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Test 1420: International 5288 Diesel 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1420 — INTERNATIONAL 5288 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) | | | | | | | | |
| 162.60 (121.25) | 2400 | 10.120 (38.308) | 0.429 (0.261) | 16.07 (3.165) | 188 (86.4) | 50 (10.2) | 75 (23.8) | 29.177 (98.525) |

| | | | | | | | | |
|---|-------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------|----------------------------|----------------------------|----------------------------------|
| VARYING POWER AND FUEL CONSUMPTION—Two Hours | | | | | | | | |
| 141.13 (105.24) | 2451 | 9.173 (34.724) | 0.448 (0.272) | 15.39 (3.031) | 187 (85.8) | 51 (10.3) | 74 (23.3) | |
| 0.00 (0.00) | 2646 | 3.339 (12.639) | | | 182 (83.3) | 51 (10.3) | 75 (23.6) | |
| 73.66 (54.93) | 2557 | 6.278 (23.765) | 0.587 (0.357) | 11.73 (2.311) | 184 (84.4) | 51 (10.6) | 76 (24.2) | |
| 162.12 (120.89) | 2400 | 10.109 (38.267) | 0.430 (0.261) | 16.04 (3.159) | 189 (86.9) | 51 (10.6) | 76 (24.2) | |
| 37.41 (27.90) | 2606 | 4.802 (18.178) | 0.885 (0.538) | 7.79 (1.535) | 182 (83.3) | 51 (10.6) | 75 (23.9) | |
| 108.20 (80.68) | 2508 | 7.719 (29.220) | 0.492 (0.299) | 14.02 (2.761) | 184 (84.2) | 51 (10.6) | 75 (23.6) | |
| Av 87.09 Av (64.94) | 2528 | 6.903 (26.131) | 0.546 (0.332) | 12.62 (2.485) | 184 (84.7) | 51 (10.4) | 75 (23.8) | 29.107 (98.289) |

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 | | | | | | | | | | | |
| 137.63 (102.63) | 9801 (43.60) | 5.27 (8.47) | 2399 | 3.07 | 10.049 (38.041) | 0.503 (0.306) | 13.70 (2.698) | 180 (82.2) | 46 (7.8) | 51 (10.3) | 28.495 (96.223) |
| 75% of Pull at Maximum Power—Ten Hours 9th (M3) Gear | | | | | | | | | | | |
| 111.43 (83.09) | 7605 (33.83) | 5.49 (8.84) | 2485 | 2.30 | 8.729 (33.042) | 0.540 (0.328) | 12.77 (2.515) | 178 (81.2) | 33 (0.3) | 36 (2.3) | 28.973 (97.837) |
| 50% of Pull at Maximum Power—Two Hours 9th (M3) Gear | | | | | | | | | | | |
| 76.85 (57.31) | 5092 (22.65) | 5.66 (9.11) | 2541 | 1.56 | 7.147 (27.054) | 0.641 (0.390) | 10.75 (2.118) | 176 (79.7) | 42 (5.6) | 46 (7.8) | 28.770 (97.152) |
| 50% of Pull at Reduced Engine Speed—Two Hours 13th (H1) Gear | | | | | | | | | | | |
| 76.64 (57.15) | 5083 (22.61) | 5.65 (9.10) | 1524 | 1.51 | 5.333 (20.188) | 0.480 (0.292) | 14.37 (2.831) | 176 (80.0) | 46 (7.5) | 53 (11.7) | 28.760 (97.118) |

MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | | |
|--------------------|------------------|-----------------|------|-------|----------------|--|---------------|--------------|--------------|--------------------|
| 117.48 (87.60) | 17577 (78.19) | 2.51 (4.03) | 2431 | 14.27 | 5th (L5) Gear | | 181 (82.5) | 56 (13.3) | 65 (18.3) | 28.410 (95.936) |
| 136.62 (101.88) | 16175 (71.95) | 3.17 (5.10) | 2400 | 6.59 | 6th (L6) Gear | | 181 (82.5) | 56 (13.3) | 65 (18.3) | 28.400 (95.903) |
| 141.22 (105.31) | 13775 (61.28) | 3.84 (6.19) | 2399 | 4.57 | 7th (M1) Gear | | 181 (82.5) | 56 (13.3) | 65 (18.3) | 28.400 (95.903) |
| 141.14 (105.25) | 11589 (51.55) | 4.57 (7.35) | 2398 | 3.57 | 8th (M2) Gear | | 181 (82.8) | 56 (13.3) | 63 (17.2) | 28.390 (95.869) |
| 142.37 (106.16) | 10133 (45.08) | 5.27 (8.48) | 2399 | 2.90 | 9th (M3) Gear | | 181 (82.8) | 55 (12.8) | 60 (15.6) | 28.380 (95.835) |
| 140.74 (104.95) | 8494 (37.78) | 6.21 (10.00) | 2398 | 2.64 | 10th (M4) Gear | | 181 (82.8) | 56 (13.3) | 65 (18.3) | 28.400 (95.903) |
| 139.32 (103.89) | 7201 (32.03) | 7.26 (11.68) | 2399 | 2.12 | 11th (M5) Gear | | 182 (83.3) | 55 (12.8) | 64 (17.8) | 28.410 (95.936) |
| 136.23 (101.59) | 5968 (26.55) | 8.56 (13.78) | 2400 | 1.77 | 12th (M6) Gear | | 181 (82.5) | 55 (12.8) | 64 (17.8) | 28.410 (95.936) |

LUGGING ABILITY IN 9th (M3) GEAR

| | | | | | | | |
|----------------------|--|--------------------|--------------------|--------------------|-------------------|-------------------|------------------|
| Crankshaft Speed rpm | | 2399 | 2158 | 1919 | 1675 | 1426 | 1201 |
| Pull—lbs (kN) | | 10133 (45.08) | 11420 (50.80) | 12410 (55.20) | 12936 (57.54) | 12297 (54.70) | 11250 (50.04) |
| Increase in Pull % | | 0 | 13 | 22 | 28 | 21 | 11 |
| Power—Hp (kW) | | 142.37 (106.16) | 143.57 (107.06) | 138.20 (103.06) | 125.32 (93.45) | 101.66 (75.81) | 78.69 (58.68) |
| Speed—Mph (km/h) | | 5.27 (8.48) | 4.71 (7.59) | 4.18 (6.72) | 3.63 (5.85) | 3.10 (4.99) | 2.62 (4.22) |
| Slip % | | 2.90 | 3.41 | 3.91 | 4.24 | 3.91 | 3.41 |

Department of Agricultural Engineering

Dates of Test: November 13-24, 1981

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 46.3 (rating taken from oil company's inspection data) Specific gravity converted to 60°/60° (15°/15°) 0.8276 Fuel weight 6.891 lbs/gal (0.826 kg/l) Oil SAE 30 API service classification CD/SE To motor 4.156 gal (15.731 l) Drained from motor 3.547 gal (13.428 l) Transmission and final drive lubricant I.H. Hytran fluid Total time engine was operated 40.5 hours

ENGINE: Make International Diesel Type six cylinder vertical with turbocharger Serial No. 467TT2U160101* Crankshaft lengthwise Rated rpm 2400 Bore and stroke 4.30" × 5.35" (109.2 mm × 135.9 mm) Compression ratio 15.4 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. 2580002U000942* Tread width rear 64" (1625 mm) to 128" (3250 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 27.3" (693 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 1.7 (2.8) third 2.0 (3.2) fourth 2.3 (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 8.5 (13.7) fourteenth 10.0 (16.1) fifteenth 11.5 (18.6) sixteenth 13.5 (21.7) seventeenth 15.6 (25.2) eighteenth 18.4 (29.6) reverse 2.9 (4.6), 3.3 (5.4), 3.8 (6.2), 4.5 (7.3), 5.2 (8.4), 6.1 (9.9) Clutch multiple wet disc operated by foot pedal with hydraulic power assist Brakes multiple 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 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 412.8" (10.49 m) left 412.8" (10.49 m) Power take-off 1005 rpm at 2400 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CAB

| | dB(A) |
|---|-------|
| Maximum Available Power—Two Hours | 77.0 |
| 75% of Pull at Maximum Power—Ten Hours | 77.5 |
| 50% of Pull at Maximum Power—Two Hours | 77.5 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 73.5 |
| Bystander in 18th (H6) gear | 86.0 |

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 | 760 lb (345 kg) | None |
| —Liquid (each inner) | None | None |
| —Cast Iron (each) | None | None |
| Front Tires | | |
| —No., size, ply & psi (kPa) | Two 14L-16.1; 6; 28 (195) | Two 14L-16.1; 6; 28 (195) |
| Ballast | None | None |
| —Liquid (each) | 5 lb (2 kg) | None |
| —Test equip. (each) | | |
| Height of Drawbar | 20.5 in (520 mm) | 20.5 in (520 mm) |
| Static Weight with Operator—Rear | 14425 lb (6543 kg) | 12905 lb (5854 kg) |
| —Front | 4160 lb (1887 kg) | 4150 lb (1882 kg) |
| —Total | 18585 lb (8430 kg) | 17055 lb (7736 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 return was maintained at 128°F (53.3°C). Eight 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 **1420**.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



International 5288 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
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