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January 1949

Test 410: Long Model A

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
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Copy of Report of Official Tractor Test No. 410

SPECIFICATIONS

Type Tricycle Serial No. 4905275 Drive Enclosed Gear
Tread width: Rear 56 in. to 84 in. Front 8 in. Wheel Base 83 in.
Advertised speeds, miles per hour: First 3.34 Second 4.82 Third 6.46
 Fourth 13.27 Reverse 4.17
Belt pulley: Diam. 8 in Face 8 in. RPM 1456 Belt Speed 3050 fpm
Clutch: Make Rockford Type Dry Disc Operated by Foot Pedal
Seat Monroe
Hydraulic Control: Yes
Brakes: Make Duo-Grip Type: External and Internal Shoe
 Location Differential Shaft
 Gear reduction (brake drum to rear wheel) 5.1 to 1
 Operated by Foot Pedal
 Locked by Latch on tractor platform
 Equalization Nono. Pedals can be locked together.
Engine: Make Continental Serial No. 103446 Type 4 cylinder vortical
 Head L Mounting Lengthwise Lubrication Pressure
 Bore & stroke 3 7/16 in x 4 3/8 in. Rated rpm 1800 Compression ratio 6.23:1
 Port diameter valves: Inlet 1 23/64 in. Exhaust 1 1/16 in.
 Distributor & coil: Make Auto-Lite Battery Exide 6-volt
 Generator: Make Auto-Lite Starter: Make Auto-Lite
 Carburetor: Make Marvel-Schebler Model TSK-338 Size 7/8 in.
 Governor: Make Novi Type Centrifugal Variable Speed
 Air Cleaner: Make United Type Oil washed wire screen
 Oil Filter: Make Fram Type Replaceable element
 Cooling medium temperature control: Thermostat

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Date of test: May 18, 1949 to May 31, 1949

Name and model of tractor: LONG MODEL A

Manufacturer: LONG MANUFACTURING CO., INC., TARBORO, NORTH CAROLINA

Manufacturer's rating: None (Manufacturer claims 29 Belt Horsepower and
 26 Drawbar Horsepower)

HORSEPOWER SUMMARY

	DRAWBAR	BELT
1. Sea level (calculated maximum horsepower based on 60° F. and 29.92" Hg.)	29.75	33.08
2. Observed maximum horsepower (tests F & B)	28.58	31.82
3. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings)	22.31	28.12

REMARKS

Right rear hood hold down bolt and rear generator bolt support broke during limber-up test.

FUEL, OIL, and TIME

Fuel Gasoline Octane 74 * Weight per gallon 6.101
Oil SAE 20 To motor 1.237 gal. Drained from motor 0.820 gal.
Total time motor was operated 41 hours

* Octane rating taken from oil company's typical inspection data.

We, the undersigned, certify that this is a true and correct report of official tractor test No. 410.

L. F. Larsen

Engineer in Charge

C. W. Smith

L. W. Hurlbut

F. D. Yung

BOARD OF TRACTOR TEST ENGINEERS

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All results shown on pages 2 and 3 of this report were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with carburetor set for 100% maximum belt horsepower and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, H, J and K were made with an operating setting of the carburetor (selected by the manufacturer) of 94.9% of maximum belt horsepower.

B E L T H O R S E P O W E R T E S T S

Horse- power	Crank Shaft Speed rpm	Fuel Consumption			Water used gal per hr	Temperature		Barometer Inches of Mercury
		gal per hr	hp-hr per gal	lb per hp-hr		Cool- ing med °F	Air °F	

TEST B - 100% MAXIMUM LOAD - TWO HOURS

31.82	1798	3.222	9.88	0.618	0.00	163	65	28.920
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TEST C - OPERATING MAXIMUM LOAD - ONE HOUR

30.32	1801	2.901	10.45	0.584	0.00	154	61	28.923
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*TEST D - ONE HOUR

28.22	1798	2.724	10.36	0.589	0.00	147	58	28.940
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

28.20	1798	2.714	10.39	0.587	- - -	147	58	- - -
1.56	1976	1.160	1.34	4.538	- - -	140	58	- - -
15.10	1916	1.918	7.87	0.775	- - -	144	57	- - -
28.39	1669	2.650	10.71	0.570	- - -	148	56	- - -
7.77	1966	1.505	5.16	1.181	- - -	140	56	- - -
22.12	1881	2.336	9.47	0.644	- - -	148	58	- - -
17.19	1867	2.047	8.40	0.727	0.00	144	57	28.973

* Formerly called RATED LOAD, see HORSEPOWER SUMMARY 3, page 1.

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D R A W B A R H O R S E P O W E R T E S T S

Horse- power	Draw bar pull lb	Speed mph	Crank shaft speed rpm	Slip on drive wheels %	Fuel Consumption			Water used gal per hr	Temperature		Barometer Inches of Mercury
					gal per hr	hp-hr per gal	lb per hp-hr		Cool- ing med °F.	Air °F.	

TEST F - 100% MAXIMUM LOAD - 2nd GEAR

28.58	2560	4.19	1805	5.95	-----Not Recorded-----				163	67	28.940
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TEST G - OPERATING MAXIMUM LOAD

22.31	3179	2.63	1806	14.60	-----Not Recorded-----				159	74	28.940
27.28	2432	4.21	1806	5.52	-----Not Recorded-----				158	68	28.940
26.74	1689	5.94	1800	3.42	-----Not Recorded-----				159	69	28.940
20.67	652	11.89	1800	2.46	-----Not Recorded-----				165	85	28.942

*TEST H - TEN HOURS - 2nd GEAR

22.53	2015	4.19	1798	5.41	2.487	9.06	0.673	0.00	162	76	28.895
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TEST J - OPERATING MAXIMUM LOAD - 2nd GEAR

23.73	2272	3.91	1809	13.17	-----Not Recorded-----				168	78	28.720
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TEST K - OPERATING MAXIMUM LOAD - 2nd GEAR

Lightest weight wheels and smallest tires suggested by manufacturer. All added weight removed from tractor (liquid, cast iron, or any other added forms.)

21.74	2132	3.82	1802	12.30	-----Not Recorded-----				159	76	28.720
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* Formerly called RATED LOAD; see POWER SUMMARY 3, page 1.

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TIRES, WHEELS, and WEIGHT

	Tests F, G, & H	Test J	Test K
Rear Wheel; Type	Pressed Steel	Pressed Steel	Pressed Steel
(each)			
Liquid Ballast	353 lb.	None	None
Added Cast Iron	578 lb.	None	None
Rear Tires: No. Size & Ply	2 11-38 4 ply	2 11-38 4 ply	2 10-38 4 ply
Type of Tread	Angle Action	Angle Action	Angle Action
Make	General	General	General
Air Pressure	12 lb.	12 lb.	12 lb.
Front Wheel; Type	Pressed Steel	Pressed Steel	Pressed Steel
(each)			
Liquid Ballast	None	None	None
Added Cast Iron	98 lb.	None	None
Front Tires: No. Size & Ply	2 5.50-16 4 ply	2 5.50-16 4 ply	2 5.50-16 4 ply
Type of Tread	Triple Rib	Triple Rib	Triple Rib
Make	General	General	General
Air Pressure	28 lb.	28 lb.	28 lb.
Height of Drawbar	16 inches	16 1/2 inches	15 inches
Static Weight: Rear End	4162 lb.	2300 lb.	2259 lb.
Front End	1355 lb.	1143 lb.	1146 lb.
Total Weight as Tested (with Operator)	5692 lb.	3618 lb.	3580 lb.