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(Restricted code)
Date of approval: 18 November 1993

NEBRASKA TRACTOR TESTING LABORATORY
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INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES
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LINCOLN, NEBRASKA 68583-0832, USA

REPORT ON TEST IN ACCORDANCE WITH OECD RESTRICTED CODE (CODE II) FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS

JOHN DEERE 7600 POWRQUAD MFWD - 30 km/h (4WD)



MANUFACTURED BY: John Deere Waterloo Tractor Works Tractor Division
P.O. Box 270
Waterloo, Iowa 50704-0270

NEBRASKA TEST NO. 1664

Test dates: April - May 1993

This test report provides the results of the tests conductedin accordance with the OECD Standard Test Code for the Official Testing of Agricultural Tractor Performance - C(87)53 Final - Annex II, Restricted Code.

This report has been approved by the OECD Coordinating Centre in Paris (CEMAGREF) on 18 November 1993

John Deere 7600 POWRQUAD MFWD -30 km/h (4WD) OECD # 1487

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SPECIFICATIONS OF TRACTOR.

Manufacturers name/address	John Deere Tractor Works P.O. Box 270 Waterloo, Iowa, USA
Location of tractor assembly	Same
Submitted for test by	The manufacturer
Selected for test by	The manufacturer in agreement with the test station.
Place of running in	John Deere Product Eng. Ctr Waterloo, Iowa, USA
Duration of running in	98 hours
Location of Test	Tractor Testing Laboratory Lincoln, Nebraska,USA.

TRACTOR SPECIFICATIONS.

Make	John Deere
Model	7600H PowrQuad - 30 km/h
Type	Unit construction, mechanical front wheel drive (MFWD)
Number of driving wheels	2 or 4
Serial Number	*RW7600H002170*
1st Serial number	*RW7600H001000*

ENGINE.

Make	John Deere
Model	6068TRW01
Type	Diesel; 4-stroke; turbocharged direct injection
Serial Number	*TO6068T398257*
Cylinders	
Number/Disposition	6, in-line, vertical
Bore/stroke	106.5 mm x 127 mm (4.19 in x 5.00 in)
Capacity	6788 ml (414.23 in^3)
Compression Ratio	17.2 - 1
Arrangement of valves	Overhead
Cylinder liners	Wet; replaceable
Super charging	
Make/Model/Type	Garret/RE43426/Exh. gas driven
Pressure	64 kPa (9.3 psi) at rated speed and load
Fuel System	
Feed system	Mechanical transfer pump
Make/Type/Model of filters	Fuel-Gard/RE53022/paper element

Fuel tank capacity	344 l (91 gallon)
Fuel Cooler	Heat exchanger with air
Make/Model/Type Injection Pump	Stanadyne/DB4(RE43020)/rotary; electric shutoff
Pump Serial number	7231879
Production setting of pump Flow Rate (Rated Eng.Spd & Full Load)	20.8 +/- 0.7 kg/hour (45.6 +/- 1.5 lb/hour)
Make/Model/Type Injectors	Stanadyne/RE36936/Pencil
Injection pressure	48 MPa (3310 psi)
Timing	16 degrees BTDC

Governor

Make/Model/Type	Stanadyne/mechanical
Governed engine speed range	From 850 to 2275 rev/min
Rated engine speed	2100 rev/min
High-idle speed range	2275 +/- 50 rpm

Air Cleaner.

Pre-cleaner	
Make/Model/type	Donaldson/RE34938/Strato-tube precleaner with aspirator
Air intake location	Under hood, front of tractor
Main Cleaner	
Make/Model/Type	Donaldson/RE34962/pleated paper
Location	Under hood
Secondary cleaner	Donaldson/RE34963/pleated paper
Maintenance indicator	Dash mounted warning light and audio signal

Lubrication system.

Type of feed pump	Full pressure; positive displacement
Type of filters	Full flow
Number	One spin-on.
Oil cooler	Heat exchanger with engine coolant

Cooling system.

Type of coolant	Liquid
Type of pump	Centrifugal, belt driven
Fan specification	Belt driven; Suction type; Variable speed
Number of fan blades	6
Fan diameter	519 mm (20.4 in)
Coolant system capacity	24 l (24.8 US qt)
Type of temperature control	Two thermostats and variable speed fan
System pressure	69 kPa (10.0 psi)

Starting system.	
Make/Model/Type of starter	Nippondenso/RE42670/Solenoid Engaged
Power Rating	4.0 kW (5.36 hp)
Cold starting aid	Electrical resistance plug-in in air intake
Safety device	Electrical lockout on gearshift
Electrical system.	
Voltage & grounding.	12 Volt DC;negative ground
Generator	
Make/Model/Type	Nippondenso/RE46608/Belt driven
Power rating	140 Amp at rated engine speed and 25°C ambient
Batteries	
Number & connection	Two; 12 Volt batteries in parallel; SAE tapered post
Rating	925 cold cranking amps/battery 175 Ah/battery at 20 h rating
Exhaust system.	
Muffler Make/Model/Type	Nelson/RE34315/Expansion chamber
Location	Horizontal muffler; under hood
Exhaust stack location	Vertical; right side of cab

TRANSMISSION.

Clutch. (travel)	
Make/Model/Type	John Deere/Multiple plate/oil cooled
Number of plates	3, 5, or 8 depending on gear
Plate diameter	225 mm (8.86 in)
Method of operation	Hydraulic; pedal actuated
Gear Box.	
Make/Model/Type	John Deere/POWRQUAD
Arrangement (tested version)	Countershaft/planetary design consisting of one 4-speed gearbox with 4 mechanical synchronized ranges and 4-speed planetary gearset with multiple wet disc clutch and brake units
Specific Market option	40 km/h
Arrangement (SM-option)	Countershaft/planetary design consisting of a 5-speed gearbox with 5 mechanical synchronized ranges and 4- speed planetary gearset with multiple wet disc clutch and brake units

Number of gears	16 forward and 12 reverse operated by two levers (US version) 20 forward and 12 reverse operated by two levers (Specific Market option)
Oil cooler	Heat exchanger with air
Other Available options	Creeper gear; MFWD
Rear axle and final drives.	
Make/Model/Type	John Deere/Crown wheel and pinion, differential and inboard planetary reduction
Differential Lock	
Type	Hydraulic
Method of engagement	Pedal operated switch
Method of disengagement	Self-disengaging with brake pedal operation
Front Axle and final drives.	
Make/Model/Type	John Deere/1150/Crown wheel and pinion, differential and inboard planetary reduction
Differential Lock	
Type	Limited slip
Method of engagement	Self engaging
Method of disengagement	Self-disengaging

Gear ratios and travel speeds. (US version)
(Tire dynamic radius of 820 mm (32.3 in) ISO 4251/1-1984)

Gear Number	Number of engine revolutions for one revolution of the driving wheels	Nominal travel speed at rated engine speed of 2100 rev/min [km/h]	[mph]
Forward			
A1	285.59	2.27	1.41
A2	237.02	2.74	1.70
A3	198.10	3.28	2.04
A4	161.65	4.02	2.50
B1	134.75	4.82	2.99
B2	111.83	5.81	3.61
B3	93.46	6.95	4.32
C1	84.67	7.67	4.76
B4	76.27	8.51	5.29
C2	70.27	9.24	5.74
C3	58.73	11.05	6.86
C4	47.92	13.55	8.42
D1	40.23	16.13	10.02
D2	33.39	19.43	12.06
D3	27.91	23.25	14.44
D4	22.77	28.50	17.70
Optional (40 km/h version)			
E1	30.87	21.02	13.05
E2	25.62	25.36	15.75
E3	21.41	30.31	18.83
E4	17.47	37.14	23.07
Reverse			
A1	240.90	2.69	1.67
A2	199.81	3.25	2.02
A3	166.99	3.89	2.42
A4	136.29	4.76	2.96
B1	113.66	5.71	3.55
B2	94.27	6.89	4.28
B3	78.79	8.24	5.12
C1	71.42	9.09	5.63
B4	64.34	10.09	6.27
C2	59.24	10.96	6.81
C3	49.51	13.11	8.14
C4	40.41	16.06	9.98

