

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.  
Larsen

---

2009

## Nebraska Summary: S697 Massey Ferguson 6475

Nebraska Tractor Test Laboratory

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

---

Laboratory, Nebraska Tractor Test, "Nebraska Summary: S697 Massey Ferguson 6475" (2009). *Nebraska Tractor Tests*. 3167.

<https://digitalcommons.unl.edu/tractormuseumlit/3167>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

# SUMMARY OF OECD TEST 2546-NEBRASKA SUMMARY 697 MASSEY FERGUSON 6475 DIESEL 24 SPEED

Tractor chassis S/N R165050 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—1083 rpm)</b>					
126.1 (94.1)	2200	7.94 (30.15)	0.448 (0.273)	15.89 (3.13)	
<b>Standard Power Take-off Speed(1000rpm)</b>					
135.7 (101.2)	2030	7.89 (29.86)	0.414 (0.252)	17.20 (3.39)	
<b>Maximum Power (1 hour)</b>					
142.9 (106.6)	1800	7.80 (29.53)	0.388 (0.236)	18.32 (3.61)	

## VARYING POWER AND FUEL CONSUMPTION

126.2 (94.1)	2200	7.96 (30.15)	0.448 (0.273)	15.89 (3.13)	Air temperature
107.5 (80.2)	2207	7.25 (27.44)	0.480 (0.292)	14.82 (2.92)	73°F (23°C)
81.3 (60.6)	2216	5.89 (22.29)	0.516 (0.314)	13.81 (2.72)	Relative humidity
54.7 (40.8)	2229	4.53 (17.13)	0.589 (0.358)	12.08 (2.38)	56%
27.2 (20.3)	2241	2.93 (11.09)	0.765 (0.465)	9.30 (1.83)	Barometer
--	2248	1.83 (6.94)	--	--	30.3" Hg (102.5 kPa)

Maximum Torque - 433.3 lb.-ft. (587.5 Nm) at 1399 rpm  
Maximum Torque Rise - 43.9%  
Torque rise at 1750 engine rpm - 42%

## 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. Hg (kPa)
<b>Maximum Power—12th(3A) Gear</b>									
78.9 (58.9)	5400 (24.0)	5.48 (8.81)	2196	3.9	0.607 (0.369)	11.68 (2.30)	176 (80)	63 (17)	30.0 (101.7)
<b>75% of Pull at Maximum Power—12th(3A) Gear</b>									
60.5 (45.1)	4080 (18.1)	5.56 (8.95)	2211	2.8	0.630 (0.383)	11.27 (2.22)	172 (78)	63 (17)	30.0 (101.7)
<b>50% of Pull at Maximum Power—12th(3A) Gear</b>									
40.6 (30.3)	2700 (12.0)	5.64 (9.08)	2216	1.8	0.780 (0.474)	9.10 (1.79)	172 (78)	63 (17)	30.0 (101.7)
<b>75% of Pull at Reduced Engine Speed—14th(3B) Gear</b>									
61.0 (45.5)	4115 (18.3)	5.56 (8.95)	1838	2.2	0.559 (0.340)	12.69 (2.50)	174 (79)	63 (17)	30.0 (101.7)
<b>50% of Pull at Reduced Engine Speed—14th(3B) Gear</b>									
41.4 (30.9)	2750 (12.2)	5.65 (9.10)	1848	1.5	0.665 (0.404)	10.67 (2.10)	170 (77)	63 (17)	30.0 (101.7)

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

**Dates of tests:** July - October, 2009

**Manufacturer:** AGCO S.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 10W/40 **Front axle lubricant** BP Terrac Tractan 9 10W/40

**ENGINE: Make** Perkins Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** U018654S **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.134" x 5.000" (105.0 mm x 127.0 mm) **Compression ratio** 16.2 to 1 **Displacement** 402 cu in (6600 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.** T352044 **Tread width** rear 61.7" (1566 mm) to 74.6" (1896 mm) front 63.4" (1610 mm) to 78.1" (1984 mm) **Wheelbase** 109.4" (2780 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (6) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.01 (1.62) second 1.21 (1.95) third 1.42 (2.29) fourth 1.71 (2.75) fifth 2.01 (3.24) sixth 2.42 (3.90) seventh 2.73 (4.39) eighth 3.27 (5.27) ninth 3.85 (6.19) tenth 4.63 (7.45) eleventh 5.44 (8.76) twelfth 5.54 (8.91) thirteenth 6.55 (10.54) fourteenth 6.66 (10.71) fifteenth 7.81 (12.57) sixteenth 9.40 (15.12) seventeenth 11.05 (17.79) eighteenth 12.76 (20.54) nineteenth 13.30 (21.40) twentieth 15.35 (24.70) twenty-first 18.01 (28.99) twenty-second 21.67 (34.88) twenty-third 24.86 (40.00) twenty-fourth 24.86 (40.00) reverse 1.01 (1.62), 1.21 (1.95), 1.42 (2.29), 1.71 (2.75), 2.01 (3.24), 2.42 (3.90), 2.73 (4.39), 3.27 (5.27), 3.85 (6.19), 4.63 (7.45), 5.44 (8.76), 5.54 (8.91), 6.55 (10.54), 6.66 (10.71), 7.81 (12.57), 9.40 (15.12), 11.05 (17.79), 12.76 (20.54), 13.30 (21.40), 15.35 (24.70), 18.01 (28.99), 21.67 (34.88), 24.86 (40.00), 24.86 (40.00)

