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January 2005

## Nebraska Summary 510: Massey Ferguson 5435 Diesel 16-Speed

Nebraska Tractor Test Lab

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# SUMMARY OF OECD TESTS 2274 & 2275—NEBRASKA SUMMARY 510

## MASSEY FERGUSON 5435 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—1100 rpm)					
61.0 (45.5)	2199	4.02 (15.21)	0.469 (0.285)	15.13 (2.98)	
Maximum Power (2 hours)					
61.7 (46.0)	2150	3.97 (15.04)	0.457 (0.278)	15.53 (3.06)	
Standard Power Take-off Speed(1000 rpm)					
59.7 (44.5)	2000	3.70 (14.01)	0.440 (0.268)	16.13 (3.18)	

#### VARYING POWER AND FUEL CONSUMPTION

61.0 (45.5)	2199	4.02 (15.21)	0.469 (0.285)	15.13 (2.98)	Air temperature
53.3 (39.8)	2248	3.70 (14.01)	0.492 (0.300)	14.41 (2.84)	68°F (20°C)
40.6 (30.3)	2285	3.18 (12.05)	0.557 (0.339)	12.74 (2.51)	Relative humidity
27.4 (20.4)	2312	2.71 (10.24)	0.701 (0.426)	10.12 (1.99)	54%
13.8 (10.3)	2328	2.12 (8.04)	1.094 (0.666)	6.48 (1.28)	Barometer
--	2337	1.59 (6.00)	--	--	30.3" Hg (102.6 kPa)

Maximum Torque -175.4 lb.-ft. (237.8 Nm) at 1349 rpm

Maximum Torque Rise -20.5%

Torque rise at 1750 engine rpm -13%

#### 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—5th(3TC) Gear									
48.5 (36.2)	5585 (24.9)	3.26 (5.24)	2203	5.6	0.575 (0.350)	12.33 (2.43)	187 (86)	36 (2)	30.1 (101.8)
75% of Pull at Maximum Power—5th(3TC) Gear									
38.0 (28.3)	4210 (18.7)	3.38 (5.44)	2256	4.4	0.598 (0.364)	11.87 (2.34)	189 (87)	36 (2)	30.1 (101.8)
50% of Pull at Maximum Power—5th(3TC) Gear									
26.1 (19.5)	2810 (12.5)	3.48 (5.60)	2294	3.1	0.808 (0.491)	8.78 (1.73)	189 (87)	36 (2)	30.1 (101.8)
75% of Pull at Reduced Engine Speed—6th(3TD) Gear									
37.8 (28.2)	4180 (18.6)	3.39 (5.45)	1794	4.6	0.508 (0.309)	13.96 (2.75)	183 (84)	36 (2)	30.1 (101.8)
50% of Pull at Reduced Engine Speed—6th(3TD) Gear									
26.3 (19.6)	2810 (12.5)	3.51 (5.64)	1831	3.2	0.641 (0.390)	11.07 (2.18)	185 (85)	36 (2)	30.1 (101.8)

**Location of tests:** Groupement d'Antony, Parc de Touvoie, BP 44 Antony, Cedex, France 92163

**Dates of tests:** January - February, 2005

Sound tests: January 18, 2006

**Manufacturer:** AGCOS.A. BP 307, Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.852 **Fuel weight** 7.09 lbs/gal (0.850 kg/l) **Oil SAE** 15W40 **API service classification** CH4 **Transmission and hydraulic lubricant** BP Terrac Tractan 9 fluid **Front axle lubricant** API GL5 -SAE 85W140

**ENGINE:** Make Perkins Diesel **Type** four cylinder vertical **Serial No.** U0903885 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.134" x 5.00" (105.0 mm x 127.0 mm) **Compression ratio** 19.3 to 1 **Displacement** 268 cu in (4400 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

**CHASSIS:** **Type** 2WD and FWA **Serial No.** M350101 **Tread width** rear 59.8" (1518 mm) to 67.0" (1703 mm) front 2WD - 53.0" (1345 mm) to 87.3" (2217 mm), FWA - 53.4" (1357 mm) to 64.8" (1646 mm) **Wheelbase** 2WD - 97.0" (2463 mm) FWA - 97.0" (2463 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.58(2.55) second 2.00(3.22) third 2.39(3.85) fourth 3.03(4.87) fifth 3.31(5.33) sixth 4.19(6.74) seventh 4.80(7.72) eighth 6.06(9.76) ninth 6.36(10.23) tenth 8.03(12.93) eleventh 9.60(15.45) twelfth 12.14(19.54) thirteenth 13.29(21.39) fourteenth 16.80(27.03) fifteenth 19.24(30.96) sixteenth 24.33(39.15) reverse 1.54(2.48), 1.94(3.13), 2.32(3.74), 2.94(4.73), 3.22(5.18), 4.07(6.55), 4.66(7.50), 5.89(9.48), 6.16(9.91), 7.81(12.57), 9.33(15.02), 11.79(18.98), 12.91(20.78), 16.33(26.27), 18.70(30.09), 23.63(38.03) **Clutch** multiple wet disc operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1980 engine rpm or 1000 rpm at 2000 engine rpm **Unladen tractor mass** 2WD - 8695 lb (3945 kg), FWA - 9335 lb (4235 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)
45.9 (34.2)	8385 (37.3)	2.05 (3.30)	2140	15.1	3rd(2TC)Gear 0.610 (0.371)	11.62 (2.29)	185 (85)	32 (0)	30.1 (101.8)
50.0 (37.3)	6540 (29.1)	2.87 (4.62)	2155	6.9	4th(2TD)Gear 0.557 (0.339)	12.74 (2.51)	178 (81)	34 (1)	30.1 (101.8)
50.2 (37.4)	6000 (26.7)	3.13 (5.04)	2140	6.6	5th(3TC)Gear 0.563 (0.343)	12.59 (2.48)	187 (86)	34 (1)	30.1 (101.8)
50.2 (37.4)	4650 (20.7)	4.05 (6.51)	2146	4.6	6th(3TD)Gear 0.529 (0.322)	13.40 (2.64)	180 (82)	34 (1)	30.1 (101.8)
48.7 (36.3)	3890 (17.3)	4.69 (7.55)	2152	3.8	7th(4TC) Gear 0.566 (0.344)	12.54 (2.47)	187 (86)	34 (1)	30.1 (101.8)
46.0 (34.3)	2910 (12.9)	5.93 (9.55)	2150	3.8	8th(4TD) Gear 0.607 (0.369)	11.68 (2.30)	187 (86)	34 (1)	30.1 (101.8)
48.7 (36.3)	2940 (13.1)	6.21 (10.00)	2142	3.1	9th(1LC) Gear 0.568 (0.346)	12.49 (2.46)	189 (87)	34 (1)	30.1 (101.8)
47.6 (35.5)	2210 (9.8)	8.08 (13.01)	2163	1.7	10th(1LD)Gear 0.587 (0.357)	12.08 (2.38)	189 (87)	36 (2)	30.1 (101.8)
42.0 (31.3)	1635 (7.3)	9.64 (15.51)	2149	1.3	11th(2LC)Gear 0.691 (0.420)	10.26 (2.02)	189 (87)	36 (2)	30.1 (101.8)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. The manufacturer's claim of 72 dB(A) cab sound level was not tested for verification. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **2274 & 2275**, Nebraska Summary 510, March 17, 2006.

Leonard L. Bashford  
Director

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

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	2WD dB(A)	Engaged dB(A)
At no load in 7th (4TC) gear	91.1	91.1
Bystander in 16th(4LD) gear	86.9	--

**Tested Without Ballast**

**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

**Front Wheel Assist**

Two 18.4R34; \*\*,15(100)

Two 14.9R24; \*\*,16(110)

22.0 in (560 mm)

5975 lb (2710 kg)

3540 lb (1605 kg)

9515 lb (4315 kg)

**2WD**

Two 18.4R34; \*\*,15(100)

Two 7.50-16; 6; 30 (210)

28.5 in (730 mm)

5930 lb (2690 kg)

2955 lb (1340 kg)

8885 lb (4030 kg)