Number of front wheel revolutions
for one rear wheel revolution: 1.3188

CREEPER GEAR

(Tire dynamic radius of 820 mm (32.3 in) ISO 4251/1-1984)

Gear Number	Number of engine revolutions for one revolution of the driving wheels	Nominal travel speed at rated engine speed of 2100 rev/min [km/h]	[mph]
Forward			
A1	2759.30	0.24	0.15
A2	2290.03	0.28	0.17
A3	1914.00	0.34	0.21
A4	1561.82	0.42	0.26
B1	1301.92	0.50	0.31
B2	1080.48	0.60	0.37
B3	902.99	0.72	0.45
C1	818.06	0.79	0.49
B4	736.90	0.88	0.55
C2	678.93	0.96	0.60
C3	567.44	1.14	0.71
C4	462.99	1.40	0.87
Reverse			
A1	2327.52	0.28	0.17
A2	1930.52	0.34	0.21
A3	1613.42	0.40	0.25
A4	1316.80	0.49	0.30
B1	1098.16	0.59	0.37
B2	910.81	0.71	0.44
B3	761.25	0.85	0.53
C1	690.04	0.94	0.58
B4	621.35	1.04	0.65
C2	572.36	1.13	0.70
C3	478.35	1.36	0.84
C4	390.43	1.66	1.03

Number of front wheel revolutions
for one rear wheel revolution: 1.3188

POWER - TAKE - OFF.

Main Power-Take-Off.

Type	Independent
Method of engagement	Electro-hydraulically actuated multi-plate wet clutch operated by hand control knob
Number of shafts	One
Method of changing speeds	Reversible shaft
Geographical option	Reversible shaft with 2 speeds selectable by hand lever

PTO Proportional to engine speed - Reversible shaft (Tested version)

Standard PTO-540 rev/min.

Location	Rear of tractor; center plane
Diameter of shaft	35 mm (1.375 in)
Number of splines	6; conforms to ISO 500/1979.
Height above ground	715 mm (28.15 in)
Distance from median plane of tractor	0 mm
Distance behind rear axle	620 mm (24.41 in)
PTO Speed at rated engine spd	547 rev/min
Engine speed at Std. PTO spd	2072 rev/min
Engine speed/PTO speed ratio	3.837:1
Power restriction	56 kW (75 hp)
Direction of rotation when viewed from shaft end	Clockwise.

Standard PTO-1000 rev/min.

Location	Rear of tractor; center plane
Diameter of shaft	35 mm (1.375 in)
Number of splines	21; conforms to ISO 500/1979.
Height above ground	715 mm (28.15 in)
Distance from median plane of tractor	0 mm
Distance behind rear axle	620 mm (24.41 in)
PTO Speed at rated engine spd	1007 rev/min
Engine speed at Std. PTO spd	2086 rev/min
Engine speed/PTO speed ratio	2.086:1
Power restriction	None
Direction of rotation when viewed from shaft end	Clockwise.

PTO Proportional to engine speed - Reversible shaft with two speeds

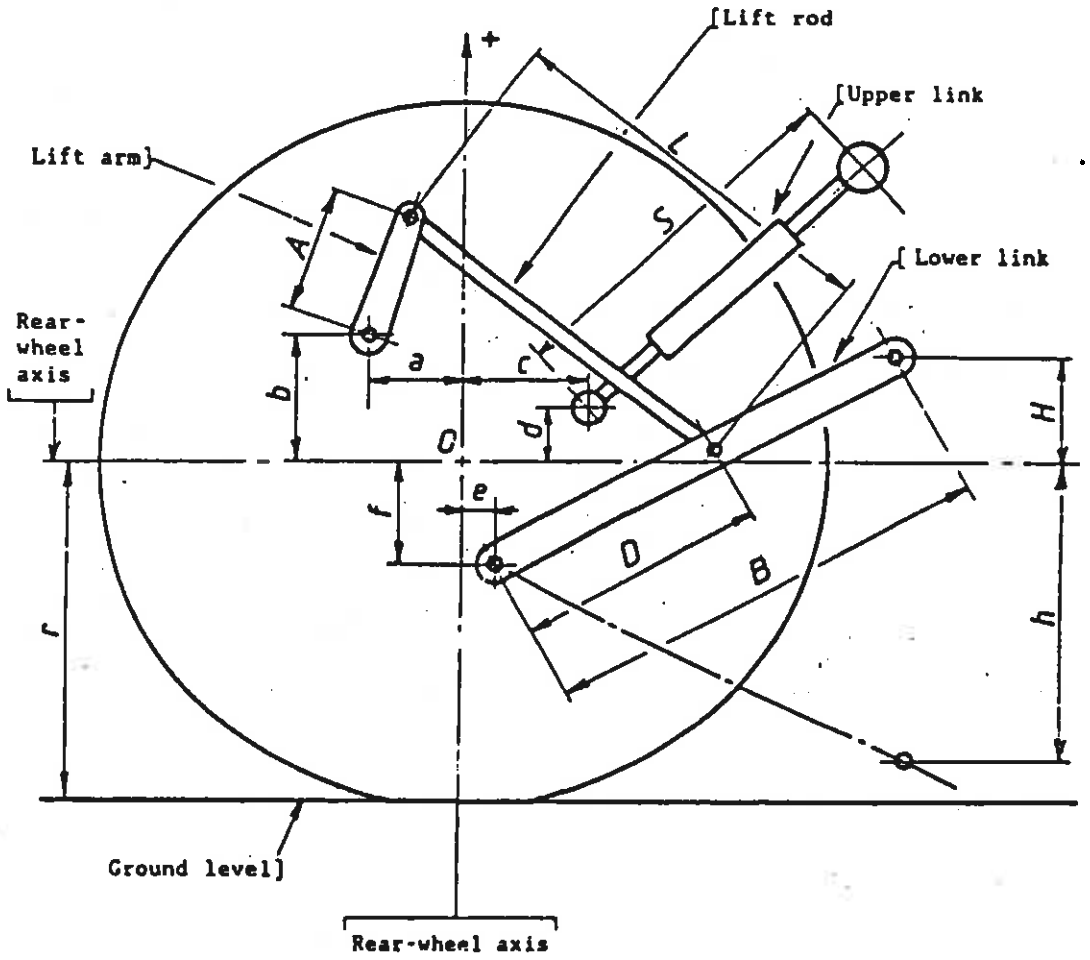
Standard PTO-540 rev/min.	
Location	Rear of tractor;center plane
Diameter of shaft	35 mm (1.375 in)
Number of splines	6 or 21; conforms to ISO 500/1979.
Height above ground	715 mm (28.15 in)
Distance from median plane of tractor	0 mm
Distance behind rear axle	620 mm (24.41 in)
PTO Speed at rated engine spd	656 rev/min
Engine speed at Std. PTO spd	1730 rev/min
Engine speed/PTO speed ratio	3.204:1
Power restriction	56 kW (75 hp)
Direction of rotation when viewed from shaft end	Clockwise.
Standard PTO-1000 rev/min.	
Location	Rear of tractor;center plane
Diameter of shaft	35 mm (1.375 in)
Number of splines	6 or 21; conforms to ISO 500/1979.
Height above ground	715 mm (28.15 in)
Distance from median plane of tractor	0 mm
Distance behind rear axle	620 mm (24.41 in)
PTO Speed at rated engine spd	1064 rev/min
Engine speed at Std. PTO spd	1973 rev/min
Engine speed/PTO speed ratio	1.973:1
Power restriction	None
Direction of rotation when viewed from shaft end	Clockwise.

