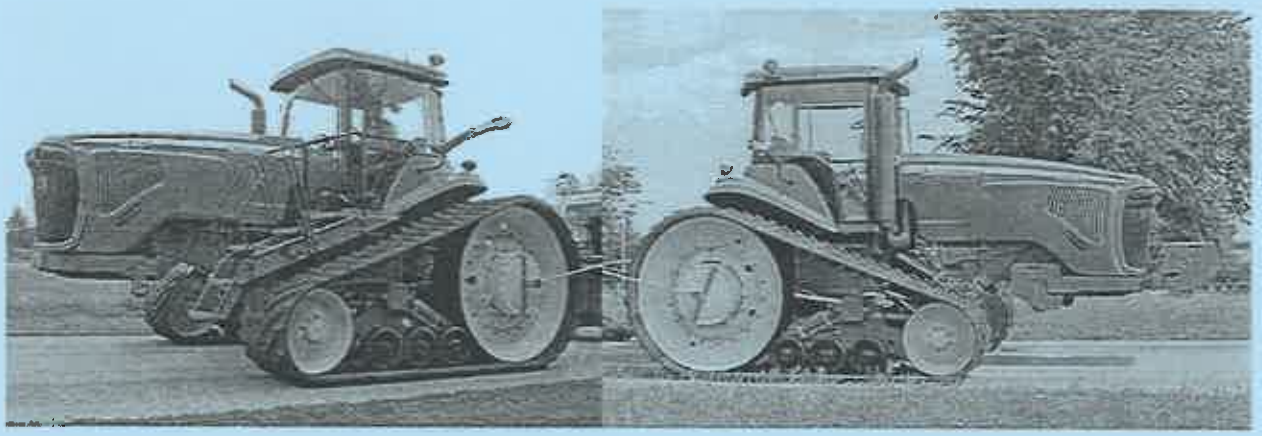
OECD APPROVAL NO. 2/2 054
CODE 2
DATE OF APPROVAL: 13 March 2003

NEBRASKA TRACTOR TEST LABORATORY
DEPARTMENT OF BIOLOGICAL SYSTEMS ENGINEERING
INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES
UNIVERSITY OF NEBRASKA - EAST CAMPUS
LINCOLN, NEBRASKA 68583-0832, USA

REPORT ON TEST IN ACCORDANCE WITH OECD STANDARD CODE 2 FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS



JOHN DEERE 8520T POWERSHIFT
Rubber Tracklaying Tractor
30 km/h version

MANUFACTURED BY:	John Deere Tractor Works 3500 East Donald Street P.O. Box 270 Waterloo, Iowa 50704-0270
NEBRASKA TEST NO.	1802
TEST DATES:	April 30 - May 31, 2002

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This test report provides the results of the tests conducted in accordance with the OECD Standard Test Code for the Official Testing of Agricultural Tractor Performance - C(87)53 Final, Code 2.

This report has been approved by the OECD Coordinating Centre in Paris on 13 March 2003 for the John Deere 8520T Powershift, rubber tracklaying, 30 km/h version tractor with OECD Number 2/2 054.

No reproduction of this report or any part of it can be made without prior approval by the Nebraska Tractor Test Laboratory, Lincoln, Nebraska USA.

Dr. Leonard L. Bashford, Director
Nebraska Tractor Test Laboratory and
Chair, Nebraska Tractor Test Board

David L. Morgan, Assistant Director
Nebraska Tractor Test Laboratory

Brent T. Sampson, Test Engineer
Nebraska Tractor Test Laboratory

Date: MAR 1 7 2003

SPECIMEN TEST REPORT

Note: Units shown below, which appear in ISO 1000:1992, shall be stated and followed by national units in parentheses, if necessary.

-Tractor manufacturer's name and address:	John Deere Tractor Works 3500 East Donald St. P.O. Box 270 Waterloo, IA 50704-0270
-Location of tractor assembly:	Same
-Submitted for test by:	The Manufacturer
-Selected for test by:	The Manufacturer in agreement with the Nebraska Tractor Test Laboratory
-Place of running-in:	John Deere Product Engineering Center, Waterloo, Iowa
-Duration of running-in:	237 hours
-Location of test:	Nebraska Tractor Test Laboratory, Lincoln, Nebraska U.S.A.

1. SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1 Make of the tractor:	John Deere
-Model:	8520T
-Type:	Unit Construction, rubber tracklaying tractor, Powershift, 30 km/h
-Number of driving wheels:	2 tracks, 30"
1.1.2 *Numbers*	
-1st Serial No:	CONFIDENTIAL
-Serial No:	RW8520T901146
1.1.3 *Other specifications*	
-Transmission type:	Powershift

1.2 Engine

-Make:	John Deere
-Model:	6081HRW28
-Type:	4-stroke diesel; HPCR injection; turbocharged; air-to-air aftercooled
-Serial No:	RG6081H203324

1.2.1 *Cylinders*

- Number/disposition:	6, in-line, vertical
- Bore/stroke:	115.8 mm/ 128.5 mm
- Capacity:	8134 cm^3
- Compression ratio:	15.7:1
- Arrangement of valves:	Overhead
- Cylinder liners (wet or dry):	Wet; replaceable

1.2.2 *Supercharging*

-Make:	Borg-Warner
-Model:	RE516211
-Type:	Exhaust Driven
-Pressure:	195 ± 10 kpa at rated engine speed and full load

1.2.3 *Fuel system*

- Fuel feed system:	Transfer pump with HPCR system
- Make:	RACOR
- Model:	RE509595 (Fuel Filter / Water Separator)
- Type of fuel filter(s):	Multi-layer-water-separating
- Capacity of fuel tank:	605 dm^3
- Make:	Denso
- Model:	RE501640
- Type of injection pump:	HPCR; electronic
- Serial No:	NA
-Manufacturer's production setting of injection pump	
· Flow rate (rated engine speed and full load):	55.5 ± 2.0 dm^3/h
· Timing:	Variable
- Make:	Denso
- Model:	RE501010
- Type of injectors:	HPCR injection
- Injection pressure:	113 MPa
- Make:	Denso
- Model:	NA
- Type of carburetor:	NA

1.2.4 *Governor*

- Make:	John Deere
- Model:	Focus
- Type:	Electronic Control
- Governed range of engine speed	From 900 to 2325 min^{-1}(rev/min)
- Rated engine speed:	2200 min^{-1}(rev/min)

1.2.5 *Air cleaner*

- Pre-cleaner	
· Make:	Donaldson
· Model:	RE164824
· Type:	Strato-tube pre-cleaner with aspirator
· Location of air intake:	Under hood, front of tractor
- Main cleaner	
· Make:	Donaldson
· Model:	RE164839
· Type:	Pleated Paper
- Secondary cleaner	
· Make:	Donaldson
· Model:	RE172447
· Type:	Pleated Paper
- Maintenance indicator:	Dash mounted warning light and audible signal

1.2.6 *Lubrication system*

- Type of feed pump:	Full pressure; positive displacement
- Type of filter(s):	Full flow
- Number of filters:	One; Top Load

1.2.7 *Cooling system*

- Type of coolant:	Liquid
- Type of pump:	Centrifugal, Gear-driven
- Specification of fan or blower	Belt driven; suction type; variable speed
· Number of fan blades:	8
· Fan diameter:	737 mm
- Coolant capacity:	34 dm^3
- Type of temperature control:	2 thermostats and variable speed fan
- Superpressure system:	69 ± 5 kPa

1.2.8 *Starting system*

-Make:	Nippondenso
-Model:	RE69704
-Type:	Solenoid engaged
-Starter motor power rating:	4.0 kW
-Cold starting aid:	Ether spray in intake manifold
-Safety device:	Electrical lockout on gearshift lever

1.2.9 *Electrical system*

- Voltage:	12 V DC; neg ground
- Generator	
· Make:	Bosch
· Model	RE185213
· Type:	Belt-driven
· Power:	2.1 kW, 150 Amps
- Battery of accumulators	
· Number:	Two 12-volt batteries in parallel
· Rating	925 cold crank amp/battery, 175 Ah/battery at 20h rating

1.2.10 *Exhaust system*

-Make:	Nelson (muffler)
-Model:	RE164819
-Type:	Expansion Chamber
-Location:	Vertical muffler, right front corner of cab

1.3 Transmission

1.3.1 *Clutch (/travel alone)*

-Make:	John Deere
-Model:	Multiple Plate
-Type:	Oil Cooled
-Number of plates:	7
-Diameter of plates:	232 mm
-Method of operation:	Hydraulic, pedal actuated

1.3.2 *Gear box*

- Make:	John Deere
- Model:	Full Powershift
- Type:	Mechanical
- Description:	Countershaft design consisting of 8 multi-disk hydraulically cooled clutches and multi-disk hydraulically cooled planetary brake.

