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## Test. 468: Minneapolis-Moline R

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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: October 20 to November 1, 1951.  
Manufacturer: MINNEAPOLIS-MOLINE COMPANY, MINNEAPOLIS, MINNESOTA  
Manufacturer's rating: Not rated.

NEBRASKA TRACTOR TEST NO. 468

MINNEAPOLIS-MOLINE R

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	
<b>TEST B—100% MAXIMUM LOAD—TWO HOURS</b>								
27.09	1501	2.894	9.36	0.652	0.00	181	57	28.980
<b>TEST C—OPERATING MAXIMUM LOAD—ONE HOUR</b>								
25.92	1500	2.573	10.07	0.605	0.00	176	52	29.040
<b>TEST D—RATED LOAD—ONE HOUR</b>								
23.81	1502	2.524	9.43	0.646	0.00	173	51	29.040
<b>TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)</b>								
23.89	1504	2.534	9.43	0.647	...	173	51	...
2.16	1605	1.274	1.70	3.597	...	156	52	...
12.44	1566	1.835	6.78	0.900	...	164	51	...
25.59	1448	2.524	10.14	0.601	...	178	52	...
6.33	1584	1.496	4.23	1.441	...	160	53	...
18.17	1529	2.145	8.47	0.720	...	169	52	...
14.76	1539	1.968	7.50	0.813	0.00	167	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	
<b>TEST F—100% MAXIMUM LOAD—3rd GEAR</b>											
23.90	2048	4.38	1499	6.65	—Not Recorded—			170	36	29.100	
<b>TEST G—OPERATING MAXIMUM LOAD</b>											
16.14	2801	2.16	1503	16.05	—Not Recorded—			175	75	28.920	
21.06	2336	3.38	1502	7.55	—Not Recorded—			168	36	29.100	
22.35	1907	4.40	1499	6.19	—Not Recorded—			169	35	29.100	
20.21	585	12.96	1509	2.62	—Not Recorded—			175	67	28.910	
<b>TEST H—RATED LOAD—TEN HOURS—3rd GEAR</b>											
18.29	1550	4.43	1500	5.55	2.301	7.95	0.767	0.00	172	48	28.810
<b>TEST J—OPERATING MAXIMUM LOAD—3rd GEAR</b>											
21.00	1863	4.23	1503	10.18	—Not Recorded—			169	38	29.070	

**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 30; to motor 1.697 gal; drained from motor 1.567 gal Total time motor was operated 48 hours.

**CHASSIS** Type tricycle Serial No 00103973 Tread width rear 52" to 88" front 8" and 13 1/4" Wheel Base 76" Hydraulic control system direct engine drive Advertised speeds mph first 2.6 second 3.6 third 4.7 fourth 13.2 reverse 2.9 Belt pulley diam 12 1/4" face 6" rpm 1000 Belt speed 3210 fpm Clutch single plate over center operated by hand lever Seat pressed steel seat on coil spring with hydraulic snubber Brakes dual disc brakes operated by foot pedals on left side Equalized by foot action only Power take-off standard type.

**ENGINE** Make Minneapolis-Moline Co. Type 7 cylinder vertical Serial No 01705445 Crankshaft mounted lengthwise Head horizontal valves Lubrication pressure Bore and Stroke 3 3/8" x 4" Rated rpm 1500 Compression ratio 6.1 to 1 Displacement 165 cu in Port Diameter Valves inlet 1.250 exhaust 1.250 Governor variable speed centrifugal Carburetor Size 3/8" Ignition System battery and coil Starting System 6 volt battery Air Cleaner oil washed wire mesh Muffler was used Oil Filter replaceable 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 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 were made with an operating setting of the carburetor (selected by the manufacturer) of 95.0% of maximum belt horsepower.

TIRES, WHEELS and WEIGHT

	Tests F, G & H	Test J	Test K
<b>Rear wheels</b>			
Type	Pressed steel	Pressed steel	
Liquid ballast	190 lb each	None	
Added cast iron	563 lb each	None	
<b>Rear tires</b>			
No. and size	Two 10-34	Two 10-34	
Ply	4	4	
Air pressure	14 lb	12 lb	
<b>Front wheels</b>			
Type	Pressed steel	Pressed steel	
Liquid ballast	None	None	
Added cast iron	58 lb each	None	
<b>Front tires</b>			
No. and size	Two 5.00-15	Two 5.00-15	
Ply	4	4	
Air pressure	28 lb	28 lb	
<b>Height of drawbar</b>	13 1/2 inches	14 inches	
<b>Static weight</b>			
Rear end	3686 lb	2180 lb	
Front end	1170 lb	1054 lb	
<b>Total weight as tested with operator</b>	5036 lb	3414 lb	

No smaller tires suggested by manufacturer

HORSEPOWER SUMMARY

	Draw-bar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" Hg)	24.00	27.89
2. Observed maximum horsepower (tests F & B)	23.90	27.09
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)	18.00	23.71

We, the undersigned, certify that this is a true and correct report of official tractor test No. 468.

L. F. LARSEN  
Engineer in Charge

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