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January 1955

## Test 539: International 300 Utility

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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Department of Agricultural Engineering  
Dates of test: May 5 to May 10, 1955  
Manufacturer: INTERNATIONAL HARVESTER  
COMPANY, CHICAGO, ILLINOIS  
Manufacturer's rating: Drawbar 36 Hp, Belt 42 Hp  
(Corrected to standard conditions)

INTERNATIONAL 300 UTILITY

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 E—100% MAXIMUM LOAD—TWO HOURS								
41.26	2000	3.979	10.37	0.584	0.00	178	68	29.035
TEST C—OPERATING MAXIMUM LOAD—ONE HOUR								
38.78	2000	3.396	11.42	0.530	0.00	179	76	29.060
TEST D—RATED LOAD—ONE HOUR								
36.44	2002	3.237	11.26	0.538	...	182	80	.....
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
36.44	2002	3.237	11.26	0.538	...	182	80	.....
1.45	2201	1.502	0.97	6.269	...	155	79	.....
19.19	2096	2.315	8.29	0.730	...	164	81	.....
37.38	1884	3.237	11.55	0.524	...	187	81	.....
9.92	2162	1.894	5.24	1.155	...	161	81	.....
28.35	2070	2.826	10.03	0.603	...	171	80	.....
22.12	2069	2.502	8.84	0.684	0.00	170	80	29.083
TORQUE (At Dynamometer)								
Eng rpm	1996	1844	1698	1556	1406	1308	1212	1096
Lb-ft	244.0	252.2	257.8	267.4	278.3	283.0	286.0	284.2
Dyn rpm	834	769	708	649	585	544	507	458
								418
								375

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 H—RATED LOAD—TEN HOURS—2nd Gear											
29.87	2194	5.11	2000	6.18	3.156	9.46	0.639	0.00	183	80	28.680
TEST F—100% MAXIMUM LOAD											
37.36	2769	5.06	2001	7.04	3rd gear				190	84	28.960
TEST G—OPERATING MAXIMUM LOAD											
25.56	4379	2.19	1998	16.93	1st gear (Part Throttle)				180	82	28.940
34.25	3573	3.59	1998	10.90	2nd gear				187	82	28.900
35.21	2620	5.04	2000	7.42	3rd gear				186	80	28.900
35.26	2006	6.59	2003	5.60	4th gear				184	78	28.900
31.60	709	16.71	2001	1.74	5th gear				182	78	28.870
17.21	4313	1.50	1992	15.79	1st gear T. A. (Part Throttle)				175	82	28.900
26.51	4296	2.31	1996	14.92	2nd gear T.A. (Part Throttle)				180	82	28.940
33.05	3848	3.22	1998	12.14	3rd gear Torque Amplifier				185	82	28.900
34.46	3002	4.30	2000	8.59	4th gear Torque Amplifier				184	82	28.900
33.01	1121	11.04	2000	3.77	5th gear Torque Amplifier				182	78	28.870
TEST J—OPERATING MAXIMUM LOAD											
33.04	2555	4.85	1997	12.42	3rd gear				174	66	29.020
TEST K—OPERATING MAXIMUM LOAD											
27.26	2372	4.31	1998	15.16	3rd gear (Part Throttle)				172	72	28.710

TIRES, WHEELS AND WEIGHT

	Tests F, G, & H	Test J	Test K
Rear wheels (Type)	Pressed steel	Pressed steel	Pressed steel
Liquid ballast	540 lb each	None	None
Added cast iron	560 lb each	None	None
Rear tires	Two 12-28	Two 12-28	Two 10-28
Ply	4	4	4
Air pressure	14 lb	12 lb	12 lb
Front wheels (Type)	Pressed steel	Pressed steel	Pressed steel
Liquid ballast	None	None	None
Added cast iron	None	None	None
Front tires	Two 5.50-16	Two 5.50-16	Two 5.50-16
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
Height of drawbar	22 inches	23 inches	20½ inches
Static weight			
Rear end	4860 lb	2660 lb	2574 lb
Front end	1568 lb	1578 lb	1564 lb
Total weight as tested with operator	6603 lb	4413 lb	4313 lb

FUEL, OIL and TIME Gasoline Octane No. ASTM 80.8 Research 85.9 (rating taken from oil company's typical inspection data); weight per gallon 6.052 lb OIL SAE 20; to motor 1.261 gal; drained from motor 1.026 gal Total time motor was operated 42 hours.

CHASSIS Type Standard Serial No. 2701 SJ Tread width rear 48" to 76" front 48" to 76" Wheel base 75" Hydraulic control system direct engine drive Advertised speeds mph first 2.60 second 3.97 third 5.36 fourth 6.86 fifth 16.74 reverse 3.24 Using torque amplifier (planetary underdrive) first 1.75 second 2.68 third 3.61 fourth 4.63 fifth 11.30 reverse 2.19 Belt pulley diam 10" face 7½" rpm 1185 Belt speed 3102 fpm Clutch single plate dry disc operated by foot pedal Seat upholstered seat with back rest Brakes double disc operated by two foot pedals Equalized by locking together Power take-off conventional type.

ENGINE Make International Harvester Type 4 cylinder vertical Serial No. 13705 Crankshaft mounted lengthwise Head I Lubrication pressure Bore and stroke 3 9/16" x 4¼" Rated rpm 2000 Compression ratio 6.8 to 1 Displacement 169 cu. in. Port diameter valves inlet 1 11/32" exhaust 1 7/32" Governor variable speed centrifugal Carburetor size 1¼" Ignition system battery Starting system 6 volt battery Air cleaner oil washed wire screen Muffler was used Oil filter replaceable radial fin treated paper element 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 & K were made with an operating setting of the carburetor (selected by the manufacturer) of 94.6% of maximum belt horsepower.

HORSEPOWER SUMMARY

	Drawbar	Belt
1. Sea level (calculated) maximum horsepower (based on 60°F and 29.92" HG)	39.48	42.84
2. Observed maximum horsepower (tests F and B)	37.36	41.26
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)	29.61	36.41

We, the undersigned, certify that this is a true and correct report of official tractor test No. 539.

L. F. LARSEN  
Engineer-in-Charge

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