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2008

Test 1933: Massey Ferguson 5480 Diesel

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1933 – SUMMARY 604

MASSEY FERGUSON 5480 DYNA 4 DIESEL

16 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal./hr (l/h)	lb./hp.hr (kg/kW.h)	Hp./hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1083 rpm)					
121.26 (90.43)	2200	8.28 (31.35)	0.479 (0.291)	14.64 (2.88)	
Standard Power Take-off Speed(1000 rpm)					
133.41 (99.48)	2032	8.33 (31.52)	0.437 (0.266)	16.02 (3.16)	
Maximum Power (1 hour)					
134.95 (100.63)	1750	7.68 (29.07)	0.399 (0.243)	17.57 (3.46)	

VARYING POWER AND FUEL CONSUMPTION

121.26 (90.43)	2200	8.28 (31.35)	0.479 (0.291)	14.64 (2.88)	Air temperature
103.80 (77.41)	2218	7.42 (28.09)	0.501 (0.305)	13.99 (2.76)	80°F (27°C)
78.10 (58.24)	2227	6.02 (22.80)	0.540 (0.329)	12.97 (2.55)	Relative humidity
52.41 (39.08)	2236	4.57 (17.29)	0.611 (0.371)	11.48 (2.26)	54%
26.30 (19.61)	2244	3.15 (11.94)	0.840 (0.511)	8.34 (1.64)	Barometer
2.06 (1.54)	2252	1.94 (7.35)	6.606 (4.018)	1.06 (0.21)	28.69" Hg (97.16 kPa)

Maximum torque - 440 lb.-ft. (596 Nm) at 1502 rpm

Maximum torque rise - 52.0%

Torque rise at 1750 engine rpm - 39.9%

Power increase at 1750 rpm - 11.3%

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)

FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb./hp.hr (kg/kW.h)	Hp./hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—9th(3A) Gear									
103.10 (76.88)	6672 (29.68)	5.79 (9.33)	2200	3.35	0.558 (0.340)	12.55 (2.47)	189 (87)	85 (29)	28.82 (97.60)
75% of Pull at Maximum Power—9th(3A) Gear									
79.11 (58.99)	5031 (22.38)	5.90 (9.49)	2220	2.49	0.591 (0.359)	11.86 (2.34)	187 (86)	76 (24)	28.63 (96.95)
50% of Pull at Maximum Power—9th(3A) Gear									
53.64 (40.00)	3365 (14.97)	5.98 (9.62)	2230	1.69	0.671 (0.408)	10.44 (2.06)	182 (83)	83 (28)	28.66 (97.05)
75% of Pull at Reduced Engine Speed—10th(3B) Gear									
79.55 (59.32)	5036 (22.40)	5.92 (9.53)	1814	2.54	0.492 (0.299)	14.25 (2.81)	182 (83)	81 (27)	28.64 (96.99)
50% of Pull at Reduced Engine Speed—10th(3B) Gear									
53.74 (40.07)	3361 (14.95)	6.00 (9.65)	1818	1.54	0.566 (0.344)	12.39 (2.44)	179 (82)	86 (30)	28.68 (97.12)

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832

Dates of tests: June 12 - 27, 2008

Manufacturer: AGCO Corporation, Duluth Georgia USA 30096

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.8416 **Fuel weight** 7.007 lbs/gal (0.840 kg/l) **Oil SAE 15W40 API service classification** CH-4 **Transmission and hydraulic lubricant** Terrac Tractan 9 fluid **Front axle lubricant** API GL5 80W/90 gear lube **Total time engine was operated** 29.0 hours

ENGINE: Make Sisu Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler **Serial No.** T15063 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.252" x 5.276" (108.0 mm x 134.0 mm) **Compression ratio** 17.5 to 1 **Displacement** 299 cu in (4910 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element and one polyester felt element **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** one paper element and water separator **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 56.7 - 58.6 lb/h (25.7 - 26.6 kg/h) **High idle:** 2225 - 2275 rpm **Turbo boost:** nominal 21.8 - 24.7 psi (150-170 kPa) as measured 23.0 psi (159 kPa)

