

THE UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
COLLEGE OF AGRICULTURE, LINCOLN

Record of Official Tractor Brake Horsepower Test

Load (rated or other) A.S.A.E. Max. Date Sept. 27, 1934 Test No. 225b
 Name, model and rating of tractor Caterpillar R-2
 Serial No. Engine 5E3502 Serial No. Chassis 5E3502
 Tractor equipment Eisengren CT4 magneto Zenith K5A carburetor
 Manufacturer Caterpillar Tractor Company, Peoria, Illinois
 Tractor submitted for test by Caterpillar Tractor Company, Peoria, Illinois
 Tractor operated by Adams-Webster Brake operated by Zink
 Brake used, Sprague. Brake arm 21 inches. Brake const. $(\frac{2nA}{33000}) = \frac{1}{3000}$
 Description of belt used 6 inch 4 ply endless rubber
 Size of engine pulley (circumference at crown) 2.755 ft.
 Size of brake pulley (circumference at crown) 2.633 ft.
 Kind of fuel used Gasoline Fuel test No. Wt. per gal., lbs. 6.14
 Kind and grade of oil used in engine Mobil oil "A" S.A.E. No. 30
 Kind and grade of oil used in transmission Transmission oil (summer)
 Humidity per cent. Barometric pressure 29.965 inches mercury
 Temperature of atmosphere 66 ° F.
 Fuel consumption:
 Total for test, gals. 3.244 Gals. per hour 4.122
 Lbs. per H. P. hour 0.763 H. P. hours per gal. 3.00
 Carburetor adjustments (degrees open) H.S. needle 1 1/8 turns open
L.S. needle 3 turns open

Water consumption:

Total in radiator during test, gals. 0.000
 Total in fuel mixture during test, gals. 0.000
 Total used during test, gals. 0.000

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 225b

Charles Adams Operator Carlton Zink Observer
 Operator Observer

Engineer-in-charge

Caterpillar R-2
Log of Official Tractor Brake Horse Power Test No. 225-1

Sept. 27, 1934

Reading No. (1)	Time (2)	EngineCrankShaftSpeed		Engine Belt Pulley Speed			Brake Speed			Belt Slippage % of Column (7)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel		Water Used		Temperatures	
		Counter Reading 1.316 (3)	R. P. M. (4)	Counter Reading 2.836 (5)	R. P. M. (6)	Surface Speed Ft. per Min. (7)	Counter Reading 2.714 (8)	R. P. M. (9)	Surface Speed Pulley Ft. per Min. (10)				Scale Reading Pounds (14)	Amount Used Pounds (15)	In Radiator Pounds (16)	In Fuel Mixture Pounds (17)	*Cooling Fluid Deg. F. (18)	Atmosphere Deg. F. (19)
**Observer				5123			7763											
1	9:20			4174	949		9742	979			101.1		107.19				159	66
2	30			3224	950		9722	980			100.7		102.95	4.24	0.773		159	63
3	40			2271	953		0705	983			101.0		93.73	4.22			153	62
4	50			1320	951		1686	991			101.0		94.53	4.20			159	66
5	10:00			0374	946		2661	975			101.0		90.32	4.21			159	64
6	10			9428	946		3636	975			100.8		86.11	4.21			159	64
7	20			8475	953		4619	983			100.8		81.91	4.20			159	66
8	30			7523	952		5601	982			101.0		77.67	4.24			160	66
9	40			6574	949		6573	977			100.9		73.44	4.23			161	63
10	50			5625	949		7557	979			101.1		69.22	4.22			161	67
11	11:00			4674	951		8536	979			101.0		65.00	4.22			162	70
12	10			3719	955		9521	985			101.0		60.79	4.21			162	68
13	20			2766	953		0502	991			100.9		56.57	4.22			163	71
Total					12357			12739			1312.2			50.62	0.00	0.00	2081	861
Average			1251		951	2697		980	2660	1.57	100.9	32.96					160	66

