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Test 1248: International 1586 Diesel 12-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1248 — INTERNATIONAL 1586 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—1207 rpm)								
161.55 (120.47)	2501	10.580 (40.051)	0.456 (0.277)	15.27 (3.008)	189 (87.1)	62 (16.5)	75 (23.9)	28.693 (96.893)
Standard Power Take-off Speed (1000 rpm)—One Hour								
156.09 (116.40)	2072	9.454 (35.788)	0.422 (0.256)	16.51 (3.252)	191 (88.6)	62 (16.7)	75 (23.9)	28.685 (96.865)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
141.46 (105.49)	2576	9.572 (36.234)	0.471 (0.286)	14.78 (2.911)	186 (85.8)	63 (17.2)	76 (24.2)	..... .....
0.00 (0.00)	2762	3.262 (12.350)	..... .....	..... .....	178 (81.1)	62 (16.9)	74 (23.6)	..... .....
73.61 (54.89)	2679	6.322 (23.933)	0.598 (0.364)	11.64 (2.293)	181 (82.8)	64 (17.5)	77 (25.0)	..... .....
160.65 (119.79)	2500	10.533 (39.872)	0.456 (0.278)	15.25 (3.004)	190 (88.1)	64 (17.8)	78 (25.6)	..... .....
37.27 (27.79)	2724	4.848 (18.353)	0.905 (0.551)	7.69 (1.514)	179 (81.7)	64 (18.1)	78 (25.3)	..... .....
108.00 (80.53)	2624	7.887 (29.855)	0.508 (0.309)	13.69 (2.697)	184 (84.7)	66 (18.9)	80 (26.9)	..... .....
Av 86.83 Av (64.75)	2644	7.071 (26.766)	0.567 (0.345)	12.28 (2.419)	183 (84.0)	64 (17.7)	77 (25.1)	28.667 (96.803)

DRAWBAR PERFORMANCE WITH RADIAL TIRES

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 8th (1-HiDD) Gear											
134.94 (100.63)	7726 (34.37)	6.55 (10.54)	2502	2.63	10.361 (39.222)	0.534 (0.325)	13.02 (2.566)	198 (92.2)	73 (22.8)	91 (32.8)	28.685 (96.865)
75% of Pull at Maximum Power—Ten Hours 8th (1-HiDD) Gear											
108.94 (81.23)	5970 (26.56)	6.84 (11.01)	2594	2.00	8.803 (33.322)	0.562 (0.342)	12.38 (2.438)	187 (86.1)	68 (19.9)	84 (29.1)	28.836 (97.375)
50% of Pull at Maximum Power—Two Hours 8th (1-HiDD) Gear											
74.72 (55.72)	3987 (17.73)	7.03 (11.31)	2646	1.21	7.111 (26.918)	0.662 (0.403)	10.51 (2.070)	187 (85.8)	74 (23.3)	98 (36.4)	28.655 (96.764)
50% of Pull at Reduced Engine Speed—Two Hours 9th (2-HiTA) Gear											
75.32 (56.16)	4032 (17.94)	7.00 (11.27)	1450	1.12	5.603 (21.208)	0.518 (0.315)	13.44 (2.648)	201 (93.6)	75 (23.9)	99 (36.9)	28.640 (96.713)

MAXIMUM POWER IN SELECTED GEARS

88.17 (65.75)	16665 (74.13)	1.98 (3.19)	2646	13.95	2nd (1-LoDD) Gear			181 (82.8)	63 (17.2)	65 (18.3)	28.910 (97.625)
135.87 (101.32)	13669 (60.80)	3.73 (6.00)	2499	5.75	3rd (2-LoTA) Gear			190 (87.8)	72 (22.2)	87 (30.6)	28.680 (96.848)
136.74 (101.96)	11562 (51.43)	4.44 (7.14)	2501	4.25	4th (2-LoDD) Gear			191 (88.1)	72 (22.2)	85 (29.4)	28.680 (96.848)
139.21 (103.81)	9596 (42.69)	5.44 (8.76)	2501	3.37	6th (3-LoDD) Gear			192 (88.9)	71 (21.7)	83 (28.3)	28.680 (96.848)
140.65 (104.89)	9500 (42.26)	5.55 (8.94)	2498	3.28	7th (1-HiTA) Gear			190 (87.5)	69 (20.6)	77 (25.0)	28.680 (96.848)
138.88 (103.57)	7954 (35.38)	6.55 (10.54)	2502	2.63	8th (1-HiDD) Gear			191 (88.1)	70 (21.1)	80 (26.7)	28.680 (96.848)

