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January 1951

Test. 469: Minneapolis-Moline BF

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Department of Agricultural Engineering
Dates of test: October 22 to October 27, 1951.
Manufacturer: MINNEAPOLIS-MOLINE COMPANY, MINNEAPOLIS, MINNESOTA
Manufacturer's rating: Not rated.

NEBRASKA TRACTOR TEST NO. 469

MINNEAPOLIS-MOLINE BF

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								
27.12	1800	2.771	9.79	0.623	0.00	162	50	29.070
TEST C—OPERATING MAXIMUM LOAD—ONE HOUR								
26.85	1800	2.598	10.33	0.590	0.00	168	58	29.050
TEST D—RATED LOAD—ONE HOUR								
23.53	1800	2.309	10.19	0.598	0.00	162	55	29.050
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
23.57	1803	2.302	10.24	0.596	...	161	54
1.76	1848	0.994	1.77	3.443	...	144	54
11.95	1825	1.560	7.66	0.796	...	149	53
24.55	1606	2.283	10.75	0.567	...	164	52
6.04	1846	1.220	4.95	1.232	...	147	51
18.15	1854	1.938	9.37	0.651	...	152	50
14.34	1797	1.716	8.36	0.730	0.00	153	52	29.050

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											
24.12	1807	5.01	1799	5.99	— Not Recorded—			161	65	28.880	
TEST G—OPERATING MAXIMUM LOAD											
15.29	2725	2.10	1800	14.95	— Not Recorded—			137	62	28.875	
22.85	2547	3.36	1802	10.63	— Not Recorded—			153	64	28.870	
23.90	1789	5.01	1796	5.78	— Not Recorded—			157	65	28.880	
18.75	532	13.21	1799	1.98	— Not Recorded—			162	62	28.880	
TEST H—RATED LOAD—TEN HOURS— 3rd GEAR											
19.12	1414	5.07	1801	5.21	2.100	9.10	0.670	0.00	149	63	28.875
TEST J—OPERATING MAXIMUM LOAD—3rd GEAR											
22.25	1749	4.77	1802	12.19	— Not Recorded—			130	44	29.115	

TIRES, WHEELS and WEIGHT

	Tests F, G & H	Test J	Test K
Rear wheels			
Type	Pressed steel	Pressed steel	No smaller tires suggested by manufacturer
Liquid ballast	241 lb each	None	
Added cast iron	584 lb each	None	
Rear tires			
No. and size	Two 10-28	Two 10-28	
Ply	4	4	
Air pressure	14 lb	12 lb	
Front wheels			
Type	Pressed steel	Pressed steel	
Liquid ballast	None	None	
Added cast iron	52 lb each	None	
Front tires			
No. and size	Two 5.00-15	Two 5.00-15	
Ply	4	4	
Air pressure	28 lb	28 lb	
Height of drawbar	17 inches	17½ inches	
Static weight			
Rear end	3336 lb	1686 lb	
Front end	1120 lb	1024 lb	
Total weight as tested with operator	4636 lb	2894 lb	

FUEL, OIL and TIME Gasoline octane No ASTM 76 Research 82 (rating taken from oil company's typical inspection data); weight per gallon 6.098 lb Oil SAE 20; to motor 1.481 gal; drained from motor 0.889 gal Total time motor was operated 46 hours.

CHASSIS Type tricycle Serial No R3292 Tread width rear 52 to 76 front 6¾" and 13¾" Wheel Base 79" Hydraulic control system direct engine drive Advertised speeds mph first 2.42 second 3.67 third 5.23 fourth 13.12 reverse 2.81 Belt pulley diam 10" face 6½" rpm 1160 Belt speed 3040 fpm Clutch single plate dry disk clutch operated by left foot pedal Seat pressed steel seat on coil spring with hydraulic snubber Brakes external contracting bands operated by right foot on pedals either independently or interlocked Equalized by foot action only Power take-off standard type.

ENGINE Make Hercules Type 4 cylinder vertical Serial No 2453318 Crankshaft mounted lengthwise Head L Lubrication pressure Bore and Stroke 3¼" x 4" Rated rpm 1800 Compression ratio 6.8 to 1 Displacement 133 cu in Port Diameter Valves inlet 1.250 exhaust 1.125 Governor flyball variable speed Carburetor Size ¾" Ignition System battery Starting System 6 volt battery Air Cleaner oil washed wire mesh Muffler was used Oil Filter replaceable element Cooling medium temperature control thermostat.

REPAIRS AND ADJUSTMENTS Governor spring tension was adjusted before starting test C.

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, and J were made with an operating setting of the carburetor (selected by the manufacturer) of 99.9% of maximum belt horsepower.

HORSEPOWER SUMMARY

	Draw-bar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" Hg)	25.11	27.64
2. Observed maximum horsepower tests F & B)	24.12	27.12
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)	18.83	23.49

We, the undersigned, certify that this is a true and correct report of official tractor test No. 469.

L. F. LARSEN
Engineer in Charge

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