January 1949

Test 419: Farmaster Model FD-33

Tractor Museum
University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

Department of Agricultural Engineering
Dates of test: August 3 to August 15, 1949
Manufacturer: FARMASTER CORPORATION, Clifton, New Jersey
Manufacturer's rating: Belt, 32 H P
Drawbar, 27 H P

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

NEBRASKA TRACTOR TEST NO. 419

FARMASTER FD-33

BELT HORSE POWER TESTS

H. P.	Crank shaft speed R.P.M.	Fuel Consumption: Gal. per hour	Fuel Consumption: H.P. hr. per gal.	Fuel Consumption: Lb. per H.P. hour	Water used Gal. per hour	Temp. Deg. F.: Cooling med.	Temp. Deg. F.: Air	Barometer Inches of Mercury
TEST B and TEST C—100% MAXIMUM LOAD—TWO HOURS								
23.59	1650	1.916	12.31	0.563	0.00	187	94	28.880
***TEST D—ONE HOUR**								
21.46	1649	1.736	12.36	0.561	0.00	181	94	28.890
TEST E—VARYING LOAD—TWO HOURS (20 minute runs: last line average)								
21.49	1651	1.739	12.36	0.561	- --	181	94	-- ---
1.35	1705	0.649	2.08	3.333	- --	152	93	-- ---
10.94	1675	1.159	9.44	0.735	- --	167	93	-- ---
23.45	1575	1.830	12.81	0.541	- --	187	94	-- ---
5.51	1695	0.917	6.01	1.154	- --	162	92	-- ---
16.28	1665	1.449	11.24	0.617	- --	173	92	-- ---
13.17	1661	1.291	10.20	0.680	0.00	170	93	28.875

DRAWBAR HORSE POWER TESTS

H.P.	Draw bar pull Lbs.	Speed miles per hr.	Crank shaft speed R.P.M.	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 hr.	Temp. Deg. F.: Cooling med.	Temp. Deg. F.: Air	Barometer Inches of Mercury
TEST F and TEST G—100% MAXIMUM LOAD—											
20.37	3055	2.50	1648	11.67	Not Recorded				177	85	28.880
21.93	2130	3.86	1652	5.78	"	"			176	83	28.880
21.79	1497	5.46	1645	3.73	"	"			173	79	28.805
18.07	613	11.05	1648	1.66	"	"			175	95	28.880
***TEST H—TEN HOURS— 2nd GEAR**											
17.72	1697	3.92	1651	4.36	1.588	11.16	0.621	0.00	174	88	28.845
TEST J—100% MAXIMUM LOAD— - 2nd GEAR											
20.06	2174	3.46	1648	16.75	Not Recorded				173	79	28.905
TEST K—100% MAXIMUM LOAD— - 2nd GEAR											
16.94	1880	3.38	1653	16.68	Not Recorded				170	84	28.905

*Wheels of lightest weight and smallest tires suggested by the manufacturer.

TIRES, WHEELS and WEIGHT

		Tests F, G & H	Test J	Test K
Rear Wheel: (each)	Type	Pressed Steel	Pressed Steel	Pressed Steel
	Liquid Ballast	268 lb	None	None
	Added Cast Iron	750 lb	None	None
Rear Tires:	No., Size and Ply	2 11-38 4 ply	2 11-38 4 ply	2 10-38 4 ply
	Type of Tread	Sure Grip	Sure Grip	Sure Grip
	Make	Goodyear	Goodyear	Goodyear
	Air Pressure	12 lb	12 lb	12 lb
Front Wheel: (each)	Type and Weight	Cast Iron	Cast Iron	Cast Iron
	Liquid Ballast	None	None	None
	Added Cast Iron	None	None	None
Front Tires:	No., Size and Ply	2 5.50-16 4 ply	2 5.50-16 4 ply	2 5.50-16 4 ply
	Type of Tread	Multi-Ring	Multi-Ring	Multi-Ring
	Make	B. F. Goodrich	B. F. Goodrich	B. F. Goodrich
	Air Pressure	28 lb	28 lb	28 lb
Height of Drawbar		16 inches	17 1/2 inches	16 1/2 inches
tic Weight: Rear End		4360 lb	2324 lb	2233 lb
Front End		1128 lb	1127 lb	1118 lb
Total Weight as Tested (With operator)		5663 lb	3626 lb	3526 lb

* Formerly called RATED LOAD, see horsepower summary.

FUEL, OIL and TIME Fuel: Diesel fuel, cetane 47 (cetane rating taken from oil company's typical inspection data); weight per gallon 6.935 lb. Oil: SAE 30; to motor 1.245 gal; drained from motor 0.881 gal. Total time motor was operated 36 hours.

SPECIFICATIONS Type tricycle; Serial No. None; Drive enclosed gear. Tread Width: Rear 56" to 84"; Front 9". Wheel Base 86". Hydraulic Lift Control not available. Advertised speeds, mph; First 2.75; Second 4.00; Third 5.50; Fourth 11.00; Reverse 3.50. Belt Pulley: Diam 8 1/4"; Face 6 1/2"; RPM 1349; Belt Speed 2914 fpm. Clutch: Make Borg & Beck; Type dry disc; Operated by foot pedal. Seat pressed steel. Brakes: Make Wisconsin Axle; Type external and internal shoe; Location differential shaft; Gear Reduction (brake drum to rear wheel) 5.100:1; Operated by foot pedals; Locked by latches on tractor frame; Equalization none (brakes may be locked together).

ENGINE Make Buda; Serial No. 45438; Type 4 cylinder vertical; Head I; Mounting crankshaft lengthwise; Lubrication pressure; Bore and Stroke 3 7/16" x 4 1/8"; Rated RPM 1650; Compression Ratio 15:1. Port Diameter Valves: Inlet 1 3/8"; Exhaust 1 1/8". Governor: Make Bosch; Type centrifugal, variable speed. Fuel Injection System Bosch. Starting System Auto-Lite, 12 volt. Generator Auto-Lite. Battery Exide 6 volt (2 used). Air Cleaner: Make Donaldson; Type oil washed wire screen. Oil Filter: Make Fram; Type replaceable laminated paper element. Fuel Filter: Make Commercial (2 used); Type one replaceable element and one replaceable cartridge. Cooling medium temperature control: Thermostat.

REPAIRS AND ADJUSTMENTS Leak developed in primary fuel filter during Test G. This filter was replaced. Oil leaked from pulley bearing during belt tests; a new seal was installed.

REMARKS All test results were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with fuel pumps set by the manufacturer to develop approximately 23 observed 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 fuel pump setting.

HORSEPOWER SUMMARY

	Drawbar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	23.22	25.23
2. Observed maximum horsepower (tests F & B)	21.93	23.59
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)	17.42	21.45

We, the undersigned, certify that this is a true and correct report of official tractor test No. 419.

L. F. Larsen
Engineer in Charge

C. W. Smith
F. D. Yung
L. W. Hurlbut
Board of Tractor Test Engineers