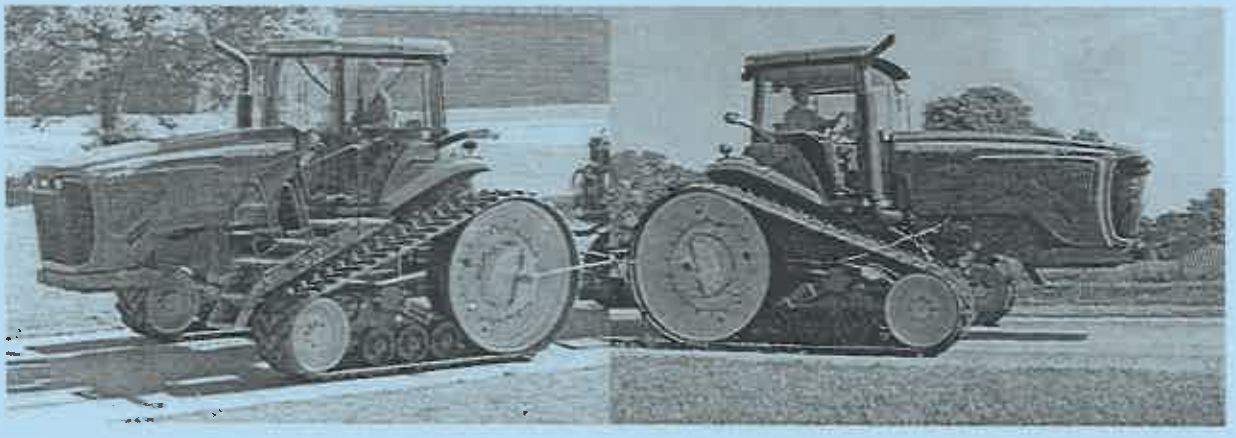
OECD APPROVAL NO. 2/2 043
CODE 2
DATE OF APPROVAL: 6 February 2003

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 8320T 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.	1799
TEST DATES:	May 16 - 31, 2002

TABLE OF CONTENTS

Page

1. **SPECIFICATIONS** 1

2. **TEST CONDITIONS** 17

3. **COMPULSORY TESTS**
   - **3.1** Main Power Take-Off Performance 20
   - **3.2** Hydraulic Power and Lifting Forces 21
   - **3.3** Drawbar Performance 23

4. **OPTIONAL TESTS**
   - **4.1** Drawbar Power (Unballasted – 2200 rev/min) 24
   - **4.2** Drawbar Power (Ballasted – 2000 rev/min) 25
   - **4.3** Hydraulic Power (Standard Pump) (one outlet) 26
   - **4.4** Hydraulic Power (High Flow Pump) (one outlet) 27
   - **4.5** Hydraulic Power (High Flow Pump) (two outlets) 28
   - **4.6** Power Lift Test – North American Linkage 29
   - **4.7** Measurement of External Noise Level 30
   - **4.8** Measurement of Noise Level at Operator's Ear 30

5. **REPAIRS** 30

6. **REMARKS** 30

7. **PTO PERFORMANCE CURVES** 31

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 6 February 2003 for the John Deere 8320T Powershift, rubber tracklaying, 30 km/h version tractor with OECD Number 2/2 043.

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 17 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:	106 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:	8320T
-Type:	Unit Construction, rubber tracklaying tractor, Powershift, 30km/h
-Number of driving wheels:	2 tracks, 30"
1.1.2 *Numbers*	
-1st Serial No:	CONFIDENTIAL
-Serial No:	RW8320T901132
1.1.3 *Other specifications*	
-Transmission type:	Powershift

1.2 Engine

-Make:	John Deere
-Model:	6081HRW25
-Type:	4-stroke diesel; HPCR injection; turbocharged; air-to-air aftercooled
-Serial No:	RG6081H202736

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:	RE508029
-Type:	Exhaust driven
-Pressure:	170 ± 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:	492 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):	47.6 ± 2 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 20 hour rating

1.2.10 *Exhaust system*

-Make:	Nelson (muffler)
-Model:	RE164069
-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 – 1 x 90, 1 x 100 mm dia Optional – 2 x 100 mm dia SM – 1 x 100, 1 x 115 mm dia
-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