	Forward	Reverse
Number of gears	16	4
Number of ranges/groups	NA	NA
Total of arrangements	16	4

- Available options:	16 x 5 (specialty market)
- Oil Cooler:	Heat exchanger with air

1.3.3 *Rear axle and final drives*

-Make:	John Deere
-Model:	NA
-Type:	Spiral bevel gear and pinion, outboard planetary final drives with electronically controlled hydrostatic differential steering
-Differential lock	Not applicable

1.3.4 *Front axle and final drives* Not applicable

1.3.5 *Total ratios and traveling speeds*

Gear No.	Number of engine revolutions for one revolution of the driving wheels	Nominal traveling speed (*) at rated engine speed of 2200 min^{-1} (rev/min) km/h
FWD		
1	416.4931	1.55
2	310.9564	2.08
3	233.5628	2.77
4	174.3795	3.71
5	155.4908	4.16
6	134.8644	4.80
7	116.0904	5.57
8	100.6906	6.42
9	87.1968	7.42
10	75.6299	8.55
11	65.1017	9.94
12	56.4657	11.46
13	47.9103	13.50
14	35.7701	18.09
15	26.8674	24.08
16[a]	20.0593	30.78
REV		
R1	-445.2535	-1.45
R2	-166.2280	-3.89
R3[b]	-144.1773	-4.89
R4[c]	-51.2187	-8.61
R5[d]	-51.2187	-12.63

(*) Calculated with a rear track dynamic radius index of 780 mm

[a] Engine speed is limited to 2100 RPM in Gear 16.

[b] Engine speed is adjustable to 2400 RPM in the Reverse Gear Number 3

[c] Engine speed is limited to 1500 RPM in the Reverse Gear Number 4

[d] Available in Specialty Markets only

1.4 Power take-off

1.4.1 *Main power take-off*

-Type (independent, semi-independent or not independent):	Independent
-Method of engagement (if necessary describe the type of clutch):	Electro-Hydraulically actuated multi-plate wet clutch operated by single hand control switch
-Number of shafts:	One, 1000 RPM
-Method of changing power take-off shaft ends and speeds:	None

1.4.1.1 Power take-off proportional to engine speed

Power take-off at 1000 min^{-1} (rev/min)

-Location:	Rear of tractor, center plane
-Diameter of power take-off shaft end:	44.5 mm
-Number of splines:	20; in conformity with ISO 500:1991
-Height above ground:	723 mm
-Distance from the median plane of the tractor:	0 mm
-Distance behind rear-wheel axis:	583.6 mm
-PTO speed at rated engine speed (2200 rev/min):	1009 min^{-1} (rev/min)
-Engine speed at standard power take-off speed:	2179 min^{-1} (rev/min)
-Ratio of rotation speeds (engine speed/p.t.o. speed):	2.179:1
-Power restriction:	Maximum power available
-Maximum torque transmissible:	Maximum torque available
-Direction of rotation (viewed from behind tractor):	Clockwise

1.4.1.2 Power take-off proportional to ground speed — Not available

1.5 Hydraulic power lift

-Make:	John Deere
-Model:	NA
-Type:	Electro-Hydraulic lower link sensing; variable mix of draft and position control (optional slip control); adjustable rate of drop
-Type of hydraulic system:	Closed center, pressure and flow compensated
-Type and number of cylinders (single or double-acting):	2 external/ single acting Standard –2 x 100 diameter Optional –1 x 115 mm diameter SM –1 x 100, 1 x 115 mm diameter
-Type of linkage lock for transport:	Electro-Hydraulic, with locking notch for hand lever in hand console
-Relief valve pressure setting (tolerance):	20 ± 0.3 Mpa
-Opening pressure of cylinder safety valve (if fitted):	23.25 ± 0.5 Mpa
-Lift pump type:	Axial piston, variable pressure and flow, pressure and flow compensated (45 cm^3 & optional 57 cm^3 displacement)
-Transmission between pump and engine:	Direct spur gear drive
-Type and number of filters:	Synthetic media, screw-on/One
-Site of oil reservoir:	Differential case housing
-Type, number and location of tapping points:	ISO standard breakaway couplers/3 standard with option 4th, 5th and additional inlet/outlet pair for externally controlled implements/rear of tractor
-Maximum volume of oil available to external cylinders:	20 dm^3; additional 10 dm^3 allowable overfill for total of 30 dm^3

1.6 Three point linkage

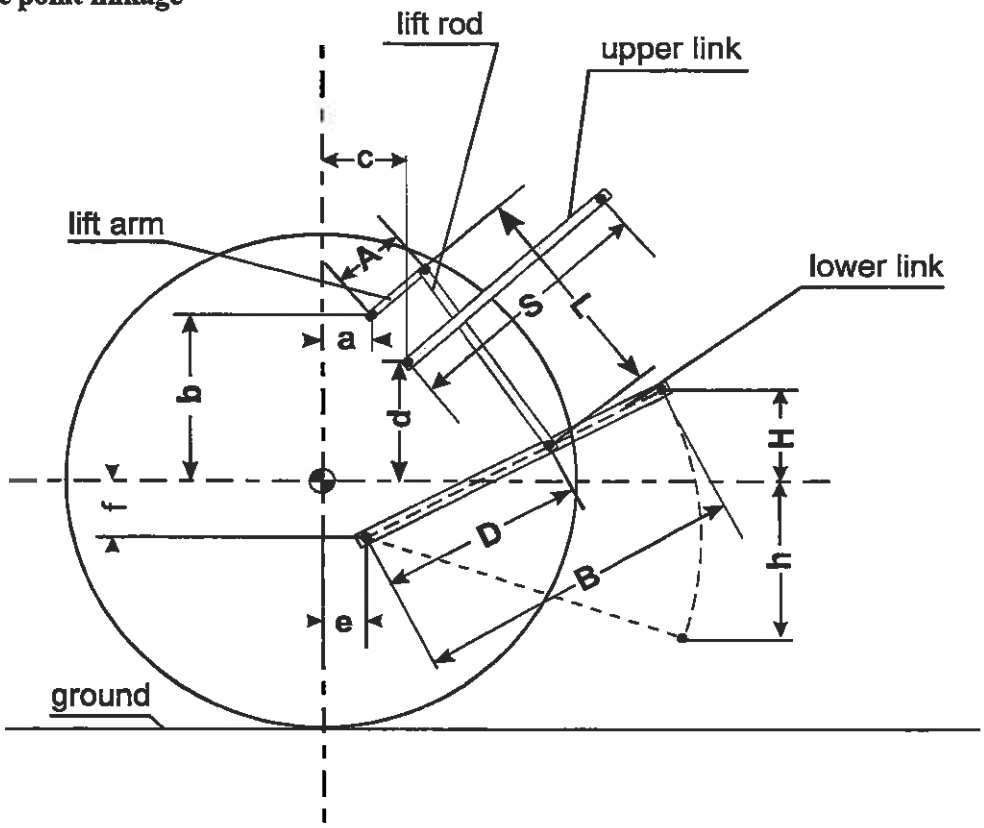


Figure 2.1
Lift test - Linkage Geometry

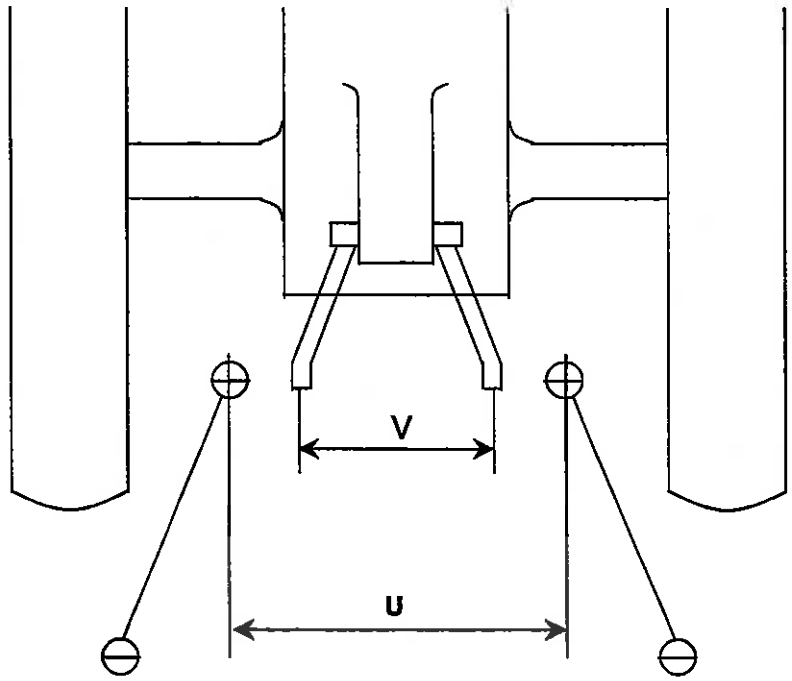


Figure 2.2
Lift test - Linkage Geometry

1.6.1 Three point linkage dimensions – Specific Market version

- Category: 3 in conformity with category 3 of ISO 730-1:1994 +Cor. 1:1995 and ISO 730-2:1979.
- Category adapter: Convertible to category-None

