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## Test 1507: Ford 1910 (12x4) Manual Diesel 12-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1507

## FORD 1910 (12x4) MANUAL DIESEL

### 12 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—550 rpm)								
28.60 (21.33)	2500	2.236 (8.465)	0.547 (0.333)	12.79 (2.520)	186 (85.6)	57 (13.8)	75 (23.8)	28.89 (97.57)
Standard Power Take-off Speed (540 rpm)—One Hour								
28.29 (21.09)	2456	2.186 (8.275)	0.541 (0.329)	12.94 (2.549)	187 (86.2)	57 (13.9)	75 (23.8)	28.86 (97.46)

#### VARYING POWER AND FUEL CONSUMPTION—Two Hours

25.09 (18.71)	2580	1.946 (7.367)	0.543 (0.330)	12.89 (2.540)	178 (80.8)	58 (14.2)	78 (23.3)	.....	
0.00 (0.00)	2697	0.785 (2.970)	.....	.....	162 (71.9)	57 (13.6)	74 (23.3)	.....	
12.85 (9.58)	2644	1.320 (4.998)	0.719 (0.437)	9.73 (1.917)	168 (75.6)	57 (13.9)	75 (23.9)	.....	
28.63 (21.35)	2501	2.246 (8.503)	0.549 (0.334)	12.75 (2.511)	185 (85.0)	56 (13.3)	74 (23.1)	.....	
6.49 (4.84)	2670	1.029 (3.895)	1.109 (0.675)	6.31 (1.243)	164 (73.3)	58 (14.2)	76 (24.4)	.....	
19.08 (14.23)	2614	1.603 (6.069)	0.588 (0.358)	11.90 (2.345)	170 (76.7)	58 (14.4)	78 (25.3)	.....	
<b>Av</b> <b>Av</b>	<b>15.36</b> <b>(11.45)</b>	<b>2618</b>	<b>1.488</b> <b>(5.634)</b>	<b>0.678</b> <b>(0.413)</b>	<b>10.32</b> <b>(2.033)</b>	<b>171</b> <b>(77.2)</b>	<b>57</b> <b>(13.9)</b>	<b>76</b> <b>(24.2)</b>	<b>28.86</b> <b>(97.46)</b>

#### DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 9th (3-3) Gear											
24.76 (18.47)	1629 (7.25)	5.70 (9.17)	2498	6.04	2.222 (8.411)	0.628 (0.382)	11.14 (2.195)	176 (79.7)	48 (8.9)	54 (11.9)	28.64 (96.70)
75% of Pull at Maximum Power—Ten Hours 9th (3-3) Gear											
20.16 (15.04)	1256 (5.59)	6.02 (9.69)	2601	4.71	1.856 (7.027)	0.644 (0.392)	10.86 (2.140)	171 (77.2)	46 (8.0)	48 (8.8)	28.82 (97.33)
50% of Pull at Maximum Power—Two Hours 9th (3-3) Gear											
13.83 (10.31)	839 (3.73)	6.18 (9.95)	2633	3.27	1.508 (5.707)	0.763 (0.464)	9.17 (1.807)	171 (76.9)	52 (10.8)	57 (13.9)	28.63 (96.68)
50% of Pull at Reduced Engine Speed—Two Hours 11th (4-2) Gear											
13.82 (10.31)	838 (3.73)	6.19 (9.96)	1649	3.19	1.129 (4.273)	0.571 (0.348)	12.25 (2.412)	166 (74.2)	52 (10.8)	55 (12.5)	28.65 (96.75)

#### MAXIMUM POWER IN SELECTED GEARS

21.21 (15.82)	3340 (14.86)	2.38 (3.83)	2561	14.86	6th (2-3) Gear		173 (78.3)	45 (7.2)	51 (10.6)	28.64 (96.71)
24.18 (18.03)	2857 (12.71)	3.17 (5.11)	2500	11.26	7th (3-1) Gear		175 (79.4)	46 (7.8)	52 (11.1)	28.64 (96.71)
25.10 (18.72)	2110 (9.38)	4.46 (7.18)	2499	7.95	8th (3-2) Gear		174 (78.6)	46 (7.8)	52 (11.1)	28.64 (96.71)
25.43 (18.96)	1675 (7.45)	5.69 (9.16)	2499	6.19	9th (3-3) Gear		176 (79.7)	47 (8.3)	53 (11.7)	28.64 (96.71)
25.57 (19.07)	1414 (6.29)	6.78 (10.92)	2500	5.11	10th (4-1) Gear		175 (79.4)	47 (8.3)	53 (11.7)	28.63 (96.68)
24.78 (18.48)	996 (4.43)	9.34 (15.02)	2500	3.68	11th (4-2) Gear		176 (79.7)	47 (8.3)	53 (11.7)	28.63 (96.68)

Department of Agricultural Engineering

Dates of Test: March 30 to April 12, 1984

Manufacturer: ISHIKAWAJIMA-SHIBAURA  
MACHINERY COMPANY, LTD., Tokyo, Japan

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel  
Cetane No. 46.0 (rating taken from oil company's  
inspection data) Specific gravity converted to 60°/  
60° (15°/15°) 0.8405 Fuel weight 6.998 lbs/gal  
(0.839 kg/l) Oil SAE 30 API service classifi-  
cation SE, SF, CC, CD To motor 1.605 gal (6.077 l)  
Drained from motor 1.442 gal (5.459 l) Trans-  
mission and final drive lubricant Ford 134 fluid  
Total time engine was operated 41.5 hours.

