

# SUMMARY OF OECD TEST 2531-NEBRASKA SUMMARY 708 MASSEY FERGUSON 5470 DIESEL 16 SPEED

**Tractor chassis S/N S310050 and higher**

## 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1084 rpm)</b>					
112.6 (84.0)	2200	7.49 (28.35)	0.473 (0.288)	15.04 (2.96)	
<b>Standard Power Take-off Speed(1000 rpm)</b>					
128.2 (95.6)	2030	7.69 (29.10)	0.427 (0.260)	16.67 (3.28)	
<b>Maximum Power (1 hour)</b>					
130.6 (97.4)	2000	7.68 (29.07)	0.419 (0.255)	17.00 (3.35)	

## VARYING POWER AND FUEL CONSUMPTION

112.6 (84.0)	2200	7.49 (28.35)	0.473 (0.288)	15.04 (2.96)	Air temperature
96.4 (71.9)	2214	6.51 (24.65)	0.481 (0.293)	14.80 (2.92)	72°F (22°C)
72.4 (54.0)	2224	5.01 (18.95)	0.492 (0.299)	14.46 (2.85)	Relative humidity
48.4 (36.1)	2234	3.63 (13.75)	0.534 (0.325)	13.34 (2.63)	31%
24.4 (18.2)	2237	2.46 (9.31)	0.719 (0.437)	9.90 (1.95)	Barometer
--	2250	1.47 (5.57)	--	--	30.2" Hg (102.1 kPa)

Maximum torque - 439.1 lb.-ft. (595.4 Nm) at 1250 rpm

Maximum torque rise - 63.2%

Torque rise at 1750 engine rpm - 43%

## 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)	Temp. °F (°C) cool- ing med	Barom. inch Hg (kPa)
<b>Maximum Power—9th(3A) Gear</b>							
81.8 (61.0)	5260 (23.4)	5.83 (9.38)	2196	5.4	0.560 (0.340)	12.69 (2.50)	189 (87)
<b>75% of Pull at Maximum Power—9th(3A) Gear</b>							
62.0 (46.2)	3935 (17.5)	5.90 (9.50)	2205	4.6	0.555 (0.338)	12.79 (2.52)	189 (87)
<b>50% of Pull at Maximum Power—9th(3A) Gear</b>							
42.0 (31.3)	2630 (11.7)	5.99 (9.64)	2215	3.5	0.651 (0.396)	10.91 (2.15)	189 (87)
<b>75% of Pull at Reduced Engine Speed—10th(3B) Gear</b>							
61.7 (46.0)	3925 (17.5)	5.89 (9.48)	1790	4.6	0.477 (0.290)	14.87 (2.93)	187 (86)
<b>50% of Pull at Reduced Engine Speed—10th(3B) Gear</b>							
41.6 (31.0)	2620 (11.7)	5.95 (9.58)	1793	3.7	0.649 (0.334)	12.94 (2.55)	187 (86)

**Location of tests:** Groupement d'Antony, Parc de Touvoie, BP 44 Antony, Cedex, France 92163  
**Dates of tests:** April to May, 2009

**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)** 0.855  
**Fuel weight** 7.12 lbs/gal (0.853 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 Sisu Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler  
**Serial No.** V01245 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.252" x 4.724" (108.0 mm x 120.0 mm) **Compression ratio** 18.5 to 1 **Displacement** 268 cu in (4397 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 and variable speed fan