POWER LIFT.

Make/Model/Type	John Deere/Electronic lower link sensing; variable mix of draft and position control; adjustable rate of drop
Type of hydraulic system	Closed center;pressure and flow compensated
Number/Type of cylinders	Two external, single acting
Type of linkage lock for transport	
Relief valve spressure setting	197-207 bar (2858-3003 psi)
Opening pressure of cylinder safety valve	240 +/- 10 bar (3483 +/- 146 psi)
Lift pump type	Axial piston, variable delivery and flow, pressure and flow compensated
Power transmission to pump	Spiral bevel gear drive
Type/Number of filters	Synthetic media ,screw-on canister/one
Location of oil reservoir	Differential case housing
Number/Type/Location of tapping points.	Up to 4 pairs of ISO standard couplings at rear of tractor.
Max. oil volume available for external cylinders.	19 liters (5 gallons) regular; additional 11 liters (2.90 gallon) allowable overfill for total of 30 liters (7.9 gallons)

THREE POINT LINKAGE.

- Category 3N/2 or 2 in conformity with ISO 730/1-1990
- Category adaptor None



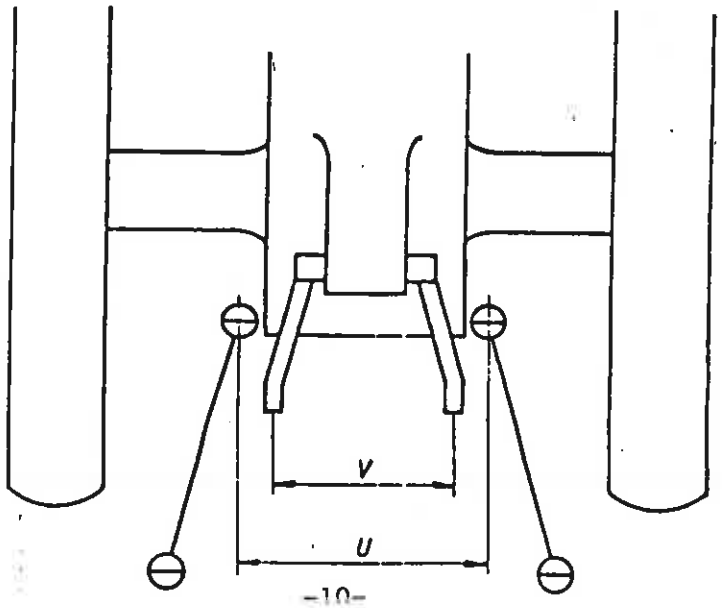


Table 1.1 - Linkage geometry dimensions *.
ISO Cat III Hook Type Draft Link Ends

		Dimension or range [mm]	Dimension or range [in]	Settings used on test [mm]	Settings used on test [in]
Lift category		III		III	
Rear Tire - Radius Index	(r)	820	32.3	905	35.6
Front Tire - Radius Index	(r')	610	24.0	695	27.4
Length of lift arms	(A)	375	14.8	same	
Length of lower links	(B)	1011	39.8	same	
Distance of lift arm pivot from: horizontal	(a)	205	8.1	same	
rear wheel axis: vertical	(b)	588	23.1	same	
Horizontal distance between the 2 lower link points	(U)	520	20.5	same	
Horizontal distance between the 2 lift arm end points	(V)	680	26.8	same	
Length of upper link	(S)	609	24.0	692	27.3
	to	808	31.8		
Distance of upper link pivot point from rear wheel axis					
Top hole - horizontal	(c)	504	19.8	same	
- vertical	(d)	353	13.9	283	11.1
	and	283	11.1		
	and	200	7.9		
Distance of lower link pivot from: horizontal	(e)	195	7.7	same	
rear wheel axis: vertical	(f)	275	10.8	same	
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	612	24.1	612	24.1
	or	688	27.1		
Length of lift rods	(L)	842	33.1	968	38.1
	to	1051	41.4		
Height of lower hitch points relative to rear wheel axis					
In low position	(h)	409	16.1	648	25.5
	to	802	31.6		
In high position	(H)	281	11.1	79	3.2
	to	49	1.9		
Height above ground of lower hitch points when locked in transport position.		742	29.2	984	38.8
	to	1073	42.2		

* Tire dynamic index of 905 mm (35.6 in), ISO 4251/1-1984

SWINGING DRAWBAR.

Type	Oscillating
Height above ground - maximum	529 mm (20.8 in)
- minimum	465 mm (18.3 in)
Adjustments	Invert drawbar; reposition clevis
Distance of hitch point from rear wheel axis-horizontal	920, 970, 1020 mm (36.2, 38.2, 40.2 in)
Distance of hitch point from PTO shaft end: Vertical	250 mm (9.8 in)
Horizontal	250-350-400 mm (9.8-13.8-15.7 in)
Lateral adjustment-Right side	190 mm (7.5 in)
Left side	190 mm (7.5 in)
Distance of pivot point from rear wheel axis-horizontal	27 mm (1.1 in)
Diameter of drawbar pin hole	33 mm (1.3 in)
Maximum vertical static permissible load	28 kN (6300 lb)-short position 21 kN (4725 lb)-intermediate 14 kN (3150 lb)-extended

STEERING.

Make/Model/Type	Eaton/RE4138/Hydrostatic
Method of operation	Steering wheel
Pump(s)	Power mode-same as main pump Manual mode-ground driven hydraulic pump
Ram(s)	Two external; double acting
Working pressure	170 +/- 5 bar (2466 +/- 72 psi)

BRAKE SYSTEM.

Service brake.	
Make/Model/Type	Vickers/RE29826/John Deere oil immersed disc
Method of operation	Hydraulic; operated by two pedals which can be locked together.
Parking brake.	
Type	Transmission lock.
Method of operation	Gear selector lever
Trailer Brake	None

WHEELS.

Number.	
Front	Two; Driving and steering
Rear	Two or four; Driving
Wheel base	2800 mm (110.3 in)

Track width adjustment

	Minimum [mm]	Minimum [in]	Maximum [mm]	Maximum [in]	Adjustment method
Front	1524	60.0	2253	88.7	Reversing wheels and offset lug rims
Rear	1518	59.8	2548	100.0	Reversing wheels and offset lug rims

PROTECTIVE STRUCTURE.

Make/Model/Type	John Deere/SG-050/ComfortGard
Manufacturer's name/address	John Deere Tractor Works Waterloo, Iowa, USA
Protective device	Cab; not tiltable
OECD approval number	CSS 0217/33

DRIVER'S SEAT.

Make/Model/Type	Sears/FS92-01/Air suspension; Personal posture cushioning
Type of suspension	Air
Type of damping	Air
Range of adjustment	
Longitudinal	167 mm (6.6 in)
Vertical	80 mm (3.1 in)

LIGHTING.

	Height above ground of center [mm]	Height above ground of center [in]	Size [mm]	Distance from outside edge to median plane of tractor. [mm]	Distance from outside edge to median plane of tractor. [in]
Head lights	1110	43.7	162x102	232	9.1
Side lights	1110	43.7	152x102	277	10.9
Rear lights	1930	76.0	127x76	892	35.1
Reflectors-rear					
outside	1930	76.0	43x70	934	36.8
inside			43x80	807	31.8

TEST CONDITIONS.

Overall dimensions.

