January 1952

Test 477: McCormick Farmall Super MD

The Experiment Station
University of Nebraska College of Agriculture
W. V. Lambert, Director, Lincoln, Nebraska

Department of Agricultural Engineering
Dates of test: July 7 to July 11, 1952
Manufacturer: INTERNATIONAL HARVESTER CO., CHICAGO, ILLINOIS
Manufacturer's rating: 42.0 drawbar hp, 47.5 belt hp
(Maximum hp corrected to standard conditions)

NEBRASKA TRACTOR TEST NO. 477

McCORMICK FARMALL SUPER MD

FUEL, OIL and TIME Diesel Fuel cetane No 50 (rating taken from oil company's typical inspection data); weight per gallon 7.033 lb **Oil** SAE 20 to motor 2.221 gal; drained from motor 2.105 gal **Total time motor was operated** 43½ hours.

CHASSIS Type standard **Serial No** F1570J **Tread width rear** 52" to 88" front 8⅜" to 17½" **Wheel Base** 90¾" **Hydraulic control system** driven by clutch **Advertised speeds mph** first 2⅝ second 3¾ third 5 fourth 6¾ fifth 16¾ reverse 3⅝ **Belt pulley** diam 11" face 7½" rpm 899 **Belt speed** 2588 fpm **Clutch** single plate dry disc clutch operated by foot pedal **Seat** upholstered seat on conical spring with shock absorber **Brakes** double disc brakes, operated by two foot pedals **Equalized** by locking two brake pedals together **Power take-off** standard type.

ENGINE Make International Harvester **Type** 4 cylinder vertical Diesel **Serial No** D264759 **Crankshaft mounted** lengthwise **Head** I **Lubrication** pressure **Bore and Stroke** 4" x 5¼" **Rated rpm** 1450 **Compression ratio** 16.5 to 1 **Displacement** 264 cu in **Port Diameter Valves** inlet 1.500" exhaust 1.316" **Governor** centrifugal variable speed **Carburetor Size** ¾" (for starting only) **Ignition System** battery (for starting only) **Starting System** 12 volt battery **Air Cleaner** oil washed wire screen **Muffler** was used **Fuel Filter** one cotton auxiliary filter and one treated paper element **Oil Filter** replaceable treated paper element **Cooling medium temperature control** thermostat.

REPAIRS AND ADJUSTMENTS No repairs or adjustments.

REMARKS All test results were determined from observed data and without allowances, additions or deductions. Tests B and F were made with fuel pump set to develop approximately 48 corrected maximum belt horsepower and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, H, J and K were made with the same setting.

BELT HORSEPOWER TESTS

Hp	Crank shaft speed rpm	Fuel Consumption: Gal per hour	Fuel Consumption: Hp-hr per gal	Fuel Consumption: Lb per hp-hour	Water used gal per hour	Temp Deg F: Cooling med	Temp Deg F: Air	Barometer inches of mercury
TESTS B and C—100% MAXIMUM LOAD—TWO HOURS								
46.73	1450	3.355	13.93	0.505	0.00	186	66	29.100
TEST D—RATED LOAD—ONE HOUR								
41.08	1450	2.820	14.57	0.483	0.00	183	74	29.140
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)								
41.14	1452	2.815	14.61	0.481	...	184	75	.....
1.62	1526	0.943	1.72	4.093	...	162	74	.....
21.47	1509	1.792	11.98	0.587	...	170	76	.....
44.06	1386	3.165	13.92	0.505	...	194	77	.....
10.81	1517	1.301	8.31	0.846	...	166	76	.....
31.60	1485	2.244	14.08	0.499	...	176	77	.....
25.12	1479	2.043	12.30	0.572	0.00	175	76	29.140

TORQUE (at dynamometer)

Eng RPM	1456	1376	1296	1232	1154	1080	1004	922	851	782
Lb-ft	333.7	341.6	344.8	348.6	350.0	350.0	344.8	333.4	326.6	316.2

DRAWBAR HORSEPOWER TESTS

Hp	Draw bar pull lb	Speed miles per hr	Crank shaft speed rpm	Slip of drive wheels %	Fuel Consumption: Gal per hour	Fuel Consumption: Hp-hr per gal	Fuel Consumption: Lb per hp-hr	Water used gal per hour	Temp Deg F: Cooling med	Temp Deg F: Air	Barometer inches of mercury
TESTS F and G—100% MAXIMUM LOAD											
37.76	5772	2.45	1449	12.35	..... Not Recorded				182	87	28.900
40.45	4090	3.71	1453	7.37	..... Not Recorded				182	74	28.850
42.19	3213	4.92	1451	5.30	..... Not Recorded				178	64	28.855
40.71	2214	6.90	1452	3.58	..... Not Recorded				180	76	28.850
35.93	773	17.43	1448	0.41	..... Not Recorded				178	83	28.930
TEST H—RATED LOAD—TEN HOURS—3rd Gear											
33.03	2483	4.99	1448	3.84	2.515	13.13	0.536	0.00	188	92	28.846
TEST J—OPERATING MAXIMUM LOAD—3rd Gear											
39.52	3186	4.65	1449	10.89	..... Not Recorded				183	80	29.100
TEST K—OPERATING MAXIMUM LOAD—3rd Gear											
34.66	3226	4.03	1448	16.07	..... Not Recorded				179	80	29.100

TIRES, WHEELS and WEIGHT

	Tests F, G, & H	Test J	Test K
Rear wheels Type	Cast spoke	Cast spoke	Cast spoke
Liquid ballast	927 lb each	None	None
Added cast iron	725 lb each	None	None
Rear tires No. and size	Two 13-38	Two 13-38	Two 11-38
Ply	6	6	4
Air pressure	18 lb	18 lb	12 lb
Front wheels Type	Cast spoke	Cast spoke	Cast spoke
Liquid ballast	None	None	None
Added cast iron	None	None	None
Front tires No. and size	Two 6.00-16	Two 6.00-16	Two 6.00-16
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
Height of drawbar	22 inches	23 inches	19½ inches
Static weight Rear end	7279 lb	3976 lb	3789 lb
Front end	1884 lb	1883 lb	1863 lb
Total weight as tested with operator	9338 lb	6034 lb	5827 lb

HORSEPOWER SUMMARY

	Drawbar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" Hg)	43.91	48.32
2. Observed maximum horsepower (tests F & B)	42.19	46.73
3. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings)	32.93	41.07

We, the undersigned, certify that this is a true and correct report of official tractor test No. 477.

L. F. LARSEN
Engineer in Charge

C. W. SMITH
F. D. YUNG
L. W. HURLBUT
Board of Tractor Test Engineers