		Dimension or range	Settings used in test
		mm	mm
Length of lift arms:	(A)	520	same
Length of lower links:	(B)	1082	same
Distance of lift arm pivot point from rear-wheel axis:			
horizontally	(a)	140	same
vertically	(b)	565	same
Horizontal distance between the 2 lower link points:	(u)	594	same
Horizontal distance between the 2 lift arm end points:	(v)	738	same
Length of upper link:	(S)	694 to 865	750
Distance of upper link pivot point from rear wheel axis:			
horizontally	(c)	395	same
vertically	(d)	260	same
Distance of lower link pivot point from rear wheel axis:			
horizontally	(e)	275	same
vertically	(f)	280	same
Distance of lower link pivot points to lift rod pivot points on lower links:	(D)	733	same
Length of lift rods:	(L)	1009 to 1187	1150
Height of lower hitch points relative to the rear-wheel axis:			
in low position	(h)	428 to 681	621
in high position	(H)	99 to 319	132
Height above ground of lower hitch points when locked in transport position (*)		951 to 1171	983

(*) Assuming r = 851 mm static radius index

1.6.2 Three point linkage dimensions– North American version

- Category: 3 in conformity with category 3 of ISO 730-1:1994 +Cor. 1:1995 and ISO 730-2:1979.
- Category adapter: Convertible to category-None

mension r range	Settings used in test
mm	mm
520	same
1082	same
140	same
565	same
594	same
738	same
4 to 865	750
395	same
260	same
275	same
280	same
733	same
9 to 1187	1150
8 to 681	621
) to 319	132
l to 1171	983

1.7 Swinging drawbar

North American Option, Cat III (optional – on tested tractor)

-Type:	Oscillating
-Height above ground	
· Maximum:	565.4 mm
· Minimum:	467.4 mm
-Type of adjustment:	Invert drawbar and reposition clevis
-Distance of hitch point from rear-wheel axis, horizontally:	1040, 1091 mm
-Distance of hitch point from power take-off shaft end	
· Vertically:	152, 250 mm
· Horizontally:	457, 508 mm
-Lateral adjustment (centre of clevis)	
· Right hand	203.75, 211.4 mm
· Left hand	203.75, 211.4 mm
-Distance of pivot point from rear-wheel axis, horizontally:	190.5 mm (forward)
-Diameter of drawbar pin hole:	40 mm
-Maximum vertical permissible load:	17.35 kN

North American Option, Cat IV (optional – not on tested tractor)

-Type:	Oscillating
-Height above ground	
· Maximum:	564 mm
· Minimum:	440 mm
-Type of adjustment:	Invert drawbar and reposition clevis
-Distance of hitch point from rear-wheel axis, horizontally:	1091 mm
-Distance of hitch point from power take-off shaft end	
· Vertically:	153, 277 mm
· Horizontally:	508 mm
-Lateral adjustment (centre of clevis)	
· Right hand	178 mm
· Left hand	178 mm
-Distance of pivot point from rear-wheel axis, horizontally:	190.5 mm (forward)
-Diameter of drawbar pin hole:	50.8 mm
-Maximum vertical permissible load:	21.8 kN

SM Option (optional – not on tested tractor)

-Type:	Oscillating
-Height above ground	
· Maximum:	565.4 mm
· Minimum:	467.4 mm
-Type of adjustment:	Invert drawbar and reposition clevis
-Distance of hitch point from rear-wheel axis, horizontally:	1089, 1178 mm
-Distance of hitch point from power take-off shaft end	
· Vertically:	250, 152 mm
· Horizontally:	506, 595 mm
-Lateral adjustment (centre of clevis)	
· Right hand	212, 225.5 mm
· Left hand	212, 225.5 mm
-Distance of pivot point from rear-wheel axis, horizontally:	190.5 mm (forward)
-Diameter of drawbar pin hole:	33 mm
-Maximum vertical permissible load:	
· Short Position:	23.58 kN
· Long Position:	16.24 kN

1.8 Trailer hitch Not available

1.9 Holed drawbar Not available

1.10 Steering

- Make:	John Deere Hydrostatic Differential Steering
- Model:	Pump and motor
- Type:	Electro-Hydraulic Differential steering controlled by steering wheel
- Method of operation	Steering wheel angle determines difference in speed between the 2 rubber track drive wheels
· Pump(s):	Axial Piston Variable Displacement Pump and Axial Piston Fixed Displacement Motor
· Ram(s):	None
- Working pressure:	Up to 45.0 MPa +0.5/+2.5 Mpa
- Filter	
· Make:	Donaldson
· Model:	RE69054
· Type:	Paper element

1.11 Brakes

1.11.1 *Service brake*

-Make:	Vickers-John Deere
-Model:	RE172131
-Type:	Load sensing power with manual backup
-Method of operation:	Hydraulically actuated oil immersed disk operated by one pedal
-Trailer braking take-off (hydraulic or air brake):	None

1.11.2 *Parking brake*

-Type:	Spring applied, hydraulically released multi-disk
-Method of operation:	Gear selector lever

1.12 Wheels

-Number	
Front:	None
Rear:	2 driving and steering
-Wheelbase:	Not applicable

-Track width adjustment:

	Minimum mm	Maximum mm	Adjustment method
Rear	2235	3035	8 positions available by adjusting track frame and rear wheel: 2235, 2435, 2485, 2535, 2635, 2735, 2835, and 3035

1.13 Protective structure

-Make:	John Deere
-Model:	SG-076
-Type:	Cab
-Manufacturer's name and address:	John Deere Waterloo Works Waterloo, Iowa, USA
-Protective device	
·Cab/frame/ rollguard/ other:	Cab
·Tiltable/not tiltable:	Not tiltable
- OECD approval	
· Approval number:	4/0 719 (Certified to SAE-J2194 and CSA-B352.0)
· Date of approval:	4 April 2002
· Nos. of minor modification certificates, if any:	none

1.14 Seat

1.14.1 *Driver's seat*

- Make:	John Deere
- Model:	Comfort Command
- Type:	Air cushion suspension
- Seat and steering wheel reversible: Yes/No	No
- Type of suspension:	Air Ride
- Type of damping:	Adjustable, viscous damping
- Range of adjustment	
· Longitudinally:	178 mm
· Vertically	172 travel
- Safety belt Yes/No	Yes

1.14.2 *Optional driver's seat(s)* — Not available

1.14.3 *Instructional seat*

- Location:	Optional Instructional Seat located left of drivers seat
- Capacity (number):	One

1.15 Lighting

	Height above ground of centre	Size	Distance from outside edge of lights to median plane of tractor
	mm	mm	mm
Headlights			
Hood Inner	1770	125 x 80	210
Outer	1770	150 x 100	395
(Optional)			
Center	1770	125 x 80	62
Above Front weights	1380	152 x 127	500
Sidelights			
Upper mid-body	2180	160 x 110	700
Rearlights			
roof	2960	160 x 110	495
fender	2095	160 x 110	920
Taillights	1940	210 x 95	910
Hazard Lights			
Roof Front	3060	82 x 240*	770
Roof Rear	3090	82 x 240*	790
Extrememity Lights - Wide	2250	140 x 72	1854
*Wrap-around lights			

2. TEST CONDITIONS

Separate tables may be added to report other test conditions or equipments.

2.1 Overall dimensions

	Length	Width		Height at top of	
		minimum	maximum	protective structure	exhaust pipe
	mm	mm	mm	mm	mm
Unballasted	5530	2634	3657	3122	3114
Ballasted	6190	2634	3657	3122	3114

2.2 **Ground clearance** (unballasted tractor): 350 mm

- Clearance-limiting part: Drawbar Safety Support

2.3 Tractor mass

Mass (with cab, full fuel tank):

	Without driver	With driver
	kg	kg
Unballasted		
Total	12378	12453
Ballasted		
Total	13939	14014

Ballast Added	Number of Weights	Total Mass	Liquid
		kg	kg
Front (weight support)	1	134	-
Front (weights)	32	1427	-

2.4 Track specifications

Track materials	Rubber with steel reinforcement
Track width and base	610 mm and 2261 mm
Dynamic radius (rolling radius)	780 mm
Static distance to rear axle to ground	853 mm
Track support system	Oscillating front idler & three mid-rollers supported by midframe and rear wheel attached to drive axle
Treadbars Total per track Number per metre Bar length at top Bar width at top Bar width at center Bar height	 54 6.56 per meter 191 mm 40 mm 53 mm 50.8 mm
Track length	8230 mm
Track ground contact length	2261 mm

2.5 Track width specifications

Track Width 2835 mm

2.6 Fuel

-Type: No. 2 diesel in conformity with national standard
-Density at 15°C: 0.844 g/cm^3

2.7 Oils and lubricants

2.7.1 *Capacity and change interval*

	Capacity	Oil change	Filter change
	dm^3	h	h
Engine	25	250 (375 with John Deere PLUS-50 oil and John Deere filter)	Same
Hydraulic system (*)	140 (150 w/ILS)	1500	750
Wheel Hubs	50	1500	No filter
(*) Common with gear box , rear axle and rear final drive.			

