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Test 439: Allis-Chalmers B

Nebraska Tractor Test Lab

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Department of Agricultural Engineering
 Dates of test: May 17 to May 24, 1950.
 Manufacturer: ALLIS-CHALMERS MANUFACTURING CO., MILWAUKEE, WISCONSIN
 Manufacturer's rating: Not rated.

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

NEBRASKA TRACTOR TEST NO. 439

ALLIS-CHALMERS B

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	
TEST B—100% MAXIMUM LOAD—TWO HOURS								
22.25	1500	2.094	10.63	0.572	0.00	172	52	28.886
TEST C—OPERATING MAXIMUM LOAD—ONE HOUR								
21.17	1500	1.849	11.45	0.531	0.00	175	51	28.900
TEST D—RATED LOAD—ONE HOUR								
19.46	1500	1.735	11.22	0.542	0.00	177	57	28.900
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
19.46	1502	1.732	11.24	0.541	...	179	60
1.30	1653	0.770	1.69	3.600	...	185	60
10.37	1595	1.219	8.51	0.715	...	180	62
19.52	1380	1.683	11.60	0.524	...	173	63
5.29	1625	0.962	5.50	1.106	...	181	63
15.14	1553	1.456	10.40	0.585	...	183	65
11.85	1551	1.304	9.09	0.669	0.00	180	62	28.878

BELT 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 in Hg
					Gal per hour	Hp-hr per gal	Lb per hp-hr		Cool- ing med	Air	
TEST F—100% MAXIMUM LOAD—2nd GEAR											
19.51	1742	4.20	1502	7.01	Not Recorded				170	77	28.800
TEST G—OPERATING MAXIMUM LOAD											
17.22	2667	2.42	1501	14.57	Not Recorded				170	80	28.795
18.57	1650	4.22	1502	6.01	" "				175	75	28.795
17.19	762	8.46	1501	2.69	" "				180	80	28.790
TEST H—RATED LOAD—TEN HOURS—2nd GEAR											
15.66	1373	4.28	1500	4.65	1.588	9.86	0.617	0.00	182	82	28.670
TEST J—OPERATING MAXIMUM LOAD—2nd GEAR											
15.22	1442	3.96	1501	15.00	Not Recorded				182	76	28.650
TEST K—OPERATING MAXIMUM LOAD—2nd GEAR											
12.94	1311	3.70	1502	15.53	Not Recorded				180	80	28.650

FUEL, OIL and TIME Gasoline octane No ASTM 76 Research 82 (rating taken from oil company's typical inspection data); weight per gallon 6.079 lb Oil SAE 20; to motor 0.996 gal; drained from motor 0.954 gal Total time motor was operated 43½ hours.

CHASSIS Type standard Serial No B73430 Tread width rear 40½" to 52½" front 43" and 47" Wheel Base 73 13/32" Hydraulic control system driven by power take-off Advertised speeds mph first 2½ second 4 third 7½ reverse 3 Belt pulley diam 8" face 5½" rpm 1130 Belt speed 2370 fpm Clutch single dry disc operated by foot pedal Seat upholstered seat with back rest Brakes contracting band operated by two foot pedals Equalized no Power take-off standard type.

ENGINE Make Allis-Chalmers Type 4 cylinder vertical Serial No CE128908G Crankshaft mounted lengthwise Head I Lubrication pressure Bore and Stroke 3½" x 3½" Rated rpm 1500 Compression ratio 5.75-1 Displacement 125.3" Port Diameter Valves inlet 1.20" exhaust 1.03" Governor centrifugal variable speed Carburetor Size ¾" Ignition System magneto Starter 6 volt Air Cleaner oil washed wire screen Muffler used Oil Filter replaceable element Cooling medium temperature control thermostat and shutters.

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 and K were made with an operating setting of the carburetor (selected by the manufacturer) of 95% of maximum belt horsepower.

TIRES, WHEELS and WEIGHT

	Tests F, G & H	Test J	Test K
Rear wheels			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	200 lb each*	None*	None*
Added cast iron	675 lb each	None	None
Rear tires			
No. and size	Two 10-24	Two 10-24	Two 9-24
Ply	4	4	4
Air pressure	14 lb	12 lb	12 lb
Front wheels			
Type	Pressed steel	Pressed steel	Pressed steel
Liquid ballast	25 lb each	None	None
Added cast iron	71 lb each	None	None
Front tires			
No. and size	Two 4.00-15	Two 4.00-15	Two 4.00-15
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
Height of drawbar	18 inches	20 inches	18½ inches
Static weight			
Rear end	3100 lb	1350 lb	1304 lb
Front end	908 lb	716 lb	710 lb
Total weight as tested with operator	4193 lb	2251 lb	2199 lb

* Note: Tractors are shipped from factory with calcium chloride solution in rear tires.

HORSEPOWER SUMMARY

	Draw-bar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" Hg)	20.60	22.87
2. Observed maximum horsepower (tests F and B)	19.51	22.25
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)	15.45	19.44

We, the undersigned, certify that this is a true and correct report of official tractor test No. 439.

L. F. Larsen
 Engineer in Charge

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

