.98	2954	2.79	1027	18.2	Kero	5.74	3.83	0.23	185	71	40.5	28.8
MAXIMUM LOAD TEST (1st 122.3 ft; 2nd 134.5 ft.)												
22.40	3264	2.57	980	18.0	Kero	——Not Recorded——			180	64	27	28.9
21.66	2180	3.73	985	9.85	"	"	"		180	64	27	28.9

*Taken in discharge line from engine.

Remarks ** For computing slippage, the circumference of the drive wheels was taken at points of lugs. The rated and first maximum tests were made in low gear, the second maximum was made in high gear.

Oil Consumption:

During the complete test consisting of about 34 hours running the following oil was used:

For the engine, 4½ gallons of Mobiloil B

For the transmission, none added gallons of " C

Report of Official Tractor Test No. 64

Repairs and Adjustments. Endurance:

During the limbering up run the drawbar hitch casting was broken and replaced; also 13 lugs were lost due to wheel slippage on hard surface.

After about 14 hours of running the magneto timing was changed.

At the end of the brake test the motor was taken down to stop oil leak around rear crankcase gasket under rear crankshaft bearing. During this operation the radiator was punctured and had to be repaired.

At the end of the test the pump packing had to be tightened.

With the exception of the above repairs and adjustments the tractor was in good condition at the end of the test.

It is our opinion that the repairs and adjustments necessary during this test do not indicate any mechanical defect so serious as to disqualify the tractor.

Brief Specifications Uncle Sam 20-30 H.P. Tractor.

Motor: Bever, 4-cylinder, valve-in-head, vertical, Bore 4¼", Stroke 6". Rated speed 1000 r.p.m. Rated H.P., belt 30, drawbar 20.

Chassis: 4 wheel. Rated speeds: low 2.5, high 3½ miles per Hr.

Total weight 4500#

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 are excessive or unreasonable.

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

Fred R. Mohavec
Engineer-in-Charge

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

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Brake Horsepower Test

Load (rated or other) Rated Date Sept. 24,1920. Test No. 64b

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No. Engine 226-2JB Serial No. Chassis 1152

Tractor equipment Dixie Mod.46c Mag., Bennett Carb.

Manufacturer U.S.Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " "

Tractor operated by Laub Brake operated by Booth

Brake used Sprague Brake arm ft. Brake const. $(\frac{2\pi A}{33000})$ 1/3000

Description of belt used 8" Klingtite

Size engine pulley (circumference at crown) 2.927' in.

Size brake pulley (circumference at crown) 2.604' in.

Kind of fuel used Kerosene Fuel test No. 119 Wt. per gal., lbs. 6.78

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Humidity 42 %. Barometric pressure 28.5 inches mercury.

Temperature of atmosphere 89.8 ° F.

Fuel consumption:

Total for test, gals. 12.685 Gals. per hour 6.342

Gals. per H. P. hour 0.2062 H. P. hours per gal. 4.85

Carburetor adjustments (degrees open) Fuel Valve 2 3/8 turns open

Water consumption:

Total in radiator during test, gals. 0.50

Total in fuel mixture during test, gals. 0.00

Total used during test, gals. 0.50

Gals. per H. P. hour H. P. hours per gal.

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 64b.

Fred M Laub Operator W H Booth Observer.

Operator Observer.

Fred R Nohavec
Engineer-in-charge.

Log of Official Tractor Brake Horse Power Test No. 64b

Sept. 24, 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (7) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixture Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
**Observer				FNL			WHB				WHB		FNL		FNL		FNL	FNL
				2702			3824											
1	2:55			3740	1038		4971	1147			81.5		49.28				182	91
2	3:05			4781	1041		6120	1149					42.08	7.20			182	90
3	:15			5817	1036		7264	1144					34.82	7.26			182	90
4	:25			6851	1034		8405	1141					27.60	7.22			182	90
5	:35			7880	1029		9541	1136					20.38	7.22			182	90
6	:45			8901	1021		0668	1127					54.06 46.90	7.16			182	90
7	:55			9941	1040		1816	1148					39.68	7.23			182	90
8	4:05			0952	1011		2933	1117					32.58	7.10			182	90
9	:15			1952	1000		4037	1104					25.40	7.18			180	90
10	:25			2988	1036		5181	1144					18.40	7.00			180	89
11	:35			4007	1019		6305	1124					52.00 44.78	7.22			180	89
12	:45			5021	1014		7424	1119					37.78	7.00			180	89
13	4:55			6028	1007		8536	1112					30.54	7.24			180	89
Total	2 Hr.													86.02	4.18			
Average			1025		1025	3000		1132	2948	1.73	81.	30.75					181.2	89.8

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

WATER

8.34 - 4.16 = 4.18

Fuel

43.12 - 9.44 = 33.68

43.00 - 9.40 = 33.60

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Brake Horsepower Test

Load (rated or other) Varying Date Sept. 24, 1920. Test No. 64c

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No. Engine 226-2JB Serial No. Chassis 1152

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Manufacturer U.S. Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " " .

Tractor operated by Laub Brake operated by Booth

Brake used Sprague Brake arm ft. Brake const. $(\frac{2\pi A}{33000})$ = 1/3000

Description of belt used 8" Klingtite

Size engine pulley (circumference at crown) 2.927' ~~MK~~

Size brake pulley (circumference at crown) 2.604' ~~MK~~

Kind of fuel used Kerosene Fuel test No. 119. Wt. per gal., lbs. 6.78

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Humidity 56 %. Barometric pressure 28.3 inches mercury.

Temperature of atmosphere 77.5 ° F.