**CHASSIS:** **Type** front wheel assist **Serial No.** U027010 **Tread width** rear 64.6" (1640 mm) to 82.0" (2083 mm) front 69.6" (1769 mm) to 85.5" (2172 mm) **Wheelbase** 97.0" (2464 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.22 (1.96) second 1.50 (2.42) third 1.83 (2.95) fourth 2.25 (3.62) fifth 2.90 (4.66) sixth 3.56 (5.73) seventh 4.34 (6.99) eighth 5.34 (8.60) ninth 5.88 (9.46) tenth 7.23 (11.64) eleventh 8.82 (14.19) twelfth 10.85 (17.46) thirteenth 13.27 (21.36) fourteenth 16.32 (26.27) fifteenth 19.91 (32.04) sixteenth 24.49 (39.41) reverse 1.22 (1.96), 1.50 (2.42), 1.83 (2.95), 2.25 (3.62), 2.90 (4.66), 3.56 (5.73), 4.34 (6.99), 5.34 (8.60), 5.88 (9.46), 7.23 (11.64), 8.82 (14.19), 10.85 (17.46), 13.27 (21.36), 16.32 (26.27), 19.91 (32.04), 24.49 (39.41) **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 2030 engine rpm **Unladen tractor mass** 10935 lb (4960 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)
5th(2A)Gear									
72.4 (54.0)	10475 (46.6)	2.59 (4.17)	2202	14.8	0.604 (0.368)	11.73 (2.31)	189 (87)	61 (16)	29.5 (99.8)
6th(2B)Gear									
89.6 (66.8)	10365 (46.1)	3.24 (5.22)	2187	12.7	0.578 (0.351)	12.29 (2.42)	187 (86)	61 (16)	29.5 (99.8)
7th(2C)Gear									
101.0 (75.3)	10320 (45.9)	3.67 (5.91)	2020	12.4	0.512 (0.312)	13.86 (2.73)	189 (87)	61 (16)	29.5 (99.8)
8th(2D)Gear									
103.7 (77.3)	8305 (36.9)	4.68 (7.53)	2002	8.4	0.497 (0.302)	14.28 (2.81)	190 (88)	63 (17)	29.5 (99.8)
9th(3A)Gear									
110.2 (82.2)	8025 (35.7)	5.15 (8.29)	2001	8.2	0.503 (0.306)	14.11 (2.78)	192 (89)	63 (17)	29.5 (99.8)
10th(3B)Gear									
111.6 (83.2)	6475 (28.8)	6.46 (10.39)	1999	6.3	0.498 (0.303)	14.26 (2.81)	192 (89)	63 (17)	29.5 (99.8)
11th(3C)Gear									
111.7 (83.3)	5285 (23.5)	7.93 (12.75)	2004	6.3	0.500 (0.304)	14.21 (2.80)	192 (89)	64 (18)	29.5 (99.7)
*12th(3D)Gear									
107.5 (80.2)	4205 (18.7)	9.59 (15.44)	2000	6.7	0.512 (0.311)	13.87 (2.73)	192 (89)	64 (18)	29.5 (99.7)

\*Front Drive Disengaged

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

**NOTE 1:** 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.

**NOTE 2:** The performance figures on this report apply to tractors with chassis S/N S310050 and higher.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's claim of 26 GPM (100 lpm) hydraulic flow at the remote outlets. 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 summary of data from OECD Report No. **2531**, Nebraska Summary 708, September 8, 2010.

Roger M. Hoy  
 Director

M.F. Kocher  
 D.R. Keshwani  
 J.A. Smith  
 Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
At no load in 7th (2C) gear	73.0	73.0
Bystander	--	--

**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 460/85R38; \*\*,15(100)

Two 380/85R28; \*\*,15(100)

19.7 in(500mm)

6690 lb(3035 kg)

4430 lb(2010 kg)

11120 lb(5045 kg)

**DRAWBAR PERFORMANCE**  
**(Unballasted - Front Drive Disengaged)**  
**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. <sup>°F</sup> (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
7th(2C) Gear									
83.7 (62.4)	8050 (35.8)	3.90 (6.27)	2181	12.5	0.602 (0.366)	11.79 (2.32)	189 (87)	68 (20)	29.5 (100.0)
8th(2D) Gear									
93.9 (70.0)	7675 (34.2)	4.59 (7.38)	2061	11.4	0.555 (0.338)	12.79 (2.52)	190 (88)	66 (19)	29.5 (100.0)
9th(3A) Gear									
102.6 (76.5)	7610 (33.8)	5.06 (8.13)	2044	10.8	0.546 (0.332)	12.99 (2.56)	189 (87)	66 (19)	29.5 (100.0)
10th(3B) Gear									
104.7 (78.1)	6300 (28.0)	6.23 (10.03)	2000	8.4	0.532 (0.323)	13.36 (2.63)	190 (88)	66 (19)	29.5 (100.0)
11th(3C) Gear									
106.3 (79.3)	5150 (22.9)	7.74 (12.45)	2000	6.8	0.524 (0.318)	13.56 (2.67)	192 (89)	68 (20)	29.5 (100.0)
12th(3D) Gear									
104.7 (78.1)	4060 (18.1)	9.67 (15.56)	2002	5.8	0.533 (0.324)	13.31 (2.62)	190 (88)	68 (20)	29.5 (100.0)

**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 460/85R38; \*\*, 15(100)

Two 380/85R28; \*\*, 15(100)

33.5 in (850 mm)

6690 lb (3035 kg)

4430 lb (2010 kg)

11120 lb (5045 kg)

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range: 9189 lbs (40.9 kN) (75 mm lift cylinders)

	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)	2755 psi (190 bar)	2770 psi (191 bar)	
ii) Pump delivery rate at minimum pressure:	24.1 GPM (91.2 l/min)	15.9 GPM (60.3 l/min)	29.9 GPM (113.2 l/min)	
iii) Pump delivery rate at maximum				
hydraulic power:	22.4 GPM (84.8 l/min)	14.8 GPM (56.2 l/min)	25.6 GPM (96.9 l/min)	
Delivery pressure:	2338 psi (161 bar)	2580 psi (178 bar)	2265 psi (156 bar)	
Power:	30.6 HP (22.8 kW)	22.3 Hp (16.7 kW)	33.8 hp (25.2 kW)	

## 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

75 mm cylinders

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

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

### HITCH DIMENSIONS AS TESTED—NO LOAD

	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