**ENGINE:** Make Shibaura Diesel Type three  
cylinder vertical Serial No. \*T853A-10465\*  
Crankshaft lengthwise Rated rpm 2500 Bore  
and stroke 3.346" × 3.937" (85 mm × 100 mm)  
Compression ratio 21 to 1 Displacement 103.9  
cu in (1703 ml) Starting system 12 volt Lubri-  
cation pressure Air cleaner one paper element  
Oil filter one full flow cartridge Fuel filter one  
paper element Muffler vertical Cooling me-  
dium temperature control one thermostat.

**CHASSIS:** Type standard Serial No.  
\*1910\*UP00253\* Tread width rear 45.7" (1161  
mm) to 61.0" (1549 mm) front 43.5" (1105 mm) to  
57.5" (1461 mm) Wheel base 66.3" (1684 mm)  
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 26.0" (660  
mm) Vertical distance above roadway 27.5" (699  
mm) Horizontal distance from center of rear wheel  
tread 0.1" (2.5 mm) to the left Hydraulic control  
system direct engine drive Transmission selec-  
tive gear fixed ratio Advertised speeds mph (km/  
h) first 0.7 (1.1) second 1.0 (1.6) third 1.2 (1.9)  
fourth 1.6 (2.6) fifth 2.2 (3.5) sixth 2.8 (4.5) sev-  
enth 3.7 (6.0) eighth 5.0 (8.0) ninth 6.2 (10.0) tenth  
7.3 (11.7) eleventh 9.9 (15.9) twelfth 12.5 (20.1)  
reverse 0.8 (1.3), 1.9 (3.0), 4.3 (6.9), 8.6 (13.8)  
Clutch single dry disc operated by foot pedal  
Brakes drum and shoe operated by two foot pedals  
which can be locked together Steering mechan-  
ical Turning radius (on concrete surface with  
brake applied) right 96.5" (2.45 m) left 96.5" (2.45  
m) (on concrete surface without brake) right 104.3"  
(2.65 m) left 104.3" (2.65 m) Turning space di-  
ameter (on concrete surface with brake applied)  
right 199" (5.05 m) left 199" (5.05 m) (on concrete  
surface without brake) right 215" (5.45 m) left 215"  
(5.45 m) Power take-off 540 rpm at 2456 engine  
rpm.

# LUGGING ABILITY IN 9th (3-3) GEAR

Crankshaft Speed rpm	2499	2251	1998	1754	1493	1234
Pull—lbs (kN)	1675 (7.45)	1737 (7.79)	1851 (8.30)	1867 (8.37)	1908 (8.55)	1866 (8.36)
Increase in Pull %	0	4	11	11	14	11
Power—Hp (kW)	25.43 (18.96)	23.68 (17.66)	22.32 (16.64)	19.73 (14.72)	17.15 (12.79)	13.90 (10.36)
Speed—Mph (km/h)	5.69 (9.16)	5.11 (8.23)	4.52 (7.28)	3.96 (6.38)	3.37 (5.42)	2.79 (4.49)
Slip %	6.19	6.55	6.85	7.05	7.15	6.75

## TRACTOR SOUND LEVEL WITHOUT CAB

	<b>dB(A)</b>
Maximum Available Power—Two Hours	91.5
75% of Pull at Maximum Power—Ten Hours	91.0
50% of Pull at Maximum Power—Two Hours	91.0
50% of Pull at Reduced Engine Speed—Two Hours	86.0
Bystander in 12th (4-3) gear	82.5

## TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b>		
—No., size, ply & psi (kPa)	Two 13.6-24; 4; 14 (95)	Two 13.6-24; 4; 14 (95)
Ballast	360 lb (163 kg)	None
—Liquid (each)	220 lb (100 kg)	None
—Cast Iron (each)		
<b>Front Tires</b>		
—No., size, ply & psi (kPa)	Two 5.50-16; 4; 40 (275)	Two 5.50-16; 4; 40 (275)
Ballast	None	None
—Liquid (each)	55 lb (25 kg)	None
—Cast Iron (each)		
<b>Height of Drawbar</b>	16 in (405 mm)	16 in (405 mm)
<b>Static Weight with Operator—Rear</b>	3040 lb (1379 kg)	1880 lb (853 kg)
—Front	1210 lb (549 kg)	1100 lb (499 kg)
—Total	4250 lb (1928 kg)	2980 lb (1352 kg)

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

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 135°F (57.0°C). Six gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1507**, June 14, 1984.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



Ford 1910 (12x4) Manual Diesel