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January 1970

Test 1061: Case 770 Manual Gasoline

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1061 – CASE 770 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 Cooling medium	Degrees F Air wet bulb	Air dry bulb	Barometer inches of Mercury
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—538 rpm)								
56.32	1900	5.033	0.549	11.19	197	57	75	28.910
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
49.75	1973	5.013	0.619	9.92	194	58	75	.....
0.00	2074	2.282	.....	.....	188	58	75	.....
25.54	2027	3.689	0.887	6.92	193	58	75	.....
56.51	1901	5.042	0.548	11.21	198	59	76	.....
12.98	2062	2.990	1.414	4.34	190	59	76	.....
37.84	2003	4.329	0.702	8.74	194	58	76	.....
Av 30.44	2006	3.891	0.785	7.82	193	58	75	28.877

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 Cool- ing med	Degrees F 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 Low)											
49.12	4022	4.58	1899	5.34	4.997	0.625	9.83	190	49	57	28.800
75% of Pull at Maximum Power—Ten Hours—4th Gear (4th Low)											
40.27	3115	4.85	1989	4.28	4.930	0.751	8.17	184	34	35	28.933
50% of Pull at Maximum Power—Two Hours—4th Gear (4th Low)											
27.60	2071	5.00	2020	2.80	4.228	0.941	6.53	188	35	38	28.915

MAXIMUM POWER WITH BALLAST

45.84	7474	2.30	1937	14.83	2nd Gear (2nd Low)			193	50	61	28.890
49.69	5419	3.44	1902	7.71	3rd Gear (3rd Low)			193	50	61	28.800
50.09	4111	4.57	1900	5.61	4th Gear (4th Low)			190	50	60	28.790
48.88	3278	5.59	1903	4.24	5th Gear (1st High)			190	50	60	28.790
47.57	2234	7.99	1904	2.98	6th Gear (2nd High)			191	50	60	28.780
44.08	1462	11.31	1900	1.98	7th Gear (3rd High)			190	50	60	28.780

MAXIMUM PULL WITHOUT BALLAST

40.77	6576	2.33	1947	14.79	2nd Gear (2nd Low)			189	45	52	28.690
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VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST 4th Gear (4th Low)

Pounds Pull	4111	4441	4599	4638	4587	4620	4652
Horsepower	50.09	48.47	44.55	39.16	33.40	27.79	22.70
Crankshaft Speed rpm	1900	1712	1523	1327	1144	946	767
Miles Per Hour	4.57	4.09	3.63	3.17	2.73	2.26	1.83
Slip of Drivers %	5.61	6.27	6.27	6.27	6.27	6.54	6.27

TIRES, BALLAST and WEIGHT

		With Ballast	Without Ballast
Rear tires	—No, size, ply & psi	Two 16.9-34; 8; 16	Two 16.9-34; 8; 16
Ballast	—Liquid	845 lb each	None
	Cast iron	None	None
Front tires	—No, size, ply & psi	Two 7.5L-15; 6; 36	Two 7.5L-15; 6; 36
Ballast	—Liquid	None	None
	Cast iron	23 lb each	None
Height of drawbar		15 inches	15½ inches
Static weight with operator—Rear		8025 lb	6335 lb
	Front	2520 lb	2475 lb
	Total	10545 lb	8810 lb

Department of Agricultural Engineering

Dates of Test: November 6 to November 19, 1970

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

FUEL, OIL and TIME Fuel regular gasoline 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 1.934 gal Drained from motor 1.726 gal Transmission and final-drive lubricant Case TCH oil Total time engine was operated 38½ hours.

ENGINE Make Case gasoline Type 4 cylinder vertical Serial No 2316256 Crankshaft mounted lengthwise Rated rpm 1900 Bore and stroke 4" x 5" Compression ratio 7.5 to 1 Displacement 251 cu in Carburetor size 1¼" Ignition system battery Cranking system 12 volt electric Lubrication pressure Air cleaner dry type with replaceable treated paper element and pre-cleaner Oil filter full flow replaceable cartridge Fuel filter screen and sediment bowl Muffler was used Cooling medium temperature control thermostat.

CHASSIS Type standard Serial No 8664693 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 centerline of rear wheels 28.7" Vertical distance above roadway 34.1" 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 eighth 15 reverse 2.4 and 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 10½" face 7¼" 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 test procedure requires only one gear over 8 mph.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1061.

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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