Fuel consumption:

Total for test, gals. 3.900 Gals. per hour 3.900

Gals. per H. P. hour 0.2091 H. P. hours per gal. 4.78

Carburetor adjustments (degrees open) 2-3/8 turns open.

Water consumption:

Total in radiator during test, gals. 0.206

Total in fuel mixture during test, gals. 0.00

Total used during test, gals. 0.206

Gals. per H. P. hour H. P. hours per gal.

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 64c.

Fred N Laub Operator W.H. Booth Observer.

Operator Observer.

Fred R Nohavec
Engineer-in-charge.

Log of Official Tractor Brake Horse Power Test No. 64c

Sept. 24. 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (7) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixture Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
**Observer			FNL	WHB	WHB	WHB	WHB	WHB	WHB	WHB	WHB	WHB	FNL	WHB	FNL	FNL	FNL	FNL
1	9:00		8659				6131				80.5		46.64					
2	:01		9654	995			7232	1101									194	79
3	:08		0678	1024			8364	1132									196	78
4	:10	Avg.		1009.5				1116.5			80.5	30.04	41.34	5.30				
5	:10										81.0		41.34					
6	:11		1668	990			9459	1095									196	78
7	:18		2583	915			0471	1012									196	79
8	:20	Avg.		952.5				1053.5			81.0	28.43	36.10	5.24				
9	:20										19.0		36.10					
10	:21		3676	1093			1685	1214									196	78
11	:28		4781	1105			2912	1227									182	76
12	:30	Avg.		1099				1220.5			19.0	4.06	32.64	3.46				
13	:30										20.1							
Total																		
Average																		

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

Log of Official Tractor Brake Horse Power Test No. 64c(Contimued)

Sept.24.1920.

	Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (7) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixture Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
** Observer					FNL	WHB		WHB				WHB	WHB	FNL	WHB	FNL	FNL	FNL	FNL
	1	9:31			4781 5854	1073		6134 4103	1191			20.1		32.64				176	76
	2	:38			6929	1075		5296	1193									180	76
	3	:40	Average			1074			1192			20.1	7.99	29.10	3.54				
	4	:40										40.25		29.10					
	5	:41			7985	1056		6466	1170									178	77
	6	:48			9037	1052		7632	1166									176	77
	7	:50	Average			1054			1168			40.25	15.7	24.94	4.16				
	8	:50										60.4		24.94					
	9	:51			0075	1038		8781	1149									178	78
	10	:58			1108	1033		9924	1143									180	78
	11	10:00	Average			1035.5			1146			60.4	23.1	20.20	4.74				
	12																		
	13																		
Total		1 Hr.													26.44	1.72			
Average				1037		1037	3035		1149	2992	1.42	48.7	18.65					186	77.5

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

Oil leaked around fly wheel bearing

FUEL

43.50 - 9.74 = 33.76

WATER

9.46 - 7.74 = 1.72

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Brake Horsepower Test

Load (rated or other) Maximum Date Sept 24,1920. Test No. 64d

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No. Engine 226-2JB Serial No. Chassis 1152

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Manufacturer U.S.Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " "

Tractor operated by Laub Brake operated by Nohavec

Brake used Sprague Brake arm ft. Brake const. $(\frac{2\pi A}{33000})$ = 1/3000

Description of belt used 8" Klingtite

Size engine pulley (circumference at crown) 2.927' ins

Size brake pulley (circumference at crown) 2.604' ins.

Kind of fuel used Kerosene Fuel test No. 119 Wt. per gal., lbs. 6.78

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Humidity 32 %. Barometric pressure 28.6 inches mercury.

Temperature of atmosphere 88.1 ° F.

Fuel consumption:

Total for test, gals. 6.413 Gals. per hour 6.413

Gals. per H. P. hour 0.1992 H. P. hours per gal. 5.02

Carburetor adjustments (degrees open) Fuel Valve 2 1/2 turns open

Water consumption:

Total in radiator during test, gals. 0.14

Total in fuel mixture during test, gals. 0.00

Total used during test, gals. 0.14

Gals. per H. P. hour H. P. hours per gal.

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 64d.

Fred N Laub Operator Fred R Nohavec Observer.

Operator Observer.

Fred R Nohavec
Engineer-in-charge.

Log of Official Tractor Brake Horse Power Test No. 64d

Sept. 24, 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixer Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
**Observer				FNL		FRN	FRN				FRN		FNL		FNL		FNL	FNL
1				3351			3495											
2	12:20			4386	1035		4637	1142			84.0		42.44				190	88
3	:30			5428	1042		5783	1146					35.10	7.34			190	88
4	:40			6448	1020		6915	1132					27.90	7.20			192	89
5	:50			7512	1064		8090	1175					20.74	7.16			192	89
6	1:00			8566	1054		9254	1164					54.56 47.32	7.24			194	89
7	:10			9610	1044		0407	1153					39.98	7.34			194	89
8	1:20			0640	1030		1547	1140					32.78	7.20			194	89
9																		
10																		
11																		
12																		
13																		
Total	1 Hr.													43.48	1.14			
Average			1041		1041	3047		1150	2995	1.77	84.0	32.20					192.3	88.7

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

FUEL.

43.62 - 9.80 = 33.82

Water to Radiator

9.54 - 8.40 = 1.14

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Brake Horsepower Test

Load (rated or other) Half Date Sept. 24, 1920. Test No. 64 e

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No. Engine 226-2JB Serial No. Chassis 1152

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Manufacturer U.S. Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " " ,

Tractor operated by Laub Brake operated by Booth

Brake used Sprague Brake arm ft. Brake const. $(\frac{2\pi A}{33000})$ = 1/3000

Description of belt used 8" Klingtite

Size engine pulley (circumference at crown) 2.927' in

Size brake pulley (circumference at crown) 2.604' in

Kind of fuel used Kerosene Fuel test No. 119 Wt. per gal., lbs. 6.78

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Humidity 42 %. Barometric pressure 28.6 inches mercury.