2.7.2 *Specifications (SAE, API, CCMC, ACEA, Mil.L, ISO)*

	Recommended	Used during test
Engine oil · Type: · Viscosity: · Classification:	John Deere; Torq-Gard Supreme, PLUS-50 SAE 15W40 or 10W-40 12.5 - 16.3 cSt @ 100 C API CF-4; CH-4; ACEA E2	John Deere; Torq-Gard Supreme, PLUS-50 SAE 15W40
Transmission oils · Type: · Viscosity: · Classification:	John Deere HY-GARD; J20C SAE 10W-30 58 cSt at 43 C NA	Same
Hydraulic fluid · Type: · Viscosity: · Classification:	Same as Transmission	Same
Steering oil · Type: · Viscosity: · Classification:	Same as Transmission	Same
Grease	John Deere Moly High Temperature EP Grease	Same

2.7.3 *Grease*

- Number of lubrication points: 14

3. COMPULSORY TESTS RESULTS

3.1 Main power take-off

- Date and location of tests: 30-Apr-02 Nebraska Tractor Test Laboratory, Lincoln, NE, USA
- Type of dynamometer bench: Eaton

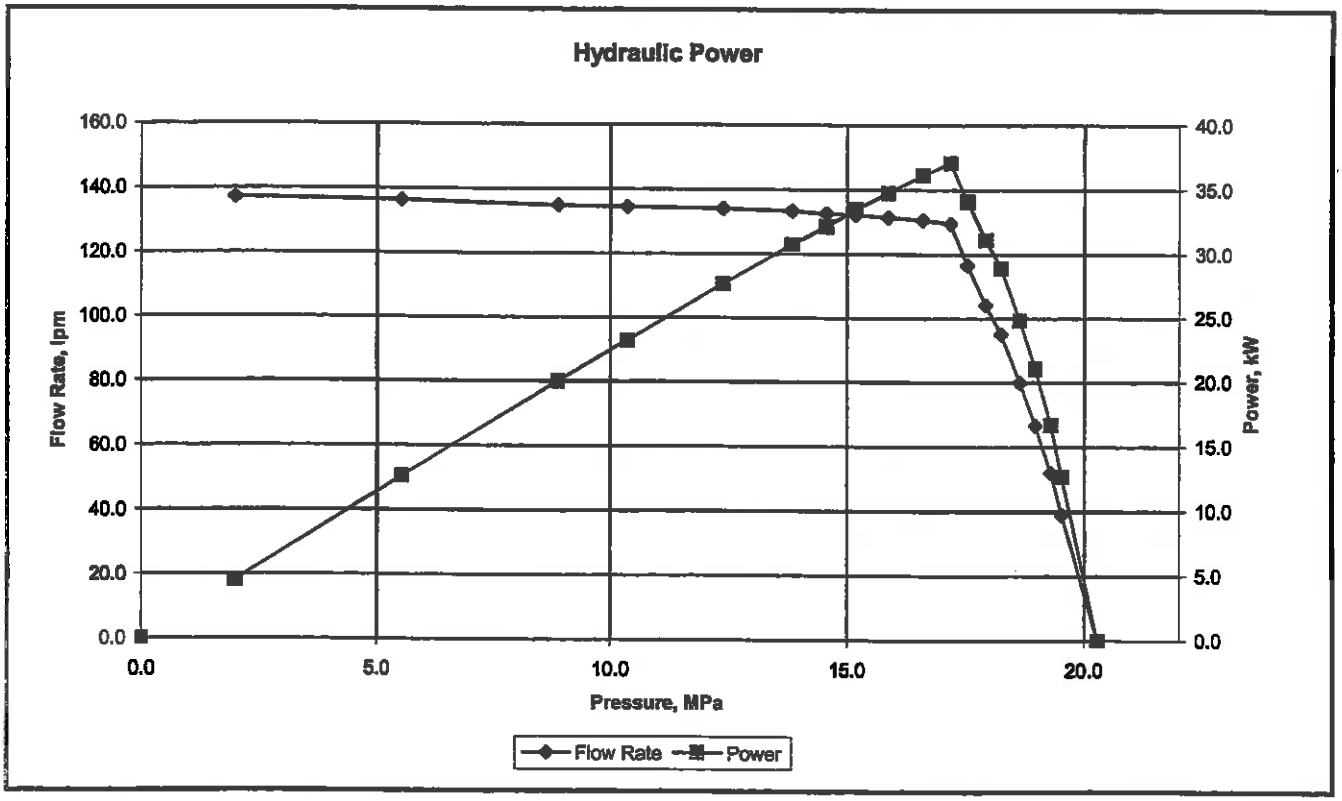
	Speed		Fuel consumption			Specific
Power	Engine	PTO	Hourly		Specific	energy
kW	rev/min		kg/h	l/h	g/kWh	kW-h/l
3.1 MAXIMUM POWER - TWO HOUR TEST						
217.50	2000	917	51.20	60.65	235	3.59
3.1.2 POWER AT RATED ENGINE SPEED						
190.87	2200	1009	47.58	56.36	249	3.39
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000 +/- 25 rev/min)						
190.87	2200	1009	47.58	56.36	249	3.39
3.1.4 PART LOADS						
3.1.4.1 the torque corresponding to maximum power at rated engine speed						
190.87	2200	1009	47.58	56.36	249	3.39
3.1.4.2 85% of torque obtained in 3.1.4.1						
166.58	2260	1036	43.00	50.94	258	3.27
3.1.4.3 75% of torque defined in 3.1.4.2						
125.56	2270	1041	34.84	41.27	277	3.04
3.1.4.4 50% of torque defined in 3.1.4.2						
83.91	2282	1046	25.72	30.47	307	2.75
3.1.4.5 25% of torque defined in 3.1.4.2						
42.20	2293	1052	16.60	19.67	393	2.15
3.1.4.6 unloaded						
0.75	2302	1056	9.66	11.44	12888	0.07
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (1000 +/- 25 rev/min)						
3.1.5.1 the torque corresponding to maximum power						
190.87	2200	1009	47.58	56.36	249	3.39
3.1.5.2 85% of torque obtained in 3.1.5.1						
166.58	2260	1036	43.00	50.94	258	3.27
3.1.5.3 75% of torque defined in 3.1.5.2						
125.56	2270	1041	34.84	41.27	277	3.04
3.1.5.4 50% of torque defined in 3.1.5.2						
83.91	2282	1046	25.72	30.47	307	2.75
3.1.5.5 25% of torque defined in 3.1.5.2						
42.20	2293	1052	16.60	19.67	393	2.15
3.1.5.6 unloaded						
0.75	2302	1056	9.66	11.44	12888	0.07

- No load maximum engine speed: 2302 rev/min
- Torque (equivalent crankshaft) at rated speed:
  - At rated engine speed 828 Nm
  - At 2-hour test 1038 Nm
- Maximum torque (equivalent crankshaft): 1236 Nm
  (engine speed: 1400 rev/min)

Mean atmospheric conditions:		
Dry bulb	25	°C
Pressure	97.2	kPa
Relative Humidity	41	%
Maximum temperatures:		
Coolant	104	°C
Engine oil	124	°C
Fuel	45	°C
Engine air intake	26	°C

3.2.1 Hydraulic Power (Standard Pump - two outlet - test data from 8320T)

Date of Test:	31-May-02	John Deere 8320 T	
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:		
	20.28 MPa		
	2941 psig		
II.	Pump delivery rate at minimum pressure at rated engine speed:		
	137.0 l/min		
	36.2 gpm		
III.	Flow rate, pressure, power:		
	90% of relief valve setting		
	95.0 l/min	18.25 MPa	28.9 kW
	25.1 gpm	*2647 psig*	*38.8 hp*
	Maximum hydraulic power:		
	129.5 l/min	17.17 MPa	37.1 kW
	34.2 gpm	*2491 psig*	*49.7 hp*
IV.	Hydraulic fluid temperature at flow meter:		
	60 °C		
	140 °F		
	This hydraulic system does not use an accumulator. Opening and closing pressures of the unloading valve could not be measured.		