**DRAWBAR PERFORMANCE**  
**(Unballasted - 2WD)**  
**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)
<b>Maximum Power—9th(1LC) Gear</b>									
48.4 (36.1)	2900 (12.9)	6.26 (10.08)	2198	5.2	0.566 (0.344)	12.54 (2.47)	190 (88)	52 (11)	30.0 (101.7)
<b>75% of Pull at Maximum Power—9th(1LC) Gear</b>									
37.5 (28.0)	2185 (9.7)	6.44 (10.36)	2251	4.8	0.657 (0.400)	10.80 (2.13)	190 (88)	52 (11)	30.0 (101.7)
<b>50% of Pull at Maximum Power—9th(1LC) Gear</b>									
25.7 (19.2)	1465 (6.5)	6.59 (10.61)	2285	4.0	0.857 (0.521)	8.27 (1.63)	190 (88)	52 (11)	30.0 (101.7)
<b>75% of Pull at Reduced Engine Speed—10th(1LD) Gear</b>									
37.3 (27.8)	2175 (9.7)	6.43 (10.35)	1782	5.0	0.544 (0.331)	13.05 (2.57)	187 (86)	52 (11)	30.0 (101.7)
<b>50% of Pull at Reduced Engine Speed—10th(1LD) Gear</b>									
25.5 (19.0)	1470 (6.5)	6.51 (10.48)	1783	3.4	0.671 (0.408)	10.56 (2.08)	185 (85)	52 (11)	30.0 (101.7)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
<b>3rd (2TC) Gear</b>									
39.6 (29.5)	6880 (30.6)	2.16 (3.48)	2242	14.7	0.650 (0.395)	10.91 (2.15)	187 (86)	48 (9)	30.0 (101.7)
<b>4th (2TD) Gear</b>									
48.0 (35.8)	6630 (29.5)	2.72 (4.37)	2160	12.2	0.560 (0.341)	12.67 (2.50)	187 (86)	48 (9)	30.0 (101.7)
<b>5th (3TC) Gear</b>									
48.5 (36.2)	6000 (26.7)	3.03 (4.88)	2151	10.1	0.577 (0.351)	12.28 (2.42)	187 (86)	48 (9)	30.0 (101.7)
<b>6th (3TD) Gear</b>									
49.8 (37.1)	4795 (21.3)	3.89 (6.26)	2142	8.1	0.563 (0.343)	12.59 (2.48)	189 (87)	48 (9)	30.0 (101.7)
<b>7th (4TC) Gear</b>									
49.3 (36.8)	4110 (18.3)	4.50 (7.24)	2143	7.4	0.563 (0.343)	12.59 (2.48)	189 (87)	48 (9)	30.0 (101.7)
<b>8th (4TD) Gear</b>									
46.9 (35.0)	3045 (13.6)	5.78 (9.30)	2147	6.1	0.605 (0.368)	11.73 (2.31)	190 (88)	48 (9)	30.0 (101.7)
<b>9th (1LC) Gear</b>									
50.8 (37.9)	3140 (14.0)	6.07 (9.77)	2149	6.0	0.561 (0.341)	12.64 (2.49)	189 (87)	48 (9)	30.0 (101.7)
<b>10th (1LD) Gear</b>									
46.8 (34.9)	2265 (10.1)	7.74 (12.46)	2149	5.3	0.595 (0.362)	11.93 (2.35)	190 (88)	52 (11)	30.0 (101.7)
<b>11th (2LC) Gear</b>									
43.9 (32.7)	1775 (7.9)	9.27 (14.92)	2148	5.0	0.652 (0.396)	10.88 (2.14)	176 (80)	52 (11)	30.0 (101.7)

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum force exerted through whole range: 7285 lbs (32.4 kN)

i) Opening pressure of relief valve: NA

one outlet set two outlet sets combined

Sustained pressure of the open relief valve: 2715 psi (187 bar) 2715 psi (187 bar)

ii) Pump delivery rate at minimum pressure: 15.6 GPM (59.2 l/min) 15.9 GPM (60.4 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 14.6 GPM (55.2 l/min) 14.6 GPM (55.4 l/min)

Delivery pressure: 2235 psi (154 bar) 2265 psi (156 bar)

Power: 19.0 hp (14.2 kW) 19.3 Hp (14.4 kW)

### HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	25.6	650
B	11.6	295
C	13.9	354
D	13.0	330
E	7.9	200
F	10.2	260
G	30.5	775
H	1.9	48
I	16.3	413
J	20.3	515
K	25.2	640
L	41.2	1046
M	22.5	571
N	37.2	946
O	8.1	205
P	44.3	1125
Q	31.5	801
R	30.1	765

