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Test 1275: White Field Boss 2-135 Diesel 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1275 — WHITE FIELD BOSS 2-135 DIESEL ALSO WHITE FARM EQUIPMENT 2-135 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—1015 rpm) | | | | | | | | |
| 137.64 (102.64) | 2200 | 9.403 (35.595) | 0.473 (0.288) | 14.64 (2.884) | 187 (86.1) | 60 (15.6) | 76 (24.4) | 28.850 (97.422) | |
| | Standard Power Take-Off Speed (1000 rpm)—One Hour | | | | | | | | |
| 138.03 (102.93) | 2167 | 9.260 (35.053) | 0.464 (0.282) | 14.91 (2.936) | 188 (86.4) | 61 (16.0) | 78 (25.6) | 28.825 (97.338) | |
| VARYING POWER AND FUEL CONSUMPTION—Two Hours— | | | | | | | | | |
| 121.12 (90.32) | 2278 | 8.767 (33.187) | 0.501 (0.305) | 13.81 (2.721) | 186 (85.6) | 62 (16.4) | 80 (26.4) | | |
| 0.00 (0.00) | 2388 | 3.230 (12.228) | | | 175 (79.4) | 62 (16.7) | 80 (26.7) | | |
| 62.43 (46.55) | 2346 | 5.949 (22.519) | 0.659 (0.401) | 10.49 (2.067) | 179 (81.7) | 62 (16.7) | 82 (27.5) | | |
| 138.60 (103.35) | 2200 | 9.392 (35.551) | 0.469 (0.285) | 14.76 (2.907) | 188 (86.9) | 62 (16.7) | 82 (27.5) | | |
| 31.50 (23.49) | 2368 | 4.505 (17.053) | 0.989 (0.602) | 6.99 (1.378) | 176 (80.0) | 62 (16.7) | 82 (27.8) | | |
| 92.65 (69.09) | 2322 | 7.358 (27.853) | 0.549 (0.344) | 12.59 (2.481) | 184 (84.2) | 63 (17.2) | 83 (28.3) | | |
| Av | 74.38 | 2317 | 6.533 | 0.608 | 11.38 | 181 | 62 | 81 | 28.790 |
| Av | (55.47) | | (24.732) | (0.370) | (2.243) | (83.0) | (16.7) | (27.4) | (97.220) |

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 (4-D) Gear | | | | | | | | | | | |
| 113.67 (84.77) | 7378 (32.82) | 5.78 (9.30) | 2199 | 6.82 | 9.232 (34.946) | 0.562 (0.342) | 12.31 (2.426) | 186 (85.6) | 62 (16.4) | 71 (21.7) | 28.615 (96.629) |
| 75% of Pull at Maximum Power—Ten Hours 11th (4-D) Gear | | | | | | | | | | | |
| 93.46 (69.69) | 5666 (25.20) | 6.19 (9.95) | 2309 | 5.01 | 8.184 (30.980) | 0.606 (0.369) | 11.42 (2.250) | 179 (81.4) | 55 (12.7) | 60 (15.3) | 28.640 (96.713) |
| 50% of Pull at Maximum Power—Two Hours 11th (4-D) Gear | | | | | | | | | | | |
| 64.52 (48.11) | 3786 (16.84) | 6.39 (10.29) | 2342 | 3.28 | 6.630 (25.098) | 0.711 (0.432) | 9.73 (1.917) | 178 (80.8) | 63 (17.2) | 75 (23.6) | 28.590 (96.544) |
| 50% of Pull at Reduced Engine Speed—Two Hours 14th (5-D) Gear | | | | | | | | | | | |
| 64.91 (48.40) | 3817 (16.98) | 6.38 (10.26) | 1561 | 3.60 | 5.095 (19.285) | 0.543 (0.330) | 12.74 (2.510) | 176 (79.7) | 60 (15.3) | 70 (21.1) | 28.750 (97.084) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | | | |
| 107.09 (79.86) | 11907 (52.97) | 3.37 (5.43) | 2212 | 14.97 | 6th (3-U) Gear | | | 179 (81.7) | 48 (8.9) | 55 (12.8) | 28.820 (97.321) |
| 109.16 (81.40) | 10648 (47.37) | 3.84 (6.19) | 2199 | 12.09 | 7th (2-O) Gear | | | 186 (85.3) | 64 (17.8) | 75 (23.9) | 28.610 (96.612) |
| 113.77 (84.84) | 9975 (44.37) | 4.28 (6.88) | 2200 | 10.01 | 8th (3-D) Gear | | | 185 (84.7) | 64 (17.8) | 75 (23.9) | 28.630 (96.679) |
| 114.23 (85.18) | 9100 (40.48) | 4.71 (7.58) | 2199 | 8.64 | 9th (4-U) Gear | | | 186 (85.3) | 64 (17.8) | 75 (23.9) | 28.630 (96.679) |
| 113.65 (84.75) | 8065 (35.88) | 5.28 (8.50) | 2200 | 7.39 | 10th (3-O) Gear | | | 186 (85.6) | 63 (17.2) | 75 (23.9) | 28.630 (96.679) |
| 116.42 (86.82) | 7551 (33.59) | 5.78 (9.31) | 2200 | 6.86 | 11th (4-D) Gear | | | 187 (86.1) | 62 (16.7) | 74 (23.3) | 28.640 (96.713) |
| 115.47 (86.11) | 6159 (27.40) | 7.03 (11.31) | 2198 | 5.39 | 12th (4-O) Gear | | | 187 (85.8) | 64 (17.8) | 75 (23.9) | 28.620 (96.645) |
| 116.79 (87.09) | 5970 (26.56) | 7.34 (11.81) | 2200 | 5.16 | 13th (5-U) Gear | | | 187 (86.1) | 64 (17.8) | 75 (23.9) | 28.620 (96.645) |
| 117.67 (87.75) | 4940 (21.98) | 8.93 (14.37) | 2201 | 4.28 | 14th (5-D) Gear | | | 185 (85.0) | 64 (17.8) | 75 (23.9) | 28.610 (96.612) |

