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4-17-1980

## Test 1342: Massey-Ferguson 4800 Diesel 12 and 18-Speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# NEBRASKA TRACTOR TEST 1342 — MASSEY FERGUSON 4800 DIESEL 18 SPEED—ALSO 12 SPEED

## POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption		Hp.hr/gal (kW/h.l)	Temperature °F (°C)			Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)		Cooling medium	Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1107 rpm)								
179.31 (133.71)	2600	12.683 (48.012)	0.500 (0.304)	14.14 (2.785)	182 (83.2)	55 (12.8)	75 (23.8)	28.930 (97.692)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
172.88 (128.92)	2348	11.447 (43.332)	0.468 (0.284)	15.10 (2.975)	182 (83.3)	55 (12.7)	75 (23.9)	28.940 (97.726)

## VARYING POWER AND FUEL CONSUMPTION—Two Hours

158.95 (118.53)	2713	12.222 (46.264)	0.543 (0.330)	13.01 (2.562)	181 (82.8)	55 (12.8)	76 (24.4)	.....
0.00 (0.00)	2800	5.833 (22.079)	.....	.....	168 (75.8)	54 (12.2)	76 (24.4)	.....
80.78 (60.24)	2757	8.840 (33.464)	0.773 (0.470)	9.14 (1.800)	177 (80.6)	54 (12.2)	76 (24.4)	.....
179.49 (133.85)	2600	12.664 (47.937)	0.498 (0.303)	14.17 (2.792)	182 (83.3)	55 (12.8)	77 (25.0)	.....
40.77 (30.40)	2773	7.311 (27.675)	1.266 (0.770)	5.58 (1.099)	170 (76.9)	55 (12.8)	78 (25.6)	.....
120.43 (89.81)	2736	10.459 (39.591)	0.613 (0.373)	11.52 (2.268)	180 (82.2)	55 (12.8)	78 (25.6)	.....
<b>Av 96.74 (72.14)</b>	<b>2730</b>	<b>9.555 (36.168)</b>	<b>0.697 (0.424)</b>	<b>10.12 (1.995)</b>	<b>176 (80.3)</b>	<b>55 (12.6)</b>	<b>77 (24.9)</b>	<b>28.860 (97.456)</b>

## DRAWBAR PERFORMANCE

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 7th (2Lo Lo) Gear											
153.78 (114.68)	11958 (53.19)	4.82 (7.76)	2600	3.30	12.673 (47.974)	0.582 (0.354)	12.13 (2.390)	178 (81.1)	55 (12.8)	69 (20.3)	28.785 (97.203)
75% of Pull at Maximum Power—Ten Hours 7th (2Lo Lo) Gear											
126.43 (94.28)	9289 (41.32)	5.10 (8.21)	2730	2.36	11.778 (44.584)	0.658 (0.400)	10.73 (2.115)	175 (79.6)	49 (9.3)	67 (19.5)	28.753 (97.095)
50% of Pull at Maximum Power—Two Hours 7th (2Lo Lo) Gear											
85.84 (64.01)	6177 (27.48)	5.21 (8.39)	2765	1.65	10.231 (38.728)	0.842 (0.512)	8.39 (1.653)	156 (68.9)	50 (10.0)	57 (13.6)	28.800 (97.253)
50% of Pull at Reduced Engine Speed—Two Hours 11th (2Hi Int) Gear											
86.10 (64.20)	6183 (27.50)	5.22 (8.40)	1737	1.48	6.655 (25.193)	0.546 (0.332)	12.94 (2.548)	171 (77.2)	55 (12.5)	65 (18.3)	28.810 (97.287)

## MAXIMUM POWER IN SELECTED GEARS

146.60 (109.32)	25294 (112.51)	2.17 (3.50)	2602	11.64	1st (1Lo Lo) Gear		179 (81.4)	50 (10.0)	70 (21.1)	28.880 (97.523)
153.50 (114.47)	21031 (93.55)	2.74 (4.40)	2600	7.04	2nd (1Lo Int) Gear		179 (81.4)	50 (10.0)	69 (20.6)	28.890 (97.557)
155.92 (116.27)	19051 (84.74)	3.07 (4.94)	2599	5.85	3rd (1Hi Lo) Gear		180 (81.9)	50 (10.0)	69 (20.6)	28.890 (97.557)
155.75 (116.14)	18688 (83.13)	3.13 (5.03)	2600	5.70	4th (1Lo Hi) Gear		179 (81.4)	50 (10.0)	69 (20.6)	28.900 (97.591)
158.29 (118.04)	15894 (70.70)	3.73 (6.01)	2598	4.55	5th (1Hi Int) Gear		179 (81.7)	50 (10.0)	69 (20.6)	28.900 (97.591)
157.74 (117.63)	13971 (62.15)	4.23 (6.81)	2600	3.93	6th (1Hi Hi) Gear		179 (81.7)	49 (9.4)	68 (20.0)	28.910 (97.625)
159.08 (118.63)	12383 (55.08)	4.82 (7.75)	2601	3.38	7th (2Lo Lo) Gear		179 (81.4)	48 (8.9)	64 (17.8)	28.910 (97.625)
155.47 (115.93)	10030 (44.62)	5.81 (9.35)	2599	2.74	8th (2Lo Int) Gear		180 (81.9)	51 (10.6)	72 (22.2)	28.880 (97.523)
157.23 (117.25)	9123 (40.58)	6.46 (10.40)	2600	2.42	9th (2Hi Lo) Gear		180 (81.9)	51 (10.6)	72 (22.2)	28.870 (97.490)
156.87 (116.98)	8952 (39.82)	6.57 (10.58)	2601	2.26	10th (2Lo Hi) Gear		179 (81.7)	52 (11.1)	73 (22.8)	28.870 (97.490)
153.79 (114.68)	7396 (32.90)	7.80 (12.55)	2601	1.77	11th (2Hi Int) Gear		179 (81.4)	52 (11.1)	73 (22.8)	28.860 (97.456)
148.68 (110.87)	6337 (28.19)	8.80 (14.15)	2600	1.36	12th (2Hi Hi) Gear		180 (82.2)	53 (11.7)	74 (23.3)	28.860 (97.456)

Department of Agricultural Engineering

Dates of Test: April 17—May 3, 1980

Manufacturer: MASSEY FERGUSON, INC.,  
1901 Bell Avenue, Des Moines, Iowa 50315

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel  
Cetane No. 47.9 (rating taken from oil company's  
inspection data) Specific gravity converted to  
60°/60° (15°/15°) 0.8482 Fuel weight 7.062 lbs/gal  
(0.846 kg/l) Oil SAE 30 API service classifica-  
tion SB/SE/CA/CD To motor 7.083 gal (26.810 l)  
Drained from motor 6.043 gal (22.874 l) Trans-  
mission, hydraulic, and final drive lubricant MF  
Permatran Total time engine was operated 48.5  
hours.

**ENGINE** Make Cummins Dsl Type eight cyl-  
inder vee Serial No. 10895047 Crankshaft  
lengthwise Rated rpm 2600 Bore and stroke 5.5"  
× 4.75" (139.7 mm × 120.7 mm) Compression  
ratio 15.5 to 1 Displacement 903 cu in (14800 ml)  
Starting system 12 volt Lubrication pressure Air  
cleaner two paper elements with aspirator Oil  
filter one full flow cartridge and one bypass car-  
tridge Oil cooler engine coolant heat exchanger  
for crankcase oil, radiator for hydraulic and  
transmission oil Fuel filter two paper cartridges  
Muffler vertical Cooling medium temperature  
control two thermostats.

**CHASSIS:** Type four wheel drive with duals  
Serial No. 9D 002156 Tread width rear 70" (1778  
mm) to 126.5" (3210 mm) front 70" (1778 mm) to  
126.5" (3210 mm) Wheel base 137" (3480 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 83.8"  
(2129 mm) Vertical distance above roadway 49.1"  
(1247 mm) Horizontal distance from center of rear  
wheel tread 0.4" (10 mm) to the right Hydraulic  
control system direct engine drive Transmission  
Selective gear fixed ratio with partial (3) range  
operator controlled powershift Advertised  
speeds mph (km/h) first 2.4 (3.8) second 2.9 (4.6)  
third 3.2 (5.1) fourth 3.2 (5.2) fifth 3.8 (6.1) sixth  
4.3 (6.9) seventh 4.8 (7.8) eighth 5.8 (9.3) ninth 6.4  
(10.3) tenth 6.5 (10.5) eleventh 7.7 (12.4) twelfth  
8.7 (14.0) thirteenth 10.7 (17.2) fourteenth 12.8  
(20.6) fifteenth 14.2 (22.9) sixteenth 14.4  
(23.2) seventeenth 17.0 (27.4) eighteenth 19.2  
(30.9) reverse 3.2 (5.2), 3.9 (6.3), 4.3 (7.0), 4.4  
(7.1), 5.2 (8.3), 5.8 (9.4) Clutch multiple wet disc  
operated by foot pedal Brakes caliper disc hyd-  
raulically operated by foot pedal or mechanically  
by hand lever Steering hydrostatic and articu-  
lated Turning radius (on concrete surface with-  
out brake) right 246" (6.25 m) left 246" (6.25 m)  
Turning space diameter (on concrete surface  
without brake) right 516" (13.10 m) left 516" (13.10  
m) Power take-off 1000 rpm at 2348 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. Temperature at injection pump was  
139°F (59.5°C). Twelve gears were chosen up to 10  
mph (16.1 km/h).

# **LUGGING ABILITY IN 7th (2Lo Lo) GEAR**

Crankshaft Speed rpm	2601	2352	2078	1814	1558	1299	1032	792
Pull—lbs (kN)	12383 (55.08)	13157 (58.52)	14595 (64.92)	15951 (70.96)	17305 (76.97)	18152 (80.74)	19164 (85.25)	18868 (83.93)
Increase in Pull %	0	6	18	29	40	47	55	52
Power—Hp (kW)	159.08 (118.63)	152.40 (113.64)	148.66 (110.85)	141.13 (105.24)	130.80 (97.54)	113.95 (84.97)	95.16 (70.96)	71.85 (53.58)
Speed—Mph (km/h)	4.82 (7.75)	4.34 (6.99)	3.82 (6.15)	3.32 (5.34)	2.83 (4.56)	2.35 (3.79)	1.86 (3.00)	1.43 (2.30)
Slip %	3.38	3.54	4.17	4.48	5.09	5.40	5.85	5.85

## **TRACTOR SOUND LEVEL WITH CAB      dB(A)**

Maximum Available Power—Two Hours	82.0
75% of Pull at Maximum Power—Ten Hours	81.5
50% of Pull at Maximum Power—Two Hours	81.5
50% of Pull at Reduced Engine Speed—Two Hours	80.0
Bystander in 15th (3Hi Lo) gear	94.0

### **TIRES, BALLAST AND WEIGHT**

#### **Rear Tires—No., size, ply & psi (kPa)**

Ballast—Liquid (each)  
—Cast Iron (each)

#### **Front Tires—No., size, ply & psi (kPa)**

Ballast—Liquid (each)  
—Cast Iron (each)

#### **Height of drawbar**

Static Weight with Operator—Rear  
—Front  
—Total

#### **Tested Without Ballast**

Inner Two 23.1-34; 8; 16 (110)  
Outer Two 18.4-38; 8; 12 (85)

None  
None

Inner Two 23.1-34; 8; 16 (110)  
Outer Two 18.4-38; 8; 12 (85)

None  
None

21.5 in (545 mm)

11950 lb (5421 kg)  
18570 lb (8423 kg)  
30520 lb (13844 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1342**.

LOUIS I. LEVITICUS

Engineer-in Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



**Massey Ferguson 4800 Diesel**

The Agricultural Experiment Station  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
Roy G. Arnold, Director