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Test 1179: John Deere 8430 Diesel

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NEBRASKA TRACTOR TEST 1179 – JOHN DEERE 8430 DIESEL

POWER TAKE-OFF PERFORMANCE

Hp	Crank- shaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temperature Degrees F Cooling medium	Air wet bulb	Air dry bulb	Barometer inches of Mercury
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—993 rpm)								
178.16	2100	11.784	0.459	15.12	186	68	75	28.660
VARYING POWER AND FUEL CONSUMPTION								
155.12	2155	10.774	0.482	14.40	185	69	76	.....
0.00	2288	3.574	.....	.....	177	69	76	.....
80.04	2223	7.204	0.625	11.11	181	70	77	.....
178.27	2100	11.828	0.461	15.07	187	72	81	.....
40.67	2259	5.436	0.928	7.48	179	71	80	.....
118.34	2191	8.967	0.526	13.20	183	72	82	.....
Av 95.41	2202	7.964	0.579	11.98	182	70	79	28.675

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
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VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST

Maximum Available Power—Two Hours—6th Gear (C-1)											
155.56	10482	5.56	2100	3.73	11.578	0.517	13.44	187	74	78	28.800
75% of Pull at Maximum Power—Ten Hours—6th Gear (C-1)											
125.69	8133	5.80	2166	2.82	9.941	0.549	12.64	183	64	72	28.860
50% of Pull at Maximum Power—Two Hours—6th Gear (C-1)											
84.76	5353	5.94	2199	1.87	7.905	0.647	10.72	183	77	78	28.790
50% of Pull at Reduced Engine Speed—Two Hours—9th Gear (B-3)											
84.21	5354	5.90	1420	1.83	6.140	0.506	13.71	182	69	79	28.760

MAXIMUM POWER WITH BALLAST

115.67	22503	1.93	2160	14.86	1st Gear (A-1)			183	68	71	28.800
154.24	15474	3.74	2102	6.08	3rd Gear (A-3)			186	68	71	28.800
159.44	12727	4.70	2101	4.65	4th Gear (B-1)			186	65	73	28.800
160.39	10808	5.56	2101	3.80	6th Gear (C-1)			186	65	73	28.800
157.99	9572	6.19	2101	3.18	7th Gear (B-2)			187	70	75	28.810
157.25	6787	8.69	2100	2.31	9th Gear (B-3)			187	71	75	28.810

VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST—6th Gear (C-1)

Pounds Pull	10808	12653	13406	13931	13989	12537
Horsepower	169.39	167.44	157.71	143.10	122.73	91.11
Crankshaft Speed rpm	2101	1888	1684	1475	1260	1035
Miles Per Hour	5.56	4.96	4.41	3.85	3.29	2.73
Slip of Drivers %	3.80	4.73	4.88	5.18	5.18	4.42

TRACTOR SOUND LEVEL (with Sound-Gard cab)

	dB(A)
Maximum Available Power 2 Hours	80.0
75% of Pull at Max. Power 10 Hours	80.5
50% of Pull at Max. Power 2 Hours	82.0
50% of Pull at Reduced Engine Speed 2 Hours	77.0
Bystander 15th Gear (D-3)	87.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	Four 20.8-34; 6; 12	Four 20.8-34; 6; 12
Ballast	None	None
	10 lb each	None
Front Tires	Four 20.8-34; 6; 12	Four 20.8-34; 6; 12
Ballast	None	None
	60 lb each	None
Height of drawbar	15 inches	15 inches
Static weight with operator—rear	11410 lb	11380 lb
front	11690 lb	11430 lb
total	23100 lb	22810 lb

Department of Agricultural Engineering

Dates of Test: June 3 to June 10, 1975

Manufacturer: JOHN DEERE WATERLOO TRACTOR WORKS, WATERLOO, IOWA 50704

FUEL, OIL AND TIME Fuel No 2 Diesel Cetane No 51.7 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8337 Weight per gallon 6.942 lb Oil SAE 30 API service classification CD-SD To motor 4.646 gal Drained from motor 4.445 gal Transmission and final drive lubricant John Deere Hy-Gard Total time engine was operated 43.5 hours.

ENGINE Make JOHN DEERE Type six cylinder vertical with turbocharger and inter-cooler Serial No 6466AR-01-001136R Crankshaft mounted lengthwise Rated rpm 2100 Bore and stroke 4.5625" x 4.75" Compression ratio 15.5 to 1 Displacement 466 cu in Cranking system 12 volt electric Lubrication pressure Air cleaner replaceable treated paper primary and safety elements Oil filter full flow replaceable pleated paper cartridge Oil cooler engine coolant heat exchanger for crankcase oil, air for transmission and hydraulic system Fuel filter two in parallel impregnated paper cartridges Muffler vertical Cooling medium temperature control two thermostats.

CHASSIS Type four-wheel drive Serial No. 8430H001086R Tread width rear 60" to 134" front 60" to 134" Wheel base 125" 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 63" Vertical distance above roadway 40.5" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial operator controlled power shift Advertised speeds mph first 2.0 second 2.6 third 3.7 fourth 4.5 fifth 4.8 sixth 5.3 seventh 5.9 eighth 6.9 ninth 8.2 tenth 8.6 eleventh 9.6 twelfth 10.6 thirteenth 11.2 fourteenth 12.5 fifteenth 15.6 sixteenth 20.3 reverse 3.8, 5.0, 8.5, 11.1 Clutch 4 wet discs operated by foot pedal Brakes wet disc hydraulically power actuated and operated by a single foot pedal Steering hydrostatic Turning radius (on concrete surface without brake) right 214" left 214" Turning space diameter (on concrete surface without brake) right 452" left 452" Power take-off 993 rpm at 2100 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.

Bystander sound test was run in 15th gear as tractor engine did not reach maximum RPM during acceleration in highest gear.

Fuel temperature at injection pump return was 144 degrees F.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1179.

LOUIS I. LEVITICUS

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers

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