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January 1936

Test 275: CO-OP Number 2

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 275

Dates of test: October 22 to November 10, 1936.

Name and model of tractor: CO-OP #2

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 : Gals. : H. P. : : R.P.M. : per : hour :	Lbs. per : H. P. : : hour :	Water Consumption : per hour gallons : : Cool- : In : : ing : fuel : Total : : med. : :	Temp. : Deg. F. : : Cool- : : ing : Air : : med. : :	:Barometer :Inches of :Mercury :
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TEST B 100% MAXIMUM LOAD. TWO HOURS

33.17	: 1500	: 3.522	: 9.42	: 0.646	: 0.000	: 0.000	: 0.000	: 180	: 73	: 29.005
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TEST C OPERATING MAXIMUM LOAD. ONE HOUR

31.66	: 1501	: 2.919	: 10.85	: 0.561	: 0.000	: 0.000	: 0.000	: 177	: 72	: 29.010
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TEST D RATED LOAD. ONE HOUR

29.65	: 1500	: 2.827	: 10.49	: 0.580	: 0.000	: 0.000	: 0.000	: 168	: 69	: 29.010
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TEST E *VARYING LOAD. TWO HOURS

29.67	: 1502	: 2.832	: 10.48	: 0.580	: --	: --	: --	: 166	: 69	: --
0.68	: 1618	: 1.066	: 0.64	: 9.529	: --	: --	: --	: 141	: 69	: --
15.62	: 1579	: 1.930	: 8.09	: 0.751	: --	: --	: --	: 154	: 69	: --
30.85	: 1465	: 2.852	: 10.82	: 0.562	: --	: --	: --	: 165	: 68	: --
8.12	: 1597	: 1.490	: 5.45	: 1.116	: --	: --	: --	: 146	: 66	: --
22.74	: 1550	: 2.378	: 9.56	: 0.636	: --	: --	: --	: 160	: 66	: --
17.95	: 1552	: 2.177	: 8.25	: 0.737	: 0.000	: 0.000	: 0.000	: 155	: 68	: 29.030

*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 : : miles :	Crank : : shaft :	Slip : : on :	Fuel Consumption : H. P. : : Lbs. : : Gal. : hour : : per : : H.P. : : per : : hour : : gal. :	Water: : used : : Gal. : : Cool- : : ing : : med. : : :	Temp. : : : : : : : : : : : :	:Barometer :Inches of :Mercury :
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TEST F 100% MAXIMUM LOAD. Third GEAR.

29.67	: 1839	: 6.05	: 1500	: 9.57	: -----	: Not Recorded	: -----	: 155	: 49	: 29.010
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TEST G OPERATING MAXIMUM LOAD

12.23	: 1980	: 2.32	: 1497	: 13.81	: -----	: Not Recorded	: -----	: 147	: 36	: 28.500
20.13	: 1863	: 4.05	: 1502	: 13.18	: -----	: " "	: -----	: 160	: 37	: 28.435
27.67	: 1662	: 6.24	: 1502	: 6.82	: -----	: " "	: -----	: 155	: 51	: 29.010
26.57	: 741	: 13.45	: 1503	: 2.80	: -----	: " "	: -----	: 155	: 54	: 29.025

TEST H RATED LOAD. TEN HOURS. Third GEAR

22.77	: 1344	: 6.35	: 1500	: 5.03	: 2.451	: 9.29	: 0.654	: 0.000	: 153	: 47	: 29.055
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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Corrected Copy of Report of Official Tractor Test No. 275

BRIEF SPECIFICATIONS

MOTOR: Make Chrysler Industrial Serial No. 766 Type 6 cylinder, vertical
Head L Mounting Crankshaft lengthwise
Bore and stroke: 3 1/8" x 4 3/8" Rated R.P.M. 1500
Port Diam. Valves: Inlet 1 5/16" Exhaust 1 5/16"
Belt pulley: Diam. 14" Face 8 3/4" R.P.M. 707
Generator Auto-lite Model GAR4608-C-5
Carburetor Zenith Model 124 1/2 E Size 1"
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. 2-198 Drive Enclosed gear
Clutch Borg & Beck Type Single-plate, dry Operated by Foot pedal
Advertised speeds, miles per hour: First 2.7 Second 4.7
Third 6.8 Fourth 14.2 Fifth 21.3 Reverse 3.5
Drive wheel tires, size 11.25" x 28" Air pressure 16 pounds.
Front wheel tires, size 6.00" x 16" Air pressure 25 pounds.
Seat Sponge-rubber-covered pressed steel
Total weight as tested (with operator) 5000 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 1.485 gallons
Total drained from motor 1.151 gallons
Total time motor was operated 54 hours

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLNCopy of Report of Official Tractor Test No. 275REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

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 as 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 95.4% of maximum horsepower.

Observed maximum horsepower (tests F & B) Drawbar 29.67 Belt 33.17

Sea level (calculated) maximum horsepower Drawbar 30.26 Belt 34.63
(based on 60° F. and 29.92" Hg.)Highest permissible horsepower ratings Drawbar 22.70 Belt 29.44
(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. 275.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers