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## Test 1441: International 5488 Diesel 18-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1441 — INTERNATIONAL 5488 DIESEL 18 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—1005 rpm)								
187.22 (139.61)	2400	11.555 (43.740)	0.430 (0.262)	16.20 (3.192)	190 (87.7)	61 (15.9)	75 (23.9)	28.873 (97.501)
* VARYING POWER AND FUEL CONSUMPTION—Two Hours								
165.46 (123.38)	2496	10.665 (40.371)	0.449 (0.273)	15.51 (3.056)	186 (85.6)	61 (16.1)	76 (24.4)	..... .....
0.00 (0.00)	2614	3.446 (13.045)	..... .....	..... .....	176 (80.0)	60 (15.6)	74 (23.3)	..... .....
84.88 (63.30)	2556	6.935 (26.252)	0.570 (0.347)	12.24 (2.411)	180 (82.2)	60 (15.6)	74 (23.3)	..... .....
186.88 (139.36)	2400	11.517 (43.597)	0.430 (0.261)	16.23 (3.197)	189 (87.2)	60 (15.8)	75 (23.9)	..... .....
42.84 (31.95)	2590	5.184 (19.624)	0.844 (0.513)	8.26 (1.628)	177 (80.6)	60 (15.6)	74 (23.6)	..... .....
125.58 (93.64)	2524	8.841 (33.467)	0.491 (0.299)	14.20 (2.798)	183 (83.9)	61 (16.1)	75 (23.9)	..... .....
Av 100.94 Av (75.27)	2530	7.765 (29.394)	0.536 (0.326)	13.00 (2.561)	182 (83.2)	60 (15.8)	75 (23.8)	28.897 (97.580)

## 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 (M3) Gear											
163.44 (121.88)	11642 (51.78)	5.26 (8.47)	2399	3.69	11.545 (43.701)	0.493 (0.300)	14.16 (2.789)	187 (85.8)	55 (12.5)	67 (19.2)	28.915 (97.642)
75% of Pull at Maximum Power—Ten Hours 9th (M3) Gear											
130.87 (97.59)	8798 (39.14)	5.58 (8.98)	2512	2.57	9.949 (37.661)	0.530 (0.322)	13.15 (2.591)	182 (83.4)	56 (13.6)	66 (18.8)	28.951 (97.763)
50% of Pull at Maximum Power—Two Hours 9th (M3) Gear											
89.26 (66.56)	5866 (26.09)	5.71 (9.18)	2549	1.76	7.959 (30.129)	0.622 (0.378)	11.21 (2.209)	179 (81.7)	57 (13.9)	60 (15.6)	28.945 (97.743)
50% of Pull at Reduced Engine Speed—Two Hours 13th (H1) Gear											
89.32 (66.60)	5866 (26.09)	5.71 (9.19)	1530	1.58	6.023 (22.800)	0.470 (0.286)	14.83 (2.921)	181 (82.8)	59 (15.0)	64 (17.8)	28.895 (97.574)

## MAXIMUM POWER IN SELECTED GEARS

154.52 (115.23)	18646 (82.94)	3.11 (5.00)	2400	8.93	6th (L6) Gear		181 (82.5)	56 (13.3)	58 (14.4)	28.940 (97.726)
162.73 (121.35)	16001 (71.18)	3.81 (6.14)	2400	6.06	7th (M1) Gear		185 (85.0)	52 (11.1)	63 (17.2)	28.940 (97.726)
164.58 (122.73)	13536 (60.21)	4.56 (7.34)	2400	4.35	8th (M2) Gear		186 (85.3)	52 (11.1)	62 (16.7)	28.940 (97.726)
164.82 (122.91)	11731 (52.18)	5.27 (8.48)	2398	3.52	9th (M3) Gear		186 (85.6)	53 (11.7)	60 (15.6)	28.970 (97.827)
164.43 (122.61)	9879 (43.94)	6.24 (10.04)	2401	2.92	10th (M4) Gear		186 (85.6)	52 (11.1)	63 (17.2)	28.940 (97.726)
162.54 (121.21)	8373 (37.24)	7.28 (11.72)	2400	2.41	11th (M5) Gear		188 (86.4)	52 (11.1)	64 (17.8)	28.940 (97.726)
160.12 (119.40)	6987 (31.08)	8.59 (13.83)	2400	1.80	12th (M6) Gear		187 (86.1)	52 (11.1)	64 (17.8)	28.940 (97.726)

