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Test 1501: Ford 1510 (12x4) Synchro Diesel 12-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1501—FORD 1510 (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—613 rpm)									
19.98 (14.90)	2800	1.525 (5.773)	0.534 (0.325)	13.10 (2.581)	212 (99.7)	67 (19.4)	75 (24.1)	29.097 (98.255)	
Standard Power Take-off Speed (540 rpm)—One Hour									
18.68 (13.93)	2464	1.383 (5.235)	0.518 (0.315)	13.50 (2.661)	213 (100.6)	67 (19.4)	75 (23.9)	29.100 (98.266)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
17.29 (12.89)	2850	1.346 (5.095)	0.545 (0.331)	12.84 (2.530)	200 (93.3)	67 (19.4)	75 (23.9)	..... .....
0.00 (0.00)	2996	0.553 (2.093)	..... .....	..... .....	166 (74.2)	67 (19.4)	75 (23.9)	..... .....
8.91 (6.64)	2936	0.926 (3.505)	0.727 (0.442)	9.62 (1.894)	173 (78.3)	68 (20.0)	76 (24.7)	..... .....
20.41 (15.22)	2800	1.561 (5.909)	0.535 (0.325)	13.08 (2.576)	207 (97.2)	67 (19.4)	74 (23.6)	..... .....
4.50 (3.36)	2966	0.737 (2.790)	1.146 (0.698)	6.11 (1.204)	166 (74.7)	67 (19.4)	74 (23.1)	..... .....
13.17 (9.82)	2894	1.123 (4.251)	0.597 (0.363)	11.72 (2.310)	184 (84.4)	68 (20.0)	76 (24.4)	..... .....
Av Av	10.71 (7.99)	2907	1.041 (3.941)	0.680 (0.414)	10.29 (2.027)	183 (83.7)	67 (19.6)	75 (23.9)	29.065 (98.148)

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											
16.30 (12.16)	1106 (4.92)	5.53 (8.89)	2800	8.80	1.486 (5.626)	0.638 (0.388)	10.97 (2.160)	185 (85.0)	49 (9.4)	51 (10.6)	29.070 (98.165)
75% of Pull at Maximum Power—Ten Hours 9th (3-3) Gear											
13.12 (9.78)	846 (3.76)	5.82 (9.36)	2873	6.47	1.278 (4.837)	0.681 (0.415)	10.27 (2.023)	177 (80.7)	45 (6.9)	52 (11.1)	29.318 (99.002)
50% of Pull at Maximum Power—Two Hours 9th (3-3) Gear											
9.05 (6.75)	564 (2.51)	6.02 (9.69)	2923	4.79	1.056 (3.998)	0.816 (0.496)	8.57 (1.689)	173 (78.1)	51 (10.6)	54 (11.9)	29.100 (98.266)
50% of Pull at Reduced Engine Speed—Two Hours 11th (4-2) Gear											
9.05 (6.75)	564 (2.51)	6.02 (9.69)	1875	4.72	0.806 (3.051)	0.623 (0.379)	11.22 (2.211)	172 (77.8)	53 (11.4)	58 (14.2)	29.145 (98.418)
MAXIMUM POWER IN SELECTED GEARS											
15.54 (11.59)	1900 (8.45)	3.07 (4.93)	2813	14.99	7th (3-1) Gear			176 (79.7)	37 (2.8)	39 (3.9)	29.150 (98.435)
16.18 (12.06)	1483 (6.59)	4.09 (6.59)	2801	12.37	8th (3-2) Gear			182 (83.3)	44 (6.7)	45 (7.2)	29.030 (98.030)
16.64 (12.41)	1128 (5.02)	5.53 (8.90)	2802	8.74	9th (3-3) Gear			179 (81.7)	44 (6.7)	45 (7.2)	29.030 (98.030)
16.83 (12.55)	942 (4.19)	6.70 (10.79)	2799	7.62	10th (4-1) Gear			179 (81.7)	45 (7.2)	46 (7.8)	29.040 (98.064)
16.67 (12.43)	702 (3.12)	8.91 (14.34)	2799	5.52	11th (4-2) Gear			179 (81.4)	46 (7.8)	47 (8.3)	29.040 (98.064)
LUGGING ABILITY IN 9th (3-3) GEAR											
Crankshaft Speed rpm				2802	2534	2242	1943	1683	1393	1101	
Pull—lbs (kN)				1128 (5.02)	1222 (5.44)	1292 (5.75)	1287 (5.72)	1276 (5.68)	1320 (5.87)	1278 (5.68)	
Increase in Pull %				0	8	15	14	13	17	13	
Power—Hp (kW)				16.64 (12.41)	16.18 (12.06)	15.03 (11.21)	12.95 (9.65)	11.12 (8.29)	9.49 (7.08)	7.29 (5.43)	
Speed—Mph (km/h)				5.53 (8.90)	4.97 (7.99)	4.36 (7.02)	3.77 (6.07)	3.27 (5.26)	2.70 (4.34)	2.14 (3.44)	
Slip %				8.74	9.45	10.12	10.28	10.28	10.61	10.28	

Department of Agricultural Engineering

Dates of Test: October 18-27, 1983

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 47.0 (rating taken from oil company's
inspection data) **Specific gravity converted to 60°/**
60° (15°/15°) 0.8404 Fuel weight 6.997 lbs/gal
(0.839 kg/l) Oil SAE 15W-40 API service classi-
fication SE-SF, CC-CD To motor 1.119 gal
(4.236 l) Drained from motor 0.803 gal (3.041 l)
Transmission and final drive lubricant Ford
M2C-134-B fluid Total time engine was operated
41.5 hours.