3.2.2 POWER LIFT TEST Category III, Specific Market, Walterscheid lower links.
Date of test: 28 February 2002.

	Hitch points	Frame
Lower hitch points above ground - down position:	231 mm	213 mm
Vertical movement - without load:	817 mm	977 mm
with load:	803 mm	947 mm
Maximum corrected force exerted through full range:	67.8 kN	66.0 kN
Corresponding pressure:	17.8 MPa	17.8 MPa
Moment about rear axle:	92.0 kNm	129.8 kNm
Maximum mast tilt angle		11.8 degrees

Lifting height relative to horizontal position of lower links.

mm		-351	-333	-302	-203	-103	-3	96	197	297	398	470	596
Corrected lift forces													
At the hitch point	kN	--	67.8	69.2	71.3	73.7	76.1	79.0	80.0	82.7	84.7	86.0	--
At the frame	kN	67.3	66.9	--	68.0	68.7	69.3	69.6	69.3	--	69.3	67.7	66.0
Corresponding pressure	17.8 Mpa												

OECD Drawbar Data (SI)

Date of tests: 8,17-May-02						Fuel density:	0.844 kg/l							
Type of track: Concrete						Test number:	1802							
3.3.1 Maximum power in tested gears (unballasted, CRWL)						Tire pressure:	TRK kPa, rear		TRK kPa, front			Drawbar Height:	445 mm	
Gear	Gear Designation	Power	Drawbar pull	Speed	Engine speed	Slip	Fuel		Temperature			Atmospheric conditions		
							SFC	SFE	Fuel	Coolant	Oil	Temperature	Relative humidity	Pressure
		kW	kN	km/h	rev/min	%	kg/kW.h	kW.h/l	°C	°C	°C	°C	%	kPa
*4	4	111.08	121.13	3.30	2265	14	0.358	2.36	39	94	116	12	61	98.3
*5	5	130.59	125.66	3.74	2260	12	0.335	2.52	38	93	114	11	65	98.3
6	6	146.38	120.38	4.38	2255	11	0.322	2.62	38	94	118	12	60	98.3
7	7	157.77	110.64	5.13	2200	8	0.304	2.78	38	94	117	13	56	98.3
8	8	168.83	113.88	5.34	2054	11	0.299	2.82	39	93	119	14	54	98.3
9	9	180.85	103.75	6.28	1999	7	0.283	2.98	40	94	120	15	55	98.3
10	10	185.64	89.20	7.49	2001	4	0.276	3.06	43	94	120	18	76	96.3
11	11	186.69	76.06	8.84	2003	2	0.274	3.08	43	94	120	18	76	96.3
12	12	186.65	65.66	10.23	2000	2	0.273	3.09	44	96	121	20	77	96.4
13	13	184.49	54.88	12.10	1996	1	0.274	3.08	44	95	121	22	69	96.5
* Note:		Slip within operating procedures of testing station.												
3.3.2 Fuel consumption														
3.3.2.1			In selected gear at maximum power at rated engine speed.											
11	11	163.04	59.96	9.79	2198	1	0.296	2.85	42	93	118	18	76	96.3
3.3.2.1.1			75% of pull at maximum power at rated engine speed											
11	11	126.26	44.89	10.13	2263	1	0.325	2.60	43	94	117	22	74	96.6
3.3.2.1.2			50% of pull at maximum power at rated engine speed											
11	11	84.98	29.92	10.22	2275	1	0.385	2.19	45	93	114	25	64	96.6
3.3.2.1.3			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.1											
12	12	126.33	44.92	10.12	1962	1	0.285	2.96	43	96	118	22	78	96.6
3.3.2.1.4			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.2											
12	12	85.04	29.96	10.22	1973	1	0.322	2.62	44	95	116	26	64	96.6
3.3.2.1.5			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.1											
13	13	126.44	44.93	10.13	1666	1	0.268	3.15	42	96	118	22	78	96.6
3.3.2.1.6			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.2											
13	13	85.11	29.87	10.26	1682	1	0.299	2.82	43	96	114	26	61	96.6
3.3.2.2			In selected gear nearest to 7.5 km/h at rated engine speed.											
9	9	163.48	81.99	7.18	2201	3	0.292	2.89	39	93	119	14	54	98.3
3.3.2.2.1			75% of pull at maximum power at rated engine speed											
9	9	128.37	61.60	7.50	2264	2	0.315	2.68	40	94	118	15	55	98.3
3.3.2.2.2			50% of pull at maximum power at rated engine speed											
9	9	86.72	41.03	7.61	2276	1	0.362	2.33	42	94	116	16	56	98.3
3.3.2.2.3			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.1											
10	10	128.57	61.56	7.52	1968	2	0.278	3.04	41	96	118	16	55	98.3
3.3.2.2.4			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.2											
10	10	86.73	41.05	7.61	1974	1	0.311	2.72	43	95	115	16	56	98.3
3.3.2.2.5			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.1											
11	11	128.96	61.66	7.53	1697	2	0.264	3.20	41	96	118	16	55	98.4
3.3.2.2.6			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.2											
11	11	87.04	41.06	7.63	1705	1	0.288	2.93	42	93	114	17	52	98.3

4.1 Drawbar Power (Unballasted - 2200 rev/min)

OECD Drawbar Data (SI)

Date of tests: 8,17-May-02 | Fuel density: 0.844 kg/l

Type of track: Concrete | Test number: 1802

4.1.1 Maximum power in tested gears (unballasted, CRWL) | Tire pressure: (trk) kPa, rear (trk) kPa, front | Drawbar Height: 445 mm

Gear	Gear Designation	Power	Drawbar pull	Speed	Engine speed	Slip	Fuel		Temperature			Atmospheric conditions		
							SFC	SFE	Fuel	Coolant	Oil	Temperature	Relative humidity	Pressure
		kW	kN	km/h	rev/min	%	kg/kW.h	kW.h/l	°C	°C	°C	°C	%	kPa
*5	5	128.47	124.37	3.72	2260	13	0.339	2.49	39	94	116	11	65	98.3
*6	6	145.75	120.60	4.35	2255	12	0.323	2.61	37	94	118	12	60	98.3
7	7	157.33	110.31	5.13	2201	8	0.305	2.77	38	94	118	13	56	98.3
8	8	162.58	95.90	6.10	2199	5	0.294	2.87	39	93	119	14	53	98.3
9	9	163.48	81.99	7.18	2201	3	0.292	2.89	39	93	119	14	54	98.3
10	10	164.97	70.94	8.37	2198	2	0.291	2.90	42	94	119	18	76	96.3
11	11	163.04	59.96	9.79	2198	1	0.296	2.85	42	93	118	18	76	96.3
12	12	161.12	51.17	11.34	2200	1	0.296	2.85	42	94	118	19	77	96.3
13	13	158.88	42.75	13.38	2198	1	0.301	2.81	43	94	119	21	73	96.4

* Note: Slip within operating procedures of testing station.

4.2 Drawbar Power (Ballasted - 2000 rev/min)

OECD Drawbar Data (SI)

Date of tests: 10,28-May-02 | Fuel density: 0.844 kg/l

Type of track: Concrete | Test number: 1802

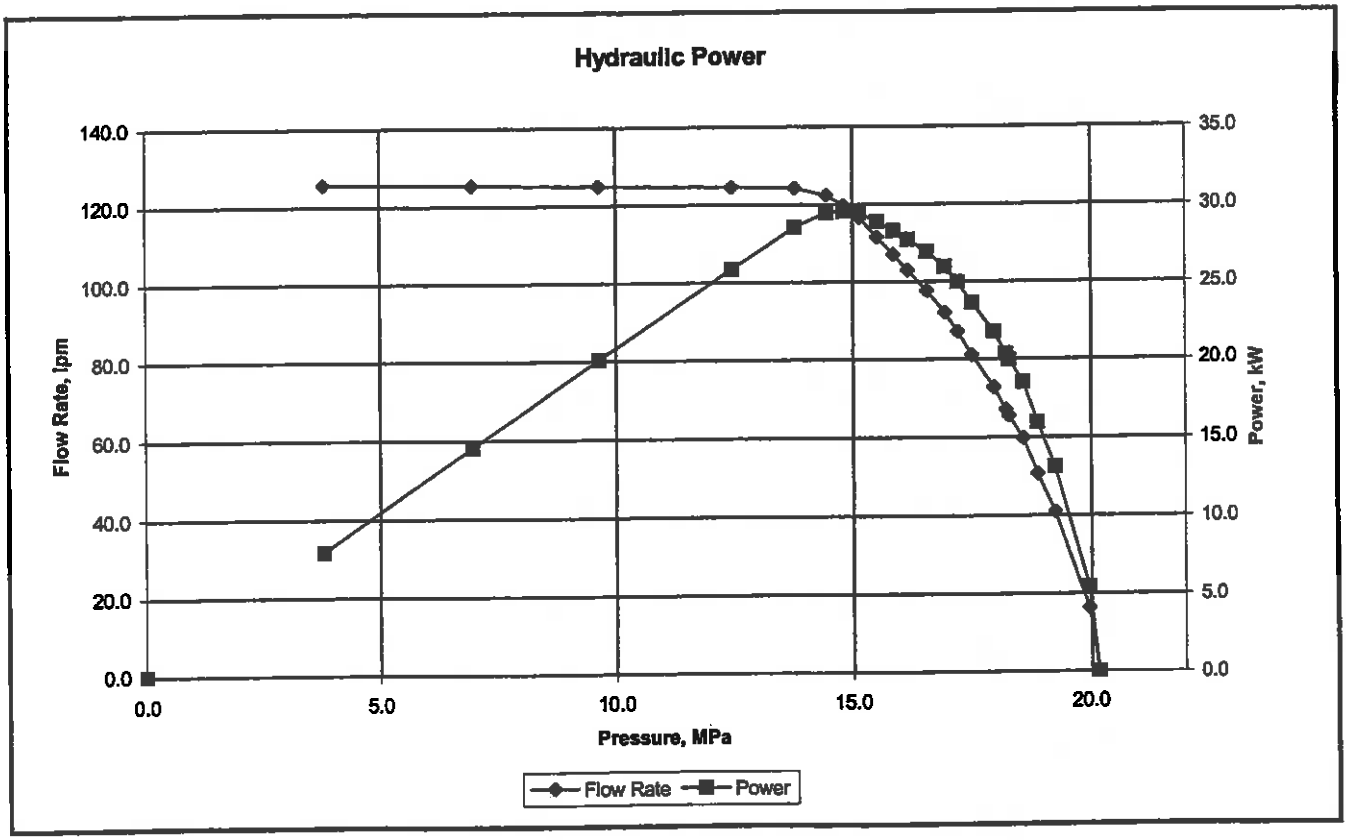
4.2.1 Maximum power in tested gears (ballasted, crwl) | Tire pressure: (trk) kPa, rear (trk) kPa, front | Drawbar Height: 445 mm