* 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

Sat art 225 at 9:20	32.96 H.P. X 1.039 = 34.25 Corrected H.P.	23.935 at 7:30 A.M.
$\frac{29.92}{23.965} = 1.0330$	$34.25 \times .85 = 29.11$ Rated H.P.	23.975 at 9:10 A.M.
$\frac{526}{520} = 1.01154$	Fuel #/gal. = 6.14	23.960 at 10:40 A.M.
$\frac{1}{1.01154} = 1.0058$	lbs./b.h.p. hr. = 0.768	23.960 at 11:20 A.M.
$1.0058 \times 1.0330 = 1.039$ correction	gal./hr. = 4.122	23.960 Avg.
	H.P. hrs./gal. = 8.00	

THE UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
COLLEGE OF AGRICULTURE, LINCOLN

Record of Official Tractor Brake Horsepower Test

Load (rated or other).....Op. Max...... Date Sept. 27, 1934..... Test No. 225c.....
Name, model and rating of tractor..... Caterpillar R-2.....
..... Serial No. Engine 5E3502..... Serial No. Chassis 5E3502.....
Tractor equipment..... Eisemann CTA magneto..... Zenith K5A carburetor.....
Manufacturer..... Caterpillar Tractor Company, Peoria, Illinois.....
Tractor submitted for test by..... Caterpillar Tractor Company, Peoria, Illinois.....
Tractor operated by..... Adams-Webster..... Brake operated by..... Zink.....
Brake used, Sprague. Brake arm 21 inches. Brake const. ($\frac{2\pi A}{33000}$) = $\frac{1}{3000}$
Description of belt used..... 6 inch 4 ply endless rubber.....
Size of engine pulley (circumference at crown)..... 2.755..... ft.
Size of brake pulley (circumference at crown)..... 2.633..... ft.
Kind of fuel used..... Gasoline..... Fuel test No..... Wt. per gal., lbs. 6.14.....
Kind and grade of oil used in engine..... Mobiloil "A" S.A.E. No. 30.....
Kind and grade of oil used in transmission..... Transmission oil (summer).....
Humidity..... per cent. Barometric pressure..... 29.990..... inches mercury
Temperature of atmosphere..... 75..... ° F.
Fuel consumption:
Total for test, gals..... ~~5.700~~ 3.699..... Gals. per hour..... ~~5.700~~ 3.699.....
Lbs. per H. P. hour..... 0.699..... H. P. hours per gal..... 8.78.....
Carburetor adjustments (degrees open)..... H.S. Needle 1 turns open.....
..... L.S. Needle 3 turns open.....

Water consumption:

Total in radiator during test, gals..... 0.000.....
Total in fuel mixture during test, gals..... 0.000.....
Total used during test, gals..... 0.000.....

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 225c

..... Charles Adams..... Operator..... Barton Zink..... Observer
..... Operator..... Observer

.....
Engineer-in-charge

Caterpillar R-2 Op. Max.
Log of Official Tractor Brake Horse Power Test No. 2250

C.F.A. Webster
Sept. 27, 1934
21nk

Reading No. (1)	Time (2)	EngineCrankShaftSpeed		Engine Belt Pulley Speed			Brake Speed			Belt Slippage % of Column (7)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel		Water Used		Temperatures	
		Counter Reading (3)	R. P. M. (4)	Counter Reading (5)	R. P. M. (6)	Surface Speed Ft. per Min. (7)	Counter Reading (8)	R. P. M. (9)	Surface Speed Pulley Ft. per Min. (10)				Scale Reading Pounds (14)	Amount Used Pounds (15)	In Radiator Pounds (16)	In Fuel Mixtur- Pounds (17)	*Cooling Fluid Deg. F. (18)	Atmosphere Deg. F. (19)
**Observer				6106			7372											
1	1:20			5153	953		8355	983			99.3		100.49				173	75
2	:30			4207	946		9330	975			99.8		96.68	3.81			170	76
3	:40			3260	947		0308	973			99.7		92.89	3.79			166	73
4	:50			2312	948		1317	-----			99.5		89.12	3.77			166	74
5	2:00			1363	949		2295	978			99.6		85.36	3.76			166	74
6	:10			0420	943		3269	974			99.4		81.60	3.76			166	75
7	:20			9461	959		4257	988			99.0		77.78	3.82			166	76
8																		
9																		
10																		
11																		
12																		
13																		
Total				6645			5676				696.3		22.71				1173	
Average			1249	949	2691		979	2657	1.26	99.5	32.47				0.00	0.00	168	75

* 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 32.47 32.96 = 98.5

23.890 at 1:50 P.M.

