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Test 1438: International 3288 Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1438 — INTERNATIONAL 3288 DIESEL 16 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—1159 rpm)									
90.46 (67.46)	2400	6.065 (22.959)	0.467 (0.284)	14.92 (2.938)	187 (85.9)	58 (14.4)	75 (23.8)	29.073 (98.176)	
Standard Power Take-off Speed (1000 rpm)—One Hour									
88.33 (65.87)	2071	5.540 (20.971)	0.437 (0.266)	15.94 (3.141)	190 (87.7)	57 (14.1)	76 (24.2)	29.060 (98.131)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
81.08 (60.46)	2528	5.645 (21.369)	0.485 (0.295)	14.36 (2.829)	184 (84.2)	58 (14.2)	76 (24.4)	..... .....
0.00 (0.00)	2670	2.207 (8.354)	..... .....	..... .....	175 (79.4)	57 (13.9)	76 (24.2)	..... .....
41.48 (30.93)	2596	3.760 (14.233)	0.632 (0.385)	11.03 (2.173)	180 (82.2)	58 (14.4)	76 (24.4)	..... .....
90.79 (67.70)	2400	6.088 (23.046)	0.468 (0.284)	14.91 (2.938)	187 (86.1)	57 (13.9)	76 (24.2)	..... .....
21.33 (15.91)	2650	2.994 (11.334)	0.979 (0.595)	7.12 (1.404)	176 (80.3)	57 (13.9)	76 (24.2)	..... .....
61.68 (45.99)	2567	4.664 (17.655)	0.527 (0.321)	13.23 (2.605)	182 (83.3)	58 (14.2)	78 (25.3)	..... .....
Av Av	49.39 (36.83)	2569	4.226 (15.997)	0.597 (0.363)	11.69 (2.302)	181 (82.6)	57 (14.1)	76 (24.4)	29.040 (98.064)

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 8th (H1) Gear											
79.71 (59.44)	5792 (25.76)	5.16 (8.31)	2401	4.36	6.059 (22.936)	0.530 (0.322)	13.16 (2.591)	189 (87.2)	63 (17.2)	79 (26.1)	28.910 (97.625)
75% of Pull at Maximum Power—Ten Hours 8th (H1) Gear											
64.36 (47.99)	4391 (19.53)	5.50 (8.85)	2529	3.37	5.227 (19.788)	0.566 (0.345)	12.31 (2.425)	182 (83.1)	63 (17.4)	66 (18.7)	28.699 (96.912)
50% of Pull at Maximum Power—Two Hours 8th (H1) Gear											
43.83 (32.69)	2928 (13.02)	5.61 (9.03)	2554	2.22	4.266 (16.150)	0.679 (0.413)	10.27 (2.024)	179 (81.7)	55 (12.5)	61 (15.8)	28.905 (97.608)
50% of Pull at Reduced Engine Speed—Two Hours 12th (H4) Gear											
43.90 (32.74)	2928 (13.02)	5.62 (9.05)	1636	2.26	3.209 (12.147)	0.510 (0.310)	13.68 (2.695)	180 (82.2)	56 (13.1)	64 (17.5)	28.955 (97.777)
MAXIMUM POWER IN SELECTED GEARS											
66.08 (49.27)	11486 (51.09)	2.16 (3.47)	2518	14.79	4th (L4) Gear			182 (83.3)	54 (12.2)	59 (15.0)	28.880 (97.523)
77.61 (57.87)	8853 (39.38)	3.29 (5.29)	2401	7.86	5th (L5) Gear			185 (84.7)	62 (16.7)	77 (25.0)	28.970 (97.827)
78.33 (58.41)	7460 (33.18)	3.94 (6.34)	2400	6.09	6th (L6) Gear			186 (85.6)	62 (16.7)	76 (24.4)	28.970 (97.827)
78.41 (58.47)	6512 (28.96)	4.52 (7.27)	2400	5.04	7th (L7) Gear			188 (86.4)	61 (16.1)	74 (23.3)	28.950 (97.760)
80.46 (60.00)	5855 (26.04)	5.15 (8.29)	2399	4.46	8th (H1) Gear			187 (86.1)	60 (15.6)	72 (22.2)	28.930 (97.692)
78.87 (58.81)	5523 (24.57)	5.36 (8.62)	2398	4.18	9th (L8) Gear			189 (87.2)	62 (16.7)	75 (23.9)	28.960 (97.794)
80.72 (60.19)	4952 (22.03)	6.11 (9.84)	2401	3.67	10th (H2) Gear			189 (87.2)	62 (16.7)	77 (25.0)	28.970 (97.827)
80.09 (59.72)	4320 (19.21)	6.95 (11.19)	2400	3.15	11th (H3) Gear			188 (86.4)	62 (16.7)	77 (25.0)	28.950 (97.760)
78.74 (58.71)	3593 (15.98)	8.22 (13.23)	2399	2.56	12th (H4) Gear			190 (87.8)	62 (16.7)	78 (25.6)	28.940 (97.726)

Department of Agricultural Engineering

Dates of Test: June 4-11, 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 2.492 gal (9.432 l) Drained from motor 2.544 gal (9.629 l) Transmission and final drive lubricant I.H. Hytran fluid Total time engine was operated 38.5 hours.

