

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.  
Larsen

---

January 1971

## Test 1069: Minneapolis-Moline G-1350 Diesel (Also Oliver 2155 Diesel) 10-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto: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 1069: Minneapolis-Moline G-1350 Diesel (Also Oliver 2155 Diesel) 10-Speed" (1971). *Nebraska Tractor Tests*. 1397.

<https://digitalcommons.unl.edu/tractormuseumlit/1397>

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 1069 – MINNEAPOLIS-MOLINE G-1350 DIESEL (ALSO OLIVER 2155 DIESEL) 10 SPEED

## POWER TAKE-OFF PERFORMANCE

Hp	Crank-shaft speed rpm	Fuel Consumption		Hp-hr per gal	Temperature Degrees F			Barometer inches of Mercury
		Gal per hr	Lb per hp-hr		Cooling medium	Air wet bulb	Air dry bulb	
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated Engine Speed—Two Hours (PTO Speed—1216 rpm)</b>								
141.44	2200	9.688	0.476	14.60	201	59	75	28.960
<b>Standard Power Take-off Speed (1000 rpm)—One Hour</b>								
128.10	1809	8.413	0.456	15.23	201	58	73	28.975
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
123.31	2260	8.430	0.475	14.63	196	59	75	.....
0.00	2348	2.922	.....	.....	194	58	74	.....
63.04	2304	5.465	0.602	11.54	197	58	74	.....
143.11	2199	9.596	0.466	14.91	203	59	75	.....
31.86	2328	4.161	0.908	7.66	194	58	75	.....
93.53	2278	6.842	0.508	13.66	200	59	76	.....
Av. 75.81	2286	6.236	0.572	12.16	197	58	75	28.990

## DRAWBAR PERFORMANCE

Hp	Draw-bar pull lbs	Speed miles per hr	Crank-shaft speed rpm	Fuel Consumption		Hp-hr per gal	Temp Degrees F			Barometer inches of Mercury	
				Slip of drivers %	Gal per hr		Lb per hp-hr	Cool- ing med	Air wet bulb		Air dry bulb
<b>VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST</b>											
<b>Maximum Available Power—Two Hours—4th Gear (3 Lo)</b>											
116.41	9457	4.62	2199	5.92	9.442	0.564	12.33	197	68	85	28.820
<b>75% of Pull at Maximum Power—Ten Hours—4th Gear (3 Lo)</b>											
94.76	7358	4.83	2257	4.17	7.745	0.568	12.23	198	69	83	28.965
<b>50% of Pull at Maximum Power—Two Hours—4th Gear (3 Lo)</b>											
65.01	4923	4.95	2282	2.93	5.989	0.640	10.86	200	67	81	28.840
<b>50% of Pull at Reduced Engine Speed—Two Hours 7th Gear (3 Hi)</b>											
65.36	4986	4.92	1552	2.77	4.874	0.518	13.41	197	70	74	28.955
<b>MAXIMUM POWER WITH BALLAST</b>											
88.49	15620	2.12	2279	14.97	1st Gear (1 Lo)	.....	193	53	64	29.110	
119.87	13584	3.31	2201	10.23	3rd Gear (2 Lo)	.....	195	53	67	29.130	
122.38	9951	4.61	2201	6.13	4th Gear (3 Lo)	.....	197	54	71	29.130	
125.11	9236	5.08	2201	5.54	5th Gear (2 Hi)	.....	199	53	66	29.180	
125.29	8248	5.70	2200	4.86	6th Gear (4 Lo)	.....	198	51	71	29.180	
123.49	5465	8.47	2201	3.24	8th Gear (4 Hi)	.....	197	54	71	29.180	
<b>MAXIMUM PULL WITHOUT BALLAST</b>											
106.89	8551	4.69	2216	14.58	5th Gear (2 Hi)	.....	195	68	77	28.910	
<b>VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST—4th Gear (3 Lo)</b>											
Pounds Pull	9951	10515	10686	11003	11153	11097					
Horsepower	122.38	114.87	104.11	94.13	81.28	67.52					
Crankshaf Speed rpm	2201	1963	1754	1516	1321	1102					
Miles Per Hour	4.61	4.10	3.65	3.21	2.73	2.28					
Slip of Drivers %	6.13	6.50	6.64	7.08	7.37	7.23					

## TRACTOR SOUND LEVEL WITHOUT CAB

	db(A)
Maximum Available Power 2 Hours	99.0
75% of Pull at Max. Power 10 hours	98.0
50% of Pull at Max. Power 2 Hours	97.0
50% Pull at Reduced Engine Speed 2 Hours	92.0
Bystander (10th gear 5 Hi)	86.6

## TIRES, BALLAST and WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b>	Two 24.5-32; 10; 18	Two 24.5-32; 10; 16
<b>Ballast</b>	—Liquid 2215 lb each	None
	—Cast iron 1650 lb each	None
<b>Front tires</b>	Two 11L-15; 8; 40	Two 11L-15; 8; 40
<b>Ballast</b>	—Liquid None	None
	—Cast iron 380 lb each	None
<b>Height of drawbar</b>	21½ inches	23½ inches
<b>Static weight with operator—rear</b>	15870 lb	8140 lb
<b>front</b>	4670 lb	3910 lb
<b>total</b>	20540 lb	12050 lb

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

Department of Agricultural Engineering

Dates of Test: May 24 to June 5, 1971

Manufacturer: Minneapolis-Moline, Hopkins, Minnesota

**FUEL, OIL and TIME** Fuel No 2 Diesel Cetane No 53.5 (rating taken from oil company's typical inspection data (Specific gravity converted to 60°/60° 0.8347 Weight per gallon 6.950 lb OIL SAE 30 API service classification MS, DS To motor 3.787 gal Drained from motor 2.984 gal Transmission and final drive lubricant EP 80 gear oil Mil-L-2105A Total time engine was operated 59.5 hours.

**ENGINE Make** Minneapolis-Moline Diesel Type 6 cylinder vertical Serial No 45200298 Crankshaft Mounted lengthwise Rated rpm 2200 Bore and stroke 4.75" x 5.50" Compression ratio 15.3 to 1 Displacement 585 cu in Cranking system 12 volt electric (two 12 volt batteries) Lubrication pressure Air cleaner dry primary element and dry inner safety element Oil filter replaceable pleated paper element Oil Cooler engine coolant heat exchanger for crankcase oil, radiator for transmission oil Fuel filter parallel flow replaceable paper cartridges Muffler was used Cooling medium temperature control thermostat.

**CHASSIS** Type standard Serial No 43300025 Tread width rear 61" to 84" front 56" to 80" Wheel base 104½" Center of gravity (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 28.8" Vertical distance above roadway 34.5" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (2) range operator controlled power shift Advertised speeds mph first 2.38 second 3.47 third 3.63 fourth 4.84 fifth 5.30 sixth 5.90 seventh 7.07 eighth 8.62 ninth 13.14 tenth 19.18 reverse 3.63 and 5.30 Clutch single plate dry disc operated by foot pedal Brakes dry dual disc operated by two foot pedals Steering hydrostatic Turning radius (on concrete surface with brake applied) right 129" left 129" (on concrete surface without brake) right 147" left 147" Turning space diameter (on concrete surface with brake applied) right 266" left 266" (on concrete without brake) right 302" left 302" Power take-off 1000 rpm at 1809 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 Nebraska test procedure. Second, seventh, ninth and tenth gears were not run as test procedure requires only six gears.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1069.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers