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January 1960

Test 771: Case 541 (Gasoline)

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 771 - CASE 541 GASOLINE

The University of Nebraska Agricultural Experiment Station (ALSO CASE 570 GASOLINE)

E. F. Frolik, Dean and Acting Director, Lincoln, Nebraska

POWER TAKE-OFF PERFORMANCE

Hp	Crank shaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temp Degrees F	Air wet bulb	Air dry bulb	Barometer inches of mercury
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours								
39.50	1900	3.328	0.524	11.87	180	58	75	29.050
Standard Power Take-off Speed (540 rpm)—One Hour								
38.22	1773	3.127	0.509	12.22	180	58	75	29.040
VARYING POWER AND FUEL CONSUMPTION—TWO HOURS								
35.26	1997	3.081	0.544	11.44	180	59	78	.....
0.00	2137	1.306	.....	.....	177	58	76	.....
18.04	2043	2.184	0.753	8.26	175	57	74	.....
39.63	1901	3.326	0.522	11.92	180	58	75	.....
9.24	2093	1.784	1.201	5.18	180	57	75	.....
26.73	2017	2.632	0.613	10.16	177	58	77	.....
Av 21.48	2031	2.386	0.691	9.00	178	58	76	29.012

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	Temperature Degrees F	Air wet bulb	Air dry bulb	Barometer inches of mercury
VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST											
Maximum Available Power—Two Hours—5th Gear											
32.85	2825	4.36	1906	4.57	3.248	0.615	10.11	181	45	51	28.808
75% of Pull at Maximum Power—Ten Hours—5th Gear											
27.12	2188	4.65	2000	3.12	2.780	0.638	9.76	181	55	63	28.712
50% of Pull at Maximum Power—Two Hours—5th Gear											
18.68	1472	4.76	2034	2.49	2.412	0.804	7.74	179	42	45	28.820
MAXIMUM POWER WITH BALLAST											
25.99	5834	1.67	1999	14.86	1st Gear	.....	.....	185	59	70	28.810
32.25	4858	2.49	1902	9.11	2nd Gear	.....	.....	185	59	70	28.810
33.31	4372	2.86	1899	7.89	3rd Gear	.....	.....	185	57	68	28.830
33.07	3671	3.38	1905	6.36	4th Gear	.....	.....	184	56	67	28.835
33.85	2924	4.34	1902	4.90	5th Gear	.....	.....	184	55	65	28.840
31.93	2412	4.96	1899	3.81	6th Gear	.....	.....	182	55	65	28.840
33.49	2174	5.78	1899	3.69	7th Gear	.....	.....	182	53	63	28.840
30.72	1555	7.41	1902	2.64	8th Gear	.....	.....	185	53	63	28.840
31.23	1341	8.73	1908	2.08	9th Gear	.....	.....	185	53	63	28.840
29.00	1108	9.81	1898	1.76	10th Gear	.....	.....	182	60	72	28.800
27.41	701	14.66	1899	1.06	11th Gear	.....	.....	182	60	72	28.800
MAXIMUM POWER WITHOUT BALLAST											
28.88	2617	4.14	1952	14.60	5th Gear	.....	.....	180	61	72	28.720
VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST—5th Gear											
Pounds pull			2900	3050	3200			3300	3350		3150
Horsepower			33.9	31.7	29.0			26.4	23.2		18.5
Miles per hour			4.3	3.9	3.4			3.0	2.6		2.2

TIRES, BALLAST and WEIGHT

		With Ballast	Without Ballast
Rear tires	—No, size, ply & psi	Two 14.9-28;6;18	Two 14.9-28;6;14
Ballast	—Liquid	554 lb each	None
	—Cast iron	1491 lb each	None
Front tires	—No, size, ply & psi	Two 5.50-16;4;28	Two 5.50-16;4;28
Ballast	—Liquid	None	None
	—Cast iron	None	None
Height of drawbar		14½ inches	16½ inches
Static weight	—Rear	6580 lb	2490 lb
	—Front	1270 lb	1240 lb
Total weight with operator		8025 lb	3905 lb

Department of Agricultural Engineering

Dates of Test: October 11 to October 27, 1960

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

Manufacturer's Power Rating: 40 PTO Horsepower (corrected to standard conditions)

FUEL, OIL and TIME Fuel regular gasoline Octane No Motor 84 Research 92 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.7475 Weight per gallon 6.223 lb Oil SAE 20-20W API service classification ML, MM, MS, DG To motor 1.259 gal Drained from motor 1.069 gal Transmission and final-drive lubricant SAE 90 Type multi-purpose gear lubricant (E.P.) Total time engine was operated 39½ hours.

ENGINE Make Case gasoline Type 4 cylinder vertical Serial No 362-SO-1345 Crankshaft mounted lengthwise Rated rpm 1900 Bore and stroke 3½" x 4½" Compression ratio 7.42 to 1 Displacement 158.7 cu in Carburetor size 1¼" Ignition system battery Cranking system 12 volt electric Lubrication pressure Air cleaner oil washed wire mesh Oil filter replaceable treated paper element Fuel filter brass screen Muffler was used Cooling medium temperature control thermostat.

CHASSIS Type tricycle Serial No 6150796 Tread width rear 48" to 88" front 6½" to 11½" Wheel base 85" 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" Vertical distance above roadway 31.3" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive with throw out lever Transmission selective gear fixed ratio Advertised speeds mph first 1.60 second 2.48 third 2.81 fourth 3.26 fifth 4.13 sixth 4.69 seventh 5.44 eighth 6.89 ninth 8.06 tenth 9.07 eleventh 13.43 twelfth 22.38 reverse 2.01 and 3.35 Clutch single plate dry disc operated by foot pedal Brakes double disc operated by two foot pedals Steering power assisted Turning radius (on concrete surface with brake applied) right 94" left 94" (on concrete surface without brake) right 94" left 94" Turning space diameter (on concrete surface with brake applied) right 204" left 204" (on concrete surface without brake) right 204" left 204" Belt pulley 1290 rpm at 1900 engine rpm diam 9¼" face 6½" Belt speed 3125 fpm Power take-off 533 rpm at 1750 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.

Twelfth 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 771.

L. F. LARSEN

Engineer-in-Charge

L. W. HURLBUT, Chairman
G. W. STEINBRUEGGE
J. J. SULEK
Board of Tractor
Test Engineers