Length	Overall	4755 mm (187.2 in)
Width	Minimum-with singles	2808 mm (110.6 in)
	Maximum-with singles	3015 mm (118.7 in)
Height -	Top protective structure	2973 mm (117.0 in)
-	Top of exhaust	2923 mm (115.1 in)
Ground clearance		465 mm (18.3 in)
Clearance-limiting part		Drawbar

Tractor Mass (with cab,full fuel tank).

		without driver [kg]	[lb]	with driver [kg]	[lb]
Unballasted	Front	2265	4993	2280	5026
	Rear	4377	9650	4437	9782
	Total	6642	14643	6717	14808

Max. permissible load-front 4800 kg (10582 lbs)
-rear 10000 kg (22046 lb)

Tire Specifications.	Front Wheels	Rear Wheels
Make	Goodyear	Goodyear
Dimensions	13.6R28	18.4R38
Number/Ply rating	2/3 star	2/2 star
Type	Radial	Radial
Max.load (tire mfg - 40 km/h)	1700 kg/tire (3750 lb/tire)	3000 kg/tire (6615 lb/tire)
(tire mfg - 30 km/h)	1815 kg/tire (4000 lb/tire)	3200 kg/tire (7060 lb/tire)
Inflation pressure(tire mfr)-max	210 kPa (30 psi)	170 kPa (24 psi)
-min	40 kPa (6 psi)	40 kPa (6 psi)
as tested	160 kPa (23 psi)	110 kPa (16 psi)
Dynamic Radius Index	610 mm/24.0 in	820 mm/32.3 in
Chosen track width (singles)	1625 mm/64.0 in	1725 mm/68.0 in

Oils and Lubrication.

Capacity and change interval:

	Capacity liter	Capacity quart	Oil change hours	Filter change hours
Engine (w/o filter)	17.0	18.0	250	250
Front axle	8.5	9.0	1500	
Transmission, final drive, rear axle and hydraulics	102.3	108.2	1500	Annually or as required
Final drive, front	1.9	2.0	1500	

Oil and Lubricant specifications:

	Recommended	Used during test
Engine oil		
Type	John Deere, Torq-Gard Supreme Plus 50; SAE 15W-40	same
Viscosity	12.8 cSt at 100°C	
Classification	API CE or CD; CCMD specification D5 or D6	
Transmission		
Type	John Deere Hy-Gard (J20C) SAE 10W-30	same
Viscosity	58 cSt at 40°C	
Classification	NA	
Hydraulic fluid	Same as transmission	same
Front axle and hubs		
Type	John Deere EXTREME-GARD SAE 80W-90	same
Viscosity	13.5 cSt at 100°C	
Classification	API GL-5	
Steering system	Same as transmission	same
Grease	John Deere MOLY HIGH TEMPERATURE EP GREASE	same
Number of lube points	24	

Fuel

Type/grade	Premier; Grade 2-D, in conformity with the national standard
Density (Pto test)	0.834 kg/l at 15° C
(Drawbar test)	same as Pto test.
Cetane number	53.9
Viscosity	2.31 cSt at 37.8° C

COMPULSORY TESTS

1. Main Power Take-Off

Date: 21-Apr-93 Location: UNL Tractor Test Lab, Lincoln, NE, U.S.A.

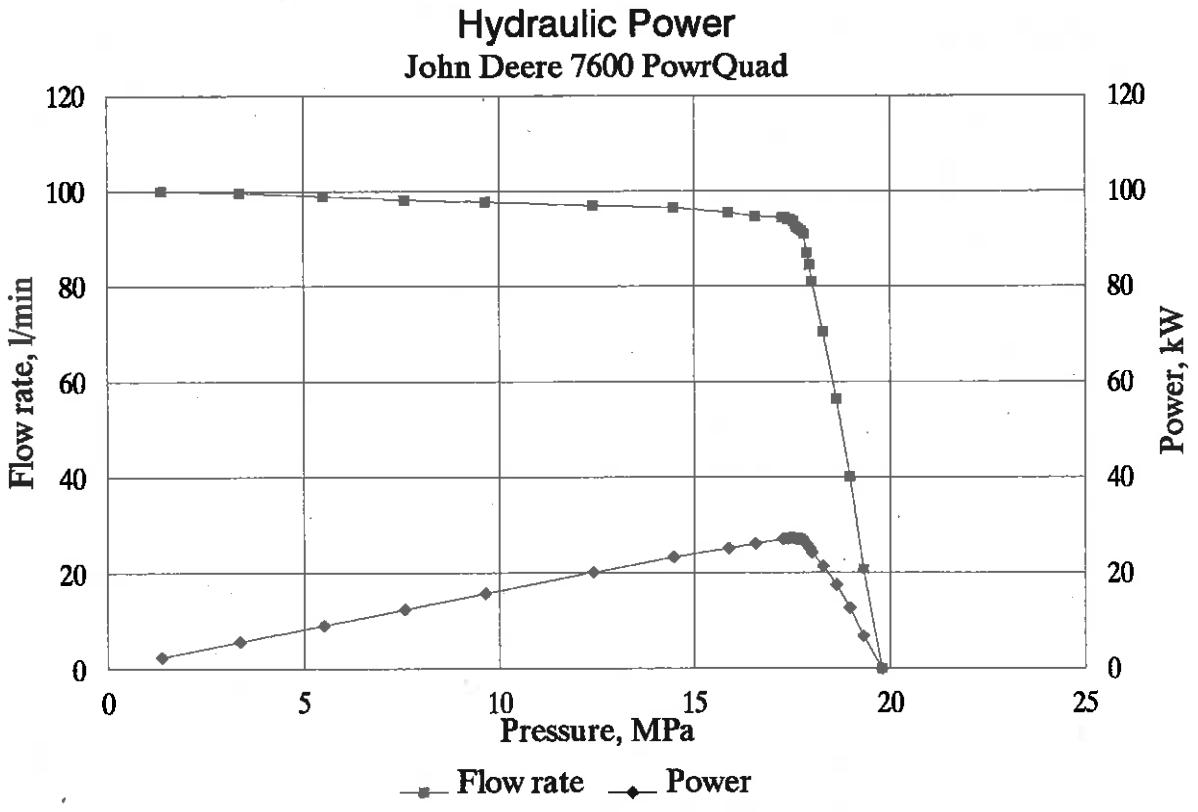
Type of dynamometer: Eaton eddy current Fuel density: 6.958 lb/gal

Power kW / *hp*	Eng rev/min	PTO rev/min	l/h / *gal/h*	kg/h / *lb/h*	kg/kW·h / *lb/hp·h*	kW·h/l / *hp-h/gal*
1.1 Maximum Power – 2 hours						
84.30	2000	959	24.32	20.28	0.241	3.47
113.04			*6.42*	*44.70*	*0.395*	*17.60*
1.2 Power at Rated Engine Speed – 1 hour						
82.70	2099	1006	24.45	20.38	0.246	3.38
110.90			*6.46*	*44.94*	*0.405*	*17.17*
1.3 Power at Standard Power Take-Off Speed – 1 hour						
82.70	2099	1006	24.45	20.38	0.246	3.38
110.90			*6.46*	*44.94*	*0.405*	*17.17*
1.4 Part Loads						
1.4.1 Torque at maximum power at rated engine speed						
82.70	2099	1006	24.45	20.38	0.246	3.38
110.90			*6.46*	*44.94*	*0.405*	*17.17*
1.4.2 85% of torque obtained in 1.4.1						
73.01	2180	1045	22.69	18.91	0.259	3.22
97.91			*5.99*	*41.70*	*0.426*	*16.34*
1.4.3 75% of torque defined in 1.4.2						
55.56	2211	1060	19.26	16.06	0.289	2.88
74.50			*5.09*	*35.40*	*0.475*	*14.64*
1.4.4 50% of torque defined in 1.4.2						
37.52	2241	1074	15.67	13.06	0.348	2.39
50.32			*4.14*	*28.80*	*0.572*	*12.16*
1.4.5 25% of torque defined in 1.4.2						
18.99	2268	1088	12.08	10.07	0.530	1.57
25.47			*3.19*	*22.20*	*0.872*	*7.98*
1.4.6 unloaded						
0.31	2294	1100	8.49	7.08	22.657	0.04
0.42			*2.24*	*15.60*	*37.247*	*0.19*
1.5 Part Loads at Standard Power Take-off Speed						
1.5.1 Torque at maximum power						
82.70	2099	1006	24.45	20.38	0.246	3.38
110.90			*6.46*	*44.94*	*0.405*	*17.17*
1.5.2 85% of torque obtained in 1.5.1						
73.01	2180	1045	22.69	18.91	0.259	3.22
97.91			*5.99*	*41.70*	*0.426*	*16.34*
1.5.3 75% of torque defined in 1.5.2						
55.56	2211	1060	19.26	16.06	0.289	2.88
74.50			*5.09*	*35.40*	*0.475*	*14.64*
1.5.4 50% of torque defined in 1.5.2						
37.52	2241	1074	15.67	13.06	0.348	2.39
50.32			*4.14*	*28.80*	*0.572*	*12.16*
1.5.5 25% of torque defined in 1.5.2						
18.99	2268	1088	12.08	10.07	0.530	1.57
25.47			*3.19*	*22.20*	*0.872*	*7.98*
1.5.6 unloaded						
0.31	2294	1100	8.49	7.08	22.657	0.04
0.42			*2.24*	*15.60*	*37.247*	*0.19*

No load maximum engine speed:		2294 rev/min	
Equivalent torque at rated speed:		376 N-m	*278 lb-ft*
Equivalent torque at maximum power:		402 N-m	*297 lb-ft*
(engine speed:		2000 rev/min)	
Maximum equivalent crankshaft torque:		530 N-m	*391 lb-ft*
(engine speed:		1351 rev/min)	
Mean	dry bulb:	24 deg C	*75 deg F*
	Wet bulb:	14 deg C	*56 deg F*
	Relative humidity:	31 %	
	Pressure:	98.87 kPa	*29.20 in Hg*
Maximum	Coolant:	96 deg C	*204 deg F*
	Engine oil:	112 deg C	*234 deg F*
	Fuel:	61 deg C	*141 deg F*
	Air intake:	27 deg C	*81 deg F*
	Transmission/hydraulic oil:	56 deg C	*132 deg F*
Intake manifold pressure at rated speed:		62 kPa	*9.0 psig*
Intake manifold pressure at maximum power:		62 kPa	*9.0 psig*

Hydraulic Power Test

Date of test: 10–May–93					
Location of test–City–State: Tractor Test Lab, Lincoln, NE, USA					
Tapping point used for test: Remote hydraulic outlets					
I. Sustained pressure with pump stalled:					
19.79 MPa					
2870 psi					
II. Pump delivery rate at minimum pressure and rated engine speed:					
99.9 l/min					
26.4 gpm					
III. Flow rate, pressure, power:					
90% of relief valve setting:					
	90.8 l/min		17.79 MPa		26.94 kW
	24.0 gpm		*2580 psi*		*36.13 hp*
Maximum hydraulic power:					
	93.9 l/min		17.44 MPa		27.30 kW
	24.8 gpm		*2530 psi*		*36.61 hp*
IV. Hydraulic fluid temperature at flow meter:					
69 C					
156 F					



2.2 POWER LIFT TEST. Test A-Upper link in middle hole on tractor (for settings see p.11)

Date of test: 15 June 1993

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	257/10.1	206/8.1
Vertical movement:			
without load:	[mm/in]	757/29.8	889/35.0
with load:	[mm/in]	729/28.7	878/34.6
Maximum corrected force through full range:	[kN/lb]	49.4/11111	45.2/10161
Corresponding pressure:	[kPa/psi]	17871/2592	
Moment about rear axle:	[kN.m/lb.ft]	59.6/43979	82.1/60543
Maximum mast tilt angle:	[deg]	--	6.9

Lifting height relative to horizontal position of lower links.

	[mm]	-424	-373	-300	-201	-99
	[in]	-16.7	-14.7	-11.8	-7.9	-3.9
Corrected lift forces						
Hitch point.	[kN]	--	49.4	52.8	56.5	59.0
	[lb]	--	11111	11867	12704	13253
at frame	[kN]	48.6	--	49.8	51.5	52.4
	[lb]	10935	--	11196	11583	11772

Lifting height relative to horizontal position of lower links.

	[mm]	0	99	200	290	356	454
	[in]	0	3.9	7.9	11.4	14.0	17.9
Corrected lift forces							
Hitch point	[kN]	61.4	62.9	64.8	66.8	67.7	--
	[lb]	13793	14144	14558	15026	15215	--
at frame	[kN]	52.4	51.7	50.4	49.8	48.7	45.2
	[lb]	11772	11619	11340	11196	10944	10161

OECD Drawbar Data (SI)

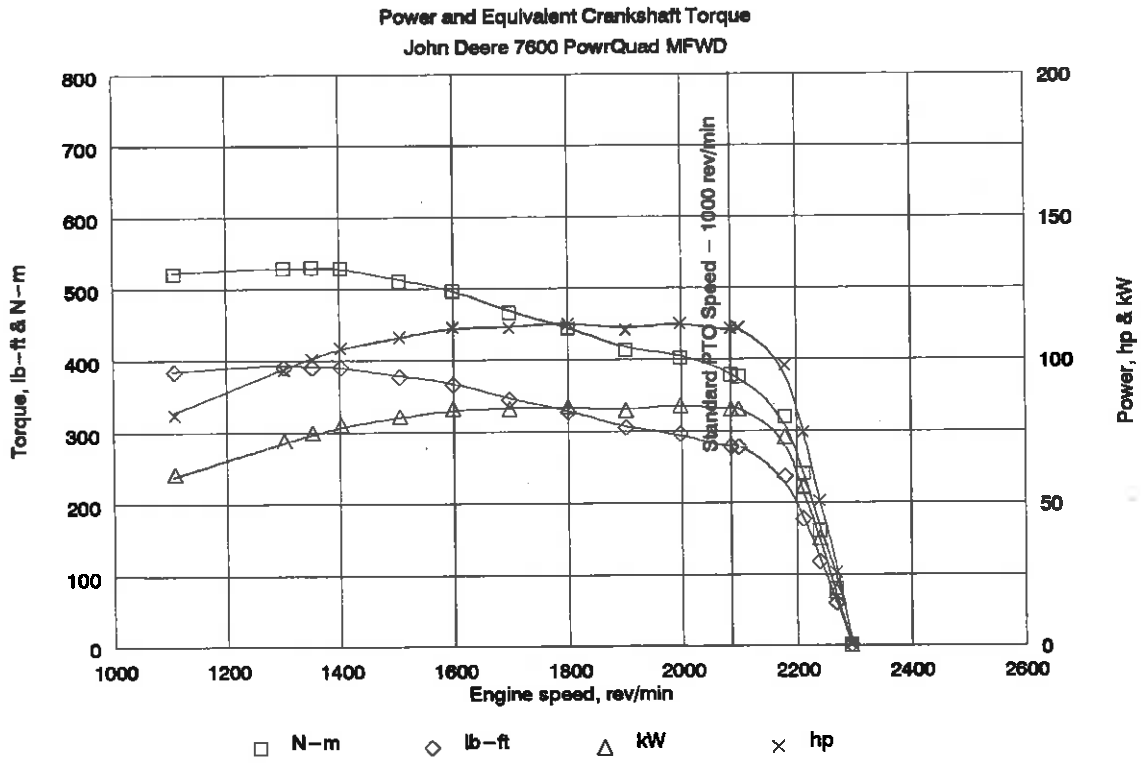
Date of tests: 29-Apr-93 | Fuel density: 0.834 kg/l
Type of track: Concrete | Test number: 1664

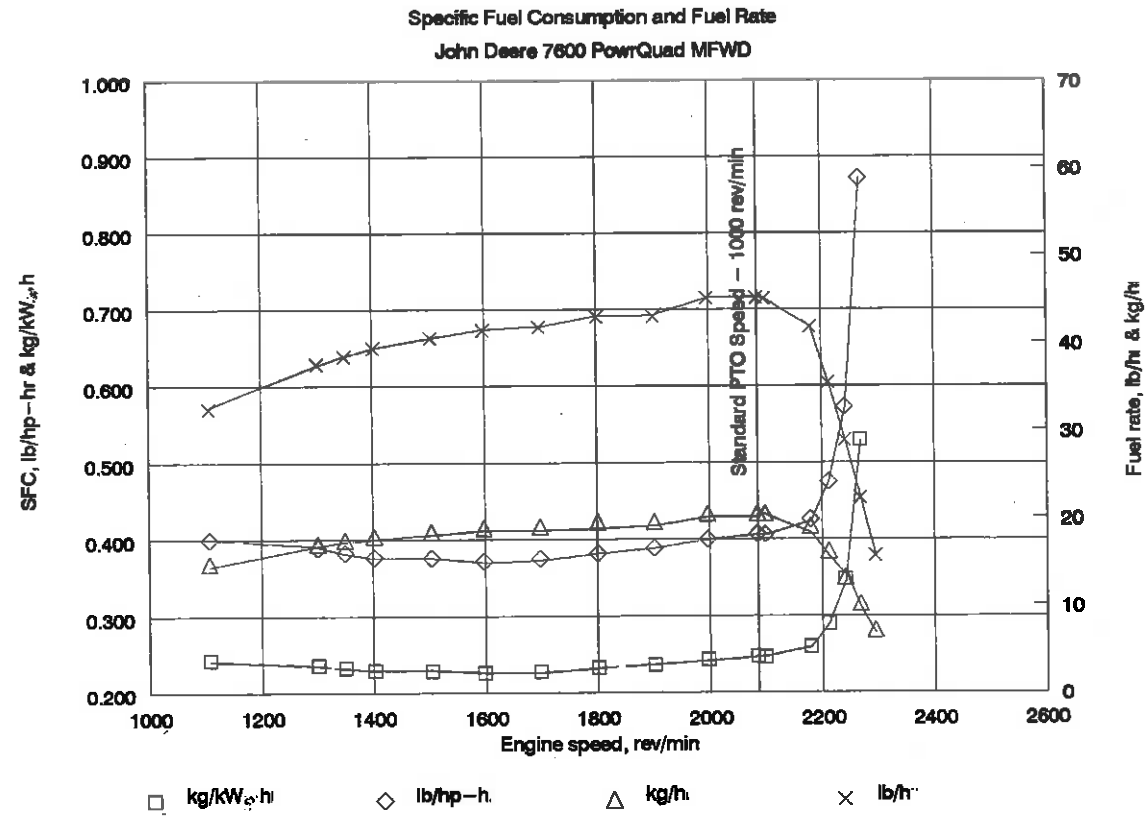
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel humidity	Pressure
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (unballasted, FWA at 2000 rev/min)					Tire pressure:		110 kPa, rear		159 kPa, front		Drawbar height:		495 mm	
A3	51.29	62.42	2.96	2197	14.78%	0.337	2.48	58	85	101	17	12	55%	98.21
A4	63.43	63.84	3.58	2161	14.40%	0.315	2.65	63	86	104	15	12	71%	98.21
B1	71.84	57.77	4.48	2109	8.49%	0.284	2.93	61	87	105	18	12	49%	98.24
B2	74.15	50.60	5.28	2011	6.15%	0.272	3.07	61	88	107	19	13	50%	98.34
B3	76.00	42.56	6.43	2004	4.14%	0.267	3.12	58	89	106	19	13	50%	98.34
C1	75.03	37.80	7.15	2001	3.51%	0.269	3.10	62	90	108	22	14	40%	98.27
B4	75.03	33.81	7.99	2003	3.03%	0.268	3.11	56	88	102	22	14	40%	98.24
C2	75.42	31.27	8.68	2000	2.70%	0.268	3.11	60	90	108	23	13	30%	98.14
C3	74.74	25.55	10.53	2013	2.22%	0.271	3.08	59	89	108	23	13	30%	98.07
C4	72.07	20.12	12.89	2002	1.80%	0.280	2.98	59	91	108	23	13	30%	98.04
II. Part loads (unballasted, FWA)														
II.1 in selected gear at maximum power														
B3	74.99	39.80	6.78	2105	3.67%	0.273	3.06	61	89	108	20	13	44%	98.34
II.1.1 75% of pull at maximum power at rated speed														
B3	59.49	29.87	7.17	2191	2.46%	0.297	2.81	57	87	102	22	12	28%	98.00
II.1.2 50% of pull at maximum power at rated speed														
B3	40.61	19.91	7.34	2223	1.72%	0.350	2.39	58	85	103	22	12	28%	98.00
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
C2	59.54	29.84	7.18	1653	2.54%	0.263	3.17	56	91	104	22	12	28%	98.00
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
C2	40.53	19.97	7.31	1665	1.72%	0.291	2.87	57	87	100	22	12	28%	98.00
II.2 in selected gear nearest to 7.5 km/h														
C1	74.76	35.84	7.51	2096	3.19%	0.273	3.06	62	90	107	21	14	46%	98.31
II.2.1 75% of pull at maximum power at rated speed														
C1	59.23	26.90	7.93	2188	2.22%	0.299	2.79	57	88	105	22	12	28%	97.97
II.2.2 50% of pull at maximum power at rated speed														
C1	40.42	17.94	8.11	2223	1.56%	0.355	2.35	59	85	103	22	12	28%	97.97
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
C3	59.38	26.83	7.97	1526	2.38%	0.261	3.19	57	91	104	22	12	28%	97.97
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
C3	40.50	17.93	8.13	1545	1.47%	0.288	2.89	57	85	101	22	12	28%	97.97

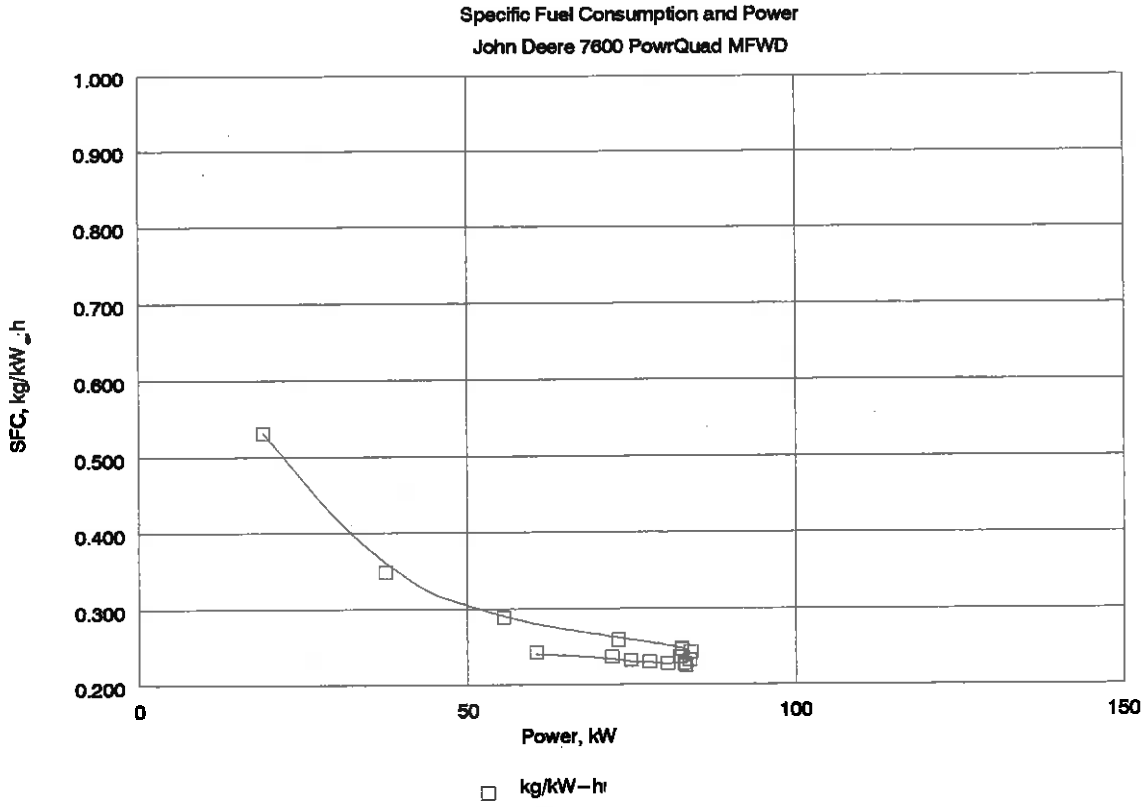
OECD Drawbar Data (US)

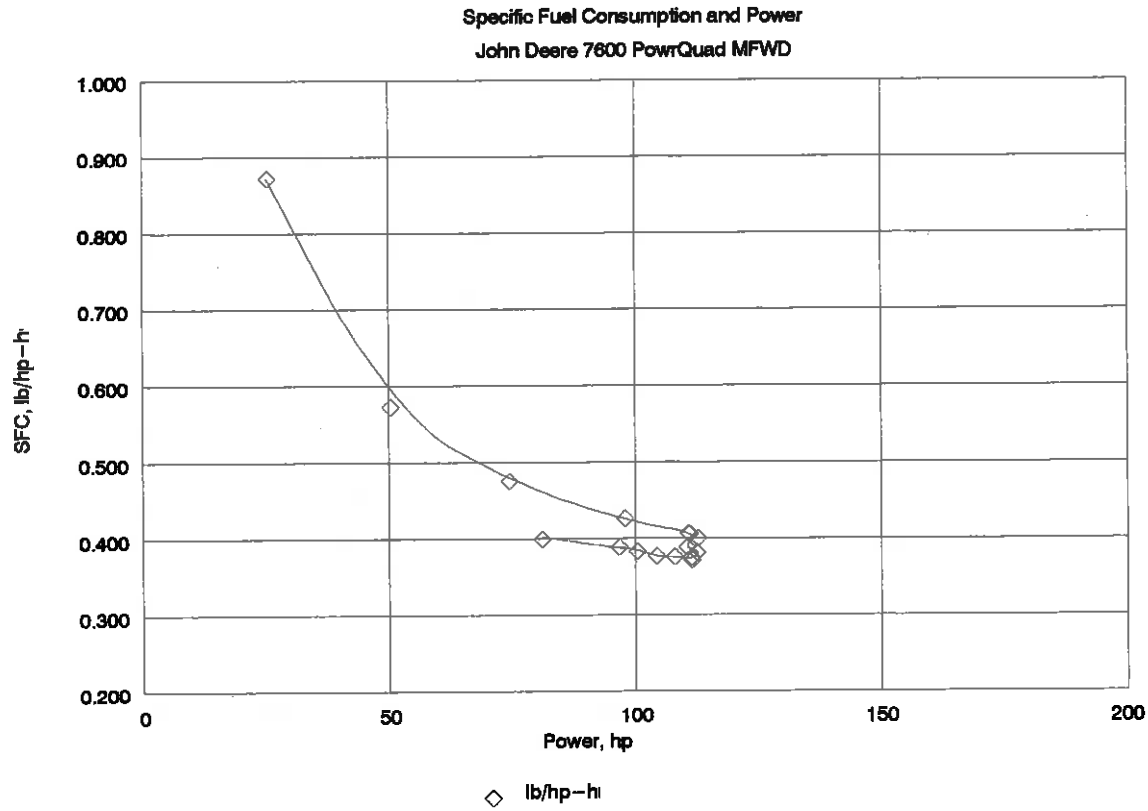
Date of tests: 29-Apr-93 | Fuel density: 6.958 lb/gal
Type of track: Concrete | Test number: 1664

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel humidity	Pressure
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
I. Maximum Power (unballasted, FWA at 2000 rev/min)					Tire pressure:		16 psig, rear		23 psig, front		Drawbar height:		19.5 in	
A3	68.79	14034	1.84	2197	14.78%	0.553	12.58	136	186	214	63	54	55%	29.00
A4	85.06	14351	2.22	2161	14.40%	0.518	13.44	145	186	220	59	53	71%	29.00
B1	96.34	12988	2.78	2109	8.49%	0.468	14.88	142	188	221	65	54	49%	29.01
B2	99.44	11376	3.28	2011	6.15%	0.446	15.59	142	191	225	67	55	50%	29.04
B3	101.92	9568	3.99	2004	4.14%	0.439	15.84	136	193	223	67	56	50%	29.04
C1	100.62	8497	4.44	2001	3.51%	0.442	15.75	143	194	227	71	57	40%	29.02
B4	100.62	7601	4.96	2003	3.03%	0.441	15.77	133	191	216	72	57	40%	29.01
C2	101.14	7029	5.40	2000	2.70%	0.440	15.80	141	194	227	73	56	30%	28.98
C3	100.22	5743	6.54	2013	2.22%	0.445	15.64	139	193	226	73	55	30%	28.96
C4	96.65	4524	8.01	2002	1.80%	0.460	15.11	139	195	227	73	55	30%	28.95
II. Part loads (unballasted, FWA)														
II.1 in selected gear at maximum power														
B3	100.57	8948	4.21	2105	3.67%	0.448	15.53	142	193	227	68	56	44%	29.04
II.1.1 75% of pull at maximum power at rated speed														
B3	79.77	6715	4.45	2191	2.46%	0.489	14.24	135	189	216	72	54	28%	28.94
II.1.2 50% of pull at maximum power at rated speed														
B3	54.46	4476	4.56	2223	1.72%	0.575	12.11	136	186	218	72	54	28%	28.94
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
C2	79.85	6709	4.46	1653	2.54%	0.433	16.07	133	196	219	72	54	28%	28.94
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
C2	54.35	4490	4.54	1665	1.72%	0.478	14.56	134	189	213	72	54	28%	28.94
II.2 in selected gear nearest to 4.6 mph														
C1	100.25	8058	4.67	2096	3.19%	0.448	15.52	144	194	225	70	57	46%	29.03
II.2.1 75% of pull at maximum power at rated speed														
C1	79.43	6047	4.93	2188	2.22%	0.492	14.15	135	190	221	72	54	28%	28.93
II.2.2 50% of pull at maximum power at rated speed														
C1	54.21	4033	5.04	2223	1.56%	0.583	11.93	138	185	217	72	54	28%	28.93
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
C3	79.64	6033	4.95	1526	2.38%	0.430	16.20	134	196	219	72	54	28%	28.93
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
C3	54.31	4031	5.05	1545	1.47%	0.474	14.70	134	185	214	72	54	28%	28.93


Power and Equivalent Crankshaft Torque
John Deere 7600 PowrQuad MFWD
Torque, lb–ft & N–m
Power, hp & kW
Engine speed, rev/min
Standard PTO Speed – 1000 rev/min
800
700
600
500
400
300
200
100
0
200
150
100
50
0
1000
1200
1400
1600
1800
2000
2200
2400
2600
N–m
lb–ft
kW
hp


Specific Fuel Consumption and Fuel Rate
John Deere 7600 PowrQuad MFWD
SFC, lb/hp–hr & kg/kW-h
Fuel rate, lb/hr & kg/hr
Engine speed, rev/min
Standard PTO Speed – 1000 rev/min
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
70
60
50
40
30
20
10
0
1000
1200
1400
1600
1800
2000
2200
2400
2600
kg/kW-h
lb/hp–h
kg/h
lb/h


Specific Fuel Consumption and Power
John Deere 7600 PowrQuad MFWD
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
SFC, kg/kW-h
0
50
100
150
Power, kW
kg/kW-h


Specific Fuel Consumption and Power
John Deere 7600 PowrQuad MFWD
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
SFC, lb/hp-h
0
50
100
150
200
Power, hp
lb/hp-h

OPTIONAL TEST - Unballasted, Front Drive Disengaged

OECD Drawbar Data (SI)

Date of tests:	29-Apr-93			Fuel density:		0.834 kg/l								
Type of track:	Concrete			Test number:		1664								
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel humidity	Pressure
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (unballasted, 2wd at 2100 rev/min)					Tire pressure:		110 kPa, rear		159 kPa, front		Drawbar height:		495 mm	
B1	59.45	49.42	4.33	2175	14.23%	0.322	2.59	60	87	106	18	12	49%	98.27
B2	68.49	47.98	5.14	2103	12.62%	0.299	2.79	62	89	108	19	12	43%	98.31
B3	73.71	39.77	6.67	2102	5.25%	0.276	3.02	61	90	108	21	13	39%	98.34
C1	74.43	36.14	7.41	2096	4.48%	0.276	3.02	61	89	107	21	14	46%	98.34
B4	72.78	31.41	8.34	2103	3.45%	0.280	2.98	59	89	107	22	14	40%	98.21
C2	74.22	29.47	9.06	2098	3.29%	0.275	3.03	58	89	108	23	13	30%	98.17
C3	72.81	23.93	10.95	2101	2.49%	0.280	2.97	61	89	107	23	13	30%	98.07
C4	70.17	18.73	13.49	2100	1.91%	0.291	2.86	60	90	108	22	12	28%	98.04
II. Part loads (unballasted, 2wd)														
II.1 in selected gear at maximum power														
C1	74.43	36.14	7.41	2096	4.48%	0.276	3.02	61	89	107	21	14	46%	98.34
II.1.1 75% of pull at maximum power at rated speed														
C1	59.30	27.13	7.87	2186	2.89%	0.301	2.77	58	87	106	22	12	28%	97.97
II.1.2 50% of pull at maximum power at rated speed														
C1	40.53	18.06	8.08	2222	1.91%	0.357	2.33	59	85	104	22	12	28%	97.97
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
C3	59.42	27.08	7.90	1522	2.65%	0.264	3.16	56	86	105	22	12	28%	97.97
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
C3	40.68	18.08	8.10	1545	1.75%	0.288	2.90	57	85	101	22	12	28%	97.97

OECD Drawbar Data (US)

Date of tests:	29-Apr-93			Fuel density:		6.958 lb/gal								
Type of track:	Concrete			Test number:		1664								
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel humidity	Pressure
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
I. Maximum Power (unballasted, 2wd at 2100 rev/min)					Tire pressure:		16 psig, rear		23 psig, front		Drawbar height:		19.5 in	
B1	79.73	11111	2.69	2175	14.23%	0.529	13.16	140	188	223	65	54	49%	29.02
B2	91.84	10786	3.19	2103	12.62%	0.491	14.17	144	192	226	67	54	43%	29.03
B3	98.85	8942	4.15	2102	5.25%	0.454	15.33	142	195	227	69	56	39%	29.04
C1	99.81	8124	4.61	2096	4.48%	0.453	15.35	142	193	224	70	57	46%	29.04
B4	97.60	7061	5.18	2103	3.45%	0.460	15.12	139	193	225	72	57	40%	29.00
C2	99.52	6626	5.63	2098	3.29%	0.453	15.37	137	193	226	73	56	30%	28.99
C3	97.64	5380	6.81	2101	2.49%	0.461	15.10	142	192	225	73	56	30%	28.96
C4	94.10	4211	8.38	2100	1.91%	0.479	14.52	140	195	226	72	54	28%	28.95
II. Part loads (unballasted, 2wd)														
II.1 in selected gear at maximum power														
C1	99.81	8124	4.61	2096	4.48%	0.453	15.35	142	193	224	70	57	46%	29.04
II.1.1 75% of pull at maximum power at rated speed														
C1	79.52	6100	4.89	2186	2.89%	0.494	14.08	137	188	222	72	54	28%	28.93
II.1.2 50% of pull at maximum power at rated speed														
C1	54.35	4060	5.02	2222	1.91%	0.587	11.85	139	185	220	72	54	28%	28.93
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
C3	79.69	6088	4.91	1522	2.65%	0.433	16.06	133	188	221	72	54	28%	28.93
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
C3	54.56	4064	5.03	1545	1.75%	0.473	14.72	134	186	213	72	54	28%	28.93

Table 1.2 - Linkage geometry dimensions *.
ISO Cat III Hook Type Draft Link Ends

		Dimension or range [mm]	Dimension or range [in]	Settings used on test [mm]	Settings used on test [in]
Lift category		III		III	
Rear Tire - Radius Index	(r)	820	32.3	905	35.6
Front Tire - Radius Index	(r')	610	24.0	695	27.4
Length of lift arms	(A)	375	14.8	same	
Length of lower links	(B)	1011	39.8	same	
Distance of lift arm pivot from: horizontal	(a)	205	8.1	same	
rear wheel axis: vertical	(b)	588	23.1	same	
Horizontal distance between the 2 lower link points	(U)	520	20.5	same	
Horizontal distance between the 2 lift arm end points	(V)	680	26.8	same	
Length of upper link	(S)	609	24.0	670	26.4
	to	808	31.8		
Distance of upper link pivot point from rear wheel axis Top hole - horizontal	(c)	504	19.8	same	
- vertical	(d)	353	13.9	353	13.9
	and	283	11.1		
	and	200	7.9		
Distance of lower link pivot from: horizontal	(e)	195	7.7	same	
rear wheel axis: vertical	(f)	275	10.8	same	
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	612	24.1	688	27.1
	or	688	27.1		
Length of lift rods	(L)	842	33.1	1022	40.3
	to	1051	41.4		
Height of lower hitch points relative to rear wheel axis In low position	(h)	420	16.5	646	25.4
	to	745	29.3		
In high position	(H)	270	10.6	17	0.7
	to	37	1.5		
Height above ground of lower hitch points when locked in transport position.		734	28.9	920	36.3
	to	1061	41.7		

* Tire dynamic index of 905 mm (35.6 in), ISO 4251/1-1984

2.2 POWER LIFT TEST. Test B - Upper link in top hole on tractor (for settings see p. 24)

Date of test: 15 June 1993

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	259/10.2	261/10.3
Vertical movement: without load:	[mm/in]	692/27.3	740/29.1
Vertical movement: with load:	[mm/in]	671/26.4	712/28.0
Maximum corrected force through full range:	[kN/lb]	55.5/12488	57.4/12915
Corresponding pressure:	[kPa/psi]	17871/2592	
Moment about rear axle:	[kN.m/lb.ft]	67.0/49430	104.3/76952
Maximum mast tilt angle:	[deg]	--	5.0

Lifting height relative to horizontal position of lower links.

	[mm]	-371	-369	-300	-201	-99
	[in]	-14.6	-14.5	-11.8	-7.9	-3.9
Corrected lift forces						
Hitch point.	[kN]	55.5	--	59.2	63.0	65.4
	[lb]	12488	--	13316	14162	14702
at frame	[kN]	--	63.3	63.0	63.5	63.4
	[lb]	--	14229	14153	14270	14256

Lifting height relative to horizontal position of lower links.

	[mm]	0	99	201	299	343
	[in]	0	3.9	7.9	11.8	13.5
Corrected lift forces						
Hitch point	[kN]	68.0	69.3	70.8	68.5	--
	[lb]	15278	15575	15908	15395	--
at frame	[kN]	62.9	61.8	60.1	58.6	57.4
	[lb]	14148	13887	13509	13176	12915

Repairs: None
Remarks: None