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1-1-1983

## Test 1481: Massey-Ferguson 2640 Diesel 16-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1481—MASSEY FERGUSON 2640 DIESEL 16 SPEED

## POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1148 rpm)								
90.95 (67.82)	2400	6.222 (23.553)	0.480 (0.292)	14.62 (2.879)	191 (88.1)	58 (14.7)	75 (23.7)	28.900 (97.591)
Standard Power Take-off Speed (1000 rpm)—One Hour								
87.60 (65.32)	2091	5.540 (20.971)	0.443 (0.270)	15.81 (3.115)	195 (90.7)	57 (13.7)	75 (24.1)	28.895 (97.574)

## VARYING POWER AND FUEL CONSUMPTION—Two Hours

78.95 (58.87)	2451	5.496 (20.805)	0.488 (0.297)	14.37 (2.830)	187 (86.1)	60 (15.6)	76 (24.4)	.....
0.00 (0.00)	2556	2.076 (7.859)	.....	.....	174 (78.6)	60 (15.3)	76 (24.2)	.....
40.35 (30.09)	2506	3.694 (13.983)	0.642 (0.390)	10.92 (2.152)	182 (83.6)	59 (15.0)	75 (23.9)	.....
90.77 (67.69)	2402	6.271 (23.738)	0.484 (0.295)	14.48 (2.852)	188 (86.4)	60 (15.6)	76 (24.4)	.....
20.39 (15.20)	2532	2.868 (10.857)	0.986 (0.600)	7.11 (1.400)	176 (80.3)	59 (15.0)	75 (23.9)	.....
59.87 (44.65)	2478	4.469 (16.917)	0.523 (0.318)	13.40 (2.639)	182 (83.6)	60 (15.3)	74 (23.6)	.....
<b>Av</b> 48.39 <b>Av</b> (36.08)	<b>2487</b>	<b>4.145</b> <b>(15.691)</b>	<b>0.601</b> <b>(0.365)</b>	<b>11.67</b> <b>(2.299)</b>	<b>182</b> <b>(83.1)</b>	<b>59</b> <b>(15.3)</b>	<b>75</b> <b>(24.1)</b>	<b>28.870</b> <b>(97.490)</b>

## DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 8th (5L) Gear											
73.48 (54.80)	6611 (29.41)	4.17 (6.71)	2398	7.79	6.046 (22.886)	0.577 (0.351)	12.15 (2.394)	191 (88.1)	54 (11.9)	67 (19.2)	28.915 (97.642)
75% of Pull at Maximum Power—Ten Hours 8th (5L) Gear											
58.18 (43.38)	4982 (22.16)	4.38 (7.05)	2469	5.89	5.076 (19.213)	0.611 (0.372)	11.46 (2.258)	185 (84.7)	44 (6.8)	49 (9.2)	28.972 (97.834)
50% of Pull at Maximum Power—Two Hours 8th (5L) Gear											
39.95 (29.79)	3306 (14.71)	4.53 (7.29)	2499	3.77	4.120 (15.595)	0.723 (0.440)	9.70 (1.910)	183 (83.9)	50 (10.0)	51 (10.6)	28.815 (97.304)
50% of Pull at Reduced Engine Speed—Two Hours 11th (6L) Gear											
39.97 (29.81)	3306 (14.71)	4.53 (7.30)	1630	3.73	3.121 (11.814)	0.547 (0.333)	12.81 (2.523)	183 (83.9)	55 (12.8)	59 (14.7)	28.790 (97.220)

## MAXIMUM POWER IN SELECTED GEARS

68.21 (50.87)	10623 (47.25)	2.41 (3.88)	2425	14.96	5th (3L) Gear			184 (84.4)	49 (9.4)	58 (14.4)	29.020 (97.996)
70.38 (52.48)	7802 (34.71)	3.38 (5.44)	2399	9.52	6th (3H) Gear			191 (88.1)	55 (12.8)	66 (18.9)	28.950 (97.760)
71.39 (53.24)	7563 (33.64)	3.54 (5.70)	2400	9.04	7th (4L) Gear			189 (87.2)	55 (12.8)	65 (18.3)	28.950 (97.760)
74.21 (55.34)	6642 (29.55)	4.19 (6.74)	2400	7.36	8th (5L) Gear			187 (86.1)	55 (12.8)	63 (17.2)	28.950 (97.760)
71.10 (53.02)	5478 (24.37)	4.87 (7.83)	2398	6.21	9th (4H) Gear			190 (87.5)	55 (12.8)	66 (18.9)	28.950 (97.760)
72.84 (54.31)	4789 (21.30)	5.70 (9.18)	2399	5.47	10th (5H) Gear			190 (87.8)	54 (12.2)	67 (19.4)	28.960 (97.794)
74.83 (55.80)	4263 (18.96)	6.58 (10.59)	2397	4.87	11th (6L) Gear			190 (87.8)	54 (12.2)	67 (19.4)	28.960 (97.794)
70.44 (52.53)	2961 (13.17)	8.92 (14.36)	2401	3.50	12th (6H) Gear			190 (87.5)	54 (12.2)	67 (19.4)	28.950 (97.760)

Department of Agricultural Engineering

Dates of Test: May 9-18, 1983

Manufacturer: MASSEY FERGUSON S.A., Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel Cetane No. 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8418 **Fuel weight** 7.009 lbs/gal (0.840 kg/l) **Oil SAE 20-20W API service classification** SE, SF, CC **To motor** 3.960 gal (14.989 l) **Drained from motor** 3.294 gal (12.467 l) **Transmission and final drive lubricant** Massey Ferguson Permatran oil **Total time engine was operated** 46.5 hours.

