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Test 1616: White 140 Diesel and White Workhorse 145 Diesel 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1616—WHITE 140 DIESEL ALSO WHITE WORKHORSE 145 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 — 1016 rpm)									
138.53 (103.30)	2200	8.005 (30.302)	0.399 (0.243)	17.31 (3.409)	186 (85.6)	64 (17.6)	75 (23.9)	28.91 (97.61)	
Standard Power Take-off Speed (1000 rpm) — One Hour									
140.30 (104.62)	2166	8.022 (30.365)	0.395 (0.240)	17.49 (3.446)	187 (86.0)	65 (18.3)	75 (23.7)	28.91 (97.62)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
121.11 (90.31)	2261	7.211 (27.298)	0.411 (0.250)	16.79 (3.308)	186 (85.6)	67 (19.4)	76 (24.2)	..... .....
1.59 (1.19)	2335	2.219 (8.398)	..... .....	0.72 (0.142)	184 (84.4)	67 (19.4)	75 (23.6)	..... .....
61.22 (45.65)	2291	4.563 (17.273)	0.515 (0.313)	13.42 (2.643)	184 (84.4)	67 (19.4)	75 (23.6)	..... .....
140.36 (104.66)	2201	8.062 (30.519)	0.397 (0.241)	17.41 (3.429)	187 (85.8)	68 (20.0)	76 (24.4)	..... .....
30.89 (23.03)	2308	3.378 (12.786)	0.756 (0.460)	9.14 (1.801)	184 (84.2)	68 (20.0)	76 (24.4)	..... .....
91.63 (68.33)	2284	5.839 (22.104)	0.440 (0.268)	15.69 (3.091)	178 (81.1)	71 (21.7)	78 (25.6)	..... .....
Av Au	74.47 (55.53)	2280	5.212 (19.730)	0.484 (0.294)	14.29 (2.815)	184 (84.3)	68 (20.0)	76 (24.3)	28.87 (97.49)

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 12th (4D) Gear											
122.85 (91.61)	7458 (33.17)	6.18 (9.94)	2199	2.70	7.981 (30.212)	0.449 (0.273)	15.39 (3.032)	182 (83.1)	64 (17.8)	70 (20.8)	28.66 (96.78)
75% of Pull at Maximum Power — Ten Hours 12th (4D) Gear											
97.71 (72.86)	5696 (25.34)	6.43 (10.35)	2276	2.05	6.703 (25.375)	0.474 (0.288)	14.58 (2.871)	182 (83.5)	54 (12.3)	66 (19.0)	28.96 (97.80)
50% of Pull at Maximum Power — Two Hours 12th (4D) Gear											
66.09 (49.28)	3797 (16.89)	6.53 (10.50)	2297	1.45	5.239 (19.831)	0.548 (0.333)	12.62 (2.485)	176 (79.7)	60 (15.6)	64 (17.8)	28.71 (96.93)
50% of Pull at Reduced Engine Speed — Two Hours 15th (5O) Gear											
66.09 (49.28)	3797 (16.89)	6.53 (10.50)	1619	1.45	4.465 (16.900)	0.467 (0.284)	14.80 (2.916)	174 (78.9)	62 (16.4)	67 (19.2)	28.96 (97.79)

MAXIMUM POWER IN SELECTED GEARS

107.45 (80.13)	15060 (66.99)	2.68 (4.31)	2242	11.03	5th (2D) Gear		185 (85.0)	70 (21.1)	76 (24.4)	28.60 (96.58)
118.93 (88.69)	13576 (60.39)	3.29 (5.29)	2199	6.56	6th (2O) Gear		186 (85.3)	69 (20.6)	75 (23.9)	28.60 (96.58)
121.48 (90.59)	11915 (53.00)	3.82 (6.15)	2198	4.81	7th (3U) Gear		184 (84.2)	69 (20.6)	75 (23.9)	28.61 (96.61)
124.81 (93.07)	9992 (44.45)	4.68 (7.54)	2199	3.66	8th (3D) Gear		186 (85.6)	68 (20.0)	75 (23.9)	28.61 (96.61)
123.68 (92.23)	9135 (40.63)	5.08 (8.17)	2200	3.16	9th (4U) Gear		183 (83.9)	68 (20.0)	74 (23.3)	28.62 (96.65)
119.90 (89.41)	7969 (35.45)	5.64 (9.08)	2200	2.91	10th (3O) Gear		185 (85.0)	67 (19.4)	74 (23.3)	28.62 (96.65)
122.45 (91.31)	7567 (33.66)	6.07 (9.77)	2202	2.74	11th (5U) Gear		189 (86.9)	66 (18.9)	73 (22.8)	28.63 (96.68)
125.01 (93.22)	7594 (33.78)	6.17 (9.94)	2198	2.66	12th (4D) Gear		190 (87.8)	67 (19.4)	74 (23.3)	28.62 (96.65)
123.84 (92.35)	6304 (28.04)	7.37 (11.86)	2200	2.32	13th (5D) Gear		182 (83.3)	66 (18.9)	73 (22.8)	28.63 (96.68)
119.60 (89.18)	6053 (26.92)	7.41 (11.93)	2198	2.14	14th (4O) Gear		188 (86.4)	66 (18.9)	72 (22.2)	28.64 (96.71)
119.08 (88.80)	5058 (22.50)	8.83 (14.21)	2200	1.89	15th (5O) Gear		187 (86.1)	66 (18.9)	73 (22.8)	28.63 (96.68)

Department of Agricultural Engineering

Dates of Test: September 20 to October 3, 1988

Manufacturer: WHITE-NEW IDEA FARM EQUIPMENT COMPANY, Division of Allied Products, 123 West Sycamore Street, Coldwater, Ohio 45828

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 51.2 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F (15/15°C)** 0.8299 **Fuel weight** 6.910 lbs/gal (0.828 kg/l) **Oil SAE 15W-40 API service classification** CC, CD/SD, SE, SF **To motor** 3.741 gal (14.162 l) **Drained from motor** 3.231 gal (12.231 l) **Transmission and final drive lubricant** White Farm Equipment Universal Fluid **Total time engine was operated** 33.5 hours.

ENGINE: Make Consolidated Diesel Corporation-Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 44220402 **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 4.02" × 4.72" (102 mm × 120 mm) **Compression ratio** 16.5 to 1 **Displacement** 359 cu in (5880 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, separate radiators for transmission and powershift oils **Fuel filter** one paper cartridge and prestrainer **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat.

ENGINE OPERATING PARAMETERS: **Maximum fuel rate** 59.04 lb/hr (26.78 kg/hr) **High idle** 2325-2425 rpm **Turbo boost** nominal 13.2-16.2 psi (91-112 kPa) as measured 15.0 psi (103 kPa)

CHASSIS: **Type** standard with duals **Serial No.** *401159-140T* **Tread width** rear 64" (1625 mm) to 123" (3125 mm) front 60" (1524 mm) to 84" (2135 mm) **Wheel base** 111.5" (2830 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 25.1" (639 mm) Vertical distance above roadway 43.2" (1096 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 powershift **Advertised speeds mph (km/h)** first 1.8 (3.0) second 2.2 (3.6) third 2.4 (3.9) fourth 2.7 (4.3) fifth 2.9 (4.7) sixth 3.5 (5.6) seventh 4.0 (6.4) eighth 4.8 (7.7) ninth 5.2 (8.4) tenth 5.7 (9.2) eleventh 6.2 (9.9) twelfth 6.3 (10.1) thirteenth 7.5 (12.0) fourteenth 7.5 (12.1) fifteenth 8.9 (14.3) sixteenth 13.2 (21.3) seventeenth 16.0 (25.8) eighteenth 19.1 (30.8) reverse 2.2 (3.5), 2.6 (4.2), 3.1 (5.0), 4.6 (7.4), 5.6 (9.0), 6.7 (10.8) **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc hydraulically

LUGGING ABILITY IN 12th (4D) GEAR

Crankshaft Speed rpm	2198	1988	1748	1528	1300	1105
Pull—lbs (kN)	7594 (33.78)	8358 (37.18)	9169 (40.79)	9632 (42.85)	5571 (24.78)	5086 (22.62)
Increase in Pull %	0	10	21	27	-27	-33
Power—Hp (kW)	125.01 (93.22)	124.05 (92.51)	119.42 (89.05)	109.34 (81.53)	54.55 (40.67)	42.42 (31.64)
Speed—Mph (km/h)	6.17 (9.94)	5.57 (8.96)	4.88 (7.86)	4.26 (6.85)	3.67 (5.91)	3.13 (5.03)
Slip %	2.66	2.99	3.16	3.50	1.97	1.97

TRACTOR SOUND LEVEL WITH CAB dB(A)

Maximum Available Power—Two Hours	75.5
75% of Pull at Maximum Power—Ten Hours	75.5
50% of Pull at Maximum Power—Two Hours	74.5
50% of Pull at Reduced Engine Speed—Two Hours	74.5
Bystander in 17th (6D) gear	86.5

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	Four 20.8R38; *, 12 (85)	Four 20.8R38; *, 12 (85)
Ballast	None	None
—No., size, ply & psi (kPa)	31 lb (14 kg)	None
—Liquid (each)	None	None
—Test equip. (each)	None	None
Front Tires	Two 11.00-16; 8; 40 (275)	Two 11.00-16; 8; 40 (275)
Ballast	None	None
—No., size, ply & psi (kPa)	438 lb (199 kg)	None
—Liquid (each)	None	None
—Cast Iron (each)	None	None
Height of Drawbar	24 in (610 mm)	24 in (610 mm)
Static Weight with Operator—Rear	11565 lb (5246 kg)	11440 lb (5189 kg)
—Front	4100 lb (1860 kg)	3225 lb (1463 kg)
—Total	15665 lb (7106 kg)	14665 lb (6652 kg)

THREE POINT HITCH PERFORMANCE (With external lift cylinder)

Observed Maximum Pressure psi (kPa)	2275 (15690)
Location	remote outlet
Hydraulic oil temperature °F (°C)	158 (70)
Location	pump inlet
Maximum Lift Capacity	
QUICK ATTACH	no
CATEGORY	III
LOAD lbs (kg)	*7410 (3361)
TIME sec	6.93
HITCH POINT MOVEMENT in (mm)	
Lowest position	12.0 (304)
Top of timed range	38.0 (965)
Highest position	**38.4 (975)
LOAD CG MOVEMENT in (mm)	
Lowest position	11.4 (290)
Top of timed range	40.7 (1034)
Highest position	41.6 (1057)

*Manufacturers claim was 8000 lb (3628 kg)

**The observed highest position 38.4" (975 mm) does not meet the minimum top height 40.0" (1016 mm) specified by ASAE standard S217.10.

power actuated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 151" (3.83 m) left 153" (3.88 m) (on concrete surface without brake) right 226" (5.73 m) left 248" (6.29 m) **Turning space diameter** (on concrete surface with brake applied) right 310" (7.87 m) left 320" (8.12 m) (on concrete surface without brake) right 484" (12.28 m) left 522" (13.27 m) **Power take-off** 540 rpm at 2191 engine rpm and 1000 rpm at 2167 engine rpm **Unladen tractor mass** 13065 lb (5926 kg).

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

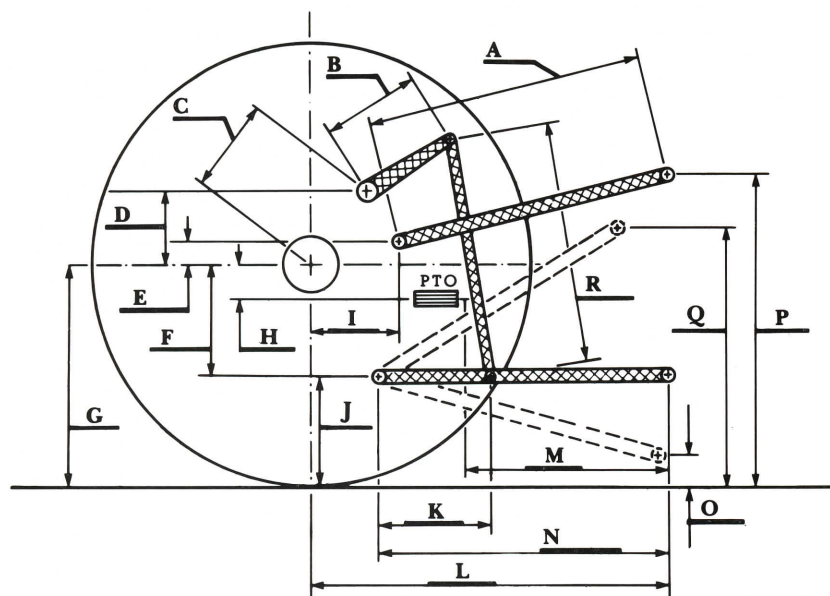
REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 144 °F (62.4°C). Eleven gears were chosen between 15% slip and 10 mph (16.1 km/h). Manufacturer specifications for engine bore, stroke, displacement and compression ratio were not verified.

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. **1616**, February 2, 1989.

Note: Report reissued, supplemental sales permit for White Workhorse 145 Diesel November, 1991.

LOUIS I. LEVITICUS
Engineer-in-charge

K. VON BARGEN
R. D. GRISSO
L. L. BASHFORD
Board of Tractor Test Engineers



Hitch Dimensions as Tested — No Load

	inch	mm
A	25.3	641
B	16.0	406
C	20.1	511
D	18.6	472
E	10.4	263
F	10.2	260
G	33.2	844
H	1.9	48
I	19.9	506
J	23.0	584
K	22.3	566
L	45.3	1151
M	22.4	568
N	34.8	884
O	7.4	187
P	45.0	1143
Q	37.1	943
R	39.8	1010

**WHITE WORKHORSE 145 DIESEL
THREE POINT HITCH PERFORMANCE
(From Nebraska Tractor Test 1633)
DEUTZ ALLIS 9150 DIESEL**

Observed Maximum Pressure psi. (kPa)	2275 (15690)	
Location	remote outlet	
Hydraulic oil temperature °F (°C)	147 (64)	
Location	hydraulic suction line	
	Maximum Lift Capacity	
	with boost cylinder	
QUICK ATTACH	No	No
CATEGORY	III	III
LOAD lbs (kg)	7212 (3271)	8544 (3875)
TIME sec	6.36	4.92
HITCH POINT MOVEMENT in (mm)		
Lowest position	13.8 (351)	13.6 (345)
Top of timed range	40.0 (1016)	40.0 (1016)
Highest position	40.2 (1021)	40.1 (1019)
LOAD CG MOVEMENT in (mm)		
Lowest position	14.4 (366)	14.2 (361)
Top of timed range	42.1 (1069)	42.1 (1069)
Highest position	42.3 (1074)	42.2 (1072)



White 140 Diesel

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Darrell Nelson, Dean and Director