CHASSIS: Type front wheel assist **Serial No.** S242999 **Tread width** rear 59.8" (1518 mm) to 67.0" (1703 mm) front 55.7" (1415 mm) to 64.8" (1646 mm) **Wheelbase** 108.4" (2754 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.21 (1.95) second 1.49 (2.40) third 1.82 (2.93) fourth 2.23 (3.60) fifth 2.88 (4.63) sixth 3.54 (5.70) seventh 4.32 (6.95) eighth 5.31 (8.54) ninth 5.85 (9.41) tenth 7.19 (11.57) eleventh 8.77 (14.11) twelfth 10.78 (17.35), thirteenth 13.48 (21.69) fourteenth 16.58 (26.68) fifteenth 20.22 (32.54) sixteenth 24.87 (40.03) reverse 1.21 (1.95), 1.49 (2.40), 1.82 (2.93), 2.23 (3.60), 2.88 (4.63), 3.54 (5.70), 4.32 (6.95), 5.31 (8.54), 5.85 (9.41), 7.19 (11.57), 8.77 (14.10), 10.78 (17.35), 13.48 (21.69), 16.58 (26.68), 20.22 (32.54), 24.87 (40.03) **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** single wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1980 engine rpm or 1000 rpm at 2029 engine rpm **Unladen tractor mass** 11185 lb (5073 kg)

DRAWBAR PERFORMANCE
(Unballasted - Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
77.97 (58.14)	11094 (49.35)	2.64 (4.24)	2218	11.48	5th(2A) Gear 0.621 (0.378)	11.28 (2.22)	184 (85)	78 (26)	28.76 (97.39)
91.82 (68.47)	10392 (46.23)	3.31 (5.33)	2195	8.62	6th(2B) Gear 0.587 (0.357)	11.94 (2.35)	189 (87)	78 (26)	28.78 (97.46)
96.80 (72.18)	8610 (38.30)	4.22 (6.78)	2197	4.67	7th(2C) Gear 0.552 (0.336)	12.69 (2.50)	186 (86)	78 (26)	28.76 (97.39)
95.37 (71.11)	6811 (30.30)	5.25 (8.45)	2196	3.40	8th(2D) Gear 0.561 (0.341)	12.48 (2.46)	188 (87)	77 (25)	28.82 (97.60)
103.10 (76.88)	6672 (29.68)	5.79 (9.33)	2200	3.35	9th(3A) Gear 0.558 (0.340)	12.55 (2.47)	189 (87)	85 (29)	28.82 (97.60)
101.50 (75.69)	5328 (23.70)	7.14 (11.50)	2190	2.59	10th(3B) Gear 0.573 (0.348)	12.24 (2.41)	189 (87)	81 (27)	28.82 (97.60)
99.07 (73.88)	4220 (18.77)	8.80 (14.17)	2196	1.96	11th(3C) Gear 0.578 (0.352)	12.12 (2.39)	189 (87)	77 (25)	28.79 (97.49)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

NOTE: The engine on this tractor is electronically controlled to give 2 power levels. A "boosted" level is available when the PTO is engaged, tractor stationary, and when the tractor is operated in ranges 3 and 4.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor did not meet the manufacturer's claims of 26 GPM (100 lpm) (standard pump) nor 15 GPM (57 lpm) (optional pump) hydraulic flow at the remote outlets. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 155°F (68°C). The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1933**, Nebraska Summary 604, August 18, 2008.

