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Test 1207: Ford 2600 and 2610 Gasoline 8-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1207-FORD 2600 GASOLINE ALSO FORD 2610 GASOLINE 8-SPEED

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—597 rpm)								
34.18	2002	3.041	0.544	11.24	188	55	75	28.833
Standard Power Take-off Speed (540 rpm)—One Hour								
32.07	1810	2.778	0.530	11.54	189	57	75	28.830
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
29.98	2066	2.819	0.575	10.64	181	57	75	.....
0.00	2111	1.079	.....	.....	162	58	76	.....
14.92	2054	2.005	0.823	7.44	169	57	75	.....
34.55	2001	3.172	0.562	10.89	187	57	75	.....
7.57	2085	1.574	1.273	4.81	165	57	75	.....
22.03	2023	2.363	0.656	9.32	173	57	75	.....
Av 18.17	2057	2.169	0.730	8.38	173	57	75	28.893

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
VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST											
Maximum Available Power—Two Hours 4th Gear											
28.76	2385	4.52	2001	7.81	3.044	0.648	9.45	177	57	65	28.950
75% of Pull at Maximum Power—Ten Hours 4th Gear											
23.69	1854	4.79	2076	5.84	2.741	0.708	8.64	166	50	53	28.712
50% of Pull at Maximum Power—Two Hours 4th Gear											
16.21	1240	4.90	2087	4.18	2.268	0.856	7.15	168	59	67	28.870
50% of Pull at Reduced Engine Speed—Two Hours 5th Gear											
16.78	1284	4.90	1743	4.23	2.043	0.745	8.22	165	50	55	28.670
MAXIMUM POWER WITH BALLAST											
21.54	4455	1.81	2077	14.87	2nd Gear		149	43	45		28.670
28.36	3329	3.20	2000	11.34	3rd Gear		176	53	60		29.000
29.81	2475	4.52	2000	7.86	4th Gear		173	52	58		29.010
30.20	2051	5.49	2000	6.46	5th Gear		175	54	62		28.990
29.69	1598	6.97	2001	4.92	6th Gear		175	55	63		28.990
27.25	816	12.53	2003	2.64	7th Gear		170	56	64		28.980

VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST 4th Gear

Pounds Pull	2475	2568	2641	2571	2572	2847	2711
Horsepower	29.81	27.70	25.23	21.65	18.60	16.99	12.93
Crankshaft Speed rpm	2000	1795	1596	1401	1206	1033	831
Miles Per Hour	4.52	4.05	3.58	3.16	2.71	2.24	1.79
Slip of Drivers %	7.86	8.06	8.46	7.96	8.26	9.06	8.96

TRACTOR SOUND LEVEL WITHOUT CAB

	dB(A)
Maximum Available Power 2 Hours	91.5
75% of Pull at Max. Power 10 Hours	90.5
50% of Pull at Max. Power 2 Hours	89.5
50% of Pull at Reduced Engine Speed 2 Hours	87.5
Bystander in 8th gear	76.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	Two 14.9-24; 4; 14	Two 14.9-24; 4; 14
Ballast	470 lb each	None
	270 lb each	None
Front Tires	Two 5.50-16; 4; 36	Two 5.50-16; 4; 36
Ballast	None	None
	115 lb each	None
Height of drawbar	22.5 inches	22.5 inches
Static weight with operator—rear	4150 lb	2670 lb
front	1850 lb	1620 lb
total	6000 lb	4290 lb

Department of Agricultural Engineering

Dates of Test: March 25 to April 23, 1976

Manufacturer: FORD MOTOR COMPANY,
Ford Tractor Operations, 2500 East Maple
Road, Troy, Michigan 48084

FUEL, OIL AND TIME Fuel unleaded gaso-
line Octane No. Motor 82.2 Research 91.8
(rating taken from oil company's typical inspec-
tion data) Specific gravity converted to 60°/60°
0.7350 Weight per gallon 6.119 lb Oil SAE
10W-30 API service classification SB/SE CA/
CB To motor 1.494 gal Drained from motor
1.451 gal Transmission and final drive lubri-
cant Ford M-2C53-A fluid Total time engine
was operated 45.5 hours.

ENGINE Make Ford gasoline Type 3 cyl-
inder vertical Serial No B109863 Crankshaft
mounted lengthwise Rated rpm 2000 Bore
and stroke 4.2" x 3.8" Compression ratio 7.75
to 1 Displacement 158 cu in Carburetor size
1 1/4" Ignition system battery Cranking system
12 volt Lubrication pressure Air cleaner
double paper element with dust evacuator Oil
filter full flow cotton blend screw-on cartridge
Oil cooler radiator for hydraulic and rear axle
oil Fuel filter edge type filter element Muffler
vertical Cooling medium temperature control
thermostat.

CHASSIS Type standard Serial No C486204
Tread width rear 52" to 76" front 52" to 80"
Wheel base 75.8" Center of gravity (without
operator or ballast, with minimum tread, with
fuel tank filled and tractor serviced for opera-
tion) Horizontal distance forward from center-
line of rear wheels 32.8" Vertical distance above
roadway 25.2" Horizontal distance from center
of rear wheel tread 0" to the right/left Hy-
draulic control system direct engine drive
Transmission selective gear fixed ratio Adver-
tised speeds mph first 1.6 second 2.0 third 3.6
fourth 4.8 fifth 5.8 sixth 7.2 seventh 12.8 eighth
17.4 reverse 2.4 and 8.4 Clutch single plate dry
disc operated by foot pedal Brakes internal
expanding shoe operated by two foot pedals
which can be locked together Steering power
assist Turning radius (on concrete surface with
brake applied) right 117" left 117" (on concrete
surface without brake) right 129" left 129"
Turning space diameter (on concrete surface
with brake applied) right 240" left 240" (on
concrete surface without brake) right 267" left
267" Power take-off 540 rpm at 1810 engine
rpm.

REPAIRS AND ADJUSTMENTS: No repairs
or adjustments.

REMARKS: All test results were determined
from observed data obtained in accordance with
SAE and ASAE test code or official Nebraska test
procedure. Six gears were chosen between 15%
slip and 15 mph.

We, the undersigned, certify that this is a true
and correct report of official Tractor Test 1207.

LOUIS I. LEVITICUS

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers

EXPLANATION OF TEST REPORT

GENERAL CONDITIONS

Each tractor is a production model equipped for common usage. Power consuming accessories may be disconnected only when the means for disconnecting can be reached from the operator station. Additional weight can be added as ballast if the manufacturer regularly supplies it for sale. The static tire loads and the inflation pressures must conform to recommendations in the Tire Standards published by the Society of Automotive Engineers.

PREPARATION FOR PERFORMANCE RUNS

The engine crankcase is drained and refilled with a measured amount of new oil conforming to specifications in the operators manual. The fuel used and the maintenance operations must also conform to the published information delivered with the tractor. The tractor is then limbered-up for 12 hours on drawbar work in accordance with the manufacturer's published recommendations. The manufacturer's representative is present to make appropriate decisions regarding mechanical adjustments.

The tractor is equipped with approximately the amount of added ballast that is used during maximum drawbar tests. Prior to the maximum power run the tire tread-bar height must be at least 65% of new tread height.

POWER TAKE-OFF PERFORMANCE

Maximum Power and Fuel Consumption. The manufacturer's representative makes carburetor, fuel pump, ignition and governor control settings which remain unchanged throughout all subsequent runs. The governor and the manually operated governor control lever is set to provide the high-idle speed specified by the manufacturer for maximum power. Maximum power is measured by connecting the power take-off to a dynamometer. The dynamometer load is then gradually increased until the engine is operating at the rated speed specified by the manufacturer for maximum power. The corresponding fuel consumption is measured.

Varying Power and Fuel Consumption. Six different horsepower levels are used to show corresponding fuel consumption rates and how the governor causes the engine to react to the following changes in dynamometer load: 85% of the dynamometer torque at maximum power; minimum dynamometer torque, $\frac{1}{2}$ of the 85% torque; maximum power, $\frac{1}{4}$ and $\frac{3}{4}$ of the 85% torque. Since a tractor is generally subjected to varying loads the average of the results in this test serve well for predicting the fuel consumption of a tractor in general use.

DRAWBAR PERFORMANCE

All engine adjustments are the same as those used in the belt or power take-off tests.

Varying Power and Fuel Consumption With Ballast. The varying power runs are made to show the effects of speed-control devices (engine, governor, automatic transmission, etc.) on horsepower, speed and fuel consumption. These runs are made around the entire test course which has two 180 degree turns with a minimum radius of 50 feet. The drawbar pull is set at 4 different runs as follows: (1) as near to the pull at maximum power as

possible and still have the tractor maintain the travel speed at maximum horsepower on the straight sections of the test course; (2) 75% of the pull at maximum power; (3) 50% of the pull at maximum power; and (4) maintaining the same load and travel speed as in (3) by shifting to a higher gear and reducing the engine rpm.

Maximum Power with Ballast. Maximum power is measured on straight level sections of the test course. Data are shown for not more than 6 different gears or travel speeds. Some gears or travel speeds may be omitted because of high slippage of the traction members or because the travel speed may exceed the safe limit for the test course. The manufacturer's representative has the option of selecting one gear or speed over eight miles per hour. The maximum safe speed for the Nebraska Test Course has been set at 15 mph. The slip limits have been set at 15% and 7% for pneumatic tires and steel tracks or lugs, respectively. Higher slippage gives widely varying results.

Varying Drawbar Pull and Travel Speed with Ballast. Travel speeds corresponding to drawbar pulls beyond the maximum power range are obtained to show the "lugging ability" of the tractor. The run starts with the pull at maximum power; then additional drawbar pull is applied to cause decreasing speeds. The run is ended by one of three conditions: (1) maximum pull is obtained, (2) the maximum slippage limit is reached, or (3) some other operating limit is reached.

SOUND MEASUREMENT

Sound is recorded during each of the Varying Power and Fuel Consumption runs as the tractor travels on a straight section of the test course. The dB(A) sound level is obtained with the microphone located near the right ear of the operator. Bystander sound readings are taken with the microphone placed 25 feet from the line of travel of the tractor.

An increase of 10 dB(A) will approximately double the loudness to the human ear.

For additional information about the Nebraska Tractor Tests write to the Department of Agricultural Engineering, University of Nebraska, Lincoln, Nebraska 68583.



FORD 2600 GASOLINE 8-SPEED