Gear	Gear Designation	Power	Drawbar pull	Speed	Engine speed	Slip	Fuel		Temperature			Atmospheric conditions		
							SFC	SFE	Fuel	Coolant	Oil	Temperature	Relative humidity	Pressure
		kW	kN	km/h	rev/min	%	kg/kW.h	kW.h/l	°C	°C	°C	°C	%	kPa
4	4	136.00	146.93	3.33	2256	13	0.338	2.50	41	93	114	12	66	97.9
5	5	149.05	139.94	3.83	2242	10	0.317	2.66	41	94	117	12	66	97.9
6	6	161.08	135.34	4.28	2143	9	0.302	2.79	40	94	118	13	62	98.0
7	7	169.63	123.43	4.95	2108	8	0.296	2.86	44	93	118	21	81	97.7
8	8	179.54	118.38	5.46	2002	7	0.285	2.97	44	93	119	22	78	97.7
9	9	183.53	102.30	6.46	1998	5	0.280	3.02	44	94	120	23	74	97.7
10	10	190.38	90.17	7.60	1999	2	0.268	3.15	40	94	120	13	57	98.1
11	11	188.43	76.25	8.90	1998	2	0.271	3.11	40	95	121	14	53	98.2
12	12	186.24	64.99	10.32	2001	1	0.272	3.10	40	96	120	14	58	98.3
13	13	183.92	54.31	12.19	2001	1	0.276	3.06	40	96	121	14	54	98.3

* Note: Slip within operating procedures of testing station.

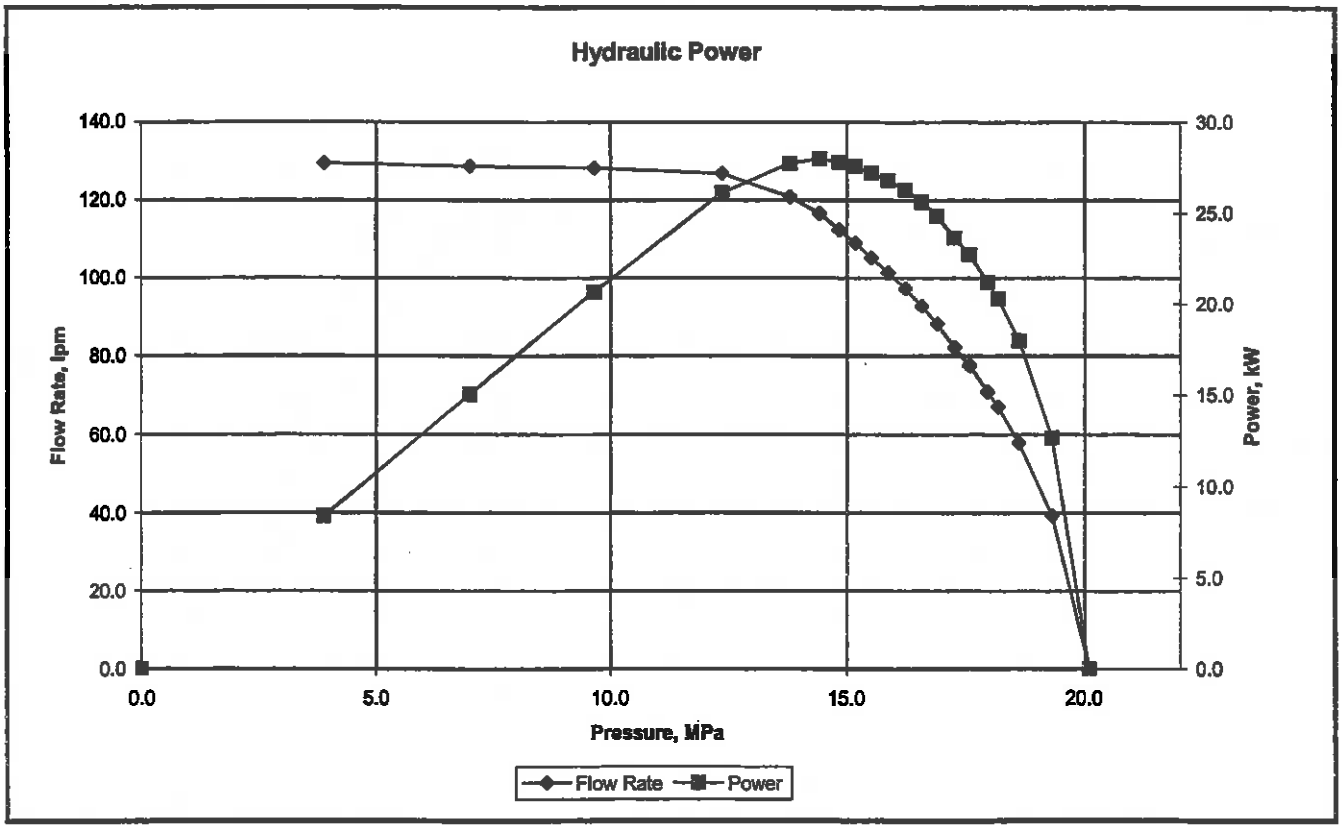
4.3 Hydraulic Power (Standard Pump - one outlet - test data from 8320T)

Date of Test:	31-May-02	John Deere 8320T	
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:		
	20.17 MPa		
	2926 psig		
II.	Pump delivery rate at minimum pressure at rated engine speed:		
	125.7 l/min		
	33.2 gpm		
III.	Flow rate, pressure, power:		
	90% of relief valve setting		
	67.0 l/min	18.21 MPa	20.3 kW
	17.7 gpm	*2641 psig*	*27.3 hp*
	Maximum hydraulic power:		
	119.6 l/min	14.82 MPa	29.5 kW
	31.6 gpm	*2149 psig*	*39.6 hp*
IV.	Hydraulic fluid temperature at flow meter:		
	67 °C		
	153 °F		
	This hydraulic system does not use an accumulator. Opening and closing pressures of the unloading valve could not be measured.		



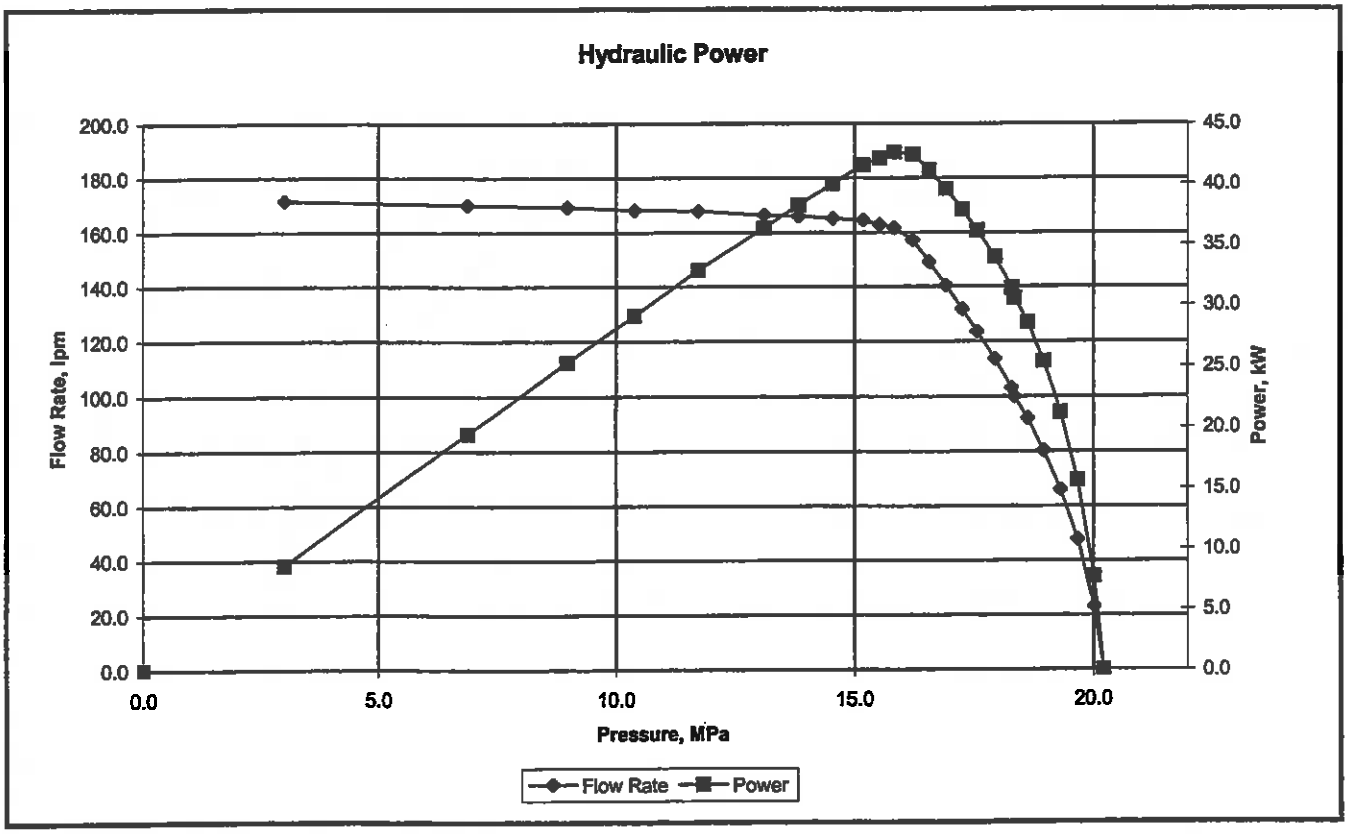
4.4 Hydraulic Power (High Flow Pump - one outlet - test data from 8520T)