Roger M. Hoy
Director

M.F. Kocher
V.I. Adamchuk
J.A. Smith
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 7th(2C) gear	74.4	73.8
Bystander in 16th(4D) gear	- -	86.1

TIRES AND WEIGHT

Rear Tires—No., size, ply & psi (kPa)
Front Tires—No., size, ply & psi (kPa)
Height of Drawbar
Static Weight with operator—Rear
— Front
— Total

Tested without ballast

Two 480/80R38; **, 12 (85)
Two 380/85R28; **, 10 (70)
21.5 in (545 mm)
6910 lb (3135 kg)
4450 lb (2018 kg)
11360 lb (5153 kg)

DRAWBAR PERFORMANCE
(Unballasted - Front Drive Engaged - engine 1750 rpm)
MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
5th(2A)Gear									
79.43 (59.23)	11289 (50.21)	2.64 (4.25)	2216	11.33	0.618 (0.376)	11.34 (2.23)	185 (85)	78 (26)	28.76 (97.39)
6th(2B)Gear									
91.82 (68.47)	10331 (45.96)	3.33 (5.36)	2201	8.28	0.591 (0.359)	11.87 (2.34)	188 (87)	79 (26)	28.78 (97.46)
7th(2C) Gear									
102.50 (76.43)	10036 (44.64)	3.83 (6.16)	2046	7.13	0.525 (0.319)	13.35 (2.63)	186 (86)	80 (27)	28.77 (97.43)
8th(2D) Gear									
105.28 (78.51)	9825 (43.70)	4.02 (6.47)	1745	6.89	0.472 (0.287)	14.85 (2.93)	188 (87)	79 (26)	28.82 (97.60)
9th(3A) Gear									
114.52 (85.40)	9585 (42.64)	4.48 (7.21)	1748	5.93	0.463 (0.282)	15.14 (2.98)	190 (88)	75 (24)	28.82 (97.60)
10th(3B)Gear									
114.56 (85.43)	7632 (33.95)	5.63 (9.06)	1750	3.96	0.470 (0.286)	14.91 (2.94)	188 (87)	72 (22)	28.62 (96.92)
11th(3C)Gear									
115.33 (86.00)	6207 (27.61)	6.97 (11.21)	1760	3.12	0.469 (0.285)	14.93 (2.94)	188 (87)	73 (23)	28.62 (96.92)
12th(3D) Gear									
112.26 (83.71)	4925 (21.91)	8.55 (13.76)	1749	2.78	0.483 (0.294)	14.51 (2.86)	189 (87)	74 (23)	28.63 (96.95)

DRAWBAR PERFORMANCE
(Unballasted - Front Drive Disengaged)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F cool- ing med	°C Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—9th(3A) Gear									
100.12 (74.66)	6710 (29.85)	5.60 (9.01)	2199	5.55	0.579 (0.352)	12.11 (2.39)	187 (86)	86 (30)	28.82 (97.60)
75% of Pull at Maximum Power—9th(3A) Gear									
77.84 (58.05)	5056 (22.49)	5.77 (9.29)	2217	3.36	0.604 (0.367)	11.61 (2.29)	187 (86)	78 (26)	28.63 (96.95)
50% of Pull at Maximum Power—9th(3A) Gear									
52.53 (39.17)	3353 (14.91)	5.88 (9.46)	2229	2.15	0.674 (0.410)	10.40 (2.05)	182 (84)	84 (29)	28.67 (97.09)
75% of Pull at Reduced Engine Speed—10th(3B) Gear									
77.68 (57.93)	5028 (22.37)	5.79 (9.32)	1810	3.38	0.500 (0.304)	14.00 (2.76)	183 (84)	80 (27)	28.63 (96.95)
50% of Pull at Reduced Engine Speed—10th(3B) Gear									
52.91 (39.45)	3371 (14.99)	5.89 (9.47)	1815	2.13	0.582 (0.354)	12.05 (2.37)	179 (82)	85 (29)	28.67 (97.09)
MAXIMUM POWER IN SELECTED GEARS									
6th(2B) Gear									
71.61 (53.40)	8410 (37.41)	3.19 (5.14)	2219	11.80	0.650 (0.395)	10.78 (2.12)	183 (84)	70 (21)	28.62 (96.92)
7th(2C) Gear									
84.91 (63.32)	7968 (35.44)	4.00 (6.43)	2215	9.32	0.601 (0.366)	11.65 (2.30)	186 (86)	71 (22)	28.62 (96.92)
8th(2D) Gear									
93.07 (69.40)	6847 (30.46)	5.10 (8.20)	2199	5.28	0.599 (0.364)	11.70 (2.30)	188 (87)	78 (26)	28.82 (97.60)
9th(3A) Gear									
100.12 (74.66)	6710 (29.85)	5.60 (9.01)	2199	5.55	0.579 (0.352)	12.11 (2.39)	187 (86)	86 (30)	28.82 (97.60)
10th(3B) Gear									
100.49 (74.94)	5364 (23.86)	7.03 (11.31)	2198	3.54	0.572 (0.348)	12.24 (2.41)	190 (88)	83 (28)	28.82 (97.60)
11th(3C) Gear									
98.48 (73.44)	4255 (18.93)	8.68 (13.97)	2204	2.56	0.591 (0.360)	11.85 (2.33)	189 (87)	77 (25)	28.80 (97.53)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum force exerted through whole range: 9189 lbs (40.9 kN)