**ENGINE:** Make Perkins Diesel **Type** six cylinder vertical **Serial No.** TW31040U685972J **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.875" × 5.0" (98.4 mm × 127 mm) **Compression ratio** 16 to 1 **Displacement** 354 cu in (5798 ml) **Starting system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper elements **Muffler** vertical **Cooling medium temperature control** two thermostats.

**CHASSIS:** **Type** front wheel assist **Serial No.** \*2640RWB198216\* **Tread width** rear 60" (1524 mm) to 84" (2134 mm) front 63" (1600 mm) to 81" (2057 mm) **Wheel base** 107.3" (2725 mm) **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 39.0" (991 mm) Vertical distance above roadway 45.8" (1164 mm) Horizontal distance from center of rear wheel tread 0.2" (5 mm) to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.3 (2.1) second 1.8 (2.8) third 2.0 (3.3) fourth 2.7 (4.4) fifth 2.8 (4.6) sixth 3.8 (6.1) seventh 3.9 (6.4) eighth 4.6 (7.4) ninth 5.3 (8.5) tenth 6.1 (9.8) eleventh 7.0 (11.3) twelfth 9.4 (15.1) thirteenth 9.8 (15.8) fourteenth 13.1 (21.1) fifteenth 13.6 (22.0) sixteenth 18.2 (29.4) reverse 1.3 (2.1), 1.8 (2.8), 2.0 (3.3), 2.7 (4.4), 2.8 (4.6), 3.8 (6.1), 3.9 (6.4), 4.6 (7.4), 5.3 (8.5), 6.1 (9.8), 7.0 (11.3), 9.4 (15.1) **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 194.5" (4.94 m) left 187" (4.75 m) (on concrete surface without brake) right 228" (5.79 m) left 222" (5.64 m) **Turning space diameter** (on concrete surface with brake applied) right 405" (10.28 m) left 391" (9.93 m) (on concrete surface without brake) right 471" (11.96 m) left 459" (11.66 m) **Power take-off** 540 rpm at 1992 engine rpm and 1000 rpm at 2091 engine rpm.

### LUGGING ABILITY IN 8th (5L) GEAR

Crankshaft Speed rpm	2400	2161	1914	1686	1436	1195	953
Pull—lbs (kN)	6642 (29.55)	7193 (32.00)	7722 (34.35)	7965 (35.43)	7893 (35.11)	8009 (35.63)	7521 (33.46)
Increase in Pull %	0	8	16	20	19	21	13
Power—Hp (kW)	74.21 (55.34)	71.64 (53.42)	67.59 (50.40)	61.13 (45.58)	51.62 (38.49)	43.49 (32.43)	32.79 (24.45)
Speed—Mph (km/h)	4.19 (6.74)	3.73 (6.01)	3.28 (5.28)	2.88 (4.63)	2.45 (3.95)	2.04 (3.28)	1.63 (2.63)
Slip %	7.36	8.35	9.18	9.46	9.46	9.46	8.91

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive dB(A) Disengaged dB(A)
Maximum Available Power—Two Hours	79.5 79.0
75% of Pull at Maximum Power—Ten Hours	80.0
50% of Pull at Maximum Power—Two Hours	79.5
50% of Pull at Reduced Engine Speed—Two Hours	76.5
Bystander in 15th (8L) gear	90.5

### DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)				Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb		
<b>Maximum Available Power—Two Hours 8th (5L) Gear</b>												
74.77 (55.76)	6498 (28.90)	4.32 (6.94)	2399	5.34	6.010 (22.751)	0.563 (0.343)	12.44 (2.451)	190 (87.8)	54 (12.2)	66 (18.6)		28.865 (97.473)

### MAXIMUM POWER IN SELECTED GEARS

63.80 (47.58)	13707 (60.97)	1.75 (2.81)	2439	14.86	3rd (2L) Gear			183 (83.9)	47 (8.3)	54 (12.2)		29.010 (97.962)
75.56 (56.35)	6568 (29.22)	4.31 (6.94)	2399	5.34	8th (5L) Gear			187 (86.1)	54 (12.2)	60 (15.6)		28.940 (97.726)

### TIRES, BALLAST AND WEIGHT

Rear Tires		With Ballast		Without Ballast	
Ballast	—No., size, ply & psi (kPa)	Two 18.4-38; 8; 20 (140)		Two 18.4-38; 8; 20 (140)	
	—Liquid (each)	1338 lb (607 kg)		None	
	—Cast Iron (each)	112 lb (51 kg)		None	
Front Tires		With Ballast		Without Ballast	
Ballast	—No., size, ply & psi (kPa)	Two 13.6-28; 8; 22 (150)		Two 13.6-28; 8; 22 (150)	
	—Liquid (each)	522 lb (237 kg)		None	
	—Cast Iron (each)	None		None	
Height of Drawbar		23 in (585 mm)		23 in (585 mm)	
Static Weight with Operator—Rear		10815 lb (4906 kg)		7915 lb (3590 kg)	
—Front		5565 lb (2524 kg)		4520 lb (2050 kg)	
—Total		16380 lb (7430 kg)		12435 lb (5640 kg)	



**Massey Ferguson 2640 Diesel**

**REPAIRS and ADJUSTMENTS:** No repairs and adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 149°F (65.1°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1481.

LOUIS I. LEVITICUS  
Engineer-in-Charge

K. VON BARGEN  
W. E. SPLINTER  
L. L. BASHFORD  
Board of Tractor Test Engineers