LUGGING ABILITY IN 8th (1-HiDD) GEAR

Crankshaft Speed rpm		2502	2250	2002	1753	1512	1249
Pull—lbs (kN)		7954 (35.38)	8948 (39.80)	9602 (42.71)	9932 (44.18)	9749 (43.37)	9212 (40.98)
Increase in Pull %		0	12	21	25	23	16
Power—Hp (kW)		138.88 (103.57)	139.95 (104.36)	133.28 (99.38)	120.25 (89.67)	102.05 (76.10)	79.77 (59.48)
Speed—Mph (km/h)		6.55 (10.54)	5.87 (9.44)	5.21 (8.38)	4.54 (7.31)	3.93 (6.32)	3.25 (5.23)
Slip %		2.63	3.13	3.28	3.61	3.45	3.28

Department of Agricultural Engineering

Dates of Test: June 3 to 22, 1977

Manufacturer: INTERNATIONAL HARVESTER COMPANY, 401 North Michigan Avenue, Chicago, Illinois 60611

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 51.8 (rating taken from company's typical inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8360 **Fuel weight** 6.961 lbs/gal (0.834 kg/l) **Oil SAE 30 API service classification** CA-CD/SC-SE **To motor** 4.116 gal (15.581 l) **Drained from motor** 3.825 gal (14.479 l) **Transmission and final drive lubricant** IH Hy-tran Fluid **Total time engine was operated** 70 hours

ENGINE: Make International Diesel Type 6 cylinder vertical with turbocharger **Serial No.** 436 TT2U047855* **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.30" × 5.00" (109.2 mm × 127.0 mm) **Compression ratio** 16 to 1 **Displacement** 436 cu in (7139 ml) **Cranking system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements **Oil filter** two full flow paper cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** two paper cartridges **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

CHASSIS: Type standard with duals **Serial No.** 2650132 U0 11185* **Tread width** rear 64" (1626 mm) to 132" (3355 mm) front 60.75" (1543 mm) to 84.75" (2153 mm) **Wheel base** 104.8" (2662 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 26.2" (665 mm) Vertical distance above roadway 40.2" (1021 mm) Horizontal distance from center of rear wheel tread 0" (0 mm) to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled power shift **Advertised speeds mph (km/h)** first 1.8(2.9) second 2.1(3.4) third 3.8(6.1) fourth 4.4(7.1) fifth 4.6(7.4) sixth 5.4(8.7) seventh 5.5(8.9) eighth 6.4(10.3) ninth 11.7(18.8) tenth 13.7(22.0) eleventh 14.2(22.9) twelfth 16.6(26.7) reverse 3.1(5.0), 3.6(5.8), 6.5(10.5), 7.7(12.4), 7.9(12.7), 9.2(14.8) **Clutch** single dry disc operated by foot pedal with hydraulic power assist **Brakes** single wet disc hydraulically power actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 134" (3.40 m) left 134" (3.40 m) (on concrete surface without brake) right 181" (4.60 m) left 181" (4.60 m) **Turning space diameter** (on concrete surface with brake applied) right 280" (7.11 m) left 280" (7.11 m) (on concrete surface without brake) right 373" (9.47 m) left 373" (9.47 m) **Power take-off** 1000 rpm at 2072 engine rpm.

TRACTOR SOUND LEVEL WITH CAB AND RADIAL TIRES						dB(A)
Maximum Available Power—Two Hours						78.5
75% of Pull at Maximum Power—Ten Hours						79.0
50% of Pull at Maximum Power—Two Hours						79.0
50% of Pull at Reduced Engine Speed—Two Hours						79.5
Bystander in 12th (3-HiDD) gear						87.5

DRAWBAR PERFORMANCE WITH BIAS PLY TIRES

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool- ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (1-HiDD) Gear											
133.10 (99.25)	8243 (36.67)	6.06 (9.74)	2501	5.52	10.451 (39.562)	0.547 (0.332)	12.74 (2.509)	190 (87.5)	64 (17.8)	77 (25.0)	28.935 (97.709)
75% of Pull at Maximum Power—Two Hours 8th (1-HiDD) Gear											
110.45 (82.36)	6512 (28.97)	6.36 (10.24)	2586	4.05	8.925 (33.784)	0.562 (0.342)	12.38 (2.438)	186 (85.6)	67 (19.2)	84 (28.6)	28.915 (97.642)
50% of Pull at Maximum Power—Two Hours 8th (1-HiDD) Gear											
76.45 (57.01)	4319 (19.21)	6.64 (10.68)	2668	2.84	7.255 (27.462)	0.661 (0.402)	10.54 (2.076)	180 (82.2)	67 (19.2)	70 (20.8)	28.890 (97.557)
50% of Pull at Reduced Engine Speed—Two Hours 9th (2-HiTA) Gear											
76.35 (56.93)	4303 (19.14)	6.65 (10.71)	1466	2.77	5.477 (20.732)	0.499 (0.304)	13.94 (2.746)	186 (85.6)	68 (20.0)	80 (26.7)	28.770 (97.152)

