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January 1972

## Test 1095: International Farmall 966 Hydro Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1095—INTERNATIONAL FARMALL 966 HYDRO DIESEL

## POWER TAKE-OFF PERFORMANCE

Hp	Crank- shaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temperature Degrees F Cooling medium	Air wet bulb	Air dry bulb	Barometer inches of Mercury
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated Engine Speed—Two Hours (PTO Speed—1159 rpm)</b>								
91.38	2400	7.161	0.542	12.76	189	61	76	28.930
<b>Standard Power Take-off Speed (1000 rpm)—One Hour</b>								
88.29	2073	6.399	0.501	13.80	191	61	76	28.910
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
81.61	2523	6.849	0.508	11.92	184	60	75	.....
0.00	2642	3.225	.....	.....	169	59	74	.....
11.96	2594	4.887	0.805	8.59	176	60	75	.....
91.23	2391	7.153	0.542	12.75	190	61	76	.....
21.20	2620	4.067	1.326	5.21	173	61	78	.....
62.15	2560	5.786	0.643	10.74	179	60	76	.....
Av 49.69	2555	5.328	0.741	9.33	179	60	76	28.920

## DRAWBAR PERFORMANCE

Hp	Draw- bar pull lbs	Speed miles per hr	Crank- shaft speed rpm	Slip of drivers %	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temp Degrees F Cool- ing med	Air wet bulb	Air dry bulb	Barometer inches of Mercury
<b>VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST</b>											
<b>Maximum Available Power—Two Hours—Speed Setting—5.4 MPH Hi Range</b>											
68.08	4730	5.40	2398	5.93	7.071	0.717	9.63	157	62	67	28.820
<b>75% of Pull at Maximum Power—Ten Hours—Speed Setting—5.4 MPH Hi Range</b>											
58.72	3631	6.06	2539	4.18	6.391	0.752	9.19	169	62	64	29.033
<b>50% of Pull at Maximum Power—Two Hours—Speed Setting—5.4 MPH Hi Range</b>											
42.35	2439	6.51	2572	3.04	5.334	0.870	7.94	168	73	77	28.820
<b>50% of Pull at Reduced Engine Speed—Two Hours—Speed Setting—9.9 MPH Hi Range at 2400 engine RPM</b>											
42.25	2445	6.48	1550	2.89	3.707	0.606	11.40	167	73	77	28.725
<b>MAXIMUM POWER WITH BALLAST</b>											
65.76	8909	2.77	2391	14.71	The infinitely		Lo Range	185	65	71	28.990
69.52	5713	4.56	2397	7.61	variable drive		Lo Range	179	64	71	28.990
69.69	5361	4.88	2399	7.13	control was set		Lo Range	178	58	71	28.980
70.09	4829	5.44	2400	6.22	to give the		Hi Range	172	58	73	28.980
71.33	4117	6.50	2397	5.14	travel speeds		Hi Range	196	60	73	28.980
71.43	3147	8.51	2403	3.97	shown by mfg.		Hi Range	198	61	75	28.980

## VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST Speed 5.4 MPH—Hi Range

Pounds Pull	4829	5278	5644	The transmission warning TELLITE became illuminated due to the opening of the transmission relief valve at an engine speed of approximately 1850 RPM. The operators manual reads: "For heavy drawbar work always attempt to keep the engine up to rated load speed (2400 RPM). Avoid operating at an overload condition, except momentarily."							
Horsepower	70.09	67.25	51.23								
Crankshaft Speed rpm	2400	2156	1939								
Miles Per Hour	5.44	4.78	3.40								
Slip of Drivers %	6.22	6.78	7.20								

## TRACTOR SOUND LEVEL (with Deluxe Cab) dB(A)

Maximum Available Power 2 Hours	89.0
75% of Pull at Max. Power 10 Hours	90.0
50% of Pull at Max. Power 2 Hours	87.5
50% of Pull at Reduced Engine Speed 2 Hours	86.0
Bystander (18 MPH Hi Range)	92.0