Date of Test:	30-May-02	John Deere 8520T	
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:		
	20.10 MPa		
	2915 psig		
II.	Pump delivery rate at minimum pressure at rated engine speed:		
	129.5 l/min		
	34.2 gpm		
III.	Flow rate, pressure, power:		
	90% of relief valve setting		
	70.8 l/min	17.96 MPa	21.2 kW
	18.7 gpm	*2605 psig*	*28.4 hp*
	Maximum hydraulic power:		
	116.6 l/min	14.41 MPa	28.0 kW
	30.8 gpm	*2090 psig*	*37.6 hp*
IV.	Hydraulic fluid temperature at flow meter:		
	75 °C		
	168 ° F		
	This hydraulic system does not use an accumulator. Opening and closing pressures of the unloading valve could not be measured.		



4.5 Hydraulic Power (High Flow Pump - two outlet - test data from 8520T)

Date of Test:	30-May-02	John Deere 8520T	
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:		
	20.22 MPa		
	2932 psig		
II.	Pump delivery rate at minimum pressure at full throtle:		
	171.5 l/min		
	45.3 gpm		
III.	Flow rate, pressure, power:		
	90% of relief valve setting		
	103.0 l/min	18.28 MPa	31.4 kW
	27.2 gpm	*2652 psig*	*42.1 hp*
	Maximum hydraulic power:		
	161.6 l/min	15.83 MPa	42.7 kW
	42.7 gpm	*2296 psig*	*57.2 hp*
IV.	Hydraulic fluid temperature at flow meter:		
	66 °C		
	152 °F		
	This hydraulic system does not use an accumulator. Opening and closing pressures of the unloading valve could not be measured.		



4.6 POWER LIFT TEST Category III, N.A. Quick attach linkage.
Date of test: 28 February 2002.

	Hitch points	Frame
Lower hitch points above ground - down position:	231 mm	241 mm
Vertical movement - without load:	753 mm	843 mm
with load:	730 mm	803 mm
Maximum corrected force exerted through full range:	75.3 kN	73.5 kN
Corresponding pressure:	17.8 MPa	17.8 MPa
Moment about rear axle:	102.1 kNm	144.5 kNm
Maximum mast tilt angle		8.0 degrees

Lifting height relative to horizontal position of lower links.

mm		-333	-323	-302	-203	-104	- 4	98	197	296	397	481
Corrected lift forces												
At the Hitch point	kN	75.3	--	75.5	77.9	79.8	81.8	84.1	86.2	87.9	89.0	--
at the frame	kN	--	82.1	80.1	79.1	79.2	78.7	78.4	77.5	--	76.0	73.5
Corresponding pressure	17.8 Mpa											

4.7 Measurement of External Noise Level – John Deere 8520T

-- Date of Test	May 6, 2002
-- Location of Test	Nebraska Tractor Test Laboratory
-- Sound Level Meter	Bruel and Kjaer 2236
-- Type of Track	Concrete Oval
-- Gear Number	16
-- Speed Prior to Acceleration	23.09 km/h
-- Noise Level	87.1 dB(A)

4.8 Measurement of Noise Level at Operator's Ear*

-- Date of Test	May 6, 2002
-- Location of Test	Nebraska Tractor Test Laboratory
-- Sound Level Meter	Bruel and Kjaer 2236
-- Type of Track	Concrete Oval
-- Gear Number	9
-- Drawbar Load	None
-- Noise at Operator Ear	75.0 dB(A)

* Note: Nebraska tractor test station guidelines.

5. Repairs and Adjustments: None

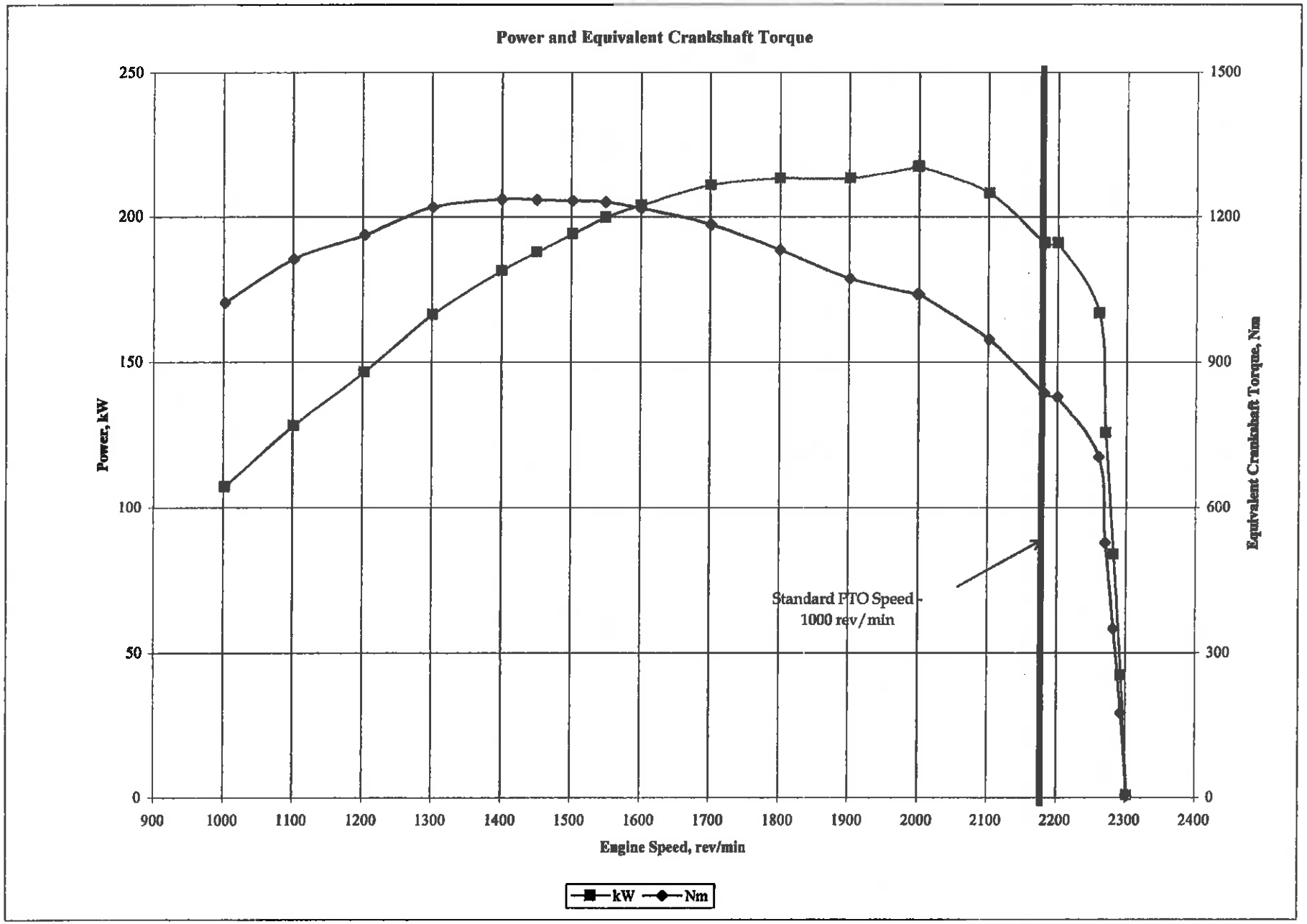
6. Remarks:

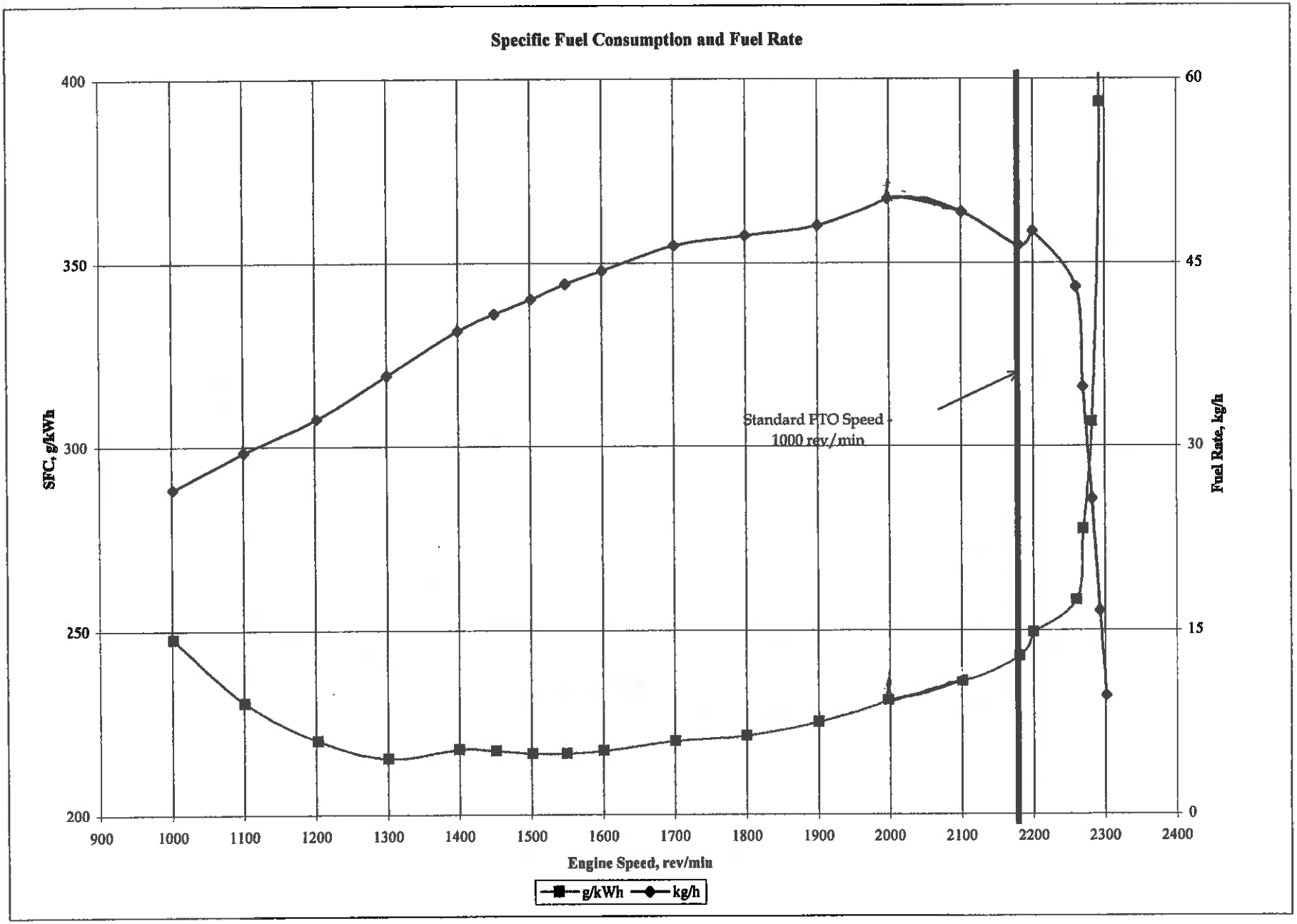
6.1 <u>POWER LEVELS FOR JOHN DEERE 8520T TRACTORS:</u>

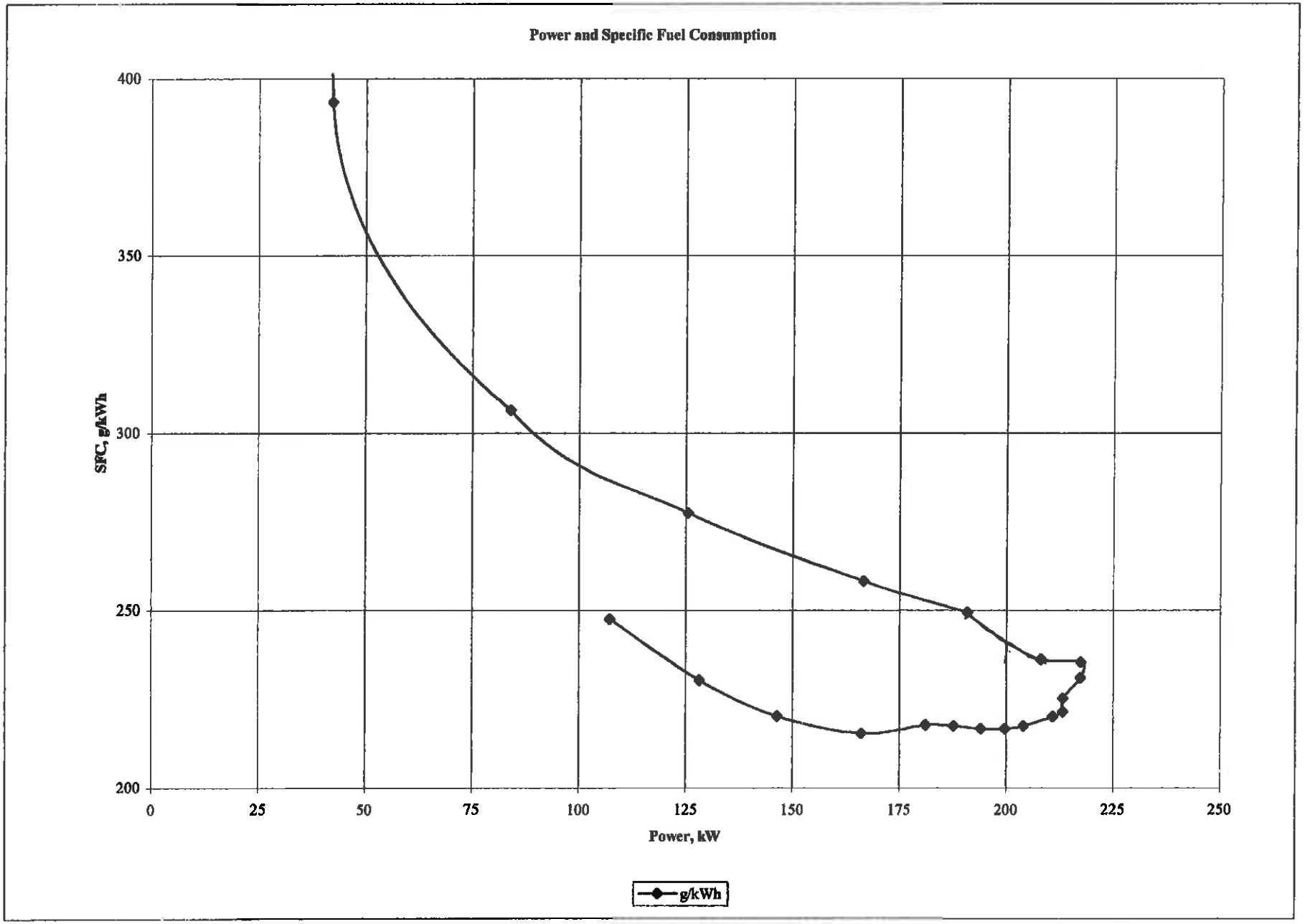
The John Deere 8520T Tractor is equipped with an electronic engine performance control system which provides the following engine power levels in various conditions:

	Maximum Engine Power at 2200 rpm
a) Performance Level A In gears 1-9, and when the three point hitch rockshaft is lowered below the transport lock position and the PTO is off	185 kW
b) Performance Level B In gears 10 and above	190 kW

6.2 The minimum atmospheric pressure of 96.6 kPa was not available for all times that official testing was conducted.


Power and Equivalent Crankshaft Torque
Power, kW
Equivalent Crankshaft Torque, Nm
Engine Speed, rev/min
Standard PTO Speed -
1000 rev/min
kW
Nm
250
200
150
100
50
0
1500
1200
900
600
300
0
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400


Specific Fuel Consumption and Fuel Rate
SFC, g/kWh
Fuel Rate, kg/h
Engine Speed, rev/min
Standard PTO Speed - 1000 rev./min
g/kWh
kg/h
400
350
300
250
200
60
45
30
15
0
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400


Power and Specific Fuel Consumption
SFC, g/kWh
400
350
300
250
200
0
25
50
75
100
125
150
175
200
225
250
Power, kW
g/kWh