MAXIMUM POWER IN SELECTED GEARS

75.28 (56.14)	15124 (67.28)	1.87 (3.00)	2642	14.97	2nd (1-LoDD) Gear		181 (82.8)	65 (18.3)	66 (18.9)	28.850 (97.422)
126.50 (94.33)	14607 (64.98)	3.25 (5.23)	2500	14.00	3rd (2-LoTA) Gear		185 (84.7)	67 (19.4)	70 (21.1)	28.850 (97.422)
132.21 (98.59)	12400 (55.16)	4.00 (6.44)	2500	9.46	4th (2-LoDD) Gear		187 (85.8)	64 (17.8)	75 (23.9)	28.930 (97.692)
136.44 (101.74)	10253 (45.60)	4.99 (8.03)	2499	7.01	6th (3-LoDD) Gear		188 (86.7)	63 (17.2)	73 (22.8)	28.930 (97.692)
138.26 (103.10)	10158 (45.18)	5.10 (8.22)	2500	6.87	7th (1-HiTA) Gear		188 (86.7)	62 (16.7)	72 (22.2)	28.930 (97.692)
140.08 (104.46)	8678 (38.60)	6.05 (9.74)	2500	5.62	8th (1-HiDD) Gear		186 (85.6)	60 (15.6)	68 (20.0)	28.950 (97.760)

LUGGING ABILITY IN 8th (1-HiDD) GEAR

Crankshaft Speed rpm	2500	2257	2001	1750	1495	1253
Pull—lbs (kN)	8678 (38.60)	9609 (42.74)	10498 (46.70)	10681 (47.51)	10595 (47.13)	9983 (44.40)
Increase in Pull %	0	11	21	23	22	15
Power—Hp (kW)	140.08 (104.46)	138.94 (103.61)	133.46 (99.52)	118.68 (88.50)	100.54 (74.98)	79.75 (59.47)
Speed—Mph (km/h)	6.05 (9.74)	5.42 (8.73)	4.77 (7.67)	4.17 (6.71)	3.56 (5.73)	3.00 (4.82)
Slip %	5.62	6.21	7.09	7.09	7.09	6.65

TIRES, BALLAST AND WEIGHT		RADIAL PLY TIRES	
Rear Tires	—No., size, ply & psi (<i>kPa</i>)	With Ballast	Without Ballast
Ballast	—Liquid (each inner)	Four 18.4R38; 8; 12 (<i>80</i>)	Four 18.4R38; 8; 12 (<i>80</i>)
	—Cast Iron (each)	1240 lb (<i>562 kg</i>)	None
		None	None
Front Tires	—No.; size; ply & psi (<i>kPa</i>)	Two 11.00-16; 8; 36 (<i>250</i>)	Two 11.00-16; 8; 36 (<i>250</i>)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Height of Drawbar		18 in (<i>460 mm</i>)	18 in (<i>460 mm</i>)
Static weight with Operator—Rear		13940 lb (<i>6323 kg</i>)	11460 lb (<i>5198 kg</i>)
—Front		3660 lb (<i>1660 kg</i>)	3660 lb (<i>1660 kg</i>)
—Total		17600 lb (<i>7983 kg</i>)	15120 lb (<i>6858 kg</i>)

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. Temperature at injection pump return was 155°F (68.4°C). Six gears were chosen between 15% slip and 15 mph (24.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1248.

LOUIS I. LEVITICUS

Engineer-in Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



International 1586 Diesel

BIAS PLY TIRES

With Ballast	Without Ballast
Four 18.4-38; 8; 14 (100) 1385 lb (628 kg) 60 lb (27 kg)	Four 18.4-38; 8; 14 (100) None None
Two 11.00-16; 8; 36 (250) None None	Two 11.00-16; 8; 36 (250) None None
18 in (460mm)	18 in (460mm)
13940 lb (6323 kg)	10930 lb (4958 kg)
3660 lb (1660 kg)	3660 lb (1660 kg)
17600 lb (7983 kg)	14590 lb (6618 kg)