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Test 474: Cockshutt 20*

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The Experiment Station
University of Nebraska College of Agriculture
W. V. Lambert, Director, Lincoln, Nebraska

NEBRASKA TRACTOR TEST NO. 474

Department of Agricultural Engineering
Dates of test: June 16 to June 24, 1952.
Manufacturer: COCKSHUTT FARM EQUIPMENT
LTD., BRANTFORD, ONTARIO, CANADA.
Manufacturer's rating: Not rated.

COCKSHUTT 20*

* Also designated as Co-op E2.

BELT HORSEPOWER TESTS

Hp	Crank shaft speed rpm	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer inches of mercury		
		Gal per hour	Hp-hr per gal	Lb per hp-hour		Cooling med	Air			
TEST B—100% MAXIMUM LOAD—TWO HOURS										
28.94	1800	2.886	10.03	0.605	0.00	186	75	28.840		
TEST C—OPERATING MAXIMUM LOAD—ONE HOUR										
27.40	1801	2.566	10.68	0.569	0.00	180	76	28.835		
TEST D—RATED LOAD—ONE HOUR										
25.94	1802	2.479	10.46	0.580	0.00	170	71	28.875		
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)										
25.96	1804	2.481	10.46	0.580	...	168	71	...		
2.26	2028	1.230	1.84	3.305	...	152	73	...		
13.98	1936	1.789	7.81	0.777	...	156	72	...		
25.13	1638	2.332	10.78	0.563	...	170	72	...		
7.29	1999	1.428	5.11	1.189	...	155	73	...		
20.37	1891	2.155	9.45	0.642	...	158	70	...		
15.83	1883	1.902	8.32	0.730	0.00	160	72	28.860		
TORQUE (at dynamometer)										
Eng. RPM	1801	1706	1602	1499	1395	1300	1200	1099	996	893
Lb-ft	175.4	177.8	178.2	177.5	175.0	175.4	176.4	181.0	185.5	183.8

DRAWBAR HORSEPOWER TESTS

Hp	Draw bar pull lb	Speed miles per hr	Crank shaft speed rpm	Slip of drive wheels %	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer inches of mercury
					Gal per hour	Hp-hr per gal	Lb per hp-hr		Cooling med	Air	
TEST F—100% MAXIMUM LOAD—3rd Gear											
25.47	1866	5.12	1803	6.35	.....	Not Recorded	.....	176	76	28.930
TEST G—OPERATING MAXIMUM LOAD											
18.75	3266	2.15	1805	15.27	.....	Not Recorded	.....	162	82	28.920
24.06	2568	3.51	1802	8.80	.....	Not Recorded	.....	172	75	28.920
23.86	1730	5.17	1800	5.08	.....	Not Recorded	.....	170	74	28.920
19.05	528	13.53	1798	1.47	.....	Not Recorded	.....	164	76	28.920
TEST H—RATED LOAD—TEN HOURS—3rd Gear											
20.24	1459	5.20	1798	4.48	2.207	9.17	0.662	0.00	169	83	28.666
TEST J—OPERATING MAXIMUM LOAD—3rd Gear											
22.12	1697	4.89	1802	12.23	.....	Not Recorded	.....	180	88	28.600
TEST K—OPERATING MAXIMUM LOAD—3rd Gear											
19.42	1572	4.63	1802	15.84	.....	Not Recorded	.....	180	91	28.600

TIRES, WHEELS and WEIGHT

	Tests F, G, & H	Test J	Test K
Rear wheels			
Type	Pressed steel	Pressed steel	Pressed steel
Liquid ballast	279 lb each	None	None
Added cast iron	560 lb each	None	None
Rear tires			
No. and size	Two 11-24	Two 11-24	Two 10-24
Ply	4	4	4
Air pressure	12 lb	12 lb	12 lb
Front wheels			
Type	Pressed steel	Pressed steel	Pressed steel
Liquid ballast	None	None	None
Added cast iron	135 lb each	None	None
Front tires			
No. and size	Two 5.00-15	Two 5.00-15	Two 5.00-15
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
Height of drawbar	18½ inches	20½ inches	19 inches
Static weight			
Rear end	3378 lb	1700 lb	1684 lb
Front end	1208 lb	938 lb	936 lb
Total weight as tested with operator	4761 lb	2813 lb	2795 lb

HORSEPOWER SUMMARY

	Draw-bar	Belt
1. Sea level (calculated maximum horsepower based on 60° F. and 29.92" Hg.)	26.74	30.45
2. Observed maximum horsepower (tests F & B)	25.47	28.94
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)	20.06	25.88

We, the undersigned, certify that this is a true and correct report of official tractor test No. 474.

L. F. LARSEN
Engineer in Charge

C. W. SMITH
F. D. YUNG
L. W. HURLBUT
Board of Tractor
Test Engineers

FUEL, OIL and TIME Gasoline octane No ASTM 76 Research 82 (rating taken from oil company's typical inspection data) weight per gallon 6.071 lb Oil SAE 10; to motor 0.988 gal; drained from motor 0.921 gal Total time motor was operated 43 hours.

CHASSIS Type Standard Serial No 20-294 Tread width rear 48" to 76" front 48" to 72" Wheel Base 72" Hydraulic control system direct engine drive Advertised speeds mph first 2½ second 3¼ third 5¼ fourth 13¼ reverse 3 Belt pulley diam 10" face 6½" rpm 1160 Belt speed 3037 fpm Clutch single plate dry disc operated by foot pedal Seat upholstered with back rest Brakes contracting bands operated by foot pedals on right hand side Equalized by foot action only Power take-off standard type.

ENGINE Make Continental Type 4 cylinder vertical Serial No 23285 Crankshaft mounted lengthwise Head L Lubrication pressure Bore and Stroke 3 3/16" x 4 3/8" Rated rpm 1800 Compression ratio 6.75 to 1 Displacement 140 cu in Port Diameter Valves inlet 1 23/64" exhaust 1 1/16" Governor variable speed centrifugal Carburetor Size 1" Ignition System battery Starting System 6 volt battery Air Cleaner oil washed wire mesh Muffler was used Oil Filter replaceable cotton waste element Cooling medium temperature control thermostat.

REPAIRS AND ADJUSTMENTS No repairs or adjustments.

REMARKS All test results 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 & K were made with an operating setting of the carburetor (selected by the manufacturer) of 94.8% of maximum belt horsepower.