Temperature of atmosphere 83.8 ° F.

Fuel consumption:

Total for test, gals. 2.625 Gals. per hour 2.625

Gals. per H. P. hour 0.1730 H. P. hours per gal. 5.78

Carburetor adjustments (degrees open) Fuel Valve 3/4 turns open.

Water consumption:

Total in radiator during test, gals. 0.23

Total in fuel mixture during test, gals. 0.00

Total used during test, gals. 0.23

Gals. per H. P. hour H. P. hours per gal.

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 64e

Fred N. Laub Operator W.H. Booth Observer.

Operator Observer.

Fred R Nohavec
Engineer-in-charge.

Log of Official Tractor Brake Horse Power Test No. 64e

Sept. 24, 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (7) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixture Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
**Observer				FNL			WHB				WHB		FNL		FNL		FNL	FNL
1				4910			4137											
2	10:40			5969	1059		5312	1175			39.0		38.58				186	83
3	:50			7020	1051		6476	1164					35.72	2.86			186	83
4	11:00			7037 7082	1045		6501 7660	1159					32.66	3.06			186	83
5	:10			9128	1046		8819	1159					29.66	3.00			186	84
6	:20			0187	1059		9992	1173					26.66	3.00			188	84
7	:30			1244	1057		1163	1171					23.72	2.94			190	85
8	:40			2297	1053		2331	1168					20.78	2.94			190	85
9																		
10																		
11																		
12																		
13																		
Total	1 Hr.													17.80	1.94			
Average			1053		10533082			1167	3039	1.39	39.0	15.17					187.4	83.8

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

WATER

9.40 - 7.60 = 1.94

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Drawbar Horsepower Test.

Rated or maximum load Rated Date Sept. 28, 1920. Test No. 64f

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No., Engine 226-2JB, Serial No. Chassis 1152

Manufacturer U.S. Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " " "

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Style and dimensions of lugs Spade 3½" high

Size of drive wheels (circumference at face) $(50 + 7)\frac{\pi}{12} = 14.92'$

Tractor operated by Booth & Laub Dynamometer car operated by Nohavec & Wallace

Dynamometer used Gulley Load used Dyn. Car, Avery & Rollers

Kind of fuel Kerosene Test No. 119 Wt. per gal. 6.78 lbs.

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Fuel consumption:

Total for test, Gal. 57.431 Gals. per hour 5.743

Gal. per H. P. hour 0.2613 H. P. hours per Gal. 3.83

Water consumption:

Total used in test, Gal. 2.33

Gal. per ~~H.P.~~ hour 0.23

H. P. hours per Gal.

Weather conditions Partly cloudy until 10:00 A.M., clear and light wind after 10:00

Condition of track Wet in spots until 10:00 then dried out, in very good condition the rest of the test.

We the undersigned certify that this sheet and sheets Nos. 64f attached hereto give a true and correct record of the official tractor test No. 64.

W H Booth Operator Fred R Nohavec Observer.

Fred N Laub Operator Lew Wallace Observer.

Fred R Nohavec
Engineer-in-charge.

Log of Official Tractor Drawbar Horse Power Test No. 64f (Continued)

Sept. 28, 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Stop Counter Reading Watch (3)	Engine Crank Shaft Speed: R. P. M. (4)	Drive Wheel Slippage: Revolutions Drive Wheels (5)	Drive Wheel Slippage: Distance by Face of Drive Wheel (Feet) (6)	Drive Wheel Slippage: Distance Measured on Ground (Feet) (7)	Drive Wheel Slippage: Slippage % of Column No. 6 (8)	Oil Record (9)	Fuel Records: Gross (10)	Fuel Records: Tare (11)	Fuel Records: Net (11)	Water Record Pounds (12)	Dynamometer Chart No. (13)	Average Draft (14)	Speed Miles per Hour (15)	Drawbar Horse Power (16)	Temperatures Degrees F.: *Cooling Fluid (17)	Temperatures Degrees F.: Atmosphere (18)	Humidity % (19)	Barometer Inches Mercury (20)
** Observer																				
9.	3:15	1.46	1020	30.0		400							64f9	2996	3.06	24.49	180	73		
9.	3:20	1.47		33.2									f9				180	73		
Stop	3:44	Put on roller on behind Dynometer car																		
Start	3:46																			
10.	4:05	1.68	1050	31.0									f10	2984	2.80	22.30	180	70		
10.	4:15	1.56	1000	31.6									f10				180	70		
11.	5:10	1.70	900	30.8									f11	2924	2.71	21.10	178	68		
11.	5:20	1.66	1000	35.4									f11				178	68		
Stop	5:05	Put in new Spark Plug																		
Start	5:07								402.72											
	5:22	End of Test				(Drained)		23.00	9.66	13.34										
Total	(10Hrs.)04in.)								389.38			19.40								
Avg.			1027	32.8	489	400	18.20							2954	2.79	21.98	185	71	40.5	28.8

Water to Radiator

9.60 - 5.20 = 4.40

15.00

19.40

NOTE: Record all stops by the words "stop" and "start" in column (1) and record time. Number stops and give full data on each stop under remarks, next sheet.

*Taken in discharge line from engine.

**Each observer will write his initials at the head of each column in which he records his observations.

Log of Official Tractor Drawbar Horse Power Test No. 64f

Sept. 28, 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Stop Meter Reading (3)	Engine Crank Shaft Speed: Watch R. P. M. (4)	Drive Wheel Slippage: Revolutions Drive Wheels (5)	Drive Wheel Slippage: Distance by Face of Drive Wheel (Feet) (6)	Drive Wheel Slippage: Distance Measured on Ground (Feet) (7)	Drive Wheel Slippage: Slippage % of Column No. 6 (8)	Oil Record (9)	Fuel Records: Gross (10)	Fuel Records: Tare (11)	Fuel Records: Net (11)	Water Record Pounds (12)	Dynamometer Chart No. (13)	Average Draft (14)	Speed Miles per Hour (15)	Drawbar Horse Power (16)	Temperatures Degrees F.: *Cooling Fluid (17)	Temperatures Degrees F.: Atmosphere (18)	Humidity % (19)	Barometer: Inches Mercury (20)
**Observer																				
	6:50	Started Test																		
1.	8:32	1.71	1050	37.0		400		43.36	9.44		33.92		64f1	3004	2.78	22.24	190	63		
1.	8:38	1.68		35.5				42.68	9.64		33.04		f1				190	63		
2.	9:35	1.92	1020	36.6				21.46	6.18		15.28		f2	3000	2.33	19.04	194	68		
2.	9:45	1.90	1000	36.0				23.46	9.82		13.64		f2				194	68		
3.	10:25	1.76	1050	35.8				43.66	9.82		33.84		f3	2948	2.56	20.12	210	69		
3.	10:32	1.74	1025	35.8				41.12	9.50		31.62		f3				210	69		
Stop	10:55	For Fuel & Water						42.72	9.64		33.08									
Start	11:13							43.40	9.80		33.60									
4.	11:20	1.46	1050	30.0				42.80	9.64		33.16		f4	2867	3.11	23.76	180	72		
4.	11:30	1.48	1050					23.34	17.00		6.34		f4				180	72		
5.	12:00	1.55	1025	30.1									f5	3027	2.76	22.28	184	73		
5.	12:10	1.61		32.5									f5				184	73		
6.	1:30	1.58		30.5									f6	2875	2.84	21.80	180	75		
6.	1:40	1.55		31.6				44.06	9.88		34.18		f6				180	75		
7.	2:05	1.48	1050	30.4				43.30	9.70		33.60		f7	3004	2.93	23.45	180	75		
7.	2:10	1.50	1050	32.4				43.10	9.50		33.60		f7				180	75		
Stop	2:20	For Fuel & Water						43.24	9.42		33.82									
Start	2:30																			
8.	2:40	1.49	1100	30.6									f8	2867	2.78	21.30	180	75		
8.	2:50	1.63	1010	32.4									f8				180	75		

Note: Record all stops by the words "stop" and "start" in column (1) and record time. Number stops and give full data on each stop under remarks, next sheet.

*Taken in discharge line from engine.

**Each observer will write his initials at the head of each column in which he records his observations.

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Drawbar Horsepower Test.

Rated or maximum load Maximum Date Sept 27, 1920. Test No. 64g

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No., Engine 226 -2JB, Serial No. Chassis 1152

Manufacturer U.S. Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " " " ?

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Style and dimensions of lugs Spade 3 1/2" High

Size of drive wheels (circumference at face) $(50+37)\frac{\pi}{12} = 14.92'$

Tractor operated by Booth & Laub Dynamometer car operated by Wallace

Dynamometer used Gulley Load used Dyn Car, Avery & Rollers

Kind of fuel Kerosene Test No. 119 Wt. per gal. 6.78 lbs.

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Fuel consumption:

Total for test, Gal. Not Recorded Gals. per hour Not Recorded

Gal. per H. P. hour " " H. P. hours per Gal. " "

Water consumption:

Total used in test, Gal. Not Recorded

Gal. per H. P. hour " "

H. P. hours per Gal.

Weather conditions Clear with light wind

Sept. 28th " " " "

Condition of track Dry on top but wet under surface

Sept. 28th Very Good.

We the undersigned certify that this sheet and sheets Nos. 64g attached hereto give a true and correct record of the official tractor test No. 64.

W.H. Booth Operator Lew Wallace Observer.

Fred N Laub Operator Fred R Nohavec Observer.

Fred R Nohavec
Engineer-in-charge.

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Brake Horsepower Test

Load (rated or other) Rated Date Sept. 24,1920. Test No. 64b

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No. Engine 226-2JB Serial No. Chassis 1152

Tractor equipment Dixie Mod. 46c Mag., Bennett Carb.

Manufacturer U.S. Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " ".

Tractor operated by Laub Brake operated by Booth

Brake used Sprague Brake arm ft. Brake const. $(\frac{2\pi A}{33000})$ 1/3000

Description of belt used 8" Klingtite

Size engine pulley (circumference at crown) 2.927' in.

Size brake pulley (circumference at crown) 2.604' in.

Kind of fuel used Kerosene Fuel test No. 119 Wt. per gal., lbs. 6.78

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Humidity 42 %. Barometric pressure 28.5 inches mercury.

Temperature of atmosphere 89.8 ° F.

Fuel consumption:

Total for test, gals. 12.685 Gals. per hour 6.342

Gals. per H. P. hour 0.2062 H. P. hours per gal. 4.85

Carburetor adjustments (degrees open) Fuel Valve 2 3/8 turns open

Water consumption:

Total in radiator during test, gals. 0.50

Total in fuel mixture during test, gals. 0.00

Total used during test, gals. 0.50

Gals. per H. P. hour H. P. hours per gal.

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 64b;

Fred M Laub Operator W H Booth Observer.

Operator Observer.

Fred R Nohavec
Engineer-in-charge.

Log of Official Tractor Brake Horse Power Test No. 64b

Sept. 24, 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (7) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixture Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
** Observer				FNL			WHB				WHB		FNL		FNL		FNL	FNL
1	2:55			2702 3740	1038		3824 4971	1147			81.5		49.28				182	91
2	3:05			4781	1041		6120	1149					42.08	7.20			182	90
3	:15			5817	1036		7264	1144					34.82	7.26			182	90
4	:25			6851	1034		8405	1141					27.60	7.22			182	90
5	:35			7880	1029		9541	1136					20.38	7.22			182	90
6	:45			8901	1021		0668	1127					54.06 46.90	7.16			182	90
7	:55			9941	1040		1816	1148					39.68	7.22			182	90
8	4:05			0952	1011		2933	1117					32.58	7.10			182	90
9	:15			1952	1000		4037	1104					25.40	7.18			180	90
10	:25			2988	1036		5181	1144					18.40	7.00			180	89
11	:35			4007	1019		6305	1124					52.00 44.78	7.22			180	89
12	:45			5021	1014		7424	1119					37.78	7.00			180	89
13	5:55			6028	1007		8536	1112					30.54	7.24			180	89
Total	2 hrs.													86.02	4.18			
Average			1025		1025	3000		1132	2948	1.73	81.5	30.75					181.2	89.8

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

WATER

8.34 - 4.16 = 4.18

Fuel

43.12 - 9.44 = 33.68

43.00 - 9.40 = 33.60

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Brake Horsepower Test

Load (rated or other) Varying Date Sept. 24, 1920. Test No. 640

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No. Engine 226-2JB Serial No. Chassis 1152

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Manufacturer U.S. Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " " .

Tractor operated by Laub Brake operated by Booth

Brake used Sprague Brake arm ft. Brake const. $(\frac{2\pi A}{33000})$ = 1/3000

Description of belt used 8" Klingtite

Size engine pulley (circumference at crown) 2.927' ~~X~~

Size brake pulley (circumference at crown) 2.604' ~~X~~

Kind of fuel used Kerosene Fuel test No. 119 Wt. per gal., lbs. 6.78

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Humidity 56 %. Barometric pressure 28.3 inches mercury.

Temperature of atmosphere 77.5 ° F.

Fuel consumption:

Total for test, gals. 3.900 Gals. per hour 3.900

Gals. per H. P. hour 0.2091 H. P. hours per gal. 4.78

Carburetor adjustments (degrees open) 2-3/8 turns open.

Water consumption:

Total in radiator during test, gals. 0.206

Total in fuel mixture during test, gals. 0.00

Total used during test, gals. 0.206

Gals. per H. P. hour H. P. hours per gal.

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 640.

Fred N Laub Operator W.H. Booth Observer.

Operator Observer.

Fred R Nohavec

Engineer-in-charge.

Log of Official Tractor Brake Horse Power Test No. 64c

Sept. 24. 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (7) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used, Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixture Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
** Observer			FNL	WHB	WHB	WHB	WHB	WHB	WHB	WHB	WHB	WHB	FNL	WHB	FNL	FNL	FNL	FNL
1	9;00		8659				6131				80.5		46.64					
2	:01		9654	995			7232	1101									194	79
3	:08		0678	1024			8364	1132									196	78
4	:10	Avg.		1009.5				1116.5			80.5	30.04	41.34	5.30				
5	:10										81.0		41.34					
6	:11		1668	990			9459	1095									196	78
7	:18		2583	915			0471	1012									196	79
8	:20	Avg.		952.5				1053.5			81.0	28.43	36.10	5.24				
9	:20										10.0		36.10					
10	:21		3676	1093			1685	1214									196	78
11	:28		4781	1105			2912	1227									182	76
12	:30	Avg.		1099				1220.5			10.0	4.06	32.64	3.46				
13	:30										20.1							
Total																		
Average																		

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

Log of Official Tractor Brake Horse Power Test No. 64c (Continued)

Sept. 24, 1920.

	Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (f) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixture Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
** Observer					FNL	WHB		WHB				WHB	WHB	FNL	WHB	FNL	FNL	FNL	FNL
	1	9:31			5854	1073		4103	1191			20.1		32.64				176	76
	2	:38			6929	1075		5296	1193									180	76
	3	:40	Average			1074			1192			20.1	7.99	29.10	3.54				
	4	:40										40.25		29.10					
	5	:41			7985	1056		6466	1170									178	77
	6	:48			9037	1052		7632	1166									176	77
	7	:50	Average			1054			1168			40.25	15.7	24.94	4.16				
	8	:50										60.4		24.94					
	9	:51			0075	1038		8781	1149									178	78
	10	:58			1108	1033		9924	1143									180	78
	11	10:00	Average			1035.5			1146			60.4	23.1	20.20	4.74				
	12																		
	13																		
Total		1 Hr.													26.44	1.72			
Average				1037		1037	3035		1149	2992	1.42	48.7	18.65					186	77.5

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

Oil leaked around fly wheel bearing

FUEL

43.50 - 9.74 = 33.76

WATER

9.46 - 7.74 = 1.72

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Brake Horsepower Test

Load (rated or other) Maximum Date Sept 24, 1920 Test No. 64d

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No. Engine 226-2JB Serial No. Chassis 1152

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Manufacturer U.S.Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " "

Tractor operated by Laub Brake operated by Nohavec

Brake used Sprague Brake arm ft. Brake const. $(\frac{2\pi A}{33000})$ = 1/3000

Description of belt used 8" Klingtite

Size engine pulley (circumference at crown) 2.927'

Size brake pulley (circumference at crown) 2.604'

Kind of fuel used Kerosene Fuel test No. 119 Wt. per gal., lbs. 6.78

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Humidity 32 %. Barometric pressure 28.6 inches mercury.

Temperature of atmosphere 88.1 ° F.

Fuel consumption:

Total for test, gals. 6.413 Gals. per hour 6.413

Gals. per H. P. hour 0.1992 H. P. hours per gal. 5.02

Carburetor adjustments (degrees open) Fuel Valve 2 1/2 turns open

Water consumption:

Total in radiator during test, gals. 0.14

Total in fuel mixture during test, gals. 0.00

Total used during test, gals. 0.14

Gals. per H. P. hour H. P. hours per gal.

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 64d.

Fred N Laub Operator Fred R Nohavec Observer.

Operator Observer.

Fred R Nohavec
Engineer-in-charge.

Log of Official Tractor Brake Horse Power Test No. 64d

Sept. 24, 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Counter Reading (3)	Engine Crank Shaft Speed: R. P. M. (4)	Engine Belt Pulley Speed: Counter Reading (5)	Engine Belt Pulley Speed: R. P. M. (6)	Engine Belt Pulley Speed: Surface Speed Ft. per Min. (7)	Brake Speed: Counter Reading (8)	Brake Speed: R. P. M. (9)	Brake Speed: Surface Speed Pulley Ft. per Min. (10)	Belt Slippage % of Column (7) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel: Scale Reading Pounds (14)	Fuel: Amount Used Pounds (15)	Water Used: In Radiator Pounds (16)	Water Used: In Fuel Mixture Pounds (17)	Temperatures: *Cooling Fluid Deg. F. (18)	Temperatures: Atmosphere Deg. F. (19)
**Observer				FNL		FRN	FRN				FRN		FNL		FNL		FNL	FNL
1				3351			3495											
2	12:20			4386	1035		4637	1142			84.0		42.44				190	88
3	:30			5428	1042		5783	1146					35.10	7.34			190	88
4	:40			6448	1020		6915	1132					27.90	7.20			192	89
5	:50			7512	1064		8090	1175					20.74	7.16			192	89
6	1:00			8566	1054		9254	1164					54.56 47.32	7.24			194	89
7	:10			9610	1044		0407	1153					39.98	7.34			194	89
8	1:20			0640	1030		1547	1140					32.78	7.20			194	89
9																		
10																		
11																		
12																		
13																		
Total	1 Hr.													43.48	1.14			
Average			1041		1041	3047		1150	2995	1.77	84.0	32.20					192.3	88.7

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

FUEL.

43.62 - 9.80 = 33.82

Water to Radiator

9.54 - 8.40 = 1.14

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Brake Horsepower Test

Load (rated or other) Half Date Sept. 24, 1920. Test No. 64 e

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No. Engine 226-2JB Serial No. Chassis 1152

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Manufacturer U.S. Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " " .

Tractor operated by Laub Brake operated by Booth

Brake used Sprague Brake arm ft. Brake const. $(\frac{2\pi A}{33000}) = 1/3000$

Description of belt used 8" Klingtite

Size engine pulley (circumference at crown) 2.927' ~~in~~

Size brake pulley (circumference at crown) 2.604' ~~in~~

Kind of fuel used Kerosene Fuel test No. 119 Wt. per gal., lbs. 6.78

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Humidity 42 %. Barometric pressure 28.6 inches mercury.

Temperature of atmosphere 83.8 ° F.

Fuel consumption:

Total for test, gals. 2.625 Gals. per hour 2.625

Gals. per H. P. hour 0.1730 H. P. hours per gal. 5.78

Carburetor adjustments (degrees open) Fuel Valve 3/4 turns open.

Water consumption:

Total in radiator during test, gals. 0.23

Total in fuel mixture during test, gals. 0.00

Total used during test, gals. 0.23

Gals. per H. P. hour H. P. hours per gal.

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 64e.

Fred N. Laub Operator W.H. Booth Observer.

Operator Observer.

Fred R Mohavec
Engineer-in-charge.

Log of Official Tractor Brake Horse Power Test No. 64e

Sept. 24, 1920.

	Reading No.	Time	Engine Crank Shaft Speed		Engine Belt Pulley Speed			Brake Speed			Belt Slippage % of Column (7)	Net Brake Load Pounds	B. H. P.	Fuel		Water Used		Temperatures	
			Counter Reading	R. P. M.	Counter Reading	R. P. M.	Surface Speed Ft. per Min.	Counter Reading	R. P. M.	Surface Speed Pulley Ft. per Min.				Scale Reading Pounds	Amount Used Pounds	In Radiator Pounds	In Fuel Mixture Pounds	*Cooling Fluid Deg. F.	Atmosphere Deg. F.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
** Observer					FNL			WHB				WHB		FNL		FNL		FNL	FNL
	1				4910			4137											
	2	10:40			5969	1059		5312	1175			39.0		38.58				186	83
	3	:50			7020	1051		6476	1164					35.72	2.86			186	83
	4	11:00			7037 7082	1045		6501 7660	1159					32.66	3.06			186	83
	5	:10			9128	1046		8819	1159					29.66	3.00			186	84
	6	:20			0187	1059		9992	1173					26.66	3.00			188	84
	7	:30			1244	1057		1163	1171					23.72	2.94			190	85
	8	:40			2297	1053		2331	1168					20.78	2.94			190	85
	9																		
	10																		
	11																		
	12																		
	13																		
Total		2 Hr.													17.80	1.94			
Average				1053		10533082			1167	3039	1.39	39.0	15.17					187.4	83.8

*Taken in discharge line from engine.

