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January 1972

## Test 1114: Case 2470 Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1114 – CASE 2470 DIESEL

Department of Agricultural Engineering

Dates of Test: October 25 to October 31, 1972

Manufacturer: J. I. Case Company, Racine, Wisconsin

## 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated Engine Speed—Two Hours (PTO Speed—1008 rpm)</b>								
174.20	2200	11.446	0.456	15.22	205	60	75	28.627
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
152.63	2267	10.458	0.475	14.59	203	60	75	.....
0.00	2359	3.317	.....	.....	180	60	74	.....
77.66	2310	6.678	0.596	11.63	189	60	75	.....
176.76	2200	11.492	0.451	15.38	201	60	76	.....
39.20	2332	5.125	0.907	7.65	186	61	76	.....
115.81	2291	8.603	0.515	13.46	195	62	75	.....
Av 93.68	2293	7.612	0.564	12.33	192	60	74	28.645

## 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>											
<b>Maximum Available Power—Two Hours—8th Gear (3 Int)</b>											
150.52	9929	5.68	2200	4.76	11.317	0.521	13.30	182	54	60	28.805
<b>75% of Pull at Maximum Power—Ten Hours—8th Gear (3 Int)</b>											
122.18	7639	6.00	2288	3.38	9.734	0.553	12.55	185	42	45	28.999
<b>50% of Pull at Maximum Power—Two Hours—8th Gear (3 Int)</b>											
83.41	5111	6.12	2306	2.18	7.677	0.638	10.86	172	49	51	28.830
<b>50% of Pull at Reduced Engine Speed—Two Hours—10th Gear (4 Lo)</b>											
84.15	5155	6.12	1675	2.22	6.415	0.528	13.12	169	52	56	28.845

## MAXIMUM POWER WITHOUT BALLAST

134.02	18050	2.78	2260	14.84	3rd Gear (2 Lo)	.....	169	50	55	28.770
150.75	14551	3.89	2199	8.24	5th Gear (2 Int)	.....	173	58	63	28.770
149.54	13546	4.14	2199	7.56	6th Gear (3 Lo)	.....	173	61	66	28.770
149.88	11247	5.00	2200	5.74	7th Gear (2 Hi)	.....	179	58	63	28.780
154.24	10195	5.67	2199	4.87	8th Gear (3 Int)	.....	180	63	64	28.780
152.98	7204	7.96	2199	3.17	10th Gear (4 Lo)	.....	182	62	63	28.790

## VARYING DRAWBAR PULL AND TRAVEL SPEED WITHOUT BALLAST 8th Gear (3 Int)

Pounds Pull	10195	11041	11566	11652	11282	9983
Horsepower	154.24	149.23	138.87	122.35	102.11	76.82
Crankshaft Speed rpm	2199	1976	1761	1541	1325	1117
Miles Per Hour	5.67	5.07	4.50	3.94	3.39	2.89
Slip of Drivers %	4.87	5.45	5.67	5.88	5.45	4.68

## TRACTOR SOUND LEVEL (with cab)

	dB(A)
Maximum Available Power 2 Hours	83.0
75% of Pull at Max. Power 10 Hours	85.0
50% of Pull at Max. Power 2 Hours	83.5
50% of Pull at Reduced Engine Speed 2 Hours	82.0
Bystander—12th Gear (4 Hi)	90.0

## TIRES, BALLAST AND WEIGHT

<b>Rear tires</b>		—No., size, ply & psi	Four 18.4-34; 8; 16
<b>Ballast</b>		—Liquid	None
		Cast Iron	None
<b>Front tires</b>		—No., size, ply & psi	Four 18.4-34; 8; 16
<b>Ballast</b>		—Liquid	None
		Cast Iron	None
<b>Height of drawbar</b>			15½ inches
<b>Static weight with operator—rear</b>			9395 lb
<b>front</b>			11090 lb
<b>total</b>			20485 lb

**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° 0.8330 **Weight per gallon** 6.936 lb **Oil** SAE 30 **API service classification** SB/SE-CA/CD **To motor** 4.573 gal **Drained from motor** 3.985 gal **Transmission and final drive lubricant** Case TFD fluid **Total time engine was operated** 45½ hours

**ENGINE** Make J. I. Case Diesel Type 6 cylinder vertical with turbo-charger **Serial No** 2508299 **Crankshaft Mounted** lengthwise **Rated rpm** 2200 **Bore and stroke** 4 5/8" x 5" **Compression ratio** 15.8 to 1 **Displacement** 504 cu. in. **Cranking system** 12 volt electric (two 12 volt batteries) **Lubrication pressure** **Air cleaner** two stage with replaceable paper elements and pre-cleaner **Oil filter** full flow replaceable cartridge **Oil Cooler** engine coolant heat exchanger for crankcase oil and radiator for transmission and hydraulic fluid **Fuel filter** replaceable primary and secondary filter cartridges **Muffler** was used **Cooling medium temperature control** two thermostats

**CHASSIS** Type 4-wheel drive **Serial No.** 8692386 **Tread width rear** 72" to 92" **front** 72" to 92" **Wheel base** 102" **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** 56.8" **Vertical distance above roadway** 42.3" **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 range operator controlled power shifting **Advertised speeds mph** first 2.0 second 2.7 third 3.0 fourth 3.4 fifth 4.0 sixth 4.4 seventh 5.0 eighth 5.8 ninth 7.3 tenth 8.0 eleventh 10.7 twelfth 15.0 reverse 3.4 and 5.0 **Clutch** multiple plate wet disc hydraulically actuated by foot pedal **Brakes** hydraulically operated internal wet disc **Steering** hydrostatic for front wheels and independent hydraulic for rear wheels **Turning radius** (on concrete surface with front wheel steering) right 304" left 304" (on concrete surface with four wheel steering) right 186" left 186" **Turning space diameter** (on concrete surface with front wheel steering) right 620" left 620" (on concrete surface with four wheel steering) right 386" left 386" **Power take-off** 1008 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 because of excessive wheel slippage. Fourth, ninth, eleventh and twelfth gears were not run as test procedure requires only six travel speeds.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1114.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers

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