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Larsen

January 1936

Test 274: CO-OP Number 3

Nebraska Tractor Test Lab

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 274

Dates of test: October 22 to November 5, 1936.

Name and Model of tractor: CO-OP #3

Manufacturer: Duplex Machinery Company, Battle Creek, Michigan.

Manufacturer's rating: NOT RATED

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

H. P.	: Crank : : shaft :	Fuel Consumption	:	Water consumption	:	Temp.	:	Barometer
: speed :	Gals. :	H. P. :	Lbs. per:	Cool- :	In :	Deg. F.	:	Inches of
: R.P.M. :	per :	hrs. per:	H. P. :	ing :	fuel :	Total :	ing :	Air :
:	hour :	gal. :	hour :	:	:	med. :	:	Mercury

TEST B 100% MAXIMUM LOAD. T O HOURS

42.29 : 1600 : 4.015 : 10.53 : 0.577 : 0.000 : 0.000 : 0.000 : 173 : 61 : 29.010

TEST C OPERATING MAXIMUM LOAD. ONE HOUR

40.80 : 1600 : 3.684 : 11.07 : 0.549 : 0.000 : 0.000 : 0.000 : 170 : 60 : 29.025

TEST D RATED LOAD. ONE HOUR

37.36 : 1600 : 3.446 : 10.84 : 0.561 : 0.000 : 0.000 : 0.000 : 164 : 60 : 29.005

TEST E *VARYING LOAD. TWO HOURS

37.35	: 1603	: 3.414	: 10.94	: 0.556	: --	: --	: --	: 164	: 61	: --
0.79	: 1701	: 1.411	: 0.56	: 10.861	: --	: --	: --	: 139	: 59	: --
19.19	: 1646	: 2.314	: 8.29	: 0.733	: --	: --	: --	: 152	: 60	: --
39.71	: 1570	: 3.548	: 11.19	: 0.543	: --	: --	: --	: 167	: 60	: --
9.99	: 1681	: 1.855	: 5.39	: 1.129	: --	: --	: --	: 147	: 60	: --
28.98	: 1631	: 2.896	: 10.01	: 0.608	: --	: --	: --	: 157	: 60	: --
22.67	: 1639	: 2.573	: 8.81	: 0.690	: 0.000	: 0.000	: 0.000	: 154	: 60	: 29.005

*20 minute runs. Last line is average for two hours.

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

H. P.	: Draw : : bar :	Speed	:	Crank	:	Slip	:	Fuel Consumption	:	Water:	Temp. :	Barometer
: pull :	per :	miles :	shaft :	speed :	drive:	on :	Gal.:	hour :	per :	Gal.:	Cool-:	Inches of
: pounds:	hour :	hour :	R.P.M.:	wheels:	per :	per :	per :	per :	H.P.:	per :	ing :	Air:
:	:	:	:	% :	hour:	gal. :	hour :	hour :	hour :	hour :	med. :	Mercury

TEST F 100% MAXIMUM LOAD. Third GEAR

37.50 : 2308 : 6.09 : 1602 : 9.67 : -----Not Recorded----- : 160 : 57 : 28.975

TEST G OPERATING MAXIMUM LOAD

16.99	: 2679	: 2.38	: 1595	: 12.10	: -----Not Recorded-----	: 155	: 67	: 29.000
28.22	: 2635	: 4.02	: 1600	: 14.56	: ----- " "	: 158	: 64	: 29.000
35.61	: 2180	: 6.13	: 1604	: 9.29	: ----- " "	: 155	: 52	: 29.000
35.04	: 967	: 13.59	: 1602	: 2.44	: ----- " "	: 165	: 65	: 28.905

TEST H RATED LOAD. TEN HOURS Third GEAR.

29.19 : 1719 : 6.37 : 1600 : 5.50 : 3.114 : 9.37 : 0.649 : 0.000 : 151 : 49 : 28.970

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BRIEF SPECIFICATIONS

MOTOR: Make Chrysler Industrial Serial No. 301 Type 6 cylinder, vertical
 Head L Mounting Crankshaft lengthwise
 Bore and stroke: 3 3/8" x 4 1/2" Rated R.P.M. 1600
 Port Diam. Valves: Inlet 1 3/8" Exhaust 1 5/16"
 Belt pulley: Diam. 14" Face 8 3/4" R.P.M. 754
 Generator Auto-lite Model GAR4608-C-5
 Carburetor Zenith Model 124 1/2 EX Size 1 1/4"
 Governor Pierce Type Centrifugal
 Air cleaner Donaldson Type Twister pre-cleaner and oil-
washed wire-screen filter

Lubrication Pressure

CHASSIS: Type 4 wheels, 2 drivers Serial No. 3-140 Drive Enclosed gear
 Clutch Borg & Beck Type Single-plate, dry Operated by Foot pedal
 Advertised speeds, miles per hour: First 2.7 Second 4.6
 Third 6.6 Fourth 13.0 Fifth 20.0 Reverse 3.3
 Drive wheel tires, size 12.75" x 28" Air pressure 16 pounds.
 Front wheel tires, size 7.50" x 16" Air pressure 25 pounds.
 Seat Sponge-rubber-covered pressed steel
 Total weight as tested (with operator) 6065 pounds.

FUEL AND OIL:

Fuel Gasoline (70 Octane) Weight per gallon 6.08 pounds.
 Oil S.A.E. Viscosity No. 10
 Total oil to motor 1.234 gallons
 Total drained from motor 1.030 gallons
 Total time motor was operated 48 hours

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REPAIRS AND ADJUSTMENTS

The pressed steel web of the fibre belt pulley failed during the preliminary belt test after approximately two hours of operation. This pulley was replaced with a cast iron one of the same size.

REMARKS

All results shown on page 1 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 horsepower and these figures were used in determining the ratings recommended by the A.S.A.E and S.A.E. tractor rating codes. Tests C, D, E, G and H were made with an operating setting of the carburetor (selected by the manufacturer) of 96.5% of maximum horsepower.

Observed maximum horsepower (tests F & B) Drawbar 37.50 Belt 42.29

Sea level (calculated) maximum horsepower Drawbar 38.63 Belt 43.64
 (based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 28.97 Belt 37.09
 (as recommended by A.S.A.E. and S.A.E.
 codes)

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 274.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
 Board of Tractor Test Engineers