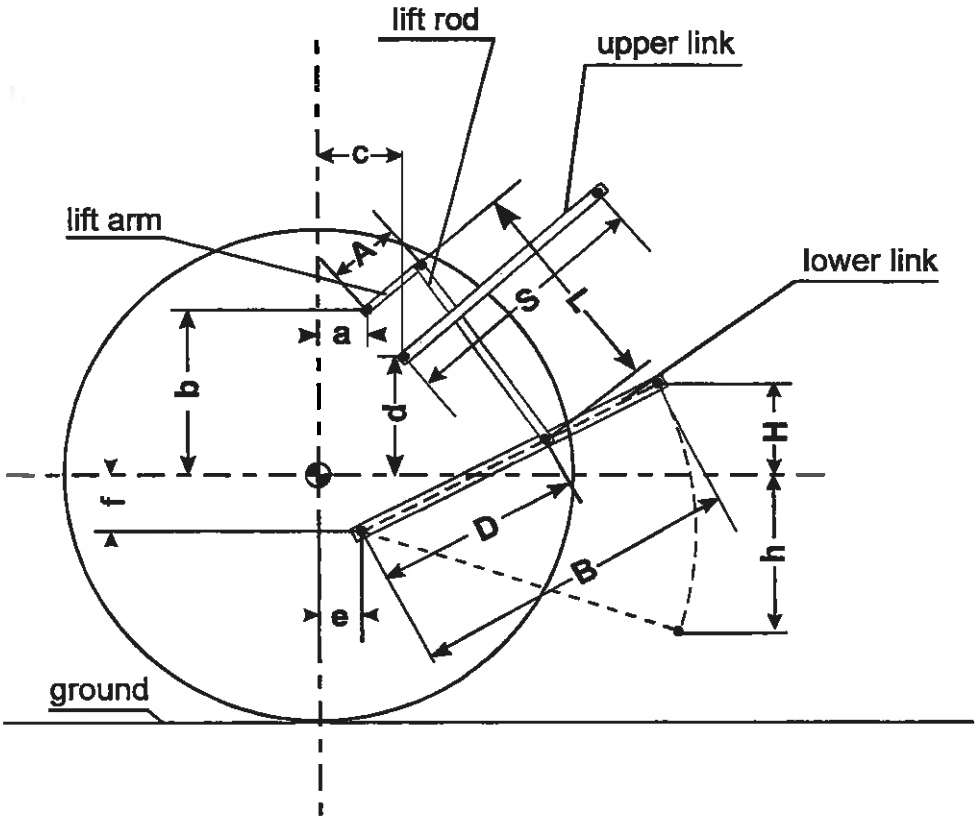


Figure 2.1
Lift test - Linkage Geometry

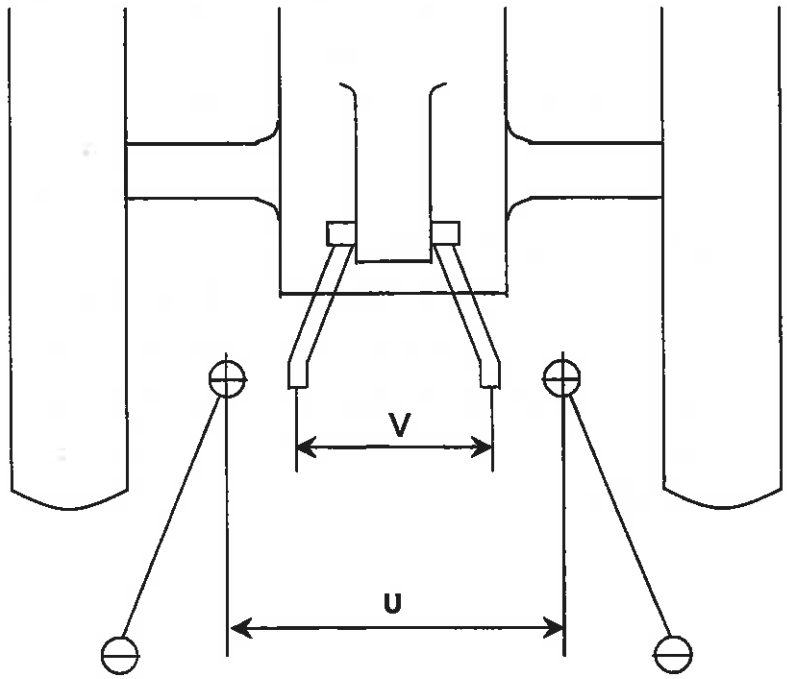


Figure 2.2
Lift test - Linkage Geometry

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

5 and ISO 730-2:1979.
gory-None

imension or range	Settings used in test
mm	mm
520	same
1082	same
140	same
565	same
594	same
738	same
694 to 865	750
395	same
260	same
275	same
280	same
733	same
1009 to 1187	1150
428 to 681	621
99 to 319	132
951 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 loop

2.3 Tractor mass

Mass (with cab, full fuel tank):

	Without driver	With driver
	kg	kg
Unballasted		
Total	12131	12206
Ballasted		
Total	13152	13227

Ballast Added	Number of Weights	Total Mass	Liquid
		kg	kg
Front (weight support)	1	125	-
Front (weights)	20	896	-

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	54
Number per metre	6.56 per meter
Bar length at top	191 mm
Bar width at top	40 mm
Bar width at center	53 mm
Bar height	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: 16-May-02 Nebraska Tractor Test Laboratory, Lincoln, NE, USA
- Type of dynamometer bench: Eaton

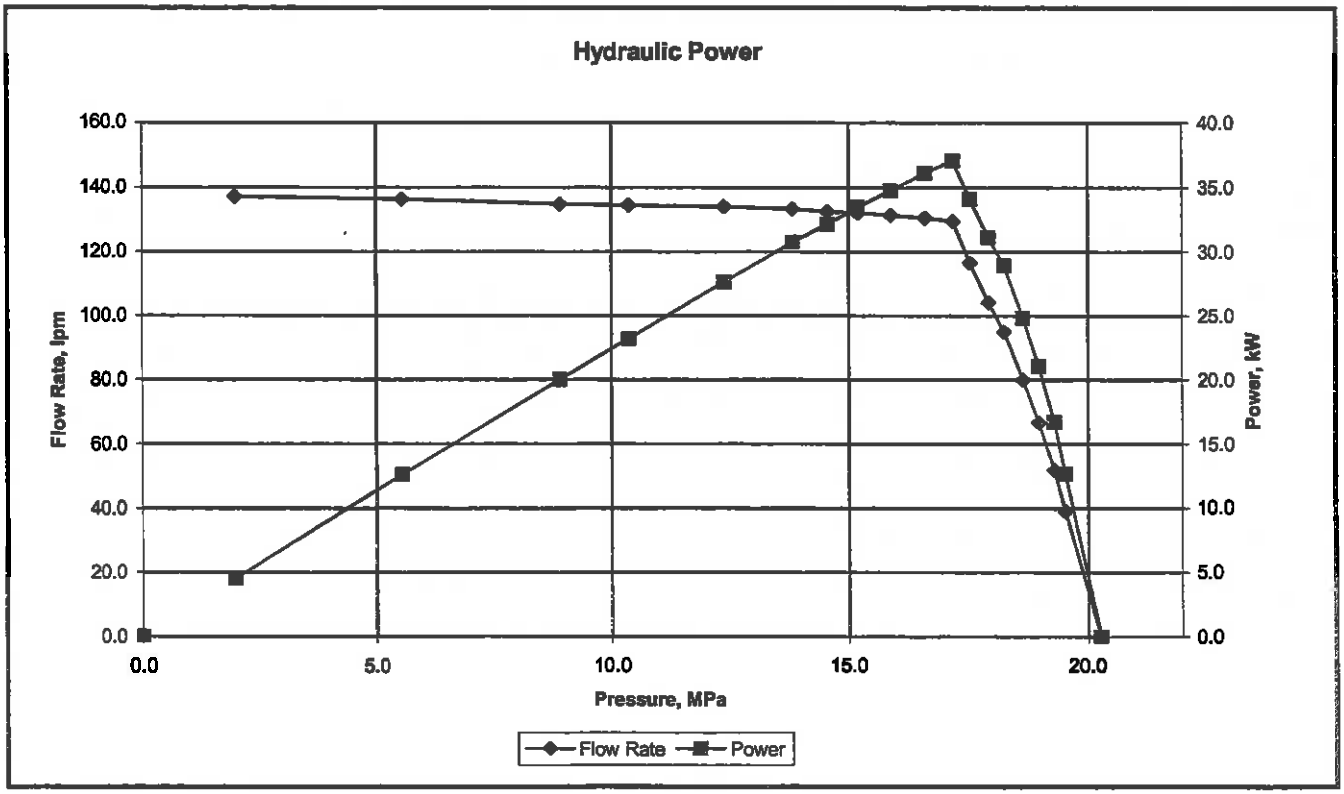
	Speed		Fuel consumption			Specific
Power	Engine	PTO	Hourly		Specific	energy
kW	rev/min		kg/h	l/h	g/kWh	kW-h/l
3.1 MAXIMUM POWER - TWO HOUR TEST						
183.93	2000	917	42.84	50.75	233	3.62
3.1.2 POWER AT RATED ENGINE SPEED						
162.29	2200	1009	41.10	48.69	253	3.33
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000 +/- 25 rev/min)						
162.29	2200	1009	41.10	48.69	253	3.33
3.1.4 PART LOADS						
3.1.4.1 the torque corresponding to maximum power at rated engine speed						
162.29	2200	1009	41.10	48.69	253	3.33
3.1.4.2 85% of torque obtained in 3.1.4.1						
141.44	2257	1035	37.15	44.01	263	3.21
3.1.4.3 75% of torque defined in 3.1.4.2						
106.58	2266	1039	30.35	35.95	285	2.97
3.1.4.4 50% of torque defined in 3.1.4.2						
71.52	2277	1044	23.41	27.73	327	2.58
3.1.4.5 25% of torque defined in 3.1.4.2						
35.71	2286	1048	16.19	19.18	453	1.86
3.1.4.6 unloaded						
0.75	2296	1053	10.07	11.93	13471	0.06
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						
162.29	2200	1009	41.10	48.69	253	3.33
3.1.5.2 85% of torque obtained in 3.1.5.1						
141.44	2257	1035	37.15	44.01	263	3.21
3.1.5.3 75% of torque defined in 3.1.5.2						
106.58	2266	1039	30.35	35.95	285	2.97
3.1.5.4 50% of torque defined in 3.1.5.2						
71.52	2277	1044	23.41	27.73	327	2.58
3.1.5.5 25% of torque defined in 3.1.5.2						
35.71	2286	1048	16.19	19.18	453	1.86
3.1.5.6 unloaded						
0.75	2296	1053	10.07	11.93	13471	0.06