#/b.h.p.hr. = 0.699

**THE UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
COLLEGE OF AGRICULTURE, LINCOLN**

Record of Official Tractor Brake Horsepower Test

Load (rated or other).....Rated Load.....Date.....Sept. 27, 1934.....Test No. 225d
 Name, model and rating of tractor.....Caterpillar R-2
Serial No. Engine 5E3502.....Serial No. Chassis 5E3502
 Tractor equipment.....Eisemann BT4 magneto.....Zenith K5A carburetor
 Manufacturer.....Caterpillar Tractor Company, Peoria, Illinois
 Tractor submitted for test by.....Caterpillar Tractor Company, Peoria, Illinois
 Tractor operated by.....Adams- Webster.....Brake operated by.....Zink
 Brake used, Sprague. Brake arm 21 inches. Brake const. ($\frac{2\pi A}{33000}$) = $\frac{1}{3000}$
 Description of belt used.....6 inch 4 ply endless rubber
 Size of engine pulley (circumference at crown).....2.755.....ft.
 Size of brake pulley (circumference at crown).....2.633.....ft.
 Kind of fuel used.....Gasoline.....Fuel test No.....Wt. per gal., lbs. 6.14
 Kind and grade of oil used in engine.....Mobiloil "A" S.A.E. No. 30
 Kind and grade of oil used in transmission.....Transmission oil (summer)
 Humidity.....per cent. Barometric pressure.....29.840.....inches mercury
 Temperature of atmosphere.....75.....° F.
 Fuel consumption:
 Total for test, gals.....3.269.....Gals. per hour.....3.269
 Lbs. per H. P. hour.....0.687.....H. P. hours per gal.....8.93
 Carburetor adjustments (degrees open).....H.S. needle 1 turn open
L.S. needle 3 turns open

Water consumption:

Total in radiator during test, gals.....0.000
 Total in fuel mixture during test, gals.....0.000
 Total used during test, gals.....0.000

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 225d

.....Charles Adams.....Operator.....Carlton Dink.....Observer
Operator.....Observer

.....Carlton Dink
 Engineer-in-charge

Caterpillar R-2

Log of Official Tractor Brake Horse Power Test No. 225d

Sept. 27, 1934

Webster
Zink

Reading No. (1)	Time (2)	Engine Crankshaft Speed 1.316		Engine Belt Pulley Speed 2.714			Brake Speed 2.714			Belt Slippage % of Column (7)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel		Water Used		Temperatures	
		Counter Reading (3)	R. P. M. (4)	Counter Reading (5)	R. P. M. (6)	Surface Speed Ft. per Min. (7)	Counter Reading (8)	R. P. M. (9)	Surface Speed Ft. per Min. (10)				Scale Reading Pounds (14)	Amount Used Pounds (15)	In Radiator Pounds (16)	In Fuel Mixture Pounds (17)	*Cooling Fluid Deg. F. (18)	Atmosphere Deg. F. (19)
**Observer				6619			7135											
1	3:20			5668	951		8178	983			89.1		149.72				164	75
2	:30			4720	948		9138	980			83.9		146.37	3.35			164	75
3	:40			3772	951		0143	982			89.1		143.03	3.34			164	74
4	:50			2821			1125											
5	:50			1873	948		2106	981			89.2		139.70	3.33			164	74
6	4:00			0908	965		3102	996			89.4		136.31	3.39			165	76
7	:10			9955	953		4086	984			89.2		133.00	3.31			164	75
8	:20			9009	946		5063	977			88.8		129.65	3.35			164	75
9																		
10																		
11																		
12																		
13																		
Total				6662			6883				6237			20.07	0.000	0.000	1149	524
Average			1252		952	2699		983	2668	1.15	89.1	29.20					164	75

* 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 gals./hr. 3.269

28.840 at 4:05 P.M.

lbs. /H.P. hrs. 0.687

H.P. hrs./gal. 8.93

Gals. for test 3.269

Calculated by Adams

Checked by Webster

**THE UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
COLLEGE OF AGRICULTURE, LINCOLN**

Record of Official Tractor Brake Horsepower Test

Load (rated or other) Varying Load Date Sept. 27, 1934 Test No. 225e
 Name, model and rating of tractor Caterpillar R-2
 Serial No. Engine 5E3502 Serial No. Chassis 5E3502
 Tractor equipment Eisemann CT4 magneto Zenith K5A carburetor
 Manufacturer Caterpillar Tractor Company, Peoria, Illinois
 Tractor submitted for test by Caterpillar Tractor Company, Peoria, Illinois
 Tractor operated by Adams-Webster Brake operated by Zink
 Brake used, Sprague. Brake arm 21 inches. Brake const. $(\frac{2nA}{33000}) = \frac{1}{3000}$
 Description of belt used 6 inch 4 ply endless rubber
 Size of engine pulley (circumference at crown) 2.755 ft.
 Size of brake pulley (circumference at crown) 2.633 ft.
 Kind of fuel used Gasoline Fuel test No. Wt. per gal., lbs. 6.14
 Kind and grade of oil used in engine Mobiloil "A" S.A.E. No. 30
 Kind and grade of oil used in transmission Transmission oil (summer)
 Humidity per cent. Barometric pressure 28.823 inches mercury
 Temperature of atmosphere 74 ° F.
 Fuel consumption:
 Total for test, gals. 5.150 Gals. per hour 2.575
 Lbs. per H. P. hour 0.894 H. P. hours per gal. 6.87
 Carburetor adjustments (degrees open) H.S. needle 1 turn open
L.S. needle 3 turns open

Water consumption:

Total in radiator during test, gals. 0.000
 Total in fuel mixture during test, gals. 0.000
 Total used during test, gals. 0.000

We, the undersigned, certify that this sheet and the log sheet attached hereto give a true and correct record of official tractor test No. 225d

Charles Adams Operator Robert Zink Observer
 Operator Observer

 Engineer-in-charge

Log of Official Tractor Brake Horse Power Test No. 225e Sept. 27, 1934

Reading No. (1)	Time (2)	Engine Crankshaft Speed 1.316		Engine Belt Pulley Speed 2.836			Brake Speed 2.714			Belt Slippage % of Column (7) (11)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel		Water Used		Temperatures	
		Counter Reading (3)	R. P. M. (4)	Counter Reading (5)	R. P. M. (6)	Surface Speed Ft. per Min. (7)	Counter Reading (8)	R. P. M. (9)	Surface Speed Pulley Ft. per Min. (10)				Scale Reading Pounds (14)	Amount Used Pounds (15)	lbs./hr. Radiators Pounds (16)	Gal./hr. Fuel Mixer Pounds (17)	Cooling Fluid Deg. F. (18)	Atmosphere Deg. F. (19)
**Observer	4:00			0908			3102						136.31		19.98	3.254		
1	:10			9955	953		4086	984			89.2		133.00	3.31			164	75
Rated 2	:20			9009	946		5063	977			88.8		129.65	3.35			164	74
Total					1899			1961			178.0			6.66			328	149
Avg.			1250		950	2693		981	2661	1.19	89.0	29.09		3.33	0.687	8.94	164	75
5	4:30			8014	995		6102	1039			1.7		128.11	1.54	9.24	1.505	150	74
No 6	:40			7012	1002		7146	1044			1.7		126.57	1.54			152	75
Total :					1997			2088			3.4			3.08			302	149
Avg.			1314		999	2832		1042	2827	0.18	1.7	.590		1.54	15.661	0.139	151	75
9	:50			6047	965		8149	1003			44.5		124.07	2.50	14.70	2.394	172	74
10	5:00			5088	959		9144	995			44.5		121.67	2.40			156	76
Total					1924			1998			89.0			4.90			328	150
Avg.			1266		962	2728		999	2711	0.62	44.5	14.82		2.45	0.992	6.19	164	75
13																		
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 23.830 at 5:00 P.M.

