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January 1970

Test 1060: Case 870 Manual Gasoline

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1060 – CASE 870 MANUAL GASOLINE

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—538 rpm)								
71.06	1900	5.992	0.518	11.86	207	57	75	29.013
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
62.25	1958	5.917	0.584	10.52	203	57	76	.....
0.00	2110	2.336	.....	.....	197	56	74	.....
32.39	2037	4.114	0.780	7.87	201	56	74	.....
70.86	1901	6.010	0.521	11.79	208	57	75	.....
16.45	2068	3.249	1.213	5.06	197	57	75	.....
47.99	2011	5.008	0.641	9.58	203	57	74	.....
Av 38.32	2014	4.439	0.711	8.63	202	57	74	29.047

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—4th Gear (4th Lo)											
62.52	4930	4.76	1900	5.60	6.199	0.609	10.09	190	37	45	29.110
75% of Pull at Maximum Power—Ten Hours—4th Gear—(4th Lo)											
49.91	3697	5.06	1989	4.05	5.699	0.701	8.76	192	36	38	29.066
50% of Pull at Maximum Power—Two Hours—4th Gear (4th Lo)											
35.25	2516	5.25	2031	2.45	4.720	0.822	7.47	192	36	39	29.290

MAXIMUM POWER WITH BALLAST

57.42	9105	2.36	1914	14.94	2nd Gear (2nd Lo)			189	40	49	29.130
62.38	6550	3.57	1899	7.79	3rd Gear (3rd Lo)			185	40	50	29.130
62.45	4920	4.76	1900	5.53	4th Gear (4th Lo)			185	40	50	29.130
63.04	4061	5.82	1903	4.39	5th Gear (1st Hi)			188	40	50	29.130
61.43	2773	8.31	1902	3.01	6th Gear (2nd Hi)			190	40	50	29.130
56.37	1797	11.76	1894	1.81	7th Gear (3rd Hi)			190	40	50	29.130

MAXIMUM PULL WITHOUT BALLAST

47.91	7309	2.46	1965	14.72	2nd Gear (2nd Lo)			190	46	53	28.940
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VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST 4th Gear (4th Lo)

Pounds Pull	4920	5562	5995	6032	5868	5719
Horsepower	62.45	62.93	60.11	52.59	44.38	35.91
Crankshaft Speed rpm	1900	1707	1523	1328	1148	952
Miles Per Hour	4.76	4.24	3.76	3.27	2.84	2.35
Slip of Drivers %	5.53	6.30	6.98	7.25	6.85	6.71

TIRES, BALLAST and WEIGHT

		With Ballast	Without Ballast
Rear tires	—No, size, ply & psi	Two 18.4-34; 8; 16	Two 18.4-34; 8; 16
Ballast	—Liquid	1088 lb each	None
	Cast iron	280 lb each	None
Front tires	—No, size, ply & psi	Two 7.50-16; 6; 36	Two 7.50-16; 6; 36
Ballast	—Liquid	None	None
	Cast iron	25 lb each	None
Height of drawbar		17 inches	18 inches
Static weight with operator—Rear		9155 lb	6420 lb
	Front	2550 lb	2500 lb
	Total	11705 lb	8925 lb

Department of Agricultural Engineering

Dates of Test: October 28 to November 7, 1970

Manufacturer: J. I. CASE COMPANY, RACINE, WISCONSIN

FUEL, OIL and TIME Fuel regular gasoline Octane No Motor 85.4 Research 92 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.7376 Weight per gallon 6.140 lb Oil SAE 20-20W API service classification MS, DM To motor 1.972 gal Drained from motor 1.957 gal Transmission and final-drive lubricant Case TCH oil Total time engine was operated 44 hours.

ENGINE Make Case gasoline Type 4 cylinder vertical Serial No 2317085 Crankshaft mounted lengthwise Rated rpm 1900 Bore and stroke 4 3/8" x 5" Compression ratio 7.5 to 1 Displacement 301 cu in Carburetor size 1 1/4" Ignition system battery Cranking system 12 volt electric Lubrication pressure Air cleaner dry type with replaceable pleated paper element with pre-cleaner Oil filter full flow replaceable cartridge Fuel filter sediment bowl and screen Muffler was used Cooling medium temperature control thermostat.

CHASSIS Type standard Serial No 8665541 Tread width rear 60" to 88" front 62" to 90" Wheel base 101" 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 29.4" Vertical distance above roadway 37.3" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio Advertised speeds mph first 1.9 second 2.8 third 3.9 fourth 4.8 fifth 6.0 sixth 8.5 seventh 12.0 eighth 15.0 reverse 2.4, 7.6 Clutch single plate dry disc operated by foot pedal Brakes dry double disc hydraulically power actuated by two foot pedals which can be locked together Steering hydrostatic Turning radius (on concrete surface with brake applied) right 147" left 147" (on concrete surface without brake) right 173" left 173" Turning space diameter (on concrete surface with brake applied) right 305" left 305" (on concrete surface without brake) right 355" left 355" Belt pulley 1108 rpm at 1900 engine rpm diam 10.5" face 7.25" Belt speed 3045 fpm Power take-off 538 rpm at 1900 engine rpm.

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with the SAE and ASAE test code.

First gear was not run as it was necessary to limit the pull in second gear to avoid excessive wheel slippage. Eighth gear was not run as it exceeded 15 mph.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1060.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers

The University of Nebraska Agricultural Experiment Station
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