	Open center system		Closed center system	
	100 l/min pump	57 l/min pump	110 l/min pump	
i) Sustained pressure of the open relief valve:	3136 psi (216 bar)	2879 psi (198 bar)	2815 psi (194 bar)	
ii) Pump delivery rate at minimum pressure and rated engine speed:	24.1 GPM (91.2 l/min)	14.5 GPM (54.9 l/min)	29.9 GPM (113.3 l/min)	
iii) Pump delivery rate at maximum hydraulic power:	22.4 GPM (84.8 l/min)	13.5 GPM (51.1 l/min)	26.0 GPM (98.4 l/min)	
Delivery pressure:	2338 psi (161 bar)	2505 psi (173 bar)	2616 psi (180 bar)	
Power:	30.6 HP (22.8 kW)	19.7 Hp (14.7 kW)	39.7 hp (29.6 kW)	

HITCH DIMENSIONS AS TESTED—NO LOAD

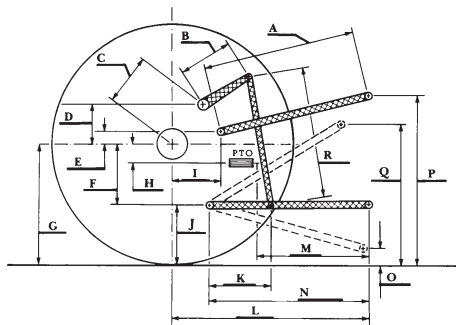
THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar)	2770 (191)
Location:	lift cylinder
Hydraulic oil temperature: °F (°C)	152 (67)
Location:	hydraulic valve
Category:	II
Quick attach:	none

SAE Static Test—System pressure 2490 psi (172 Bar)

Hitch point distance to ground level in. (mm)	10.2 (259)	15.0 (381)	22.0 (559)	29.0 (737)	36.0 (914)
Lift force on frame lb	18747	15849	14310	12789	11421
" " " " " (kN)	(83.4)	(70.5)	(63.7)	(56.9)	(50.8)

	SAE test		OECD test	
	inch	mm	inch	mm
A	24.8	629	24.8	629
B	11.6	295	11.6	295
C	13.9	353	13.9	353
D	13.0	330	13.0	330
E	7.9	200	7.9	200
F	10.2	260	10.2	260
G	30.3	770	30.3	770
H	1.4	35	1.4	35
I	16.2	413	16.2	413
J	20.1	510	20.1	510
K	24.2	615	24.2	615
L	41.2	1046	41.2	1046
M	23.5	596	23.5	596
N	37.2	946	37.2	946
O	8.0	203	8.0	203
P	40.2	1020	44.1	1120
Q	33.5	850	33.5	850
R	29.0	737	29.0	737



MASSEY FERGUSON 5480 Diesel

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