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January 1950

Test 450: Oliver Row-Crop 88 Diesel

Nebraska Tractor Test Lab

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

Department of Agricultural Engineering

Dates of test: September 25 to October 9, 1950.

Manufacturer: THE OLIVER CORPORATION, CHARLES CITY, IOWA

Manufacturer's rating: Not rated.

NEBRASKA TRACTOR TEST NO. 450

OLIVER ROW CROP 88 DIESEL

BELT HORSEPOWER TESTS

Hp	Crank shaft speed rpm	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer in Hg
		Gal per hour	Hp-hr per gal	Lb per hp-hour		Cooling med	Air	
TESTS B and C—100% MAXIMUM LOAD—TWO HOURS								
43.53	1600	2.928	14.87	0.470	0.00	175	65	28.985
TEST D—RATED LOAD—ONE HOUR								
38.47	1601	2.599	14.80	0.473	0.00	172	65	28.950
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
38.36	1598	2.591	14.81	0.472	...	172	66
1.86	1721	0.828	2.25	3.113	...	154	65
19.81	1644	1.686	11.75	0.595	...	164	66
39.36	1556	2.659	14.80	0.473	...	172	65
10.17	1683	1.265	8.04	0.870	...	160	63
29.23	1617	2.136	13.68	0.511	...	166	64
23.13	1636	1.861	12.43	0.563	...	165	65	28.935

DRAWBAR HORSEPOWER TESTS

Hp	Draw pull bar lb	Speed miles per hr	Crank shaft speed rpm	Slip of drive wheels %	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer in Hg
					Gal per hour	Hp-hr per gal	Lb per hp-hr		Cooling med	Air	
TESTS F and G—100% MAXIMUM LOAD											
35.55	5869	2.27	1603	13.01	Not Recorded				170	64	29.210
37.27	4550	3.07	1602	9.06	" "				172	64	29.210
38.30	3418	4.20	1604	6.32	" "				172	56	29.220
38.47	2607	5.53	1599	4.43	" "				172	56	29.220
37.24	2025	6.90	1601	3.22	" "				172	58	29.210
32.05	995	12.08	1601	1.35	" "				171	60	29.210
TEST H—RATED LOAD—TEN HOURS—3rd GEAR											
29.42	2581	4.28	1598	4.31	2.279	12.91	0.542	0.00	167	50	29.142
TEST J—OPERATING MAXIMUM LOAD—3rd GEAR											
34.24	3351	3.83	1599	15.71	Not Recorded				173	68	28.730
TEST K—OPERATING MAXIMUM LOAD—3rd GEAR											
33.88	3533	3.60	1603	16.02	Not Recorded				168	55	28.920

TIRES, WHEELS and WEIGHT

	Tests F, G, & H	Test J	Test K
Rear Wheels			
Type	Cast iron	Cast iron	Cast iron
Liquid Ballast	459 lb each	None	None
Added cast iron	1500 lb each	None	None
Rear Tires			
No. and size	Two 13-38	Two 13-38	Two 11-38
Ply	6	6	4
Air pressure	18 lb	14 lb	14 lb
Front wheels			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	None	None	None
Added cast iron	None	None	None
Front tires			
No. and size	Two 6.00-16	Two 6.00-16	Two 6.00-16
Ply	4	4	4
Air Pressure	28 lb	28 lb	28 lb
Height of drawbar	23 inches	22½ inches	20 inches
Static weight			
Rear end	7856 lb	3939 lb	3721 lb
Front end	1554 lb	1556 lb	1554 lb
Total weight as tested with operator	9595 lb	5680 lb	5460 lb

FUEL, OIL and TIME Diesel fuel cetane No. 41.5 (rating taken from oil company's typical inspection data); weight per gallon 6.994 lb Oil SAE 10; to motor 1.499 gal; drained from motor 1.221 gal Total time motor was operated 42 hours.

CHASSIS Type tricycle Serial No DSL 129431 Tread width rear 60" to 92½" front 8½" to 12½" Wheel Base 93¾" Hydraulic control system direct engine drive Advertised speeds mph first 2.5 second 3.25 third 4.25 fourth 5.50 fifth 6.75 sixth 11.75 reverse 2.5 and 4.375 Belt pulley diam 11½" face 7¼" rpm 992 Belt speed 3080 fpm Clutch dry disc clutch operated by foot pedal Seat pressed steel cushioned by rubber in torsion Brakes external contracting band operated by two foot pedals Equalized by connecting bar which serves as master brake pedal Power take-off direct drive with independent hand clutch.

ENGINE Make Oliver Diesel Type 6 cylinder vertical Serial No D2-800823 Crankshaft mounted lengthwise Head I Lubrication pressure Bore and Stroke 3½"x4" Rated rpm 1600 Compression ratio 15 to 1 Displacement 230.9 cu in Port Diameter Valves inlet 1 7/32" exhaust 1 1/32" Governor variable speed centrifugal Starting System 12 volt electric Air Cleaner oil washed wire mesh Muffler was used Oil Filter two replaceable waste packed elements Fuel Filters one permanent edge type fuel strainer in sediment bowl and one replaceable filter cartridge 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 fuel pump set by manufacturer to develop approximately 45 corrected 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 the same setting.

HORSEPOWER SUMMARY

	Draw-bar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" Hg)	39.07	45.15
2. Observed maximum horsepower (tests F and B)	38.30	43.53
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)	29.30	38.38

We, the undersigned, certify that this is a true and correct report of official tractor test No. 450.

L. F. Larsen
Engineer in Charge

C. W. Smith
L. W. Hurlbut
F. D. Yung
Board of Tractor
Test Engineers

