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Test 1287: White Field Boss 2-180 Diesel 18-Speed

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NEBRASKA TRACTOR TEST 1287 — WHITE FIELD BOSS 2-180 DIESEL ALSO WHITE FARM EQUIPMENT 2-180 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—1000 rpm) | | | | | | | | |
|---|------|--------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 181.89 (135.64) | 2800 | 12.649 (47.882) | 0.483 (0.294) | 14.38 (2.833) | 183 (83.8) | 58 (14.3) | 75 (24.0) | 28.940 (97.726) |

VARYING POWER AND FUEL CONSUMPTION—Two Hours

| | | | | | | | | |
|--------------------------------------|-------------|---------------------------------|--------------------------------|--------------------------------|-----------------------------|----------------------------|----------------------------|----------------------------------|
| 158.62 (118.28) | 2874 | 11.062 (41.874) | 0.484 (0.294) | 14.34 (2.825) | 180 (82.5) | 57 (13.9) | 74 (23.3) | |
| 0.00 (0.00) | 3024 | 4.357 (16.494) | | | 174 (78.6) | 58 (14.2) | 74 (23.6) | |
| 81.95 (61.11) | 2965 | 7.414 (28.063) | 0.628 (0.382) | 11.05 (2.177) | 178 (81.1) | 58 (14.4) | 76 (24.2) | |
| 182.98 (136.45) | 2800 | 12.558 (47.536) | 0.476 (0.290) | 14.57 (2.870) | 184 (84.2) | 58 (14.4) | 76 (24.7) | |
| 41.21 (30.73) | 2993 | 5.818 (22.025) | 0.980 (0.596) | 7.08 (1.395) | 175 (79.4) | 58 (14.4) | 75 (23.9) | |
| 121.05 (90.27) | 2924 | 9.048 (34.249) | 0.519 (0.316) | 13.38 (2.636) | 180 (81.9) | 58 (14.4) | 76 (24.2) | |
| Av 97.63 Av (72.81) | 2930 | 8.376 (31.707) | 0.595 (0.362) | 11.66 (2.296) | 178 (81.3) | 58 (14.3) | 75 (24.0) | 28.973 (97.839) |

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 11th (4D) Gear

| | | | | | | | | | | | |
|--------------------|-----------------|-----------------|------|------|--------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 158.97 (118.55) | 9157 (40.73) | 6.51 (10.48) | 2799 | 5.39 | 12.374 (46.840) | 0.540 (0.329) | 12.85 (2.531) | 182 (83.3) | 56 (13.1) | 72 (21.9) | 29.265 (98.824) |
|--------------------|-----------------|-----------------|------|------|--------------------|------------------|------------------|---------------|--------------|--------------|--------------------|

75% of Pull at Maximum Power—Ten Hours 11th (4D) Gear

| | | | | | | | | | | | |
|-------------------|-----------------|-----------------|------|------|--------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 129.81 (96.80) | 7083 (31.51) | 6.87 (11.06) | 2910 | 3.89 | 10.403 (39.381) | 0.556 (0.338) | 12.48 (2.458) | 179 (81.4) | 53 (11.4) | 63 (17.3) | 29.190 (98.570) |
|-------------------|-----------------|-----------------|------|------|--------------------|------------------|------------------|---------------|--------------|--------------|--------------------|

50% of Pull at Maximum Power—Two Hours 11th (4D) Gear

| | | | | | | | | | | | |
|------------------|-----------------|-----------------|------|------|-------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 88.86 (66.26) | 4712 (20.96) | 7.07 (11.38) | 2958 | 2.87 | 8.411 (31.841) | 0.657 (0.400) | 10.56 (2.081) | 176 (80.0) | 53 (11.4) | 62 (16.4) | 29.330 (99.043) |
|------------------|-----------------|-----------------|------|------|-------------------|------------------|------------------|---------------|--------------|--------------|--------------------|

50% of Pull at Reduced Engine Speed—Two Hours 15th (5O) Gear

| | | | | | | | | | | | |
|------------------|-----------------|-----------------|------|------|-------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 88.93 (66.31) | 4722 (21.00) | 7.06 (11.37) | 1683 | 2.60 | 5.908 (22.363) | 0.461 (0.280) | 15.05 (2.965) | 178 (81.1) | 55 (12.8) | 69 (20.6) | 29.315 (98.992) |
|------------------|-----------------|-----------------|------|------|-------------------|------------------|------------------|---------------|--------------|--------------|--------------------|

MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | | | |
|--------------------|------------------|-----------------|------|-------|----------------|--|--|---------------|--------------|--------------|--------------------|
| 142.88 (106.54) | 15499 (68.94) | 3.46 (5.56) | 2876 | 14.92 | 5th (2D) Gear | | | 178 (81.1) | 47 (8.3) | 52 (11.1) | 29.180 (98.536) |
| 148.25 (110.55) | 14893 (66.25) | 3.73 (6.01) | 2798 | 14.23 | 6th (3U) Gear | | | 181 (82.5) | 49 (9.4) | 55 (12.8) | 29.300 (98.942) |
| 154.07 (114.89) | 13681 (60.86) | 4.22 (6.80) | 2796 | 10.54 | 7th (2O) Gear | | | 181 (82.8) | 50 (10.0) | 56 (13.3) | 29.060 (98.131) |
| 160.45 (119.64) | 12466 (55.45) | 4.83 (7.77) | 2800 | 8.53 | 8th (3D) Gear | | | 182 (83.1) | 51 (10.6) | 57 (13.9) | 29.070 (98.165) |
| 160.34 (119.57) | 11396 (50.69) | 5.28 (8.49) | 2799 | 7.17 | 9th (4U) Gear | | | 181 (82.8) | 51 (10.6) | 57 (13.9) | 29.070 (98.165) |
| 158.43 (118.14) | 10041 (44.67) | 5.92 (9.52) | 2799 | 6.02 | 10th (3O) Gear | | | 181 (82.8) | 52 (11.1) | 58 (14.4) | 29.080 (98.199) |
| 163.64 (122.03) | 9439 (41.99) | 6.50 (10.46) | 2799 | 5.43 | 11th (4D) Gear | | | 181 (82.8) | 51 (10.6) | 57 (13.9) | 29.070 (98.165) |
| 160.31 (119.55) | 7644 (34.00) | 7.86 (12.66) | 2800 | 4.32 | 12th (4O) Gear | | | 181 (82.8) | 51 (10.6) | 57 (13.9) | 29.070 (98.165) |
| 163.59 (121.99) | 7665 (34.09) | 8.00 (12.88) | 2800 | 4.23 | 13th (5U) Gear | | | 181 (82.8) | 51 (10.6) | 57 (13.9) | 29.070 (98.165) |

Department of Agricultural Engineering

Dates of Test: September 15-23, 1978

Manufacturer: WHITE FARM EQUIPMENT CO., 2625 Butterfield Road, Oak Brook, Illinois 60521

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 50.4 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° (15°/15°) 0.8335 Fuel weight 6.940 lbs/gal (0.832 kg/l) Oil SAE 30 API service classification SB/SE-CA/CD To motor 3.184 gal (12.051 l) Drained from motor 1.468 gal (5.556 l) Transmission and final drive lubricant Universal tractor hydraulic-transmission fluid Total time engine was operated 35.5 hours

ENGINE Make Caterpillar Diesel **Type** 8 cylinder vee **Serial No.** 90N 27936 **Crankshaft** lengthwise **Rated rpm** 2800 **Bore and stroke** 4.5" × 5.0" (114 mm × 127 mm) **Compression ratio** 16.5 to 1 **Displacement** 636 cu in (10424 ml) **Cranking system** 12 volt **Lubrication** pressure **Air cleaner** primary and safety paper elements with aspirator **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** 2 thermostats.

CHASSIS: Type standard with duals **Serial No.** 282706-417 **Tread width** rear 63" (1600 mm) to 126" (3200 mm) front 61" (1549 mm) to 81" (2057 mm) **Wheel base** 112" (2845 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 33.9" (861 mm) Vertical distance above roadway 44.7" (1135 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 (3) range operator controlled power shift **Advertised speeds mph (km/h)** first 2.4 (3.8) second 2.8 (4.5) third 3.2 (5.1) fourth 3.5 (5.6) fifth 3.8 (6.1) sixth 4.1 (6.6) seventh 4.5 (7.2) eighth 5.1 (8.2) ninth 5.5 (8.8) tenth 6.0 (9.7) eleventh 6.6 (10.6) twelfth 7.8 (12.6) thirteenth 8.0 (12.9) fourteenth 9.7 (15.6) fifteenth 11.5 (18.5) sixteenth 14.0 (22.5) seventeenth 16.8 (27.0) eighteenth 20.1 (32.3) reverse 2.8 (4.5), 3.4 (5.5), 4.0 (6.4), 4.9 (7.9), 5.9 (9.5), 7.0 (11.3) **Clutch** 2 dry discs operated by foot pedal **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 150" (3.81 m) left 153" (3.89 m) (on concrete surface without brake) right 171" (4.34 m) left 174" (4.42 m) **Turning space diameter** (on concrete surface with brake applied) right 312" (7.93 m) left

