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## Test 1113: John Deere 4630 Power Shift Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1113 – JOHN DEERE 4630 POWER SHIFT DIESEL

Department of Agricultural Engineering

Dates of Test: October 13th to October 24th, 1972

Manufacturer: John Deere Waterloo Tractor Works, Waterloo, Iowa

## POWER TAKE-OFF PERFORMANCE

Hp	Crank-shaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Cooling medium	Temperature Degrees F Air wet bulb	Air dry bulb	Barometer inches of Mercury
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated Engine Speed—Two Hours (PTO Speed—995 rpm)</b>								
150.66	2200	9.608	0.443	15.68	186	54	75	29.077
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
132.30	2275	8.945	0.470	14.79	183	54	75	.....
0.00	2389	2.799	.....	.....	170	51	72	.....
67.69	2328	5.844	0.600	11.58	175	53	75	.....
150.55	2200	9.666	0.446	15.58	187	53	76	.....
34.15	2349	4.345	0.884	7.86	169	52	74	.....
100.43	2301	7.411	0.513	13.55	178	53	76	.....
Av 80.85	2307	6.502	0.559	12.43	177	53	75	29.077

## DRAWBAR PERFORMANCE

Hp	Draw-bar pull lbs	Speed miles per hr	Crank-shaft speed rpm	Slip of drivers %	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temp Degrees F Cool- ing med	Air wet bulb	Air dry bulb	Barometer inches of Mercury
<b>VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITHOUT BALLAST</b>											

### Maximum Available Power—Two Hours—4th Gear

127.92	10751	4.46	2200	7.63	9.591	0.520	13.34	180	61	62	28.775
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### 75% of Pull at Maximum Power—Ten Hours—4th Gear

102.88	8047	4.79	2317	5.77	8.378	0.565	12.88	172	44	44	28.347
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### 50% of Pull at Maximum Power—Two Hours—4th Gear

70.53	5318	4.97	2342	3.31	6.658	0.655	10.59	169	52	54	28.810
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### 50% of Pull at Reduced Engine Speed—Two Hours—5th Gear

70.00	5318	4.94	1784	3.28	5.362	0.532	13.05	176	53	54	28.800
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## MAXIMUM POWER WITHOUT BALLAST

121.94	14478	3.16	2189	14.53	3rd Gear.....	180	60	60	28.780
132.02	11105	4.46	2200	7.91	4th Gear.....	180	55	55	28.780
131.69	8266	5.97	2198	4.85	5th Gear.....	189	54	55	28.800
131.09	6242	7.88	2199	3.62	6th Gear.....	190	54	55	28.810
134.56	4920	10.26	2198	2.84	7th Gear.....	189	55	57	28.810

## VARYING DRAWBAR PULL AND TRAVEL SPEED WITHOUT BALLAST 4th Gear

Pounds Pull	11105	11940	13121	13687	13242	11080
Horsepower	132.02	126.42	120.05	110.02	90.91	67.37
Crankshaft Speed rpm	2200	1981	1762	1549	1317	1126
Miles Per Hour	4.46	3.97	3.43	3.01	2.57	2.28
Slip of Drivers %	7.91	8.75	11.18	11.44	11.18	7.91

## TRACTOR SOUND LEVEL (with Sound-Gard cab) dB(A)

Maximum Available Power 2 Hours	82.5
75% of Pull a Max. Power 10 Hours	83.0
50% of Pull at Max. Power 2 Hours	83.0
50% of Pull at Reduced Engine Speed 2 Hours	82.0
Bystander—8th Gear	88.5

## TIRES, BALLAST AND WEIGHT

<b>Rear tires</b>		—No., size, ply & psi	Four 18.4-38; 8; 16
<b>Ballast</b>		—Liquid	None
		Cast Iron	None
<b>Front tires</b>		No., size, ply & psi	Two 10.00-16; 6; 28
<b>Ballast</b>		—Liquid	None
		Cast Iron	None
<b>Height of drawbar</b>			24 inches
<b>Static weight with operator—rear</b>			12290 lb
		front	3960 lb
		total	16250 lb

## Without Ballast

**FUEL, OIL AND TIME** Fuel No 2 Diesel Cetane No 54.5 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8342 Weight per gallon 6.946 lb Oil SAE 30 API service classification John Deere Torq-Gard or CD-SD To motor 3.881 gal Drained from motor 3.347 gal Transmission and final drive lubricant John Deere Special 303 oil Total time engine was operated 47 hours

**ENGINE** Make John Deere Diesel Type 6 cylinder with turbo-charger and intercooler Serial No 6404AR-10 341419R Crankshaft Mounted lengthwise Rated rpm 2200 Bore and stroke 4.25" x 4.75" Compression ratio 16.0 to 1 Displacement 404 cu. in. Cranking system electrical (two 6 volt batteries) Lubrication pressure Air cleaner precleaner and two dry type in series with replaceable treated paper elements Oil filter full flow with replaceable paper cartridge Oil Cooler engine coolant heat exchanger for crankcase oil and radiator for transmission and hydraulic system Fuel filter sediment bowl with screen and replaceable paper primary and secondary filter elements Muffler was used Cooling medium temperature control thermostat

**CHASSIS** Type standard Serial No 4630P 001850R Tread width rear 63.0" to 105.6" front 56.0" to 80.0" Wheel base 112.7" 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 34.7" Vertical distance above roadway 43.8" Horizontal distance from center of rear wheel tread 0.7" to the left Hydraulic control system direct engine drive Transmission selective gear fixed ratio with operator controlled full range power shifting Advertised speeds mph first 1.7 second 2.4 third 3.7 fourth 4.8 fifth 6.2 sixth 8.1 seventh 10.5 eighth 17.7 reverse 2.0, 2.9, 4.5, and 5.9 Clutch wet multiple discs operated hydraulically Brakes wet disc hydraulically power actuated by two foot pedals that can be locked together Steering hydrostatic Turning radius (on concrete surface with brake applied) right 155" left 155" (on concrete surface without brake) right 174" left 174" Turning space diameter (on concrete surface with brake applied) right 310" left 310" (on concrete surface without brake) right 348" left 348" Power take-off 1002 rpm at 2200 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 or official Nebraska test procedure. First and second gears were not run as it was necessary to limit the pull in third gear to avoid excessive wheel slippage. Eighth gear was not run as test procedure requires only one gear over eight miles per hour. We, the undersigned, certify that this is a true and correct report of official Tractor Test 1113.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers

The University of Nebraska Agricultural Experiment Station  
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