ENGINE: Make Shibaura Diesel Type three
cylinder vertical Serial No. *K773-00373*
Crankshaft lengthwise **Rated rpm 2800 Bore**
and stroke 3.03" × 3.15" (77 mm × 80 mm) Com-
pression ratio 23.5 to 1 Displacement 68.2 cu in
(1117 ml) Starting system 12 volt Lubrication
pressure Air cleaner one paper element Oil filter
one full flow cartridge Fuel filter one paper
element Muffler vertical Cooling medium
temperature control one thermostat.

CHASSIS: Type standard Serial No.
*1510*UH00386* **Tread width rear 41.3" (1050**
mm) to 47.3" (1200 mm) front 39.4" (1000 mm) to
52.0" (1320 mm) Wheel base 63" (1600 mm) Cen-
ter 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 22.7" (576
mm) Vertical distance above roadway 29.9" (760
mm) Horizontal distance from center of rear wheel
tread 0" (0 mm) to the right/left **Hydraulic control**
system direct engine drive **Transmission** selec-
tive gear fixed ratio **Advertised speeds mph (km/**
h) first 0.7 (1.2) second 1.0 (1.5) third 1.3 (2.0)
fourth 1.6 (2.5) fifth 2.2 (3.5) sixth 2.8 (4.5)
seventh 3.7 (5.9) eighth 4.8 (7.7) ninth 6.2 (9.9)
tenth 7.4 (11.9) eleventh 9.6 (15.5) twelfth 12.5
(20.1) reverse 1.0 (1.6), 2.2 (3.5), 5.1 (8.2), 10.3
(16.5) **Clutch** single dry disc operated by foot
pedal **Brakes** drum and shoe operated by two
foot pedals which can be locked together **Steering**
mechanical Turning radius (on concrete surface
with brake applied) right 92.5" (2.35 m) left 92.5"
(2.35 m) (on concrete surface without brake) right
100.4" (2.55 m) left 100.4" (2.55 m) **Turning space**
diameter (on concrete surface with brake applied)
right 193" (4.90 m) left 193" (4.90 m) (on concrete
surface without brake) right 209" (5.30 m) left 209"
(5.30 m) **Power take-off 540 rpm at 2464 engine**
rpm.

REPAIRS AND ADJUSTMENTS: No repairs or
adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	91.5
75% of Pull at Maximum Power—Ten Hours	91.5
50% of Pull at Maximum Power—Two Hours	90.5
50% of Pull at Reduced Engine Speed—Two Hours	85.5
Bystander in 12th (4-3) gear	81.0

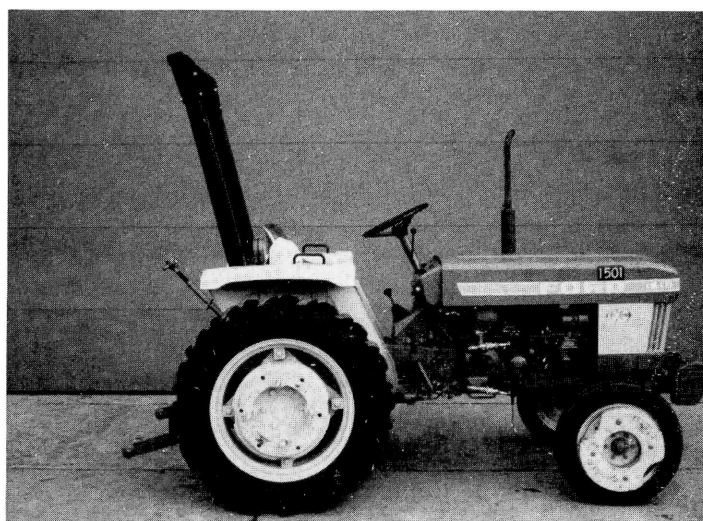
TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 9.5-24; 4; 16 (110)	Two 9.5-24; 4; 16 (110)
	—Liquid (each)	180 lb (82 kg)	None
	—Cast Iron (each)	228 lb (103 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 4.00-15; 4; 32 (220)	Two 4.00-15; 4; 32 (220)
	—Liquid (each)	None	None
	—Cast Iron (each)	50 lb (23 kg)	None
Height of Drawbar		13 in (330 mm)	13 in (330 mm)
Static Weight with Operator —Rear		2310 lb (1048 kg)	1495 lb (678 kg)
		890 lb (404 kg)	790 lb (358 kg)
		3200 lb (1452 kg)	2285 lb (1036 kg)

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 134°F (56.8°C). Five 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. 1501.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Ford 1510 (12x4) Synchro Diesel