## LUGGING ABILITY IN 9th (M3) GEAR

Crankshaft Speed rpm	2398	2162	1919	1682	1441	1204
Pull—lbs (kN)	11731 (52.18)	13489 (60.00)	14928 (66.40)	15838 (70.45)	15477 (68.85)	13385 (59.54)
Increase in Pull %	0	15	27	35	32	14
Power—Hp (kW)	164.82 (122.91)	169.56 (126.44)	165.14 (123.14)	152.46 (113.69)	127.90 (95.37)	93.55 (69.76)
Speed—Mph (km/h)	5.27 (8.48)	4.71 (7.59)	4.15 (6.68)	3.61 (5.81)	3.10 (4.99)	2.62 (4.22)
Slip %	3.52	4.35	5.18	5.66	5.50	4.52

Department of Agricultural Engineering

Dates of Test: May 26 to June 8, 1982

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

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel Cetane No. 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8375 **Fuel weight** 6.973 lbs/gal (0.836 kg/l) **Oil SAE 30 API service classification** CD/SE **To motor** 4.032 gal (15.262 l) **Drained from motor** 3.722 gal (14.088 l) **Transmission and final drive lubricant** I.H. Hy-tran fluid **Total time engine was operated** 38.5 hours.

**ENGINE:** Make International Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 467BT2U169510\* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 4.30" × 5.35" (109.2 mm × 135.9 mm) **Compression ratio** 16.3 to 1 **Displacement** 466 cu in (7636 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** underhood **Exhaust** vertical **Cooling medium** temperature control one thermostat.

**CHASSIS:** **Type** standard with duals **Serial No.** 2590002U001019\* **Tread width** rear 64" (1625 mm) to 130" (3302 mm) front 62.5" (1588 mm) to 86.5" (2197 mm) **Wheel base** 111.6" (2835 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 26.9" (683 mm) Vertical distance above roadway 38.9" (988 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 powershift **Advertised speeds mph (km/h)** first 1.5 (2.4) second 1.8 (2.8) third 2.0 (3.2) fourth 2.4 (3.8) fifth 2.7 (4.4) sixth 3.2 (5.2) seventh 3.8 (6.1) eighth 4.5 (7.2) ninth 5.1 (8.3) tenth 6.0 (9.7) eleventh 7.0 (11.3) twelfth 8.2 (13.3) thirteenth 8.6 (13.8) fourteenth 10.1 (16.2) fifteenth 11.5 (18.5) sixteenth 13.6 (21.8) seventeenth 15.7 (25.3) eighteenth 18.5 (29.7) reverse 2.9 (4.6), 3.4 (5.4), 3.9 (6.2), 4.5 (7.3), 5.3 (8.5), 6.2 (9.9) **Clutch** wet multiple disc operated by foot pedal with hydraulic power assist **Brakes** wet multiple 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 151.1" (3.84 m) left 151.1" (3.84 m) (on concrete surface without brake) right 199.5" (5.07 m) left 199.5" (5.07 m) **Turning space diameter** (on concrete surface with brake applied) right 316" (8.03 m) left 316" (8.03 m) (on concrete surface without brake) right 412" (10.47 m) left 412" (10.47 m) **Power take-off** 1005 rpm at 2400 engine rpm.

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	78.0
75% of Pull at Maximum Power—Ten Hours	78.5
50% of Pull at Maximum Power—Two Hours	77.0
50% of Pull at Reduced Engine Speed—Two Hours	73.0
Bystander in 17th (H5) gear	86.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Inner Two 20.8R38; 10; 12 (85) Outer Two 20.8R38; 8; 12 (85)	Inner Two 20.8R38; 10; 12 (85) Outer Two 20.8R38; 8; 12 (85)
Ballast	—Liquid (each inner)	995 lb (452 kg)	None
	—Test Equip. (each)	109 lb (49 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 14L-16.1; 6; 28 (195)	Two 14L-16.1; 6; 28 (195)
Ballast	—Test Equip. (each)	130 lb (59 kg)	None
	—Cast Iron (each)	40 lb (18 kg)	None
Height of Drawbar		21.5 in (545 mm)	21.5 in (545 mm)
Static Weight with Operator—Rear		15510 lb (7035 kg)	13085 lb (5935 kg)
—Front		4495 lb (2039 kg)	4155 lb (1885 kg)
—Total		20005 lb (9074 kg)	17240 lb (7820 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 or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 128°F (53.3°C). Seven gears were chosen between stability limit and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1441**.

LOUIS I. LEVITICUS  
Engineer-in-Charge

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



International 5488 Diesel