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January 1972

## Test 1096: International 454 Gasoline

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1096 – INTERNATIONAL 454 GASOLINE

## POWER TAKE-OFF PERFORMANCE

Hp	Crankshaft 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—1004 rpm)</b>								
40.86	2200	3.735	0.562	10.94	189	55	75	29.207
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
36.23	2295	3.527	0.599	10.27	181	55	75	.....
0.00	2440	1.581	.....	.....	175	55	76	.....
18.81	2383	2.625	0.858	7.17	179	55	75	.....
40.84	2200	3.693	0.556	11.06	190	55	76	.....
9.52	2409	2.122	1.371	4.49	176	55	75	.....
28.02	2365	3.064	0.672	9.15	180	55	75	.....
Av 22.24	2349	2.769	0.766	8.03	180	55	75	.....

## DRAWBAR PERFORMANCE

Hp	Drawbar pull lbs	Speed miles per hr	Crankshaft speed rpm	Slip of drivers %	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temp Degrees F Cooling 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—3rd Gear (3 Lo)</b>											
33.53	3040	4.14	2200	5.99	3.638	0.667	9.22	173	44	54	29.010
<b>75% of Pull at Maximum Power—Ten Hours—3rd Gear (3 Lo)</b>											
28.40	2415	4.41	2318	4.63	3.38	0.732	8.40	144	48	49	28.907
<b>50% of Pull at Maximum Power—Two Hours—3rd Gear (3 Lo)</b>											
20.85	1711	4.57	2365	3.42	2.927	0.863	7.12	178	44	45	28.930
<b>50% of Pull at Reduced Engine Speed—Two Hours—4th Gear (4 Lo)</b>											
20.33	1666	4.58	1840	3.36	2.52	0.762	8.07	178	44	46	28.950
<b>MAXIMUM POWER WITH BALLAST</b>											
25.70	5329	1.81	2334	14.81	1st Gear (1 Lo).....	.....	172	43	54	29.120	.....
33.73	4277	2.96	2200	9.20	2nd Gear (2 Lo).....	.....	172	44	55	29.110	.....
35.24	3201	4.13	2201	6.16	3rd Gear (3 Lo).....	.....	171	45	58	29.060	.....
33.98	2357	5.41	2202	4.57	4th Gear (4 Lo).....	.....	175	45	57	29.050	.....
34.35	1812	7.11	2195	3.33	5th Gear (1 Hi).....	.....	175	45	56	29.040	.....
30.65	975	11.79	2203	1.70	6th Gear (2 Hi).....	.....	175	46	57	29.040	.....

## VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST 3rd Gear (3 Lo)

Pounds Pull	3201	3393	3298	3217	3311	3427	3048
Horsepower	35.24	33.43	29.12	24.65	21.73	18.86	13.62
Crankshaft Speed rpm	2201	1980	1772	1535	1315	1108	891
Miles Per Hour	4.13	3.69	3.31	2.87	2.46	2.06	1.68
Slip of Drivers %	6.16	6.72	6.61	6.39	6.50	6.83	5.82

## TRACTOR SOUND LEVEL

	dB(A)
Maximum Available Power 2 Hours	93.0
75% of Pull at Max. Power 10 Hours	92.0
50% of Pull at Max. Power 2 Hours	92.0
50% of Pull at Reduced Engine Speed 2 Hours	91.0
Bystander 8th gear (4 High)	80.0

## TIRES, BALLAST and WEIGHT

	With Ballast	Without Ballast
<b>Rear tires</b>	—No., size, ply & psi Two 14.9-28; 6; 16	Two 14.9-28; 6; 16
<b>Ballast</b>	—Liquid 755 lb each	None
	—Cast Iron 650 lb each	None
<b>Front tires</b>	—No., size, ply & psi Two 6.50-16; 4; 24	Two 6.50-16; 4; 24
<b>Ballast</b>	—Liquid None	None
	—Cast Iron None	None
<b>Height of drawbar</b>	12 inches	13½ inches
<b>Static weight with operator—rear</b>	5520 lb	2810 lb
<b>front</b>	1600 lb	1590 lb
<b>total</b>	7120 lb	4400 lb

## Department of Agricultural Engineering

Date of Test: April 21 to May 11, 1972

Manufacturer: International Harvester Company, Chicago, Illinois

**FUEL, OIL and TIME** Fuel Lead free gasoline Octane No. Motor 83 Research 91 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.7387 Weight per gallon 6.149 lb Oil SAE 30 API service classification I.H. No. 1 Oil for Gasoline and LPG Engines or (SD and CC or MS) To motor 1.460 gal Drained from motor 1.251 gal Transmission and final drive lubricant I.H. Hy-Tran Fluid Total time engine was operated 43½ hours.

**ENGINE** Make International gasoline Type 4 cylinder vertical Serial No. 157CT2U003411\* Crankshaft Mounted lengthwise Rated rpm 2200 Bore and stroke 3¾" x 4.390" Compression ratio 7.5 to 1 Displacement 157 cu. in. Carburetor size 1" Ignition system battery Cranking system 12 volt electric Lubrication pressure Air cleaner dual stage dry type with replaceable pleated paper element and automatic dust unloader Oil filter full flow treated paper screw-on cartridge Oil Cooler radiator for transmission and hydraulic oil Fuel filter screen in sediment bowl Muffler was used Cooling medium temperature control thermostat.

**CHASSIS** Type standard Serial No. 2210116-U005260\* Tread width rear 52" to 76" front 48" to 80" Wheel base 75.2" 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 27.4" Vertical distance above roadway 27.1" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio Advertised speeds mph first 2 second 3¼ third 4¼ fourth 5½ fifth 7¼ sixth 11½ seventh 16 eighth 20¼ reverse 2½, 4¼, 5½, 7¼ Clutch single plate dry disc operated by foot pedal Brakes wet single disc hydraulically power actuated by two foot pedals that can be locked together Steering hydrostatic Turning radius (on concrete surface with brake applied) right 110" left 110" (on concrete surface without brake) right 124" left 124" Turning space diameter (on concrete surface with brake applied) right 231" left 231" (on concrete surface without brake) right 259" left 259" Power take-off 1004 or 555 rpm at 2200 engine rpm.

**REPAIRS and ADJUSTMENTS** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Seventh and eight gears were not run as test procedure requires only six travel speeds.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1096.

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