Department of Agricultural Engineering

Dates of Test: May 9 to May 18, 1978

Manufacturer: WHITE FARM EQUIPMENT
Company, 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°) 0.8310 Fuel weight 6.919 lbs/
gal (0.829 kg/l) Oil SAE 30 API service classifi-
cation SB/SE - CA/CD To motor 3.874 gal (14.663
l) Drained from motor 3.637 gal (13.766 l)
Transmission and final drive lubricant Universal
tractor hydraulic and transmission fluid Total
time engine was operated 40.5 hours

ENGINE: Make White Diesel Type 6 cylinder
vertical with turbocharger Serial No. 4005003
Crankshaft lengthwise Rated rpm 2200 Bore and
stroke 4.56" x 4.87" (115.8 mm x 123.7 mm) Com-
pression ratio 17.0 to 1 Displacement 478 cu in
(7834 ml) Cranking system 12 volt Lubrication
pressure Air cleaner primary and secondary
paper elements with aspirator Oil filter two full
flow paper spin-on cartridges 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 thermostat

CHASSIS: Type standard Serial No. 278517-
415 Tread width rear 63" (1600 mm) to 126" (3200
mm) front 60" (1524 mm) to 84" (2134 mm) Wheel
base 113" (2870 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 31.3" (795 mm) Vertical distance above
roadway 41.6" (1056 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 **Adver-**
tised speeds mph (km/h) first 2.2 (3.5) second 2.6
(4.2) third 2.8 (4.5) fourth 3.1 (5.0) fifth 3.4 (5.5)
sixth 3.7 (5.9) seventh 4.1 (6.6) eighth 4.4 (7.1)
ninth 4.8 (7.7) tenth 5.3 (8.5) eleventh 5.8 (9.3)
twelfth 7.0 (11.3) thirteenth 7.2 (11.6) fourteenth
8.7 (14.0) fifteenth 10.4 (16.7) sixteenth 12.3 (19.8)
seventeenth 14.8 (23.8) eighteenth 17.8 (28.6) re-
verse 2.5 (4.0), 3.0 (4.8), 3.6 (5.8), 4.3 (6.9), 5.2
(8.4), 6.2 (10.0) Clutch single dry disc operated by
foot pedal Brakes single wet disc hydraulically
power actuated by two foot pedals which can be
locked together Steering hydrostatic Turning
radius (on concrete surface with brake applied)
right 146" (3.71 m) left 146" (3.71 m) (on concrete
surface without brake) right 165" (4.19 m) left 165"
(4.19 m) Turning space diameter (on concrete sur-
face with brake applied) right 298" (7.58 m) left
298" (7.58 m) (on concrete surface without brake)

LUGGING ABILITY IN 11th (4-D) GEAR

| Crankshaft Speed rpm | 2200 | 1979 | 1753 | 1544 | 1316 | 1094 |
|----------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|
| Pull—lbs (kN) | 7551 (33.59) | 8239 (36.65) | 8949 (39.81) | 9143 (40.67) | 8987 (39.98) | 8403 (37.38) |
| Increase in Pull % | 0 | 9 | 19 | 21 | 19 | 11 |
| Power—Hp (kW) | 116.42 (86.82) | 113.36 (84.53) | 108.03 (80.56) | 96.90 (72.26) | 81.37 (60.68) | 63.71 (47.51) |
| Speed—Mph (km/h) | 5.78 (9.31) | 5.16 (8.30) | 4.53 (7.29) | 3.97 (6.40) | 3.40 (5.46) | 2.84 (4.58) |
| Slip % | 6.86 | 7.54 | 8.43 | 8.87 | 8.58 | 7.84 |

TRACTOR SOUND LEVEL WITH CAB dB(A)

| | |
|---|------|
| Maximum Available Power—Two Hours | 80.0 |
| 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 | 77.5 |
| Bystander in 18th (6-O) gear | 88.5 |

TIRES, BALLAST AND WEIGHT

| | | With Ballast | Without Ballast |
|----------------------------------|-----------------------------|---------------------------|---------------------------|
| | | | |
| Rear Tires | —No., size, ply & psi (kPa) | Two 20.8-38; 8; 18 (125) | Two 20.8-38; 8; 18 (125) |
| | Ballast | | |
| | —Liquid (each) | 1033 lb (469 kg) | None |
| | —Cast Iron (each) | None | None |
| Front Tires | —No., size, ply & psi (kPa) | Two 11.00-16; 8; 40 (275) | Two 11.00-16; 8; 40 (275) |
| | Ballast | | |
| | —Liquid (each) | None | None |
| | —Cast Iron (each) | 80 lb (36 kg) | None |
| Height of Drawbar | | 19.5 in (495 mm) | 19.5 in (495 mm) |
| Static Weight with Operator—Rear | | 12340 lb (5597 kg) | 10275 lb (3661 kg) |
| | —Front | 4020 lb (1823 kg) | 3860 lb (1751 kg) |
| | —Total | 16360 lb (7420 kg) | 14135 lb (6433 kg) |

right 336" (8.55 m) left 336" (8.55 m) Power take-off 1000 rpm at 2167 engine rpm.

REPAIRS and ADJSUTMENTS: 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 was 168°F (75.5° 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 **1275**.

LOUIS I. LEVITICUS

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



White Field Boss 2-135 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
H. W. Ottoson, Director