ENGINE: Make International Diesel Type six cylinder vertical Serial No. 358DT2D110636* Crankshaft lengthwise Rated rpm 2400 Bore and stroke 3.875" × 5.062" (98.4 mm × 128.6 mm) Compression ratio 14.8 to 1 Displacement 358 cu in (5866 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements with aspirator Oil filter one full flow cartridge 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. 252000 2U001085* Tread width rear 66" (1676 mm) to 113.5" (2883 mm) front 60" (1524 mm) to 84" (2134 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 28.0" (711 mm) Vertical distance above roadway 38.3" (973 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 (2.9) third 2.0 (3.2) fourth 2.4 (3.8) fifth 3.5 (5.6) sixth 4.1 (6.6) seventh 4.7 (7.5) eighth 5.3 (8.5) ninth 5.5 (8.8) tenth 6.2 (10.0) eleventh 7.0 (11.3) twelfth 8.3 (13.3) thirteenth 12.2 (19.6) fourteenth 14.3 (23.1) fifteenth 16.3 (26.2) sixteenth 19.1 (30.8) reverse 2.6 (4.2), 3.1 (4.9), 3.5 (5.6), 4.1 (6.5) 6.0 (9.7) 7.0 (11.3) 8.0 (12.9) 9.4 (15.1) Clutch single dry disc hydraulically power actuated and operated by foot pedal 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 142.8" (3.63 m) left 142.8" (3.63 m) (on concrete surface without brake) right 174.6" (4.43 m) left 174.6" (4.43 m) Turning space diameter (on concrete surface with brake applied) right 301.4" (7.66 m) left 301.4" (7.66 m) (on concrete surface without brake) right 365.2" (9.28 m) left 365.2" (9.28 m) Power take-off 540 rpm at 2106 engine rpm and 1000 rpm at 2071 engine rpm.

LUGGING ABILITY IN 8th (H1) GEAR

Crankshaft Speed rpm	2399	2161	1920	1681	1440	1202	957
Pull—lbs (kN)	5855 (26.04)	6400 (28.47)	6838 (30.42)	7111 (31.63)	7148 (31.80)	7199 (32.02)	7183 (31.95)
Increase in Pull %	0	9	17	21	22	23	23
Power—Hp (kW)	80.46 (60.00)	78.84 (58.79)	74.51 (55.56)	67.61 (50.41)	58.14 (43.35)	48.84 (36.42)	38.79 (28.92)
Speed—Mph (km/h)	5.15 (8.29)	4.62 (7.43)	4.09 (6.58)	3.57 (5.74)	3.05 (4.91)	2.54 (4.09)	2.03 (3.26)
Slip %	4.46	4.96	5.39	5.67	5.81	5.81	5.95

TRACTOR SOUND LEVEL WITH CAB

dB(A)

Maximum Available Power—Two Hours	79.0
75% of Pull at Maximum Power—Ten Hours	80.5
50% of Pull at Maximum Power—Two Hours	80.0
50% of Pull at Reduced Engine Speed—Two Hours	77.0
Bystander in 15th (H7) gear	86.5

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 18.4-34; 6; 12 (85)	Four 18.4-34; 6; 12 (85)
Ballast	—Liquid (each inner)	568 lb (258 kg)	None
	—Test Equip (each)	100 lb (45 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 9.5L-15; 6; 36 (250)	Two 9.5L-15; 6; 36 (250)
Ballast	—Test Equip (each)	87 lb (40 kg)	None
	—Cast Iron (each)	45 lb (20 kg)	None
Height of Drawbar		19 in (485 mm)	19 in (485 mm)
Static Weight with Operator—Rear		10155 lb (4606 kg)	8620 lb (3910 kg)
	—Front	3405 lb (1545 kg)	3140 lb (1424 kg)
	—Total	13560 lb (6151 kg)	11760 lb (5334 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. During inspection light pitting on the exhaust valves of cylinders 5 and 6 was found. For the maximum power tests, the fuel temperature at the injection pump was maintained at 118°F (47.8°C). Nine 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 **1438**.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



International 3288 Diesel