Calculated by O.J.W.
Checked by Adams

Caterpillar R-2

Log of Official Tractor Brake Horse Power Test No. 225e

Webster

Zink

Sept. 27, 1934

Reading No. (1)	Time (2)	EngineCrankShaftSpeed		Engine Belt Pulley Speed			Brake Speed			Belt Slippage % of Column (7)	Net Brake Load Pounds (12)	B. H. P. (13)	Fuel		Water Used		Temperatures	
		Counter Reading (3)	1.316 R. P. M. (4)	Counter Reading (5)	2.836 R. P. M. (6)	Surface Speed Ft. per Min. (7)	Counter Reading (8)	2.714 R. P. M. (9)	Surface Speed Pulley Ft. per Min. (10)				Scale Reading Pounds (14)	Amount Used Pounds (15)	lbs./hr. in Radiator Pounds (16)	Gal./hr. in Fuel Mixture Pounds (17)	Cooling Fluid Deg. F. (18)	Atmosphere Deg. F. (19)
**Observer				5083			9144						121.67		21.72	3.537		
1	5:10			4170	918		0091	947			101.0		118.04	3.63			165	75
Gov. Max. 2	:20			3256	914		1034	943			101.0		114.43	3.61			168	76
Total	:				1832			1890			202.0			7.24			333	151
Avg.			1205		916	2598		945	2565	1.27	101.0	31.82		3.62	0.683	8.996	167	76
5	5:30			2274	982		2055	1021			22.2		112.48	1.95	11.52	1.876	150	74
1/2 6	:40			1298	976		3072	1017			22.4		110.59	1.89			150	72
Total					1958			2038			44.6			3.84			300	146
Avg.			1288		979	2776		1019	2766	0.36	22.5	7.57		1.92	1.522	4.04	150	73
9	5:50			0325	973		4080	1008			66.5		107.62	2.97	17.70	2.883	158	73
10	6:00			9369	956		5070	990			66.9		104.69	2.93			158	73
Total					1929			1998			133.4			5.90			316	146
Avg.			1269		965	2735		999	2711	0.83	66.7	22.21		2.95	0.797	7.704	158	73
13																		
Total					11539			11968			106.1			31.62	0.000	0.000	1907	891
Average			1265		962	2727		997	2706	0.77		17.68					159	74

* 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 avg. for 2 hrs.

28.810 at 6:20 P.M.

Total gals. 5.150

gals./hr. 2.575

lbs./H.P.hr. 0.894

H.P. hrs./gal. 6.87

Calculated by O.J.W.

Checked by Adams

THE UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
COLLEGE OF AGRICULTURE, LINCOLN
Record of Official Tractor Drawbar Horsepower Test

Rated or maximum load A.S.A.E. Maximum Date October 10, 1934 Test No. 225f
Name, model and rating of tractor Caterpillar "R2"
Serial No. Engine 5E3502 Serial No. Chassis 5E3502
Manufacturer Caterpillar Tractor Co., Peoria, Illinois
Tractor submitted for test by Caterpillar Tractor Co., Peoria, Illinois
Tractor equipment Eisemann "CT-4" Magneto, Zenith "K5A" Carburetor
Style and dimension of lugs Cleats integral with shoes 13" long X 1 3/4" high
Measured length of track 15.436 feet
Circumference of drive wheels, at face..... Point of lugs.....
Tractor operated by Anderson Dynamometer car operated by Adams
Dynamometer used Gulley Load used Loading machine
Kind of fuel Gasoline Test No. W.t per gal. 6.14 lbs.
Kind and grade of oil used in engine Mobiloil "A" S.A.E. No. 30
Kind and grade of oil used in transmission Transmission oil Summer grade
Humidity.....per cent. Barometric pressure 29.080 inches.
Temperature of atmosphere 73 Temperature of engine 167
Weather conditions Fair
Condition of track Good

Fuel Consumption: **Not recorded**

Total for test, gal..... Gals. per hour

Pounds per H. P. hour..... H. P. hours per gal.....

Water Consumption: **Not recorded**

Total used in test, gal..... Gal. per hour.....

We, the undersigned, certify that this and attached sheets hereto give a true and correct record of the official tractor test No. 225f

Edmund Anderson..... Operator. Charles Adams..... Observer.

