

Tractor Test and Power Museum, The Lester F. Larsen

UNL Larsen Tractor Museum Archives

University of Nebraska - Lincoln

Year 1962

Test 816: Farmall 504 (Diesel)

Tractor Museum

University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

NEBRASKA TRACTOR TEST 816 - FARMALL 504 DIESEL

The University of Nebraska Agricultural Experiment Station

E. F. Frolik, Dean; H. H. Kramer, Director, Lincoln, Nebraska

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	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours								
45.99	2200	3.088	0.466	14.89	187	64	75	28.918
Standard Power Take-off Speed (540 rpm)—One Hour								
44.94	1970	3.068	0.474	14.65	192	64	75	28.915
VARYING POWER AND FUEL CONSUMPTION—TWO HOURS								
40.59	2283	2.773	0.474	14.64	176	63	75	.....
0.00	2396	1.017	.....	.....	173	64	75	.....
20.85	2346	1.826	0.607	11.42	175	63	75	.....
46.53	2201	3.102	0.462	15.00	180	63	75	.....
10.53	2373	1.402	0.923	7.51	174	62	73	.....
30.88	2316	2.267	0.509	13.62	178	63	74	.....
Av 24.90	2319	2.064	0.575	12.06	176	63	74	28.930

DRAWBAR PERFORMANCE

Hp	Draw-bar pull lbs	Speed miles per hr	Crank-shaft speed rpm	Slip of drivers %	Fuel Consumption		Hp-hr per gal	Temp Degrees F			Barometer inches of Mercury
					Gal per hr	Lb per hp-hr		Cooling med	Air wet bulb	Air dry bulb	
VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST											
Maximum Available Power—Two Hours—3rd Gear											
38.90	2671	5.46	2196	4.69	3.002	0.535	12.96	181	62	66	28.830
75% of Pull at Maximum Power—Ten Hours—3rd Gear											
31.95	2076	5.77	2295	3.59	2.598	0.564	12.30	180	73	85	28.596
50% of Pull at Maximum Power—Two Hours—3rd Gear											
21.89	1379	5.95	2343	2.51	2.053	0.651	10.66	175	74	92	28.615
MAXIMUM POWER WITH BALLAST											
29.97	6271	1.79	2290	13.76	1st Gear	.....	179	60	64	28.875	
40.17	3778	3.99	2204	6.48	2nd Gear	.....	181	59	64	28.900	
40.39	2768	5.47	2201	4.66	3rd Gear	.....	182	57	60	28.910	
39.96	1903	7.88	2202	3.19	4th Gear	.....	180	61	65	28.865	
37.61	5501	2.56	2199	10.60	2nd Gear Torq. Amp.	179	59	64	28.900		
39.13	4070	3.61	2204	7.01	3rd Gear Torq. Amp.	181	59	64	28.900		
39.73	2853	5.22	2201	4.93	4th Gear Torq. Amp.	182	58	62	28.905		
38.98	1231	11.87	2205	1.97	5th Gear Torq. Amp.	180	61	66	28.865		
MAXIMUM POWER WITHOUT BALLAST											
38.79	2691	5.41	2204	7.48	3rd Gear	.....	188	70	85	28.750	
VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST—3rd Gear											
Pounds pull	2768	3122	3282	3376	3409	3166					
Horsepower	40.39	40.78	37.67	33.92	29.15	22.66					
Miles per hour	5.47	4.90	4.30	3.77	3.21	2.68					
Slip of Drivers, %	4.66	5.34	5.61	6.02	5.75	5.61					

TIRES, BALLAST and WEIGHT

		With Ballast	Without Ballast
Rear tires	—No, size, ply & psi	Two 13.6-38; 6; 18	Two 13.6-38; 6; 14
Ballast	—Liquid	802 lb each	None
	—Cast iron	288 lb each	None
Front tires	—No, size, ply & psi	Two 6.00-16; 4; 28	Two 6.00-16; 4; 20
Ballast	—Liquid	None	None
	—Cast iron	145 lb each	None
Height of drawbar		19½ inches	20½ inches
Static weight	—Rear	6110 lb	3930 lb
	—Front	1790 lb	1500 lb
Total weight with operator		3075 lb	5605 lb

Department of Agricultural Engineering

Dates of Test: May 3 to May 16, 1962

Manufacturer: INTERNATIONAL HARVESTER COMPANY, CHICAGO, ILLINOIS
 Manufacturer's Power Rating: Not Rated

FUEL, OIL and TIME Fuel No 2 Diesel Cetane No 54.2 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8328 Weight per gallon 6.935 Oil SAE 10W-30 API service classification MS, DM To motor 1.724 gal Drained from motor 1.250 gal Transmission and final-drive lubricant I.H. Hy-Tran Fluid Total time engine was operated 49 hours.

ENGINE Make International Diesel Type 4 cylinder vertical Serial No D188 740 Crankshaft mounted lengthwise Rated rpm 2200 Bore and stroke 3 11/16" x 4.390" Compression ratio 18.7 to 1 Displacement 187.5 cu in Cranking system 12 volt electric Lubrication pressure Air cleaner oil washed wire mesh Oil filter replaceable treated paper element Oil cooler engine coolant heat exchanger for crankcase oil Fuel filter one radial fin treated paper element Muffler was used Cooling medium temperature control thermostat.

CHASSIS Type tricycle Serial No 1353 S-Y Tread width rear 52" to 84" front 8" and 14" Wheel base 89.00" 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 25.8" Vertical distance above roadway 33.7" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio plus operator controlled partial range power shifting Advertised speeds mph first 1.96 second 4.18 third 5.64 fourth 7.99 fifth 17.64 reverse 2.42 (Using T. A.) first 1.32 second 2.82 third 3.81 fourth 5.39 fifth 11.90 reverse 1.64 Clutch single plate dry disc operated by foot pedal Brakes double disc operated by two foot pedals which can be locked together Steering power assisted Turning radius (on concrete surface with brake applied) right 98.5" left 98.5" (on concrete surface without brake) right 100" left 100" Turning space diameter (on concrete surface with brake applied) right 206" left 206" (on concrete surface without brake) right 209½" left 209½" Belt pulley 1168 rpm at 2200 engine rpm diam 11" face 7.5" Belt speed 3363 fpm Power take-off 548 rpm at 2000 engine rpm.

REPAIRS and ADJUSTMENTS No repairs or adjustments.

REMARKS All test results were determined from observed data obtained in accordance with the SAE and ASAE test code.

First gear torque amplifier was not run as it was necessary to limit the pull in first gear direct drive to avoid excessive wheel slippage. Fifth gear direct drive was not run as it exceeded 15 mph.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 816.

L. F. LARSEN
 Engineer-in-Charge

L. W. HURLBUT
 G. W. STEINBRUEGGE
 J. J. SULEK
 Board of Tractor Test Engineers