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January 1975

Test 1180: John Deere 8630 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1180 - JOHN DEERE 8630 DIESEL

POWER TAKE-OFF PERFORMANCE

Hp	Crank-shaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temperature Cooling medium	Degrees F Air wet bulb	Degrees F Air dry bulb	Barometer inches of Mercury
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—993 rpm)								
225.59	2100	14.708	0.453	15.34	185	68	75	28.753
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
196.38	2151	13.405	0.474	14.65	183	67	75	.....
0.00	2299	4.425	.....	.....	141	67	74	.....
101.01	2216	8.885	0.611	11.37	162	67	74	.....
226.73	2101	14.754	0.452	15.38	185	67	76	.....
51.40	2251	6.642	0.897	7.74	154	68	77	.....
149.32	2182	10.955	0.509	13.63	179	69	77	.....
Av 120.81	2200	9.843	0.566	12.27	167	67	75	28.797

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 Cooling med	Degrees F Air wet bulb	Degrees F Air dry bulb	Barometer inches of Mercury
VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST											
Maximum Available Power—Two Hours—6th Gear (C-1)											
198.12	13681	5.43	2101	3.49	14.495	0.508	13.67	185	65	67	28.735
75% of Pull at Maximum Power—Ten Hours—6th Gear (C-1)											
161.70	10766	5.63	2161	2.42	12.633	0.542	12.80	173	58	62	28.929
50% of Pull at Maximum Power—Two Hours—6th Gear (C-1)											
106.39	6897	5.78	2197	1.79	9.867	0.644	10.78	165	66	70	28.765
50% of Pull at Reduced Engine Speed—Two Hours—9th Gear (B-3)											
107.64	6983	5.78	1427	1.67	7.617	0.491	14.13	162	65	70	28.780

MAXIMUM POWER WITH BALLAST

167.32	26443	2.37	2101	14.87	2nd Gear (A-2)	185	60	62	28.810
199.00	20482	3.64	2099	5.71	3rd Gear (A-3)	183	64	66	28.740
202.31	16551	4.58	2101	4.17	4th Gear (B-1)	184	64	66	28.740
201.96	13943	5.43	2101	3.79	6th Gear (C-1)	184	64	66	28.740
199.45	12400	6.03	2099	2.88	7th Gear (B-2)	184	65	67	28.720
197.25	8729	8.47	2101	2.03	9th Gear (B-3)	184	65	67	28.720

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

Pounds Pull	13943	15959	17083	17743	17971	15707
Horsepower	201.96	206.85	196.38	177.80	153.49	112.20
Crankshaft Speed rpm	2101	1891	1685	1472	1257	1043
Miles Per Hour (	5.43	4.86	4.31	3.76	3.20	2.68
Slip of Drivers %	3.79	3.79	4.39	4.69	4.69	4.09

TRACTOR SOUND LEVEL (with Sound-Gard cab)

	dB(A)
Maximum Available Power 2 Hours	81.5
75% of Pull at Max. Power 10 Hours	82.5
50% of Pull at Max. Power 2 Hours	82.5
50% of Pull at Reduced Engine Speed 2 Hours	79.0
Bystander 15th Gear (D-3)	88.5

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	Four 23.1-30; 8; 12	Four 23.1-30; 8; 12
Ballast	None	None
	Cast Iron	None
Front Tires	Four 23.1-30; 8; 12	Four 23.1-30; 8; 12
Ballast	490 lb each	None
	Cast Iron	None
Height of drawbar	14.5 inches	14.5 inches
Static weight with operator—rear	12120 lb	12120 lb
front	14360 lb	12410 lb
total	26480 lb	24530 lb

Department of Agricultural Engineering

Dates of Test: June 3 to June 11, 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 5.346 gal Drained from motor 5.282 gal Transmission and final drive lubricant John Deere Hy-Gard Total time engine was operated 42.5 hours.

ENGINE Make JOHN DEERE Type six cylinder vertical with turbocharger and inter-cooler Serial No 6619AR-01001194R Crankshaft mounted lengthwise Rated rpm 2100 Bore and stroke 5.125" x 5.0" Compression ratio 15.4 to 1 Displacement 619 cu in Crankshaft system 12 volt electric Lubrication pressure Air cleaner dry treated paper replaceable primary and safety elements Oil filter full flow replaceable pleated paper cartridge Oil cooler engine coolant for crankcase oil, air for transmission and hydraulic system Fuel filter two in parallel impregnated paper cartridges Muffler vertical Cooling medium temperature control thermostat.

CHASSIS Type 8630 Serial No 8630H 001129R Tread width rear 65" to 130" front 65" to 130" 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 40.6" 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 (on 18.4 x 34 tires) 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 and 11.1 Clutch five wet discs operated by a 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.

First gear was not run as it was necessary to limit the pull in second gear to avoid excessive wheel slippage.

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 148 degrees F.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1180.

LOUIS I. LEVITICUS

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers