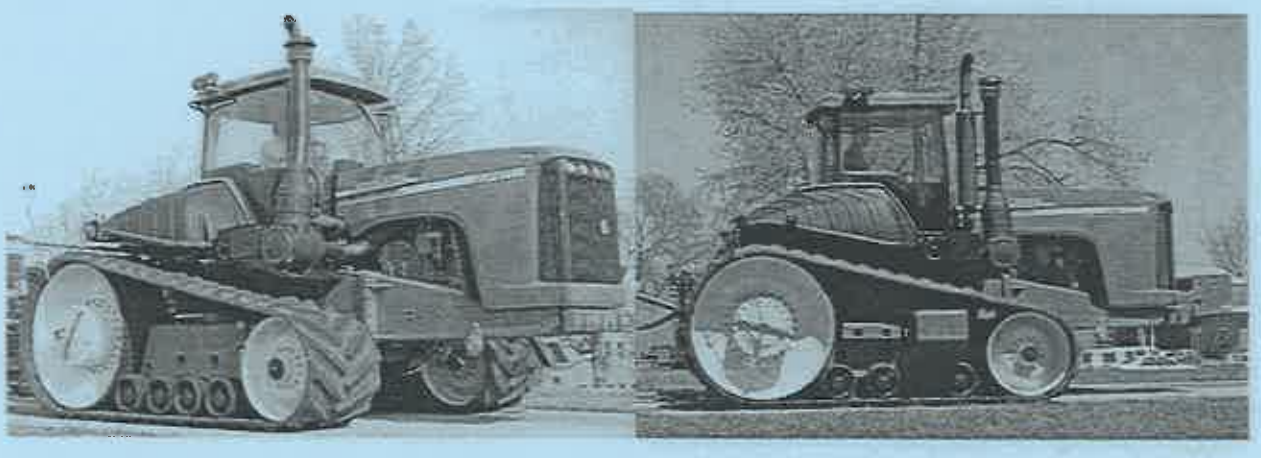
OECD APPROVAL NO. 2/2 042
CODE 2
DATE OF APPROVAL: 5 February 2003

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 9520T
Powershift
Rubber Tracklaying Tractor

MANUFACTURED BY:	**John Deere Tractor Works** **3500 East Donald Street** **P.O. Box 270** **Waterloo, Iowa 50704-0270**
NEBRASKA TEST NO.	**1806**
TEST DATES:	**April 2 – May 31, 2002**

TABLE OF CONTENTS

Page

1. **SPECIFICATIONS** 1

2. **TEST CONDITIONS** 15

3. **COMPULSORY TESTS**
   - **3.1** Main Power Take-Off Performance (Standard Power) 18
   - **3.2** Hydraulic Power and Lifting Forces 19
   - **3.3** Drawbar Performance 21

4. **OPTIONAL TESTS**
   - **4.1** Drawbar Power (Unballasted – 2100 rev/min) 22
   - **4.2** Drawbar Power (Ballasted – 1800 rev/min) 23
   - **4.3** Power Lift Test (Category IV) 24
   - **4.4** Measurement of External Noise Level 25
   - **4.5** Measurement of Noise Level at Operator's Ear 25

5. **REPAIRS** 25

6. **REMARKS** 25

7. **PTO PERFORMANCE CURVES (Standard Power)** 26

8. **PTO PERFORMANCE DATA AND CURVES (Full Power)** 29

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 5 February 2003 for the John Deere 9520T Powershift, rubber tracklaying tractor with OECD Number 2/2 042.

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 2 1 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:	123 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:	9520T
- Type:	Rubber tracklaying tractor
- Number of driving wheels:	2 tracks, 36"
1.1.2 *Numbers*	
- 1st Serial N :	CONFIDENTIAL
- Serial N :	RW9520T901027
1.1.3 *Other specifications:*	
- Transmission type	Powershift

1.2 Engine

- Make:	John Deere
- Model:	6125HRW15
- Type:	4-stroke diesel; direct injection; turbocharged; air-to-air aftercooled
- Serial N:	RG6125H031904

1.2.1 *Cylinders*

- Number/disposition:	6, in-line, vertical
- Bore/stroke:	127 mm/ 165 mm
- Capacity:	12536 cm^3
- Compression ratio:	17.0:1
- Arrangement of valves:	Overhead
- Cylinder liners (wet or dry):	Wet; replaceable

1.2.2 *Supercharging*

- Make:	Borg Warner
- Model:	RE506332
- Type:	Exhaust Driven
- Pressure:	168 kPa at rated engine speed and full load

1.2.3 *Fuel system*

-Fuel feed system:	Engine Driven Transfer pump
- Type of fuel filter(s):	Multi-layer-water-separating
- Make:	Haldex - Barnes
- Model:	RE508282
-Capacity of fuel tank:	1134 dm^3
-Type of injection pump:	Unit Injector (with John Deere Focus controller); EUI, electronic
-Make:	Parker
-Model:	Delphi EUI 200
-Serial N:	NA
-Manufacturer's production setting of injection pump	
· Flow rate (rated engine speed and full load):	72.63 ± 3.56 dm^3/h at 279.6 kW 84.25 ± 4.15 dm^3/h at 335.5 kW
· Timing:	Variable
-Type of injectors:	Unit Injector
-Make:	Delphi
-Model:	RE505207
-Injection pressure:	170 Mpa
-Type of carburetor:	NA
-Make:	NA
-Model:	NA

1.2.4 *Governor*

- Type:	Electronic Control
- Make:	John Deere
- Model:	Focus
- Governed range of engine speed	900 rpm to 2255 rpm
- Rated engine speed:	2100 min^{-1}(rev/min)

1.2.5 *Air cleaner*

-Pre-cleaner	
· Make:	Donaldson
· Model:	RE63932
· Type:	Strato-tube pre-cleaner with aspirator
· Location of air intake:	Top of Air Stack, right front corner of cab
-Main cleaner	
· Make:	Donaldson
· Model:	RE63931
· Type:	Pleated Paper

· Location of air intake (in case of no pre cleaner):	Right Front
-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
- Oil Cooler:	Heat exchanger with engine coolant

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:	711 mm
- Coolant capacity:	61 dm^3
- Type of temperature control:	2 thermostats and variable speed fan
- Superpressure system:	69 ± 5 kPa

1.2.8 *Starting system*

- Make:	Delco-Remy
- Model:	RE61547
- Type:	Solenoid engaged
- Starter motor power rating:	6.9 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:	Nippondenso
· Model	RE46608
· Type:	Belt-driven
· Power:	1.9 kW
- Battery of accumulators	
· Number:	Three; 12-volt batteries in parallel
· Rating	925 cold crank amp/battery, 175 Ah/battery at 20 hour rating

1.2.10 *Exhaust system*

- Make:	Nelson (muffler)
- Model:	RE71295
- Type:	Expansion Chamber
- Location:	Vertical muffler, right front corner of cab

1.3 Transmission

1.3.1 *Clutch (travel and power take-off/travel alone)*

- Make:	John Deere
- Model:	Multiple Plate
- Type:	Oil Cooled
- Number of plates:	7
- Diameter of plates:	279 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	18	6
Number of ranges/groups	NA	NA
Total of arrangements	18	6

1.3.3 *Rear axle and final drives*

- Make:	John Deere
- Model:	NA
- Type:	Spiral bevel gear and pinion, differential and inboard planetary reduction
- Differential lock	
· Type:	NA
· Method of engagement:	NA
· Method of disengagement:	NA

1.3.4 *Front axle and final drives*

NA

1.3.5 *Total ratios and traveling speeds*

GearNo.	Number of engine revolutions for one revolution of the driving wheels	Nominal traveling speed (*) at rated engine speed of 2100 min-1 (rev/min) km/h
1	180.2919	3.42
2	146.4678	4.21
3	132.2710	4.66
4	118.4620	5.21
5	107.4847	5.74
6	96.2359	6.41
7	86.9265	7.10
8	77.8498	7.93
9	70.6350	8.74
10	63.2651	9.76
11	57.1364	10.80
12	51.7059	11.94
13	46.4306	13.29
14	42.0086	14.69
15	33.9793	18.17
16	27.6179	22.35
17	22.3425	27.63
18	18.1533	34.01
R1	180.2919	3.42
R2	132.2710	4.66
R3	118.4620	5.21
R4	86.9265	7.10
R5	77.8498	7.93
R6	57.1364	10.80
(*) Calculated with a rear dynamic radius index of 780 mm		

1.4 Power take-off (Optional; Installed on tested machine)

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 only
-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 540 min^{-1} (rev/min) — Not Available

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:	817 mm
- Distance from the median plane of the tractor:	0 mm
- Distance behind rear-wheel axis:	760 mm
- PTO speed at rated engine speed (2100 rev/min):	1108 min^{-1} (rev/min)
- Engine speed at standard power take-off speed:	1895 min^{-1} (rev/min)
- Ratio of rotation speeds (engine speed/p.t.o. speed):	1.895:1
- 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 — None

1.4.2 *Optional power take-off* — 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; 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 Category III: Two; 90 x 276 Category IV: One 90 x 276 mm and one 100 x 276 mm
-Type of linkage lock for transport:	Electro-hydraulic
-Relief valve pressure setting (tolerance):	20.20 ± 0.40 Mpa
-Opening pressure of cylinder safety valve (if fitted):	23.25 ± 0.50 Mpa
-Lift pump type:	Axial piston, variable pressure and flow; Pressure and flow compensated
-Transmission between pump and engine:	Direct drive from transmission
-Type and number of filters:	Spin-on canister/ one
-Site of oil reservoir:	Under hood; engine compartment
-Type, number and location of tapping points:	4 pairs of ISO standard couplings at rear of tractor; 5th coupler optional. Additional inlet/outlet pair for externally controlled implements
-Maximum volume of oil available to external cylinders:	31.81 dm^3

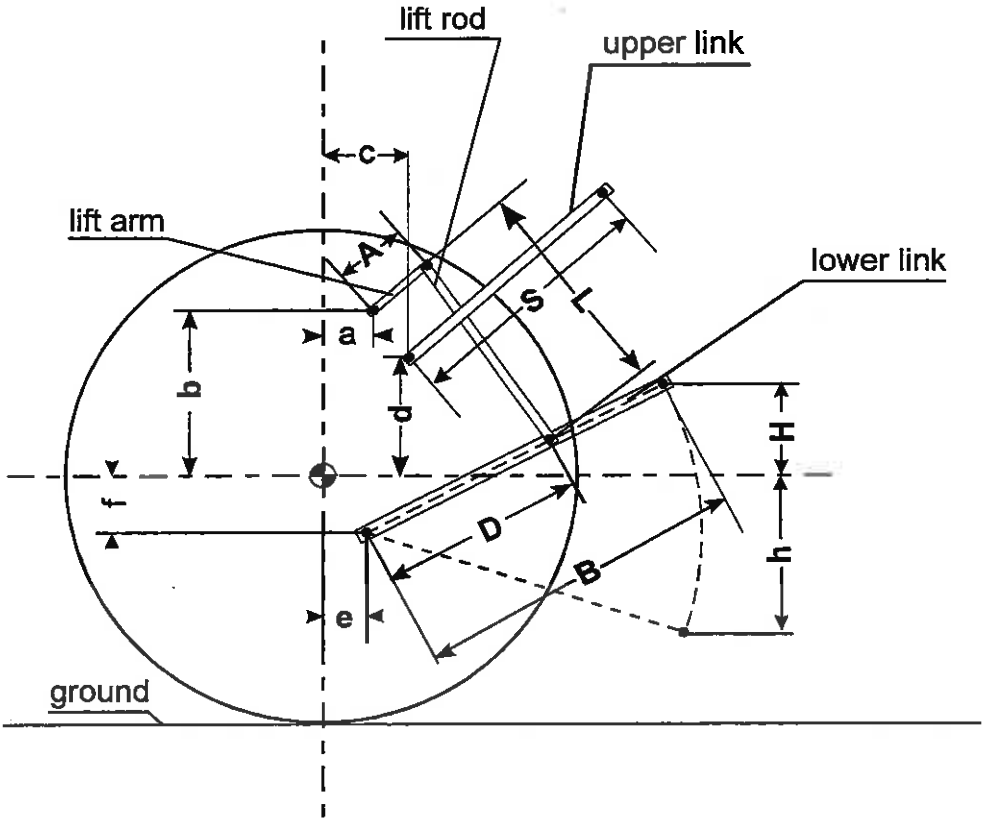


Figure 2.1
Lift test - Linkage Geometry

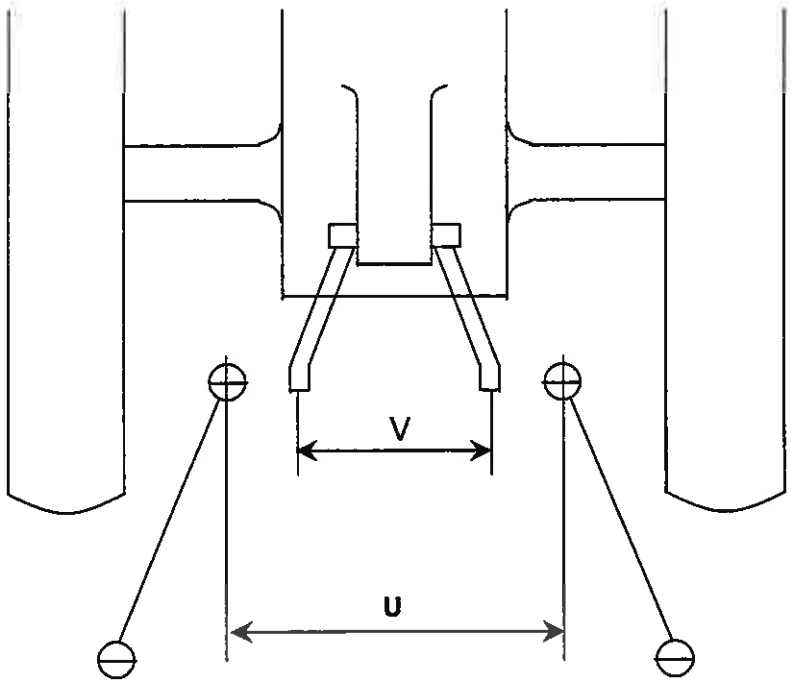


Figure 2.2
Lift test - Linkage Geometry

1.6.1 Three point linkage (Optional – not fitted on the tested tractor)

- Category: 3, in conformity with ISO 730-1:1994 +Cor. 1:1995 and ISO 730-2:1979.
- Category adapter: -Quick attaching coupler

		Dimension or range	Settings used in test
		mm	mm
Rear track radius:	(r)	780	837
Length of lift arms:	(A)	471	Same
Length of lower links:	(B)	1095	Same
Distance of lift arm pivot point from rear-wheel axis:			
- horizontally	(a)	244	Same
- vertically	(b)	772	Same
Horizontal distance between the 2 lower link points:	(u)	644 on Center	Same
Horizontal distance between the 2 lift arm end points:	(v)	750 on Center	Same
Length of upper link:	(S)	747 to 868	783
Distance of upper link pivot point from rear wheel axis:			
- horizontally	(c)	577	Same
- vertically	(d)	288	Same
Distance of lower link pivot point from rear wheel axis:			
- horizontally	(e)	288	Same
- vertically	(f)	350	Same
Distance of lower link pivot points to lift rod pivot points on lower links:	(D)	746	Same
Length of lift rods:	(L)	1110 to 1270	1238
Height of lower hitch points relative to the rear-wheel axis:			
- in low position	(h)	337 to 657	634
- in high position	(H)	110 to 340	166
Height above ground of lower hitch points when locked in transport position		Any position within range	1003
Rear track static radius index of 837 mm.			

1.6.2 Three point linkage (Optional – not fitted on the tested tractor)

- Category: 4, in conformity with ISO 730-1:1994 +Cor. 1:1995 and ISO 730-2:1979.
- Category adapter: -Quick attaching coupler

		Dimension or range	Settings used in test
		mm	mm
Rear track radius	**(r)**	780	837
Length of lift arms:	**(A)**	471	Same
Length of lower links:	**(B)**	1095	Same
Distance of lift arm pivot point from rear-wheel axis:			
- horizontally	**(a)**	244	Same
- vertically	**(b)**	772	Same
Horizontal distance between the 2 lower link points:	**(u)**	644 on Center	Same
Horizontal distance between the 2 lift arm end points:	**(v)**	750 on Center	Same
Length of upper link:	**(S)**	747 to 868	762
Distance of upper link pivot point from rear wheel axis:			
- horizontally	**(c)**	577	Same
- vertically	**(d)**	288	Same
Distance of lower link pivot point from rear wheel axis:			
- horizontally	**(e)**	288	Same
- vertically	**(f)**	350	Same
Distance of lower link pivot points to lift rod pivot points on lower links:	**(D)**	746	Same
Length of lift rods:	**(L)**	1110 to 1270	1216
Height of lower hitch points relative to the rear-wheel axis:			
- in low position	**(h)**	337 to 657	613
- in high position	**(H)**	110 to 340	187
Height above ground of lower hitch points when locked in transport position		Any position within range	1029
Rear track static radius of 837 mm.			

1.7.1 Swinging drawbar

-Type:	Oscillating
-Height above ground	
· Maximum:	483 mm
· Minimum:	483 mm
-Type of adjustment:	None
-Distance of hitch point from rear-wheel axis, horizontally:	1269 mm
-Distance of hitch point from power take-off shaft end	
· Vertically:	335 mm
· Horizontally:	509 mm
-Lateral adjustment (centre of clevis)	
· Right hand	175 mm
· Left hand	175 mm
-Distance of pivot point from rear-wheel axis, horizontally:	1373 mm
-Diameter of drawbar pin hole:	53 mm
-Maximum vertical permissible load:	20 kN

1.7.2 Wide Swing drawbar (Optional): On tested model

-Type:	Oscillating
-Height above ground	
· Maximum:	483 mm
· Minimum:	483 mm
-Type of adjustment:	None
-Distance of hitch point from rear-wheel axis, horizontally:	1269 mm
-Distance of hitch point from power take-off shaft end	
· Vertically:	335 mm
· Horizontally:	509 mm
-Lateral adjustment (centre of clevis)	
· Right hand	714 mm
· Left hand	714 mm
-Distance of pivot point from rear-wheel axis, horizontally:	1523 mm
-Diameter of drawbar pin hole:	53 mm
-Maximum vertical permissible load:	20 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 48.5 ± 2.0 Mpa

1.11 Brakes

1.11.1 *Service brake*

- Make:	Vickers-John Deere
- Model:	RE175392
- Type:	Load sensing power with manual backup
- Method of operation:	Hydraulic oil immersed disc operated by one pedal
- Trailer braking take-off (hydraulic or air brake):	Not Available

1.11.2 *Parking brake*

- Type:	Spring applied, Hydraulic release
- Method of operation:	Gear selector lever

1.12 Tracks

- Number	
· Left:	One; Driving and Steering
· Right:	One; Driving and Steering
- Wheelbase:	Not Applicable

- Track width adjustment:

Minimum	Maximum	Adjustment
mm	mm	method
2692	2692	None

1.13 Protective structure

- Make:	John Deere
- Model:	SG-081
- Type:	Sound-Gard body
- Manufacturer's name and address:	John Deere Tractor Works Waterloo, Iowa, USA
- Protective device	
· Cab/frame/ rollguard/ other:	Cab
· Tiltable/not tiltable:	Not tiltable
- OECD approval	
· Approval number:	4/0 720
· 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
- Type of damping:	Adjustable, viscous damping
- Range of adjustment	
· Longitudinally:	178 mm
· Vertically	172 mm
- 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			
Outside	2140	135 x 90	445
Inside	2140	155 x 115	270
Center	2140	130 x 85	65
Sidelights			
Front	3420	160 x 110	955
Rear	3420	160 x 110	955
Rear lights			
Outside	1990	160 x 110	1350
Inside	1990	160 x 110	1135
Hazard Lights			
Roof Front	3350	82 x 240(*)	715
Roof Rear	3330	82 x 240(*)	715
Extremity Lights	1910	110 dia	1780
Tail lights	1850	95 x 210	898

(*) 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	6020	3580	3580	3454	3860
Ballasted	6660	3962	3962	3454	3860

2.2 Ground clearance (unballasted tractor): 375 mm

- Clearance-limiting part: Drawbar rear support

2.3 Tractor mass

Mass (with cab, full fuel tank):

	Without driver	With driver
	kg	kg
Unballasted		
Total	19695	19770
Ballasted		
Total	22604	22679

Ballast Added	Number of Weights	Total Mass	Liquid
		kg	kg
Front (weights)	26	1179	-
Front (weight support)	1	272	-
Side (weights)	29	1315	-
Side (weight supports)	4	143	-

2.4 Track specifications

Track materials	Goodyear (Trackman™)
Track width and base	915 mm and 2819 mm
Dynamic radius (rolling radius)	780 mm
Track support system	Oscillating front idler & four 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	42 4.37 per meter 470 mm 52 mm 70 mm 61 mm
Track Length	9601 mm
Track ground contact length	2819 mm

2.5 Track width specifications

Tread width setting: 2692 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
	dm3	h	h
Engine	42	250 (375 with John Deere PLUS-50 oil and John Deere filter)	250
Transmission, Steering, and Rear axle	246	1500	750
Hydraulics (*)	87	1500	750

(*) State if common with gearbox and rear axle.

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	SAE 15W40
Transmission oils · Type: · Viscosity: · Classification:	John Deere HY-GARD; J20C SAE 10W-30 58 cSt at 43 C NA	same
Hydraulic fluid	Same as Transmission	same
Steering oil	Same as Transmission	same
Grease	John Deere Moly High Temperature EP Grease	same

2.7.3 *Grease*

- Number of lubrication points: 6

3. COMPULSORY TESTS RESULTS

3.1 Main power take-off

- Date and location of tests: 2-Apr-02 Nebraska Tractor Test Laboratory, Lincoln, NE, USA
- Type of dynamometer bench: Eaton

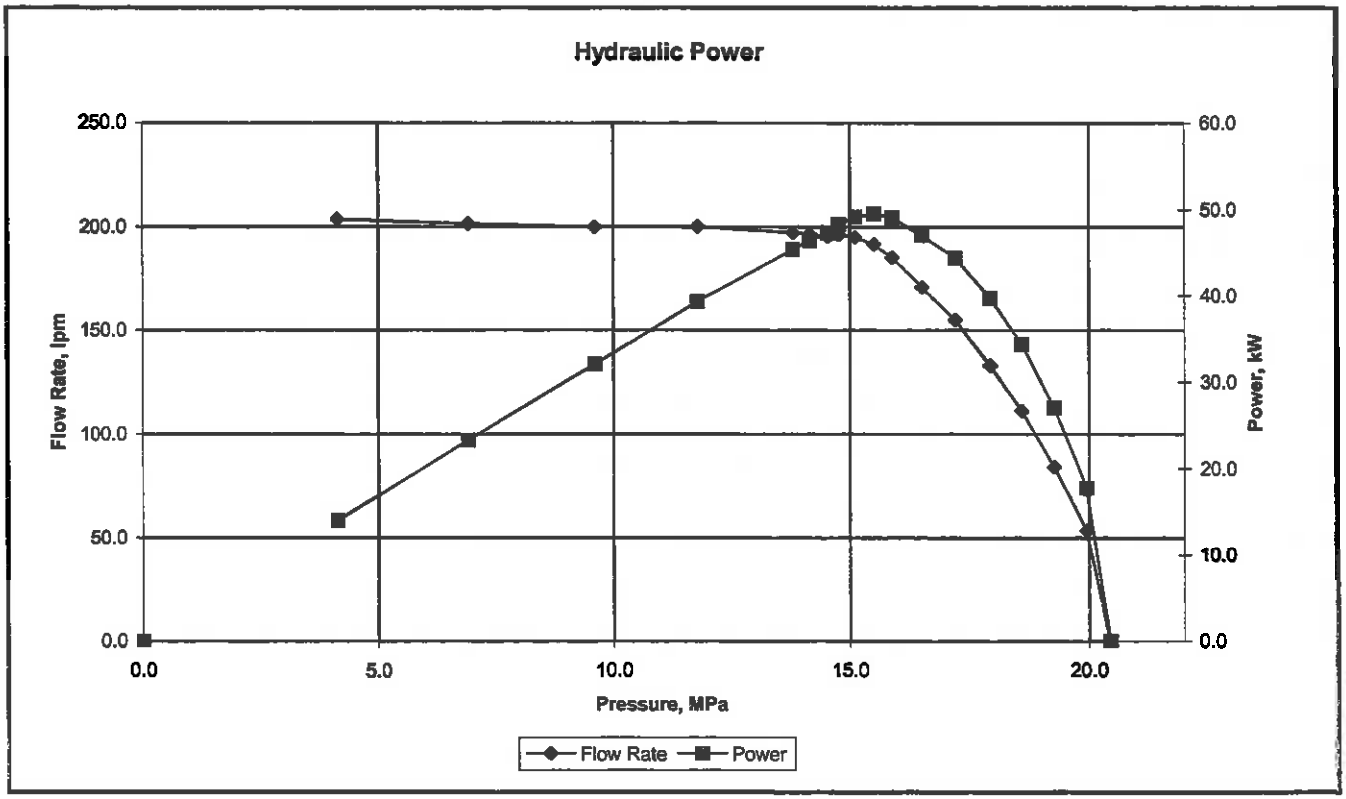
	Speed		Fuel consumption			Specific
Power	Engine	PTO	Hourly		Specific	energy
kW	rev/min		kg/h	l/h	g/kWh	kW-h/l
3.1 MAXIMUM POWER - TWO HOUR TEST						
277.05	1700	897	65.28	77.36	236	3.58
3.1.2 POWER AT RATED ENGINE SPEED						
248.32	2100	1108	62.69	74.29	252	3.34
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000 +/- 25 rev/min)						
266.53	1895	1000	62.01	73.48	233	3.63
3.1.4 PART LOADS						
3.1.4.1 the torque corresponding to maximum power at rated engine speed						
248.32	2100	1108	62.69	74.29	252	3.34
3.1.4.2 85% of torque obtained in 3.1.4.1						
216.68	2155	1137	57.97	68.70	268	3.15
3.1.4.3 75% of torque defined in 3.1.4.2						
164.07	2173	1147	49.12	58.22	299	2.82
3.1.4.4 50% of torque defined in 3.1.4.2						
110.25	2196	1159	38.65	45.80	351	2.41
3.1.4.5 25% of torque defined in 3.1.4.2						
55.70	2218	1171	28.30	33.54	508	1.66
3.1.4.6 unloaded						
0.84	2233	1178	17.69	20.96	21154	0.04
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						
266.53	1895	1000	62.01	73.48	233	3.63
3.1.5.2 85% of torque obtained in 3.1.5.1						
231.70	1939	1023	54.84	64.99	237	3.57
3.1.5.3 75% of torque defined in 3.1.5.2						
175.80	1959	1034	45.31	53.70	258	3.27
3.1.5.4 50% of torque defined in 3.1.5.2						
118.44	1981	1046	35.92	42.57	303	2.78
3.1.5.5 25% of torque defined in 3.1.5.2						
59.94	2009	1060	24.77	29.35	413	2.04
3.1.5.6 unloaded						
0.76	2029	1070	14.42	17.09	18989	0.04

- No load maximum engine speed: 2233 rev/min
- Torque (equivalent crankshaft) at rated speed:
  - At rated engine speed 1129 Nm
  - At 2-hour test 1556 Nm
- Maximum torque (equivalent crankshaft) 1656 Nm
  (engine speed: 1100 rev/min)

Mean atmospheric conditions:		
Dry bulb	24	°C
Pressure	98.6	kPa
Relative Humidity	15	%
Maximum temperatures:		
Coolant	99	°C
Engine oil	123	°C
Fuel	65	°C
Engine air intake	26	°C

3.2.1 Hydraulic Power (two outlets)

Date of Test:	11-Apr-02	John Deere 9520T	
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:		
	20.44 MPa		
	2964 psig		
II.	Pump delivery rate at minimum pressure:		
	203.7 l/min		
	53.8 gpm		
III.	Flow rate, pressure, power:		
	90% of relief valve setting		
	110.9 l/min	18.60 MPa	34.4 kW
	29.3 gpm	*2698 psig*	*46.1 hp*
	Maximum hydraulic power:		
	191.5 l/min	15.51 MPa	49.5 kW
	50.6 gpm	*2250 psig*	*66.4 hp*
IV.	Hydraulic fluid temperature at flow meter:		
	87 °C		
	189 ° 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, N.A. Quick attach linkage.
Date of test: 19 Dec 2000. Test conducted on John Deere 9300T which is technically eqivalent.

	Hitch points	Frame
Lower hitch points above ground - down position:	203 mm	179 mm
Vertical movement - without load:	800 mm	889 mm
with load:	799 mm	879 mm
Maximum corrected force exerted through full range:	62.5 kN	60.5 kN
Corresponding pressure:	18.5 MPa	18.5 MPa
Moment about rear axle:	96.8 kNm	130.6 kNm
Maximum mast tilt angle	--	5.4 degrees

Lifting height relative to horizontal position of lower links.

mm	-306	-281	-200	-101	3	151	305	405	495	518	573
Corrected lift forces											
At the Hitch point kN	--	62.5	65.1	68.0	70.3	73.0	75.6	77.4	79.1	79.6	--
at the frame kN	63.8	65.4	–	65.8	65.9	65.1	64.1	62.7	62.5	61.1	60.5

Corresponding pressure 18.5 MPa

OECD Drawbar Data (SI)

Date of tests: 12,15,16,19-Apr-02							Fuel density:	0.844 kg/l						
Type of track: Concrete							Test number:	1806						
3.3.1 Maximum power in tested gears (unballasted, CRWL)							Tire pressure:	TRK kPa, rear		TRK kPa, front		Drawbar Height:	483 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
*1	1	166.00	191.51	3.12	2163	12	0.332	2.52	63	84	108	7	72	98.4
*2	2	196.29	183.06	3.86	2138	10	0.314	2.67	63	84	112	8	66	98.4
3	3	210.27	178.66	4.24	2102	10	0.296	2.83	63	85	112	8	67	98.4
4	4	227.55	172.48	4.75	2091	9	0.286	2.93	65	86	114	9	68	98.4
5	5	237.94	168.59	5.08	2043	9	0.290	2.89	67	90	119	24	71	96.5
6	6	256.08	165.40	5.57	2014	10	0.291	2.88	69	92	122	25	68	96.5
7	7	269.81	169.72	5.72	1873	10	0.284	2.97	67	93	124	18	58	98.1
8	8	286.65	164.13	6.29	1804	8	0.279	3.03	66	92	121	18	62	98.1
9	9	292.77	147.57	7.14	1802	5	0.272	3.10	65	89	119	16	65	98.2
10	10	297.64	131.88	8.12	1802	3	0.267	3.16	65	89	121	15	69	98.2
11	11	301.14	119.46	9.08	1802	2	0.264	3.19	67	95	125	14	68	98.1
12	12	298.65	107.18	10.03	1799	2	0.268	3.15	66	93	122	20	56	98.0
13	13	295.07	94.20	11.28	1802	2	0.271	3.12	66	95	124	22	50	98.4
14	14	297.04	85.61	12.49	1802	1	0.270	3.13	66	94	122	21	49	98.2
15	15	289.87	67.41	15.48	1799	1	0.278	3.03	64	96	118	21	49	98.3
* 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	265.25	89.16	10.71	2100	1	0.272	3.10	67	94	123	13	72	98.1
3.3.2.1.1			75% of pull at maximum power at rated engine speed											
11	11	206.07	66.95	11.08	2164	1	0.310	2.70	65	92	119	26	58	96.4
3.3.2.1.2			50% of pull at maximum power at rated engine speed											
11	11	138.82	44.55	11.22	2185	1	0.374	2.24	65	86	114	27	55	96.4
3.3.2.1.3			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.1											
12	12	205.91	66.99	11.07	1957	1	0.288	2.91	64	88	114	25	60	96.4
3.3.2.1.4			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.2											
12	12	139.00	44.67	11.20	1980	1	0.338	2.48	64	84	111	27	52	96.4
3.3.2.1.5			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.1											
13	13	206.04	66.98	11.07	1757	1	0.291	2.88	62	90	114	26	61	96.4
3.3.2.1.6			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.2											
13	13	139.38	44.67	11.23	1778	1	0.329	2.55	63	86	109	27	52	96.4
3.3.2.2			In selected gear nearest to 7.5 km/h at rated engine speed.											
7	7	264.52	139.74	6.81	2103	5	0.272	3.10	67	94	118	18	58	98.1
3.3.2.2.1			75% of pull at maximum power at rated engine speed											
7	7	210.40	105.08	7.21	2167	2	0.294	2.85	68	95	118	28	53	96.4
3.3.2.2.2			50% of pull at maximum power at rated engine speed											
7	7	143.11	70.11	7.35	2187	1	0.350	2.39	67	85	113	29	48	96.4
3.3.2.2.3			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.1											
8	8	210.34	105.19	7.20	1940	2	0.277	3.03	67	88	116	28	50	96.4
3.3.2.2.4			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.2											
8	8	143.14	70.12	7.35	1959	1	0.316	2.65	66	84	110	29	45	96.4
3.3.2.2.5			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.1											
9	9	210.27	105.12	7.20	1761	2	0.276	3.03	65	88	113	29	48	96.4
3.3.2.2.6			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.2											
9	9	142.50	70.09	7.32	1770	1	0.307	2.73	65	84	107	30	43	96.4

4.1 Drawbar Power (Unballasted - 2100 rev/min)

OECD Drawbar Data (SI)

Date of tests: 12,15,16,19-Apr-02						Fuel density:	0.844 kg/l							
Type of track: Concrete						Test number:	1806							
4.1.1 Maximum power in tested gears (unballasted, CRWL)							Tire pressure:	TRK kPa, rear		TRK kPa, front		Drawbar Height:	483 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
*1	1	163.16	190.26	3.09	2164	13	0.337	2.48	62	83	109	7	72	98.4
*2	2	194.75	184.38	3.80	2135	12	0.317	2.64	63	84	111	8	66	98.4
3	3	209.85	178.78	4.23	2101	10	0.296	2.83	63	85	111	8	67	98.4
4	4	226.17	169.15	4.81	2102	8	0.290	2.89	66	93	116	22	78	96.5
5	5	237.87	160.14	5.35	2097	7	0.287	2.92	68	90	119	23	70	96.5
6	6	252.74	150.51	6.05	2097	6	0.286	2.93	68	93	121	24	67	96.5
7	7	264.52	139.74	6.81	2103	5	0.272	3.10	67	94	118	18	58	98.1
8	8	267.13	124.72	7.71	2099	3	0.271	3.12	68	96	122	17	66	98.1
9	9	266.50	111.72	8.59	2101	2	0.272	3.10	66	91	116	16	65	98.2
10	10	265.64	99.19	9.64	2100	2	0.273	3.09	66	93	121	14	68	98.1
11	11	265.25	89.16	10.71	2100	1	0.272	3.10	67	94	123	13	72	98.1
12	12	261.71	79.57	11.84	2100	1	0.274	3.08	66	93	117	19	59	98.1
13	13	256.85	69.87	13.23	2101	1	0.281	3.00	66	94	118	21	49	98.3
* Note:		Slip within operating procedures of testing station.												

4.2 Drawbar Power (Ballasted - 1800 rev/min)

OECD Drawbar Data (SI)

Date of tests: 23-Apr-02 | Fuel density: 0.844 kg/l

Type of track: Concrete | Test number: 1806

4.2.1 Maximum power in tested gears (ballasted, CRWL) | Tire pressure: TRK kPa, rear TRK kPa, front | Drawbar Height: 483 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
*1	1	191.19	226.05	3.04	2144	13	0.325	2.60	64	84	109	12	82	97.5
2	2	216.83	211.65	3.69	2030	10	0.290	2.92	64	86	113	12	83	97.4
3	3	221.79	189.00	4.22	2075	9	0.286	2.95	68	91	116	20	64	97.4
4	4	228.14	177.21	4.63	2040	9	0.288	2.93	67	87	116	25	47	97.3
5	5	246.18	174.03	5.09	2015	8	0.281	3.01	68	91	120	26	47	97.4
6	6	273.02	172.94	5.68	1984	7	0.277	3.05	66	88	118	23	55	97.3
7	7	285.80	175.01	5.88	1853	7	0.273	3.09	66	92	121	22	58	97.3
8	8	296.59	165.31	6.46	1799	5	0.269	3.13	66	93	123	21	61	97.3
9	9	300.40	148.59	7.28	1804	4	0.265	3.18	66	92	122	19	64	97.3
10	10	304.12	133.38	8.21	1797	2	0.263	3.20	64	91	121	14	73	97.3
11	11	302.48	119.29	9.13	1796	2	0.267	3.16	64	96	120	14	74	97.3
12	12	301.85	107.41	10.12	1797	1	0.265	3.18	64	94	120	15	74	97.4
13	13	296.27	93.94	11.35	1805	1	0.271	3.12	65	95	121	16	74	97.4
14	14	297.07	85.33	12.53	1802	1	0.272	3.10	65	94	123	16	75	97.4
15	15	289.16	67.05	15.52	1802	1	0.278	3.04	64	94	122	17	66	97.4

* Note: Slip within operating procedures of testing station.

4.3 POWER LIFT TEST Category IV, N.A. Quick attach linkage.
Date of test: 20 Dec 2000. Test conducted on John Deere 9300T which is technically equivalent

	Hitch points	Frame
Lower hitch points above ground - down position:	224 mm	210 mm
Vertical movement - without load:	800 mm	900 mm
with load:	797 mm	885 mm
Maximum corrected force exerted through full range:	70.3 kN	66.4 kN
Corresponding pressure:	18.5 MPa	18.5 MPa
Moment about rear axle:	109.7 kNm	144.1 kNm
Maximum mast tilt angle	--	6.9 degrees

Lifting height relative to horizontal position of lower links.

mm	-275	-261	-202	-101	-2	102	197	305	398	497	536	610
Corrected lift forces												
At the Hitch point kN	--	70.3	72.4	75.8	78.4	80.9	82.8	84.8	86.6	88.7	89.5	--
at the frame kN	71.3	--	71.5	72.3	72.8	72.8	72.1	70.9	69.5	--	67.5	66.4

Corresponding pressure 18.5 MPa

4.4 Measurement of External Noise Level – John Deere 9520T

-- Date of Test	April 16, 2002
-- Location of Test	Nebraska Tractor Test Laboratory
-- Sound Level Meter	Bruel and Kjaer 2236
-- Type of Track	Concrete Oval
-- Gear Number	18
-- Speed Prior to Acceleration	25.51 km/h
-- Noise Level	93.7 dB(A)

4.5 Measurement of Noise Level at Operator's Ear*

-- Date of Test	April 15, 2002
-- Location of Test	Nebraska Tractor Test Laboratory
-- Sound Level Meter	Bruel and Kjaer 2236
-- Type of Track	Concrete Oval
-- Gear Number	7
-- Drawbar Load	None
-- Noise at Operator Ear	75.2 dB(A)

* Note: Nebraska tractor test station guidelines.

5. Repairs and Adjustments: None

6. Remarks:

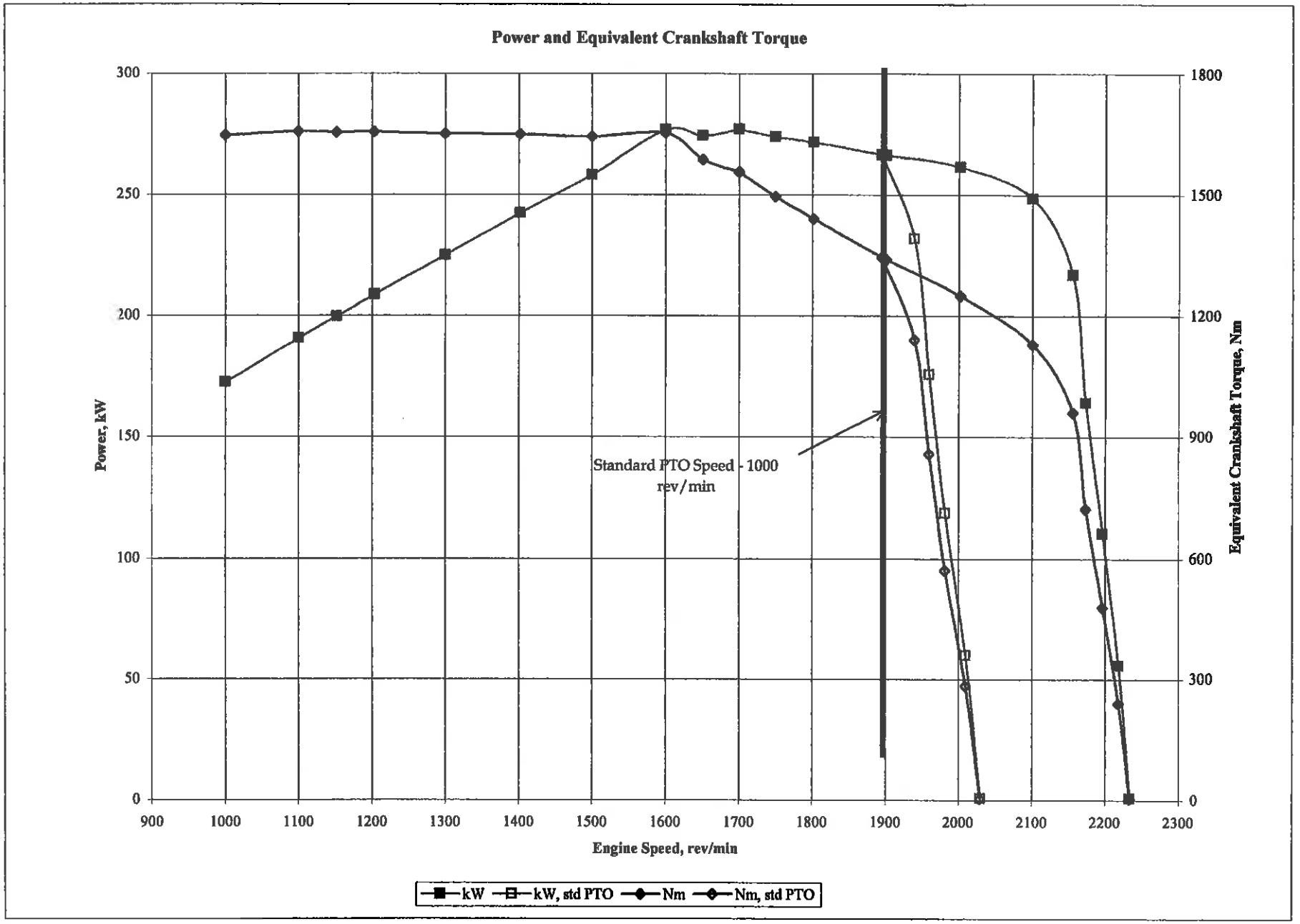
6.1 POWER LEVELS FOR JOHN DEERE 9520T TRACTORS:

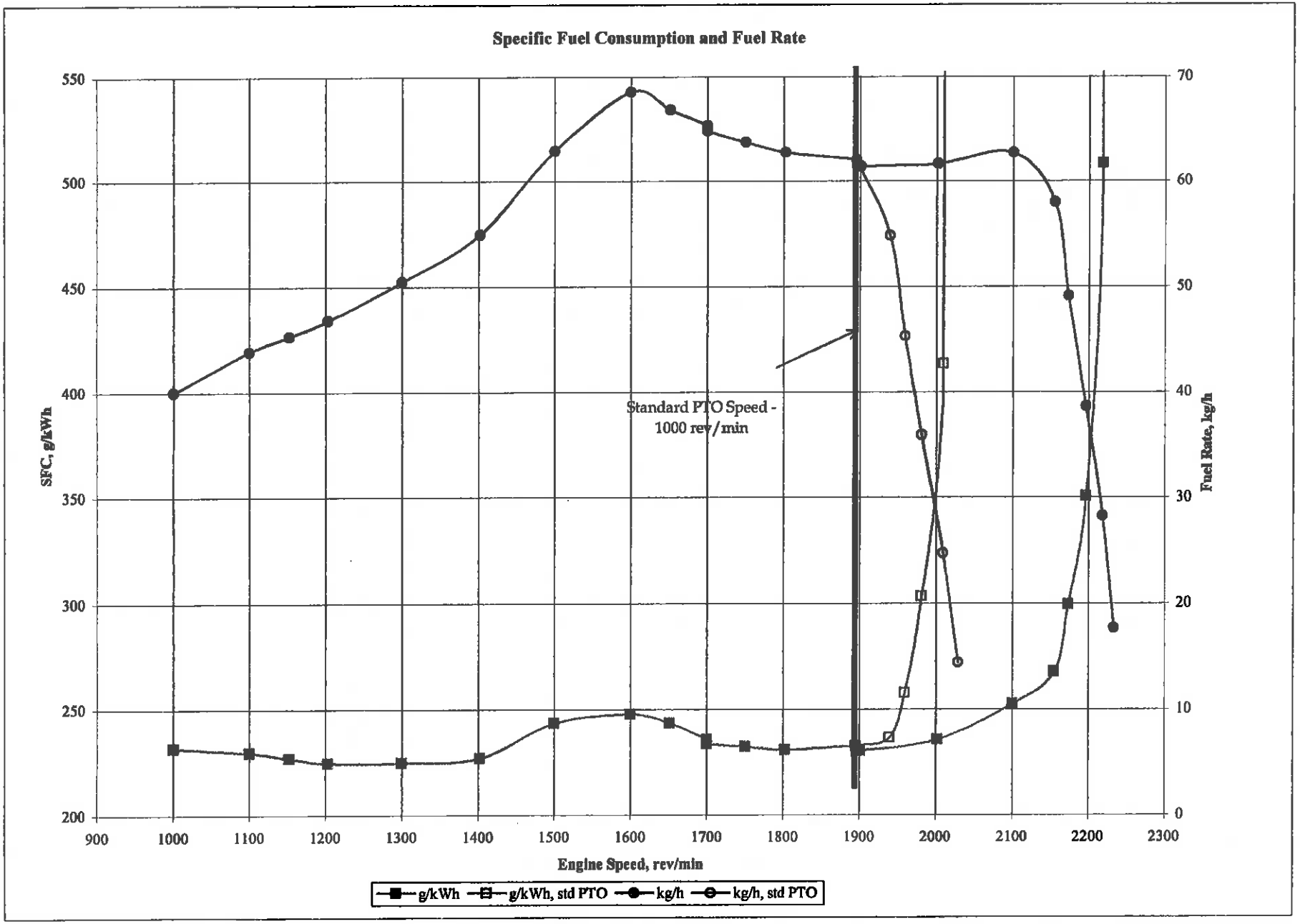
The John Deere 9520T PowerShift tractor is equipped with an electronic engine power control system which provides the following engine performance levels in various conditions:

	Maximum Engine Power at 2100 rpm
a) Performance Level A In gears 1-3, and Stationary PTO operations	375 Hp (279.6 kW)
b) Performance Level B In gear 4	400 Hp (298.3 kW)
c) Performance Level C In gear 5	425 Hp (316.9 kW)
d) Performance Level D All other conditions.	450 Hp (335.5 kW)

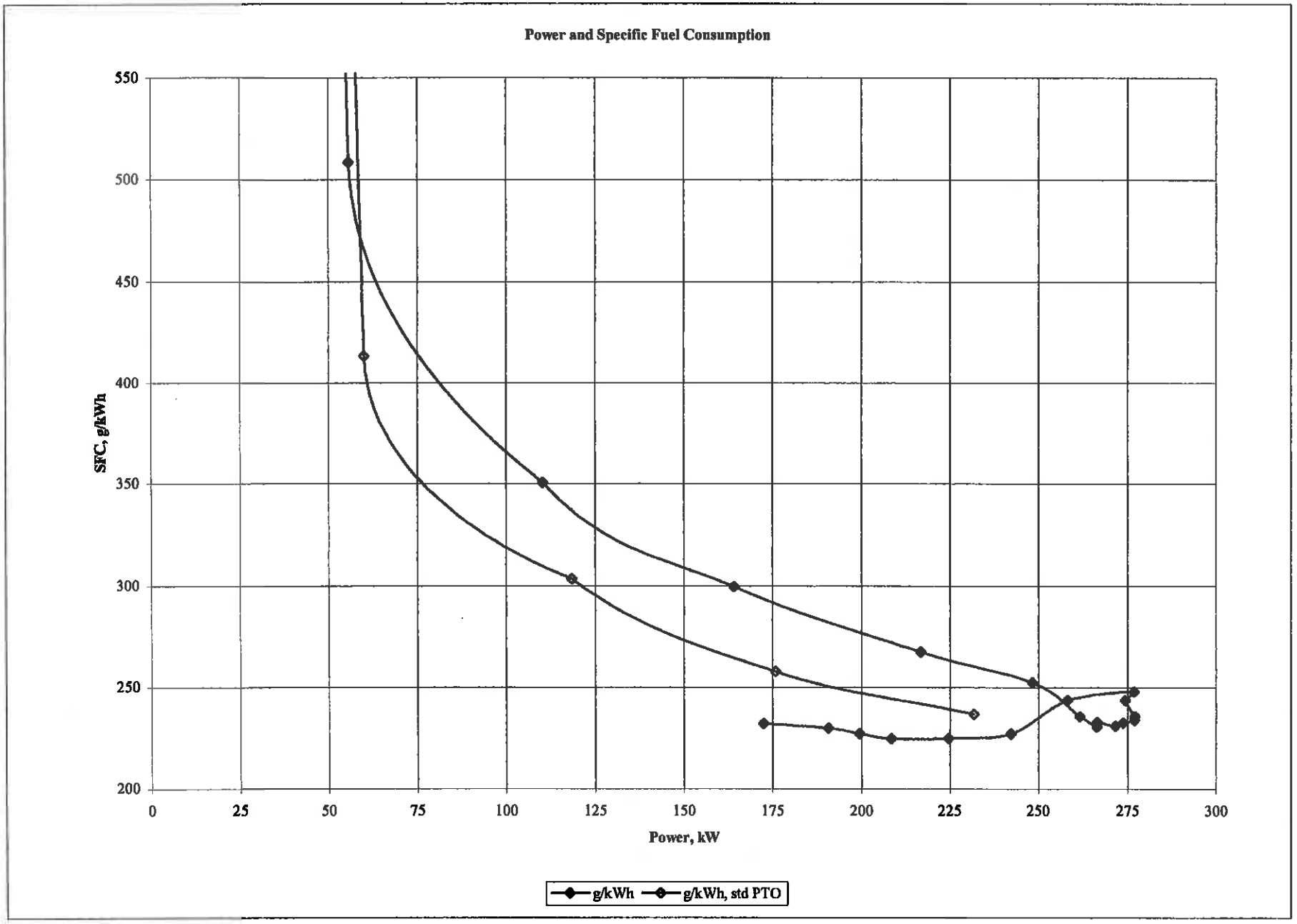
6.2 The minimum atmospheric pressure of 96.6 kPa was not available for all times that official testing was conducted.

John Deere 9520T
Standard Power




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
g/kWh, std PTO
kg/h
kg/h, std PTO
550
500
450
400
350
300
250
200
70
60
50
40
30
20
10
0
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300

John Deere 9520T
Standard Power



8. COMPULSORY TESTS RESULTS

8.1 Main power take-off

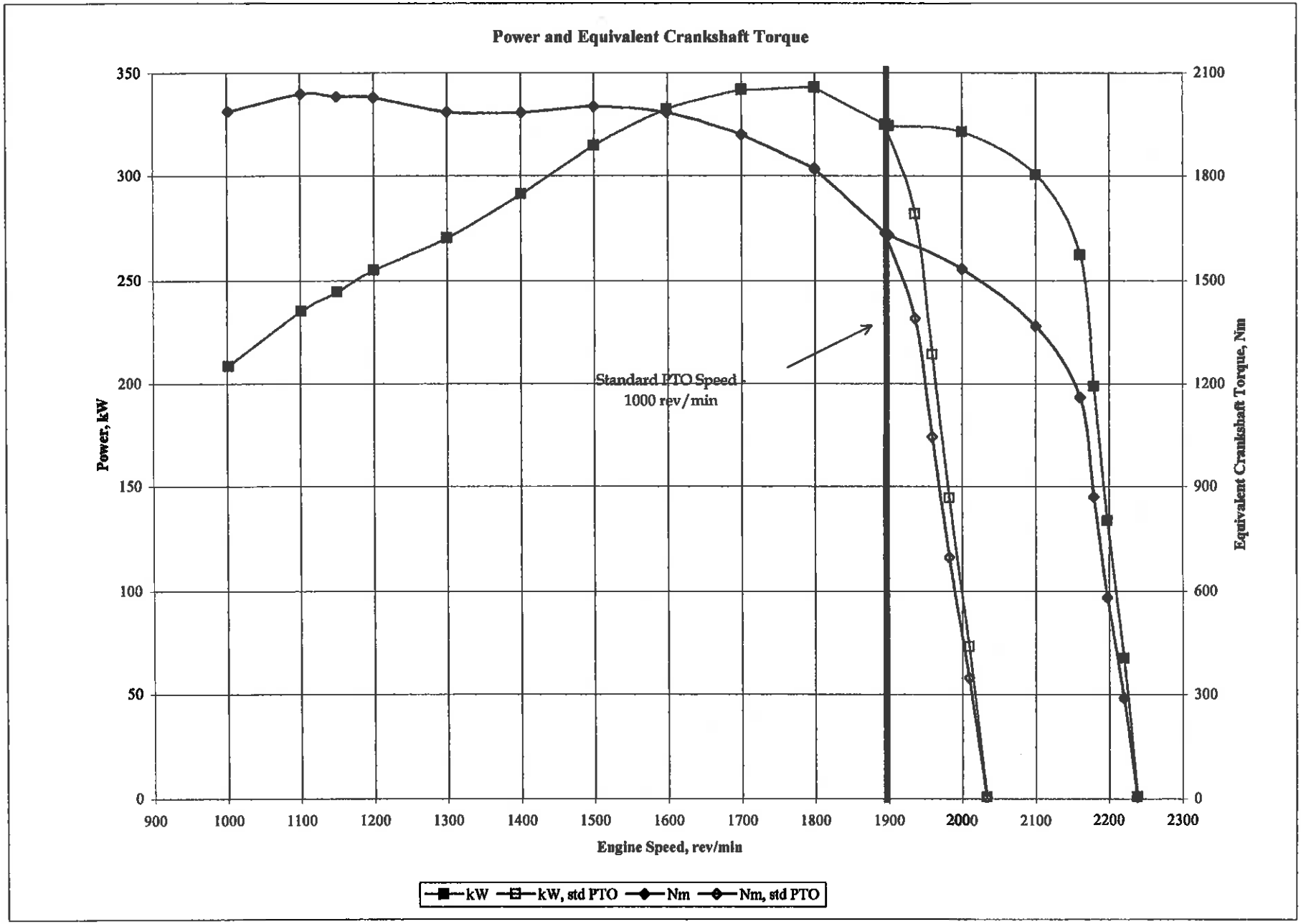
- Date and location of tests: 3-Apr-02 Nebraska Tractor Test Laboratory, Lincoln, NE, USA
- Type of dynamometer bench: Eaton

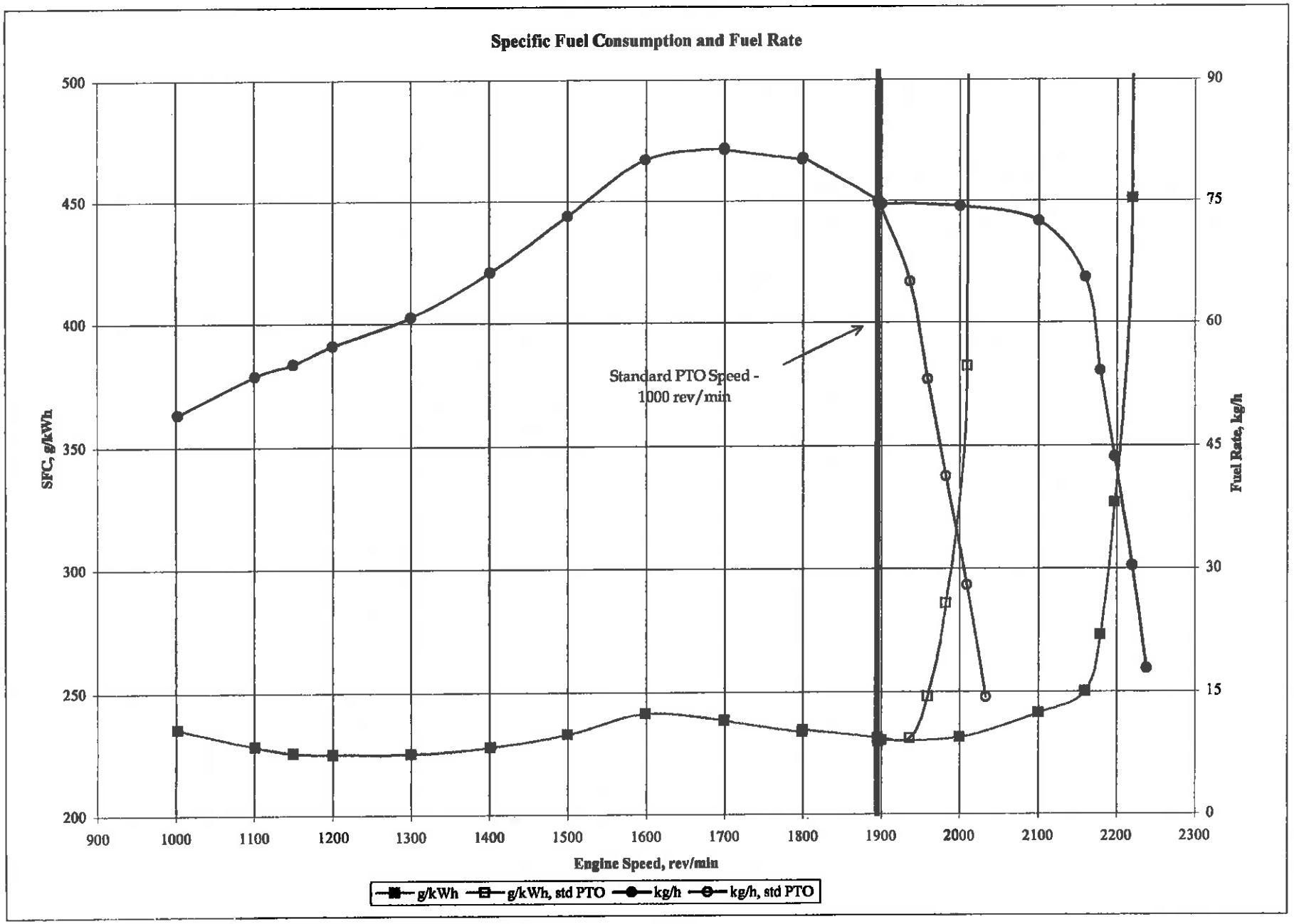
	Speed		Fuel consumption			Specific
Power	Engine	PTO	Hourly		Specific	energy
kW	rev/min		kg/h	l/h	g/kWh	kW-h/l
3.1 MAXIMUM POWER - TWO HOUR TEST						
342.64	1800	950	80.35	95.23	235	3.60
3.1.2 POWER AT RATED ENGINE SPEED						
300.31	2100	1108	72.45	85.86	241	3.50
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000 +/- 25 rev/min)						
324.56	1895	1000	75.04	88.93	231	3.65
3.1.4 PART LOADS						
3.1.4.1 the torque corresponding to maximum power at rated engine speed						
300.31	2100	1108	72.45	85.86	241	3.50
3.1.4.2 85% of torque obtained in 3.1.4.1						
262.26	2160	1139	65.59	77.73	250	3.37
3.1.4.3 75% of torque defined in 3.1.4.2						
198.54	2179	1149	54.16	64.18	273	3.09
3.1.4.4 50% of torque defined in 3.1.4.2						
133.74	2197	1159	43.68	51.77	327	2.58
3.1.4.5 25% of torque defined in 3.1.4.2						
67.34	2220	1171	30.35	35.96	451	1.87
3.1.4.6 unloaded						
0.96	2238	1181	17.83	21.13	18489	0.05
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						
324.56	1895	1000	75.04	88.93	231	3.65
3.1.5.2 85% of torque obtained in 3.1.5.1						
281.59	1936	1021	65.05	77.08	231	3.65
3.1.5.3 75% of torque defined in 3.1.5.2						
213.97	1959	1034	53.07	62.89	248	3.40
3.1.5.4 50% of torque defined in 3.1.5.2						
144.43	1982	1046	41.23	48.86	285	2.96
3.1.5.5 25% of torque defined in 3.1.5.2						
72.99	2009	1060	27.90	33.06	382	2.21
3.1.5.6 unloaded						
0.76	2033	1073	14.42	17.09	18936	0.04

- No load maximum engine speed: 2238 rev/min
- Torque (equivalent crankshaft) at rated speed:
  - At rated engine speed 1366 Nm
  - At 2-hour test 1818 Nm
- Maximum torque (equivalent crankshaft): 2039 Nm
  (engine speed: 1101 rev/min)

Mean atmospheric conditions:		
Dry bulb	24	°C
Pressure	99.3	kPa
Relative Humidity	12	%
Maximum temperatures:		
Coolant	101	°C
Engine oil	127	°C
Fuel	65	°C
Engine air intake	27	°C

John Deere 9520T
Full Power




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
g/kWh, std PTO
kg/h
kg/h, std PTO
500
450
400
350
300
250
200
90
75
60
45
30
15
0
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300

John Deere 9520T
Full Power

