

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

January 1973

Test 1129: International 674 Utility and 674 Row Crop (Diesel)

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 1129: International 674 Utility and 674 Row Crop (Diesel)" (1973). *Nebraska Tractor Tests*. 1452.

<https://digitalcommons.unl.edu/tractormuseumlit/1452>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

NEBRASKA TRACTOR TEST 1129 – INTERNATIONAL 674 UTILITY DIESEL (ALSO INTERNATIONAL 674 ROW CROP DIESEL)

POWER TAKE-OFF PERFORMANCE

Hp	Crank- shaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temperature Cooling medium	Degrees F Air wet bulb	Air dry bulb	Barometer inches of Mercury
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—606 rpm)								
61.56	2400	4.113	0.466	14.97	192	61	75	29.160
Standard Power Take-off Speed (540 rpm)—One Hour								
58.79	2141	3.854	0.458	15.25	195	59	75	29.155
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
55.06	2524	3.738	0.474	14.73	187	59	75	.....
0.00	2623	1.289	.....	.....	180	59	75	.....
28.04	2573	2.423	0.603	11.57	185	59	75	.....
61.66	2400	4.151	0.470	14.85	192	59	75	.....
14.14	2594	1.809	0.893	7.82	180	59	75	.....
41.86	2559	3.102	0.517	13.49	185	60	75	.....
Av 33.46	2545	2.752	0.574	12.16	185	59	75	29.150

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 Cool- ing med	Degrees F Air wet bulb	Air dry bulb	Barometer inches of Mercury
----	-----------------------------	-----------------------------	---------------------------------	-------------------------	--------------------------------------	--------------------	---------------------	-----------------------------	---------------------------------	--------------------	-----------------------------------

VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST

Maximum Available Power—Two Hours—3rd Gear (3 Lo)											
54.45	5114	3.99	2394	9.17	4.028	0.516	13.52	183	52	63	29.145
75% of Pull at Maximum Power—Ten Hours—3rd Gear (3 Lo)											
45.06	3944	4.28	2504	6.88	3.437	0.532	13.11	181	44	54	29.349
50% of Pull at Maximum Power—Two Hours—3rd Gear (3 Lo)											
30.56	2584	4.43	2530	4.58	2.703	0.617	11.31	177	41	47	29.225
50% of Pull at Reduced Engine Speed—Two Hours—5th Gear (1 Hi)											
30.41	2584	4.41	1502	4.48	2.112	0.485	14.40	178	48	58	29.200

MAXIMUM POWER WITH BALLAST

52.58	6833	2.89	2491	14.72	2nd Gear (2 Lo)			190	56	72	29.100
55.68	5224	4.00	2399	9.23	3rd Gear (3 Lo)			189	51	67	28.970
54.81	3882	5.30	2401	6.59	4th Gear (4 Lo)			191	48	70	28.970
55.91	2983	7.03	2400	4.76	5th Gear (1 Hi)			192	53	70	28.990
54.42	1745	11.69	2399	2.45	6th Gear (2 Hi)			192	53	70	28.990

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

Pounds Pull	5224	5543	5649	5759	5830	5718
Horsepower	55.68	52.69	47.58	42.25	36.46	29.87
Crankshaft Speed rpm	2399	2157	1918	1680	1438	1495
Miles Per Hour	4.00	3.56	3.16	2.75	2.34	1.96
Slip of Drivers %	9.23	9.00	10.38	10.73	11.18	10.95

TRACTOR SOUND LEVEL

	dB(A)
Maximum Available Power 2 Hours	101.0
75% of Pull at Max. Power 10 Hours	100.0
50% of Pull at Max. Power 2 Hours	99.5
50% of Pull at Reduced Engine Speed 2 Hours	92.5
Bystander 8th Gear (4 Hi)	87.0

TIRES, BALLAST and WEIGHT

	With Ballast	Without Ballast
Rear tires	—No., size, ply & psi	Two 16.9-30;6;16
Ballast	—Liquid	934 lb each
	Cast Iron	586 lb each
Front tires	—No., size, ply & psi	Two 7.50-16;6;20
Ballast	—Liquid	None
	Cast Iron	None
Height of drawbar	15 inches	15½ inches
Static weight with operator—rear	6850 lb	3810 lb
front	1840 lb	1840 lb
total	8690 lb	5650 lb

Department of Agricultural Engineering

Dates of Test: April 28 to May 17, 1973

Manufacturer: INTERNATIONAL HARVESTER, 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° 0.8386 Weight per gallon 6.982 lb Oil SAE 30 API service classification "I.H. No. 1 engine oil" SAE 30 recommended or series 3 (CD CC CB CA SE SD SC) (Formerly DS DM DG MS) To motor 2.216 gal Drained from motor 2.102 gal Transmission and final drive lubricant I.H. Hy-Tran fluid Total time engine was operated 46 hours.

ENGINE Make International Diesel Type 4 cylinder vertical Serial No. 239DT20440026 Crankshaft Mounted lengthwise Rated rpm 2400 Bore and stroke 3.875" x 5.060" Compression ratio 16 to 1 Displacement 238.6 cu. in. Cranking system 12 volt electric Lubrication pressure Air cleaner dual stage type with replaceable plated paper element and automatic dust unloader Oil filter full flow treated paper screw-on cartridge Oil cooler radiator for transmission and hydraulic fluid 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. 2430002U100001* Tread width rear 58" to 74" front 54" to 78" Wheel base 84.4" 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 30.3" 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 1.9 second 3.1 third 4.2 fourth 5.5 fifth 7.1 sixth 11.6 seventh 15.6 eighth 20.1 reverse 2.4, 3.9, 5.3, 6.9 Clutch single plate dry disc operated by foot pedal Brakes wet single disc hydraulically powered by two foot pedals that can be locked together with automatic equalizing Steering hydrostatic Turning radius (on concrete surface with brake applied) right 121" left 121" (on concrete surface without brake) right 135" left 135" Turning space diameter (on concrete surface with brake applied) right 251" left 251" (on concrete surface without brake) right 279" left 279" Power take-off 605 rpm at 2400 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.

First gear was not run as it was necessary to limit the pull in second gear to avoid excessive wheel slippage, seventh and eighth gears were not run as they exceeded fifteen miles per hour. We, the undersigned, certify that this is a true and correct report of official Tractor Test 1129.

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