**Each observer will place his initials at the head of each column in which he records his observations.

Remarks

WATER

9.40 - 7.60 = 1.94

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN

Record of Official Tractor Drawbar Horsepower Test.

Rated or maximum load Rated Date Sept.28,1920. Test No. 64f

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No., Engine 226-2JB, Serial No. Chassis 1152

Manufacturer U.S.Tractor & Machinery Co.,Menasha,Wis.

Tractor submitted for test by " " " " " "

Tractor equipment Dixie Mod.460 Mag.,Bennett Carb.

Style and dimensions of lugs Spade 3½" high

Size of drive wheels (circumference at face) $(50 + 7)\frac{\pi}{12} = 14.92'$

Tractor operated by Booth & Laub Dynamometer car operated by Nohavec & Wallace

Dynamometer used Gulley Load used Dyn. Car, Every & Rollers

Kind of fuel Kerosene Test No. 119 Wt. per gal. 6.78 lbs.

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Fuel consumption:

Total for test, Gal. 57.431 Gals. per hour 5.743

Gal. per H. P. hour 0.2613 H. P. hours per Gal. 3.83

Water consumption:

Total used in test, Gal. 2.33

Gal. per ~~HOUR~~ hour 0.23

H. P. hours per Gal.

Weather conditions Partly cloudy until 10:00 A.M., clear and light wind after 10:00

Condition of track Wet in spots until 10:00 then dried out, in very good condition the rest of the test.

We the undersigned certify that this sheet and sheets Nos. 64f attached hereto give a true and correct record of the official tractor test No. 64.

W H Booth Operator Fred R Nohavec Observer.

Fred M Laub Operator Lew Wallace Observer.

Fred R Nohavec

Engineer-in-charge.

Log of Official Tractor Drawbar Horse Power Test No. 641

Sept. 28, 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Stop Watch (3)	Engine Crank Shaft Speed: R. P. M. (4)	Drive Wheel Slippage: Revolutions Drive Wheels (5)	Drive Wheel Slippage: Distance by Face of Drive Wheel (Feet) (6)	Drive Wheel Slippage: Distance Measured on Ground (Feet) (7)	Drive Wheel Slippage: Slippage % of Column No. 6 (8)	Fuel Records: Oil Record Gross (9)	Fuel Records: Tare (10)	Fuel Records: Net (11)	Water Record Pounds (12)	Dynamometer Chart No. (13)	Average Draft (14)	Speed Miles per Hour (15)	Drawbar Horse Power (16)	Temperatures Degrees F.: *Cooling Fluid (17)	Temperatures Degrees F.: Atmosphere (18)	Humidity % (19)	Barometer, Inches Mercury (20)
**Observer																			
	6:50	Started Test																	
1.	6:32	1.71	1050	37.0		400		43.36	9.44	33.92		641	3004	2.78	22.24	190	63		
1.	6:38	1.68		35.5				42.68	9.64	33.04		f1				190	63		
2.	9:35	1.92	1020	36.6				21.46	6.18	15.28		f2	3000	2.33	19.04	194	68		
2.	9:45	1.90	1000	36.0				23.46	9.82	13.64		f2				194	68		
3.	10:25	1.76	1050	35.8				43.66	9.82	33.84		f3	2948	2.56	20.12	210	69		
3.	10:32	1.74	1025	35.8				41.12	9.50	31.62		f3				210	69		
Stop	10:55	For Fuel & Water						42.72	9.64	33.08									
Start	11:13							43.40	9.80	33.60									
4.	11:20	1.46	1050	30.0				42.80	9.64	33.16		f4	2867	3.11	23.76	180	72		
4.	11:30	1.48	1050					23.34	17:00	6.34		f4				180	72		
5.	12:00	1.55	1025	30.1								f5	3027	2.76	22.28	184	73		
5.	12:10	1.61		32.5								f5				184	73		
6.	1:30	1.58		30.5								f6	2875	2.84	21.80	180	75		
6.	1:40	1.55		31.6				44.06	9.88	34.18		f6				180	75		
7.	2:05	1.48	1050	30.4				43.30	9.70	33.60		f7	3004	2.93	23.45	180	75		
7.	2:10	1.50	1050	32.4				43.10	9.50	33.60		f7				180	75		
Stop	2:20	For Fuel & Water						43.24	9.42	33.82									
Start	2:30																		
8.	2:40	1.49	1100	30.6								f8	2867	2.78	21.30	180	75		
8.	2:50	1.63	1010	32.4								f8				180	75		

NOTE: Record all stops by the words "stop" and "start" in column (1) and record time. Number stops and give full data on each stop under remarks, next sheet.

*Taken in discharge line from engine.

**Each observer will write his initials at the head of each column in which he records his observations.

Log of Official Tractor Drawbar Horse Power Test No. 64f (Continued)

