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## Test 452: Massey-Harris 55 Diesel

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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 17 to October 26, 1950.  
Manufacturer: THE MASSEY-HARRIS CO., RACINE, WISCONSIN.  
Manufacturer's rating: Not rated.

NEBRASKA TRACTOR TEST NO. 452

MASSEY-HARRIS 55 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								
59.04	1351	3.936	15.00	0.466	0.00	181	50	29.030
TEST D—RATED LOAD—ONE HOUR								
51.35	1351	3.320	15.47	0.452	0.00	187	58	29.040
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
51.21	1350	3.316	15.44	0.453	...	187	61	.....
1.87	1482	1.042	1.79	3.898	...	190	63	.....
27.29	1431	2.149	12.70	0.551	...	180	66	.....
58.26	1302	3.865	15.07	0.464	...	180	67	.....
13.97	1462	1.548	9.02	0.775	...	183	68	.....
39.86	1396	2.732	14.59	0.479	...	185	68	.....
32.08	1403	2.442	13.14	0.532	0.00	184	66	29.030

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 in Hg
					Gal per hour	Hp-hr per gal	Lb per hp-hr		Cooling med	Air	
TESTS F and G—100% MAXIMUM LOAD											
40.97	5865	2.62	1350	16.56	Not Recorded			178	67	28.960	
52.27	4754	4.12	1351	7.77	" "			180	66	28.960	
52.49	3777	5.21	1351	5.78	" "			180	65	28.960	
49.09	1492	12.34	1353	3.54	" "			180	65	28.960	
TEST H—RATED LOAD—TEN HOURS—3rd GEAR											
41.32	2967	5.22	1350	5.44	2.963	13.95	0.501	0.00	185	54	28.946
TEST J—OPERATING MAXIMUM LOAD—3rd GEAR											
51.07	3792	5.05	1351	9.06	Not Recorded			185	60	28.660	
TEST K—OPERATING MAXIMUM LOAD—3rd GEAR											
45.64	3821	4.48	1352	16.10	Not Recorded			185	69	28.660	

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 20; to motor 2.454 gal; drained from motor 1.827 gal Total time motor was operated 50 hours.

CHASSIS Type standard Serial No 55DS1827 Tread width rear 57" front 52 3/16" Wheel Base 88 1/2" Hydraulic control system none available Advertised speeds mph first 2.96 second 4.22 third 5.22 fourth 12.07 reverse 2.54 Belt pulley diam 16" face 8" rpm 730 Belt speed 3059 fpm Clutch dry disc clutch operated by foot pedal Seat pressed steel seat on coil spring with shock absorber Brakes internal expanding shoe operated by two pedals on right hand side of tractor Equalized can be locked together Power take-off standard type.

ENGINE Make Massey-Harris Diesel Type 4 cylinder vertical Serial No JD3821160 Crankshaft mounted lengthwise Head I Lubrication pressure Bore and Stroke 4 1/2"x6" Rated rpm 1350 Compression ratio 15 to 1 Displacement 382 cu in Port Diameter Valves inlet 1 9/16" exhaust 1 1/8" Governor variable speed centrifugal Starting System 12 volt electric Air Cleaner oil washed wire mesh Muffler was used Oil Filter replaceable paper element Fuel Filter one with permanent brass discs and one with 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 fuel pumps set by manufacturer to develop approximately 60 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. Oil leaked from tapped hole in top of transmission case during last part of 10 hour test.

TIRES, WHEELS and WEIGHT

	Tests F, G, & H	Test J	Test K
Rear wheels			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	752 lb each	None	None
Added cast iron	429 lb each	None	None
Rear tires			
No. and size	Two 15-34	Two 15-34	Two 14-34
Ply	8	8	6
Air pressure	12 lb	12 lb	12 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 7.50-18	Two 7.50-18	Two 7.50-18
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
Height of drawbar	18 inches	18 1/2 inches	17 inches
Static weight			
Rear end	7485 lb	5124 lb	4900 lb
Front end	2485 lb	2484 lb	2486 lb
Total weight as tested with operator	10,155 lb	7793 lb	7571 lb

HORSEPOWER SUMMARY

	Draw-bar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" Hg)	54.49	60.27
2. Observed maximum horsepower (tests F and B)	52.49	59.04
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)	40.87	51.23

We, the undersigned, certify that this is a true and correct report of official tractor test No. 452.

L. F. Larsen  
Engineer in Charge

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