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Test 1508: Ford 1910 (12x4) Synchro Diesel 12-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1508

FORD 1910 (12x4) SYNCHRO 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)									
* 28.52 (21.27)	2500	2.261 (8.560)	0.555 (0.338)	12.61 (2.485)	194 (90.1)	61 (16.1)	75 (23.9)	28.88 (97.53)	
Standard Power Take-off Speed (540 rpm)—One Hour									
28.30 (21.11)	2454	2.267 (8.581)	0.561 (0.341)	12.48 (2.460)	196 (91.1)	62 (16.7)	76 (24.4)	28.87 (97.49)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
24.97 (18.62)	2574	1.924 (7.284)	0.540 (0.328)	12.97 (2.556)	183 (83.6)	62 (16.4)	74 (23.3)	..... .....
0.00 (0.00)	2698	0.754 (2.855)	..... .....	..... .....	163 (72.8)	62 (16.4)	75 (23.9)	..... .....
12.74 (9.50)	2628	1.294 (4.899)	0.711 (0.433)	9.84 (1.938)	168 (75.3)	62 (16.4)	76 (24.2)	..... .....
28.52 (21.26)	2502	2.284 (8.647)	0.561 (0.341)	12.48 (2.459)	193 (89.4)	62 (16.7)	76 (24.2)	..... .....
6.43 (4.79)	2650	0.994 (3.764)	1.082 (0.658)	6.47 (1.274)	164 (73.3)	62 (16.7)	76 (24.4)	..... .....
18.88 (14.08)	2598	1.581 (5.986)	0.586 (0.357)	11.94 (2.352)	170 (76.7)	61 (15.8)	73 (22.8)	..... .....
Av Av	15.26 (11.38)	2608	1.472 (5.573)	0.676 (0.411)	10.36 (2.041)	173 (78.5)	62 (16.4)	75 (23.8)	28.84 (97.40)

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											
24.57 (18.32)	1612 (7.17)	5.72 (9.20)	2499	5.87	2.236 (8.463)	0.637 (0.387)	10.99 (2.165)	184 (84.2)	50 (9.7)	61 (15.8)	28.94 (97.71)
75% of Pull at Maximum Power—Ten Hours 9th (3-3) Gear											
19.50 (14.54)	1219 (5.42)	6.00 (9.65)	2593	4.77	1.809 (6.846)	0.649 (0.395)	10.78 (2.124)	172 (77.6)	42 (5.4)	44 (6.9)	28.57 (96.47)
50% of Pull at Maximum Power—Two Hours 9th (3-3) Gear											
13.31 (9.93)	813 (3.61)	6.14 (9.89)	2614	3.25	1.464 (5.543)	0.770 (0.468)	9.09 (1.791)	171 (77.2)	47 (8.3)	56 (13.1)	28.40 (95.89)
50% of Pull at Reduced Engine Speed—Two Hours 11th (4-2) Gear											
13.30 (9.92)	813 (3.62)	6.14 (9.88)	1634	3.14	1.114 (4.218)	0.586 (0.357)	11.94 (2.352)	169 (76.1)	47 (8.1)	54 (12.2)	28.43 (96.00)
MAXIMUM POWER IN SELECTED GEARS											
21.92 (16.34)	3449 (15.34)	2.38 (3.84)	2566	14.95			6th (2-3) Gear	174 (78.9)	46 (7.8)	55 (12.8)	28.39 (95.87)
24.15 (18.01)	2842 (12.64)	3.19 (5.13)	2499	10.90			7th (3-1) Gear	178 (81.1)	48 (8.9)	56 (13.3)	28.96 (97.79)
25.05 (18.68)	2098 (9.33)	4.48 (7.21)	2500	7.56			8th (3-2) Gear	178 (80.8)	47 (8.3)	55 (12.8)	28.96 (97.79)
25.59 (19.08)	1681 (7.48)	5.71 (9.19)	2500	6.05			9th (3-3) Gear	176 (80.0)	46 (7.8)	53 (11.7)	28.96 (97.79)
25.62 (19.11) [Ⓕ]	1416 (6.30)	6.79 (10.92)	2500	5.12			10th (4-1) Gear	180 (81.9)	48 (8.9)	57 (13.9)	28.96 (97.79)
24.50 (18.27)	984 (4.37)	9.34 (15.04)	2500	3.74			11th (4-2) Gear	178 (81.1)	49 (9.4)	58 (14.4)	28.96 (97.79)

Department of Agricultural Engineering

Dates of Test: March 30 to April 17, 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°) 0.8407 **Fuel weight** 7.000 lbs/gal
(0.839 kg/l) **Oil SAE 30 API service classifi-**
cation SE, SF, CC, CD **To motor** 1.533 gal (5.802 l)
Drained from motor 1.379 gal (5.220 l) **Trans-**
mission and final drive lubricant Ford 134 fluid
Total time engine was operated 43.0 hours.

ENGINE: Make Shibaura Diesel **Type** three
cylinder vertical **Serial No.** *T853A-10420*
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*UP00339* **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 for-
ward from center-line of rear wheels 26.4" (671
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-Synchromesh **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) seventh 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 1.0 (1.7), 2.4 (3.8), 5.3 (8.5),
10.6 (17.1) **Clutch** single dry disc operated by
foot pedal **Brakes** drum and shoe operated by
two foot pedals which can be locked together
Steering power assist **Turning radius** (on con-
crete 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 diameter (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 2454 engine rpm.

LUGGING ABILITY IN 9th (3-3) GEAR

Crankshaft Speed rpm	2500	2243	1996	1753	1485	1240
Pull—lbs (kN)	1681 (7.48)	1773 (7.95)	1851 (8.30)	1887 (8.46)	1904 (8.53)	1858 (8.33)
Increase in Pull %	0	5	10	12	13	11
Power—Hp (kW)	25.59 (19.08)	24.12 (17.99)	22.32 (16.65)	19.95 (14.87)	17.04 (12.71)	13.92 (10.38)
Speed—Mph (km/h)	5.71 (9.19)	5.10 (8.21)	4.52 (7.28)	3.96 (6.38)	3.36 (5.40)	2.81 (4.52)
Slip %	6.05	6.35	6.66	6.96	6.96	6.76

TRACTOR SOUND LEVEL WITHOUT CAB

	dB(A)
Maximum Available Power—Two Hours	91.5
75% of Pull at Maximum Power—Ten Hours	90.5
50% of Pull at Maximum Power—Two Hours	89.5
50% of Pull at Reduced Engine Speed—Two Hours	85.0
Bystander in 12th (4-3) gear	82.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires		
—No., size, ply & psi (kPa)	Two 13.6-24; 4; 14 (95)	Two 13.6-24; 4; 14 (95)
—Liquid (each)	375 lb (170 kg)	None
—Cast Iron (each)	220 lb (100 kg)	None
Front Tires		
—No., size, ply & psi (kPa)	Two 5.50-16; 4; 40 (275)	Two 5.50-16; 4; 40 (275)
—Liquid (each)	None	None
—Cast Iron (each)	48 lb (22 kg)	None
Height of Drawbar	16 in (405 mm)	16 in (405 mm)
Static Weight with Operator—Rear	3085 lb (1399 kg)	1895 lb (860 kg)
—Front	1240 lb (563 kg)	1145 lb (519 kg)
—Total	4325 lb (1962 kg)	3040 lb (1379 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 132°F (55.6°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. **1508**, 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) Synchro Diesel