Sept 28 1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Stop Counter Reading Watch (3)	Engine Crank Shaft Speed: R. P. M. (4)	Drive Wheel Slippage: Revolutions Drive Wheels (5)	Drive Wheel Slippage: Distance by Face of Drive Wheel (Feet) (6)	Drive Wheel Slippage: Distance Measured on Ground (Feet) (7)	Drive Wheel Slippage: Slippage % of Column No. 6 (8)	Oil Record (9)	Fuel Records: Gross (10)	Fuel Records: Tare (11)	Fuel Records: Net (12)	Water Record Pounds (12)	Dynamometer Chart No. (13)	Average Draft (14)	Speed Miles per Hour (15)	Drawbar Horse Power (16)	Temperatures Degrees F.: *Cooling Water (17)	Temperatures Degrees F.: Atmosphere (18)	Humidity % (19)	Barometer Inches (20)
** Observer																				
9.	3:15	1.46	1020	30.0		400							64f9	2996	3.06	24.49	180	73		
9.	3:20	1.47		33.2									f9				180	73		
Stop	3:44	Put on roller on behind Dynometer car																		
Start	3:46																			
10.	4:05	1.68	1050	31.0									f10	2984	2.80	22.30	180	70		
10.	4:15	1.56	1000	31.6									f10				180	70		
11.	5:10	1.70	900	30.8									f11	2924	2.71	21.10	178	68		
11.	5:20	1.66	1000	35.4									f11				178	68		
Stop	5:05	Put in new Spark Plug																		
Start	5:07									402.72										
	5:22	End of Test				(Drained)		23.00	9.66	13.34										
Total	(10Hrs.)0Min.)									389.38	19.40									
Avg.			1027	32.8	489	400	18.20							2954	2.79	21.98	165	71	40.5	28.6

Water to Radiator

9.60 - 5.20 = 4.40

15.00

19.40

NOTE: Record all stops by the words "stop" and "start" in column (1) and record time. Number stops and give full data on each stop under remarks, next sheet.

*Taken in discharge line from engine.

**Each observer will write his initials at the head of each column in which he records his observations.

UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
UNIVERSITY FARM, LINCOLN
Record of Official Tractor Drawbar Horsepower Test.

Rated or maximum load Maximum Date Sept 27, 1920. Test No. 64g

Name, model and rating of tractor Uncle Sam Model C-20 20-30

Serial No., Engine 226 -2JB, Serial No. Chassis 1152

Manufacturer U.S.Tractor & Machinery Co., Menasha, Wis.

Tractor submitted for test by " " " " " " ?

Tractor equipment Dixie Mod. 46C Mag., Bennett Carb.

Style and dimensions of lugs Spade 3 1/2" High

Size of drive wheels (circumference at face) $(50+7)\frac{\pi}{12} = 14.92'$

Tractor operated by Booth & Laub Dynamometer car operated by Wallace

Dynamometer used Gulley Load used Dyn Car, Avery & Rollers

Kind of fuel Kerosene Test No. 119 Wt. per gal. 6.78 lbs.

Kind and grade of oil used in engine Mobiloil BB

Kind and grade of oil used in transmission " C

Fuel consumption:

Total for test, Gal. Not Recorded Gals. per hour Not Recorded

Gal. per H. P. hour " " H. P. hours per Gal. " "

Water consumption:

Total used in test, Gal. Not Recorded

Gal. per H. P. hour " "

H. P. hours per Gal.

Weather conditions Clear with light wind

Sept. 28th-- " " " "

Condition of track Dry on top but wet under surface

Sept. 28th Very Good.

We the undersigned certify that this sheet and sheets Nos. 64g attached hereto give a true and correct record of the official tractor test No. 64.

W.H.Booth Operator Lew Wallace Observer.

Fred N Laub Operator Fred R Nohavec Observer.

Fred R Nohavec
Engineer-in-charge.

Log of Official Tractor Drawbar Horse Power Test No. 64g , Sept 28.1920.

Reading No. (1)	Time (2)	Engine Crank Shaft Speed: Stop Watch Reading for (7) (3)	Engine Crank Shaft Speed: R.P.M. (4)	Drive Wheel Slippage: Revolutions Drive Wheels (5)	Drive Wheel Slippage: Distance by Face of Drive Wheel (Feet) (6)	Drive Wheel Slippage: Distance Measured on Ground (Feet) (7)	Drive Wheel Slippage: Slippage % of Column No. 6 (8)	Oil Record (9)	Fuel Records (10)	Fuel Records (11)	Draft by Water Record Pounds Guage (12)	Dynamometer Chart No. (13)	Average Draft (14)	Speed Miles per Hour (15)	Drawbar Horse Power (16)	Temperatures Degrees F.: *Cooling Fluid (17)	Temperatures Degrees F.: Atmosphere (18)	Humidity % (19)	Barometer: Inches Mercury (20)
** Observer							LOW GEAR												
1.	3:27	0.63	900	10	149.2	130.5					2250	64g1	2510	2.35	15.75				
2.	3:30	0.50	1000	"	"	110.2					2250	g2	2699	2.50	18.03				
3.	3:45	0.525	1025	"	"	119.4					2500	g3	2927	2.58	20.17				
4.	3:50	0.60	950	"	"	103.6					2750	g4	3106	1.96	16.25				
5.							ON DIRT TRACK												
5.	3:55	0.528	950	"	"	97.8					2750	g5	3130	2.10	17.57				
							HIGH GEAR												
6.	4:05	0.55		"	"	128.0					2000	g6	2437	2.64	17.18				
7.	4:08	0.42		"	"	119.6					1850	g7	2316	3.24	19.99				
8.	4:10	0.57		"	"	115.3					2100	g8	2352	2.30	14.42				
							Sept. 29,1920 LOW GEAR												
1.	5:49	0.54	980	10	149.2	122.3	18.03				3500	64RG1	3264	2.57	22.40	180	64		
							Sept. 29,1920 HIGH GEAR												
2.	5:52	0.41	985	10	149.2	134.5	9.85				2500	RG2	2180	3.73	21.66	180	64		
																		27	28.9

Note: Record all stops by the words "stop" and "start" in column (1) and record time. Number stops and give full data on each stop under remarks, next sheet.

*Taken in discharge line from engine.

**Each observer will write his initials at the head of each column in which he records his observations.