**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)
4th(1D) Gear									
52.4 (39.1)	13015 (57.9)	1.51 (2.43)	2216	14.7	0.736 (0.448)	9.63 (1.90)	167 (75)	59 (15)	30.0 (101.7)
5th(1E) Gear									
60.2 (44.9)	12520 (55.7)	1.80 (2.90)	2212	14.0	0.703 (0.428)	10.09 (1.99)	169 (76)	61 (16)	30.0 (101.7)
6th(1F) Gear									
70.1 (52.3)	12420 (55.3)	2.12 (3.41)	2191	13.9	0.681 (0.414)	10.41 (2.05)	167 (75)	61 (16)	30.0 (101.7)
7th(2A) Gear									
79.5 (59.3)	12040 (53.6)	2.48 (3.99)	2206	12.6	0.575 (0.350)	12.33 (2.43)	169 (76)	61 (16)	30.0 (101.7)
8th(2B) Gear									
92.8 (69.2)	11890 (52.9)	2.93 (4.71)	2132	11.5	0.509 (0.310)	13.94 (2.75)	172 (78)	63 (17)	30.0 (101.7)
9th(2C) Gear									
98.2 (73.2)	11510 (51.2)	3.20 (5.15)	1976	10.3	0.483 (0.294)	14.67 (2.89)	172 (78)	63 (17)	30.0 (101.7)
10th(2D) Gear									
101.9 (76.0)	9620 (42.8)	3.97 (6.39)	1977	8.0	0.469 (0.285)	15.13 (2.98)	176 (80)	63 (17)	30.0 (101.7)
11th(2E) Gear									
100.2 (74.7)	8005 (35.6)	4.69 (7.54)	1951	5.5	0.503 (0.306)	14.11 (2.78)	176 (80)	64 (18)	30.0 (101.7)
12th(3A) Gear									
115.2 (85.9)	8980 (39.9)	4.81 (7.74)	1996	7.1	0.475 (0.289)	14.92 (2.94)	180 (82)	64 (18)	30.0 (101.7)
13th(2F) Gear									
100.4 (74.9)	6780 (30.2)	5.55 (8.94)	1895	5.3	0.488 (0.297)	14.52 (2.86)	180 (82)	64 (18)	30.0 (101.7)
14th(3B) Gear									
116.0 (86.5)	7510 (33.4)	5.79 (9.32)	1960	5.9	0.487 (0.296)	14.57 (2.87)	185 (85)	63 (17)	30.0 (101.7)
15th(3C) Gear									
116.3 (86.7)	6305 (28.0)	6.92 (11.13)	1976	4.4	0.473 (0.288)	14.97 (2.95)	185 (85)	64 (18)	30.0 (101.7)
*16th(3D) Gear									
116.0 (86.5)	5385 (23.9)	8.08 (13.00)	1959	6.8	0.490 (0.298)	14.47 (2.85)	187 (86)	64 (18)	30.0 (101.7)
*17th(3E) Gear									
113.6 (84.7)	4505 (20.0)	9.45 (15.20)	1945	6.0	0.494 (0.300)	14.37 (2.83)	185 (85)	64 (18)	30.0 (101.7)

\*Front Drive Disengaged

**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 1982 engine rpm or 1000 rpm at 2030 engine rpm  
**Unladen tractor mass** 13710 lb (6220 kg)

**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 R165050 and higher.

**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 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. **2546**, Nebraska Summary 697, June 1, 2010.

Roger M. Hoy  
 Director

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

**TIRES, BALLAST 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;\*\*,14(100)  
 Two 16.9R28;\*\*,14(100)  
 19.3 in (490 mm)  
 8520 lb (3865 kg)  
 5355 lb (2430 kg)  
 13875 lb (6295 kg)

**TRACTOR SOUND LEVEL WITH CAB**

**dB(A)**

At no load in 10th (2D) gear	69.0
Bystander	--

**HYDRAULIC PERFORMANCE**

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range:	9485 lbs (42.2 kN)
i) Sustained pressure of the open relief valve:	2830 psi (195 bar)
ii) Pump delivery rate at minimum pressure:	29.1 GPM (110.0 l/min)
iii) Pump delivery rate at maximum	
hydraulic power:	25.3 GPM (95.7 l/min)
Delivery pressure:	2350 psi (162 bar)
Power:	34.7 HP (25.8 kW)

**HITCH DIMENSIONS AS TESTED—NO LOAD**

	OECD test		SAE test	
	inch	mm	inch	mm
A	28.3	720	28.1	715
B	11.6	295	11.6	295
C	13.9	354	13.9	354
D	13.0	330	13.0	330
E	9.8	250	11.4	290
F	11.0	280	11.0	280
G	34.4	875	34.4	875
H	2.0	50	2.0	50
I	15.3	389	15.3	389
J	23.4	595	23.4	595
K	21.4	544	21.4	544
L	43.3	1101	43.3	1101
M	24.6	626	24.6	626
N	37.0	940	37.0	940
O	8.3	209	8.1	205
P	47.4	1205	42.4	1077
Q	36.5	928	36.5	926
R	30.7	780	30.8	783

**THREE POINT HITCH PERFORMANCE(SAE Static test)**

Observed Maximum Pressure psi. (bar)	2830 (195)
Location:	lift cylinder
Hydraulic oil temperature: °F (°C)	154 (68)
Location:	hydraulic sump
Category:	II
Quick attach:	None

System pressure 2560 psi (176 bar)

Hitch point distance to ground level in. (mm)	10.4 (263)	15.7 (398)	21.5 (545)	27.4 (695)	33.5 (850)	37.0 (940)
Lift force on frame lb	11825	11555	11330	11040	10455	9915
" " " " " " (kN)	(52.6)	(51.4)	(50.4)	(49.1)	(46.5)	(44.1)

