

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

---

January 1972

## Test 1107: Long R9500 Special Diesel

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 1107: Long R9500 Special Diesel" (1972). *Nebraska Tractor Tests*. 1431. <https://digitalcommons.unl.edu/tractormuseumlit/1431>

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 1107 – LONG R9500 SPECIAL DIESEL

## POWER TAKE-OFF PERFORMANCE

Hp	Crank-shaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Cooling medium	Temperature Degrees F 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—643 rpm)</b>								
97.72	2250	6.253	0.446	15.63	186	65	75	28.960
<b>Standard Power Take-off Speed (540 rpm)—One Hour</b>								
88.13	1890	5.437	0.430	16.21	186	65	76	28.945
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
86.43	2339	5.427	0.437	15.93	183	65	75	.....
0.00	2429	1.719	.....	.....	177	65	74	.....
43.59	2364	3.398	0.543	12.83	179	65	75	.....
98.29	2251	6.306	0.447	15.59	187	65	75	.....
22.07	2385	2.550	0.805	8.65	176	65	74	.....
64.93	2345	4.393	0.471	14.78	181	65	75	.....
Av 52.55	2352	3.966	0.526	13.25	180	65	75	28.923

## 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
<b>VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST</b>											
<b>Maximum Available Power—Two Hours—8th Gear (VB1)</b>											
79.65	4849	6.16	2251	5.78	6.119	0.535	13.02	192	73	85	28.570
<b>75% of Pull at Maximum Power—Ten Hours—8th Gear (VB1)</b>											
65.83	3823	6.46	2318	4.23	5.025	0.531	13.10	187	75	85	28.854
<b>50% of Pull at Maximum Power—Two Hours—8th Gear (VB1)</b>											
43.77	2478	6.62	2345	2.87	3.930	0.625	11.14	186	71	85	28.800
<b>50% of Pull at Reduced Engine Speed—Two Hours—10th Gear (VB2)</b>											
44.99	2566	6.57	1526	2.76	3.086	0.477	14.58	188	70	81	28.800
<b>MAXIMUM POWER WITH BALLAST</b>											
63.83	10216	2.34	2320	14.78	4th Gear (RB2)		186	69	75	28.560	
80.96	7197	4.22	2249	9.45	7th Gear (VA1)		188	66	76	28.890	
82.94	5077	6.13	2249	6.36	8th Gear (VB1)		189	66	77	28.890	
81.66	4578	6.69	2250	5.68	9th Gear (VA2)		189	67	78	28.890	
82.31	3216	9.60	2250	3.63	10th Gear (VB2)		191	69	80	28.890	
79.42	2490	11.96	2251	2.47	11th Gear (VA3)		191	69	80	28.890	

## VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST 8th Gear (VB1)

Pounds Pull	5077	5347	5487	5636	5599	5416
Horsepower	82.94	77.98	71.24	63.45	54.52	43.97
Crankshaft Speed rpm	2249	2016	1798	1562	1352	1124
Miles Per Hour	6.13	5.47	4.87	4.22	3.65	3.04
Slip of Drivers %	6.36	6.83	6.97	7.10	7.24	6.83

## TRACTOR SOUND LEVEL

	dB (A)
Maximum Available Power 2 Hours	97.5
70% of Pull at Max. Power 10 Hours	99.0
50% of Pull at Max. Power 2 Hours	98.5
50% of Pull at Reduced Engine Speed 2 Hours	92.5
Bystander 12th Gear (VB3)	89.5

## TIRES, BALLAST and WEIGHT

	With Ballast	Without Ballast
<b>Rear tires</b>		
Ballast	—No., size, ply & psi	Two 18.4-34; 6; 16
	—Liquid	1195 lb each
	Cast Iron	1050 lb each
<b>Front tires</b>		
Ballast	—No., size, ply & psi	Two 9.50-20; 8; 24
	—Liquid	70 lb each
	Cast Iron	450 lb each
<b>Height of drawbar</b>	26½ inches	27½ inches
<b>Static weight with operator—rear</b>	9570 lb	5080 lb
<b>front</b>	4130 lb	3090 lb
<b>total</b>	13700 lb	8170 lb

## Department of Agricultural Engineering

Dates of Test: September 13 to September 19, 1972

Manufacturer: MASSEY-FERGUSON-LANDINI S P A, FABRICO, REGGIO EMILIA, ITALY

**FUEL, OIL AND TIME** Fuel No. 2 Diesel Cetane No. 54.5 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8365 Weight per gallon 6.965 lb. Oil SAE 20-20W API service classification SB/SE-CA/CD To motor 4.615 gal Drained from motor 3.548 gal. Transmission and final drive lubricant SAE 90-EP Total time engine was operated 45 hours

**ENGINE** Make Perkins Type 6 cylinder vertical Serial No.354 UA32373 Crankshaft Mounted lengthwise Rated rpm 2250 Bore and stroke 3.875"x5.0" Compression ratio 16 to 1 Displacement 354 cu. in. Cranking system 12 volt electric Lubrication pressure Air cleaner dry replaceable paper element with automatic dust unloader Oil filter replaceable pleated paper cartridge Fuel filter replaceable primary paper element and replaceable secondary paper element Muffler was used Cooling medium temperature control thermostat

**CHASSIS** Type standard Serial No. 1190261 Tread width rear 64" to 88" front 56" to 81" Wheel base 95.5" 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 37" Vertical distance above roadway 33.5" 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 7th, 8th, 9th, 10th, 11th, & 12th gears synchronized Advertised speeds mph first 1.1 second 1.6 third 1.7 fourth 2.4 fifth 2.9 sixth 4.1 seventh 4.1 eighth 5.8 ninth 6.3 tenth 8.8 eleventh 10.9 twelfth 15.3 reverse 1.7, 2.4, 6.3, & 8.8 Clutch dry disc dual clutch operated by foot pedal and hand lever for pto Brakes double disc operated by two foot pedals that can be locked together Steering power assist Turning radius (on concrete surface with brake applied) right 150" left 150" (On concrete surface without brake) right 160" left 160" Turning space diameter (on concrete surface with brake applied) right 300" left 300" (on concrete surface without brake) right 320" left 320" Power take-off 540 rpm at 1890 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, second and third gears were not run as it was necessary to limit the pull in fourth gear because of excessive slippage. Fifth, sixth and twelfth 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 1107.

L. F. LARSEN

Engineer-in-charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers

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