LUGGING ABILITY IN 11th (4-D) GEAR

| | | | | | | | |
|----------------------|--------------------|--------------------|--------------------|--------------------|-------------------|-------------------|------------------|
| Crankshaft Speed rpm | 2799 | 2528 | 2246 | 1961 | 1679 | 1397 | 1111 |
| Pull—lbs (kN) | 9439 (41.99) | 10225 (45.48) | 11066 (49.22) | 11736 (52.20) | 12491 (55.56) | 12963 (57.66) | 12940 (57.56) |
| Increase in Pull % | 0 | 8 | 17 | 24 | 32 | 37 | 37 |
| Power—Hp (kW) | 163.64 (122.03) | 159.11 (118.65) | 151.30 (112.82) | 139.56 (104.07) | 125.81 (93.81) | 107.84 (80.41) | 85.30 (63.61) |
| Speed—Mph (km/h) | 6.50 (10.46) | 5.84 (9.39) | 5.13 (8.25) | 4.46 (7.18) | 3.78 (6.08) | 3.12 (5.02) | 2.47 (3.98) |
| Slip % | 5.43 | 6.10 | 7.09 | 7.41 | 8.53 | 9.00 | 9.62 |

TRACTOR SOUND LEVEL WITH CAB dB(A)

| | |
|---|------|
| Maximum Available Power—Two Hours | 81.0 |
| 75% of Pull at Maximum Power—Ten Hours | 82.5 |
| 50% of Pull at Maximum Power—Two Hours | 83.5 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 79.0 |
| Bystander in 18th (6O) gear | 93.5 |

TIRES, BALLAST AND WEIGHT

| | |
|--------------------|------------------------------|
| Rear Tires | —No., size, ply & psi (kPa) |
| Ballast | —Liquid —Cast Iron (each) |
| Front Tires | —No., size, ply & psi (kPa) |
| Ballast | —Liquid —Cast Iron |

Tested Without Ballast

| |
|-----------------------------|
| Four 20.8-42; 10; 12 (85) |
| None |
| None |
| Two 16.5L-16.1; 8; 32 (220) |
| None |
| None |
| 23.5 in (595 mm) |
| 13620 lb (6178 kg) |
| 4660 lb (2114 kg) |
| 18280 lb (8292 kg) |

Height of Drawbar

| | |
|---|--|
| Static Weight with Operator—Rear | |
| Front | |
| Total | |

318" (8.08 m) (on concrete surface without brake) right 354" (8.99 m) left 360" (9.14 m) **Power take-off** 1000 rpm at 2800 engine rpm.

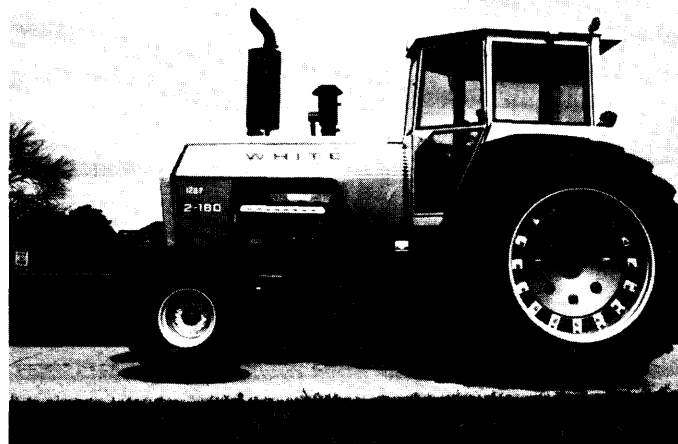
REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code of official Nebraska test procedure. Temperature at injection pump was 164°F (73.5°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 No. **1287.**

LOUIS I. LEVITICUS
Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



White Field Boss 2-180 Diesel