..... Operator. Arthur J. Quick..... Observer.

Engineer-in-charge

Log of Official Tractor Drawbar Horse Power Test No. 2252

Date October 10, 1934

Chart and Reading No.	Time	Stop Watch in 400 ft. minutes	Engine Crankshaft R. P. M.	Drive Wheel Slippage								Speed		Average Draft Pounds	Drawbar Horsepower	Temperature Degrees F.		Fuel Used Pounds	Water Used Pounds
				Left Wheel		Right Wheel		Av. Rev. Columns 6 and 8	Distance Traveled (Feet)	Distance Measured on Ground (Feet)	Slippage % Columns 10 and 11	Feet per Minute	Miles per Hour			Cooling Fluid	Atmosphere		
				Counter Reading	Rev. in 400 ft.	Counter Reading	Rev. in 400 ft.												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
***Observer																			
				A.S.A.E. Maximum run in SECOND GEAR															
3N	5:21	2.2375		8189 9023	839							223.5	2.54	4057	27.84	167	73	Not recorded	
3S	5:27	2.2200		9964	836							225.2	2.56	4057	27.69	167	73		
4N	5:30	2.2450		0702	838							222.7	2.53	4044	27.29	166	74		
		6.7025			2513									12189		500	220		
		2.2342	1250		838				511.0	500	2.15	223.8	2.54	4053	27.49	167	73		
				Temperature 73 degrees F.															
				Barometer 29.030 inches of mercury															
				Correction factor 1.042															
				$27.49 \times 1.042 = 28.64$ Corrected H.P.															
				$28.64 \times 0.75 = 21.48$ Rated H.P.															

NOTE: Record all stops by the word "Stop" and "Start" in column 1, record time and give full data.

* Taken in discharge line from engine.

** Engine R. P. M. = $\frac{\text{Gear Ratio} \times \text{Column (a)}}{\text{Column (3)}}$

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

THE UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
COLLEGE OF AGRICULTURE, LINCOLN
Record of Official Tractor Drawbar Horsepower Test

Rated or maximum load Op. Maximum Date October 10 & 11, 1934 Test No. 225g
Name, model and rating of tractor Caterpillar "R2"
Serial No. Engine 5E3502 Serial No. Chassis 5E3502
Manufacturer Caterpillar Tractor Co., Peoria, Illinois
Tractor submitted for test by Caterpillar Tractor Co., Peoria, Illinois
Tractor equipment Eisemann "CT-4" Magneto, Zenith "K5A" Carburetor
Style and dimension of lugs Cleats integral with shoes 13" long X 1 3/4" high
Measured length of track 15.436 feet
Circumference of drive wheels, at face.....Point of lugs.....
Tractor operated by Anderson Dynamometer car operated by Zink
Dynamometer used Gulley Load used Loading machine
Kind of fuel Gasoline Test No. W.t per gal. 6.14 lbs.
Kind and grade of oil used in engine Mobiloil "A" S.A.E. No. 30
Kind and grade of oil used in transmission Transmission oil Summer grade
Humidity.....per cent. Barometric pressure 1st. 29.025
2nd. 29.100 inches.
3rd. 29.025 1st. 168
Temperature of atmosphere 1st. 79 2nd. 75 Temperature of engine 2nd. 171
3rd. 82 3rd. 171
Weather conditions Fair
Condition of track Good
Fuel Consumption: Not recorded

Total for test, gal.....Gals. per hour.....
Pounds per H. P. hour.....H. P. hours per gal.....

Water Consumption: Not recorded

Total used in test, gal.....Gal. per hour.....

We, the undersigned, certify that this and attached sheets hereto give a true and correct record of the official tractor test No. 225g

Edmund Anderson.....Operator. Arthur Zink.....Observer.
.....Operator.Observer.