TIRES, BALLAST and WEIGHT		With Ballast	Without Ballast
Rear tires	—No., size, ply & psi	Two 16.9-38; 8; 16	Two 16.9-38; 8; 16
Ballast	—Liquid	560 lb each	None
	Cast Iron	None	None
Front tires	—No., size, ply & psi	Two 9.5L-15; 8; 24	Two 9.5L-15; 8; 24
Ballast	—Liquid	None	None
	Cast Iron	None	None
Height of drawbar		19 inches	19 inches
Static weight with operator—rear		9470 lb	8350 lb
	front	3405 lb	3350 lb
	total	12875 lb	11700 lb

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1095.

L. F. LARSEN, Engineer-in-Charge  
G. W. STEINBRUEGGE, Chairman; W. E. SPLINTER; D. E. LANE—  
Board of Tractor Test Engineers

The University of Nebraska Agricultural Experiment Station  
E. F. Frolik, Dean; H. W. Ottoson, Director; Lincoln, Nebraska

Department of Agricultural Engineering  
Dates of Test: April 28 to May 12, 1972  
Manufacturer: International Harvester Company, Chicago, Illinois

**FUEL, OIL and TIME** Fuel No. 2 Diesel Cetane No. 50.1 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8302 Weight per gallon 6.912 lb Oil SAE 30 API service classification I.H. No. 1 Oil for Diesel Engines (CD CC CB CA SE SD SC—or DS DM DG MS) To motor 2.909 gal Drained from motor 2.080 gal Transmission and final drive lubricant I.H. Hy-Tran Fluid Total time engine was operated 47 hours.

**ENGINE** Make International Diesel Type 6 cylinder vertical Serial No. 414DT2U004643\* Crankshaft Mounted lengthwise Rated rpm 2400 Bore and stroke 4.30" x 4.75" Compression ratio 16 to 1 Displacement 414 cu. in. Cranking system 12 volt electric Lubrication pressure Air cleaner two stage dry type with replaceable pleated paper primary and safety elements with automatic dust unloader Oil filter full flow using two replaceable screw-on cartridges Oil Cooler engine coolant heat exchanger for engine oil and radiator for transmission and hydraulic oil Fuel filter one primary and one final using replaceable screw-on cartridges Muffler was used Cooling medium temperature control thermostat.

**CHASSIS** Type standard Serial No. 251016-0U008749\* Tread width rear 60" to 94" front 62" to 86" Wheel base 104.8" Center of gravity (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.7" Vertical distance above roadway 40.8" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission infinitely variable hydrostatic using a variable displacement pump and motor. A range transmission provides Hi and Lo range Advertised speeds mph Lo range—0 to 8; Hi range—0 to 18; reverse Lo range 0 to 4; reverse Hi range 0 to 9 Clutch none-hydrostatic drive can be controlled by foot pedal Brakes dry double disc hydraulically power actuated by two foot pedals that can be locked together with automatic equalizing Steering hydrostatic Turning radius (on concrete surface with brake applied) right 142" left 142" (on concrete surface without brake) right 165.5" left 165.5" Turning space diameter (on concrete surface with brake applied) right 296.5" left 296.5" (on concrete surface without brake) right 343.5" left 343.5" Power take-off 1014 or 539 rpm at 2100 engine rpm.

**REPAIRS and ADJUSTMENTS:** Following the two hour run at 50% pull (reduced engine speed) a hydraulic power tube for the power steering leaked and it was necessary to have this tube replaced.

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test code or Nebraska test procedure. The slower travel speeds were not run as the maximum drawbar pull was limited to avoid excessive slippage. The other travel speeds were not run as test procedure requires only six travel speeds. During the VARYING DRAWBAR PULL VERSUS TRAVEL SPEED run the transmission warning light became illuminated at an engine speed of approximately 1850 RPM and the run was discontinued in accordance with the manufacturers operating instructions. The Operators Manual reads: "This condition (lighting of Tellite) must be corrected before continued operation. If operating in "Hi" range, shift into "Lo" or pull back on the speed ratio control lever."