Arthur Zink
Engineer-in-charge

THE UNIVERSITY OF NEBRASKA
AGRICULTURAL ENGINEERING DEPARTMENT
COLLEGE OF AGRICULTURE, LINCOLN
Record of Official Tractor Drawbar Horsepower Test

Rated or maximum load.....~~Rated~~.....Date Oct. 16, 1934.....Test No. 225^h
Name, model and rating of tractor Caterpillar "R2"
Serial No. Engine.....5E3502.....Serial No. Chassis.....5E3502
Manufacturer Caterpillar Tractor Co., Peoria, Illinois
Tractor submitted for test by.....Caterpillar Tractor Co., Peoria, Illinois
Tractor equipment.....Eisemann 307-4" Magneto, Zenith "K5A" Carburetor
Style and dimension of lugs.....Cleats integral with shoes 15" long x 1 5/4" high
Measured length of track 15.436 feet
Circumference of drive wheels, at face.....Point of lugs.....
Tractor operated by.....Anderson.....Dynamometer car operated by.....Zink
Dynamometer used.....Gulley.....Load used.....Loading machine
Kind of fuel.....Gasoline.....Test No.....W.t per gal. 6.14.....lbs.
Kind and grade of oil used in engine.....Mobiloil "A" S.A.E. No. 30
Kind and grade of oil used in transmission.....Transmission oil Summer grade S.A.E. 160
Humidity.....per cent. Barometric pressure.....29.925 29.600.....inches.
Temperature of atmosphere.....74.....Temperature of engine.....163
Weather conditions.....fair
Condition of track.....fair

Fuel Consumption:

Total for test, gal.....31.091.....Gals. per hour.....3.109
Pounds per H. P. hour.....0.873.....H. P. hours per gal.....7.03

Water Consumption:

Total used in test, gal.....0.000.....Gal. per hour.....0.000

We, the undersigned, certify that this and attached sheets hereto give a true and correct record of the official tractor test No. 225^h

.....Edmund Buckner.....Operator.....Arthur Zink.....Observer.
.....Operator.....Arthur Zink.....Observer.

Engineer-in-charge

THE UNIVERSITY OF NEBRASKA
DEPARTMENT OF AGRICULTURAL ENGINEERING
Log of Official Tractor Drawbar Horse Power Test No. 225h

Date **Oct. 16, 1934**

Chart and Reading No.	Time	Stop Watch in 400 ft. minutes	** Engine Crankshaft R. P. M.	Drive Wheel Slippage								Speed		Average Draft Pounds	Drawbar Horsepower	Temperature Degrees F.		Fuel Used Pounds	Water Used Pounds
				Left Wheel		Right Wheel		Av. Rev. Columns 6 and 8	Distance Traveled (Feet)	Distance Measured on Ground (Feet)	Slippage % Columns 10 and 11	Feet per Minute	Miles per Hour			Cooling Fluid	Atmosphere		
				Counter Reading	Rev. in 400 ft.	Counter Reading	Rev. in 400 ft.												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
***Observer																			
	6:07	Start Motor (Moved Tractor around to loading machine)																	
	6:10	Stopped Motor (Connected up counter wires, thermometer and etc.)																	
	6:18	Start Motor and Test																	
1S	7:00	2.2275		9439 0271	832											154	68		
1N	06	2.2300		1107	836							224.3	2.55	3185	21.65	158	68		
2S	7:49	2.2300		1940	833											158	68		
2N	55	2.2150		2775	835							225.0	2.56	3237	22.07	160	68		
3S	8:57	2.2350		3609	834											160	70		
3N	9:03	2.2350		4444	835							223.7	2.54	3253	22.05	164	70		
4S	9:57	2.2200		5280	836											160	72		
4N	10:03	2.2175		6117	837							225.4	2.56	3229	22.06	166	72		
5S	11:06	2.2325		6952	835											162	74		
5N	12	2.2275		7787	835							224.2	2.55	3226	21.92	170	74		
6S	11:56	2.2300		8625	838											166	74		
6N	12:02	2.2200		9461	836							224.7	2.55	3173	21.61	175	74		

NOTE: Record all stops by the word "Stop" and "Start" in column 1, record time and give full data.
 * Taken in discharge line from engine.
 ** Engine R. P. M. = $\frac{\text{Gear Ratio} \times \text{Column (a)}}{\text{Column (3)}}$
 *** Each Observer will write his initials at the head of each column in which he records his observations.

Date Oct. 16, 1934

NOTE: Record all stops by the word "Stop" and "Start" in column 1, record time and give full data.
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