- No load maximum engine speed: 2296 rev/min
- Torque (equivalent crankshaft) at rated speed:
  - At rated engine speed 704 Nm
  - At 2-hour test 878 Nm
- Maximum torque (equivalent crankshaft): 1058 Nm
  (engine speed: 1405 rev/min)

Mean atmospheric conditions:		
Dry bulb	24	°C
Pressure	98.0	kPa
Relative Humidity	40	%
Maximum temperatures:		
Coolant	99	°C
Engine oil	116	°C
Fuel	46	°C
Engine air intake	28	°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: 20-May-02 | Fuel density: 0.844 kg/l
Type of track: Concrete | Test number: 1799
3.3.1 Maximum power in tested gears (unballasted, CRWL) | Tire pressure: 0 kPa, rear 0 kPa, front | Drawbar Height: 470 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	103.13	112.63	3.30	2259	14	0.358	2.36	36	82	107	16	60	98.8
5	5	122.39	121.10	3.64	2243	15	0.337	2.51	30	82	105	10	69	98.8
6	6	132.05	107.64	4.42	2202	9	0.308	2.74	33	84	108	11	59	98.8
7	7	142.79	105.72	4.86	2099	9	0.296	2.85	35	84	109	13	57	98.8
8	8	150.16	99.54	5.43	2004	8	0.286	2.95	39	86	110	17	66	98.8
9	9	155.48	86.68	6.46	2001	5	0.277	3.05	39	86	110	18	71	98.8
10	10	157.96	75.22	7.56	2000	4	0.271	3.11	40	87	111	19	76	98.8
11	11	157.13	63.78	8.87	1999	2	0.274	3.08	41	88	111	19	76	98.8
12	12	156.56	54.68	10.31	2001	2	0.275	3.07	40	88	111	19	81	98.7
13	13	155.53	45.94	12.19	1999	1	0.275	3.07	40	88	111	19	86	98.7
3.3.2 Fuel consumption														
3.3.2.1			In selected gear at maximum power at rated engine speed.											
10	10	137.85	58.85	8.43	2199	2	0.296	2.85	39	86	110	18	71	98.8
3.3.2.1.1			75% of pull at maximum power at rated engine speed											
10	10	106.89	44.04	8.74	2261	1	0.326	2.59	40	85	108	21	86	98.7
3.3.2.1.2			50% of pull at maximum power at rated engine speed											
10	10	71.91	29.34	8.82	2272	1	0.380	2.22	39	83	106	21	82	98.7
3.3.2.1.3			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.1											
11	11	106.75	44.04	8.73	1943	1	0.288	2.93	40	85	108	21	86	98.7
3.3.2.1.4			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.2											
11	11	71.90	29.36	8.82	1954	1	0.330	2.56	39	82	105	22	78	98.7
3.3.2.1.5			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.1											
12	12	107.01	44.06	8.74	1689	1	0.274	3.09	39	85	107	21	86	98.7
3.3.2.1.6			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.1.2											
12	12	72.08	29.34	8.84	1700	1	0.307	2.75	39	84	105	22	78	98.7
3.3.2.2			In selected gear nearest to 7.5 km/h at rated engine speed.											
9	9	137.37	68.12	7.26	2198	3	0.296	2.85	38	86	109	18	58	98.8
3.3.2.2.1			75% of pull at maximum power at rated engine speed											
9	9	106.96	50.97	7.55	2261	2	0.326	2.59	39	84	105	19	86	98.7
3.3.2.2.2			50% of pull at maximum power at rated engine speed											
9	9	72.30	34.05	7.64	2272	1	0.376	2.25	39	82	106	21	82	98.7
3.3.2.2.3			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.1											
10	10	107.10	51.06	7.55	1961	2	0.286	2.95	39	83	106	20	86	98.7
3.3.2.2.4			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.2											
10	10	72.40	34.08	7.65	1972	1	0.325	2.59	39	81	104	21	82	98.7
3.3.2.2.5			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.1											
11	11	107.16	51.06	7.56	1689	2	0.273	3.09	40	85	107	21	86	98.7
3.3.2.2.6			Higher gear at reduced engine speed, same pull and travel speed as 3.3.2.2.2											
11	11	72.26	34.08	7.63	1694	1	0.307	2.75	39	83	104	21	82	98.7

4.1 Drawbar Power (Unballasted - 2200 rev/min)

OECD Drawbar Data (SI)

Date of tests: 20-May-02							**Fuel density:**	0.844 kg/l						
Type of track: Concrete							**Test number:**	1799						
4.1.1 Maximum power in tested gears (unballasted, CRWL)							**Tire pressure:**	TRK kPa, rear		TRK kPa, front		**Drawbar Height:**	470 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	121.09	118.57	3.68	2254	14	0.337	2.51	31	82	107	10	69	98.8
6	6	131.96	107.44	4.42	2200	8	0.308	2.74	32	83	108	11	59	98.8
7	7	134.92	91.83	5.29	2197	6	0.302	2.79	36	84	108	14	54	98.8
8	8	137.58	79.64	6.22	2199	4	0.295	2.86	37	85	109	16	65	98.8
9	9	137.37	68.12	7.26	2198	3	0.296	2.85	38	86	109	18	58	98.8
10	10	137.85	58.85	8.43	2199	2	0.296	2.85	39	86	110	18	71	98.8
11	11	134.94	49.38	9.84	2195	1	0.303	2.79	39	86	110	19	76	98.8
12	12	133.65	42.30	11.37	2195	1	0.305	2.77	39	86	109	19	81	98.7
13	13	131.49	35.15	13.47	2199	1	0.311	2.72	39	86	110	19	81	98.7
* Note:		Slip within operating procedures of testing station.												

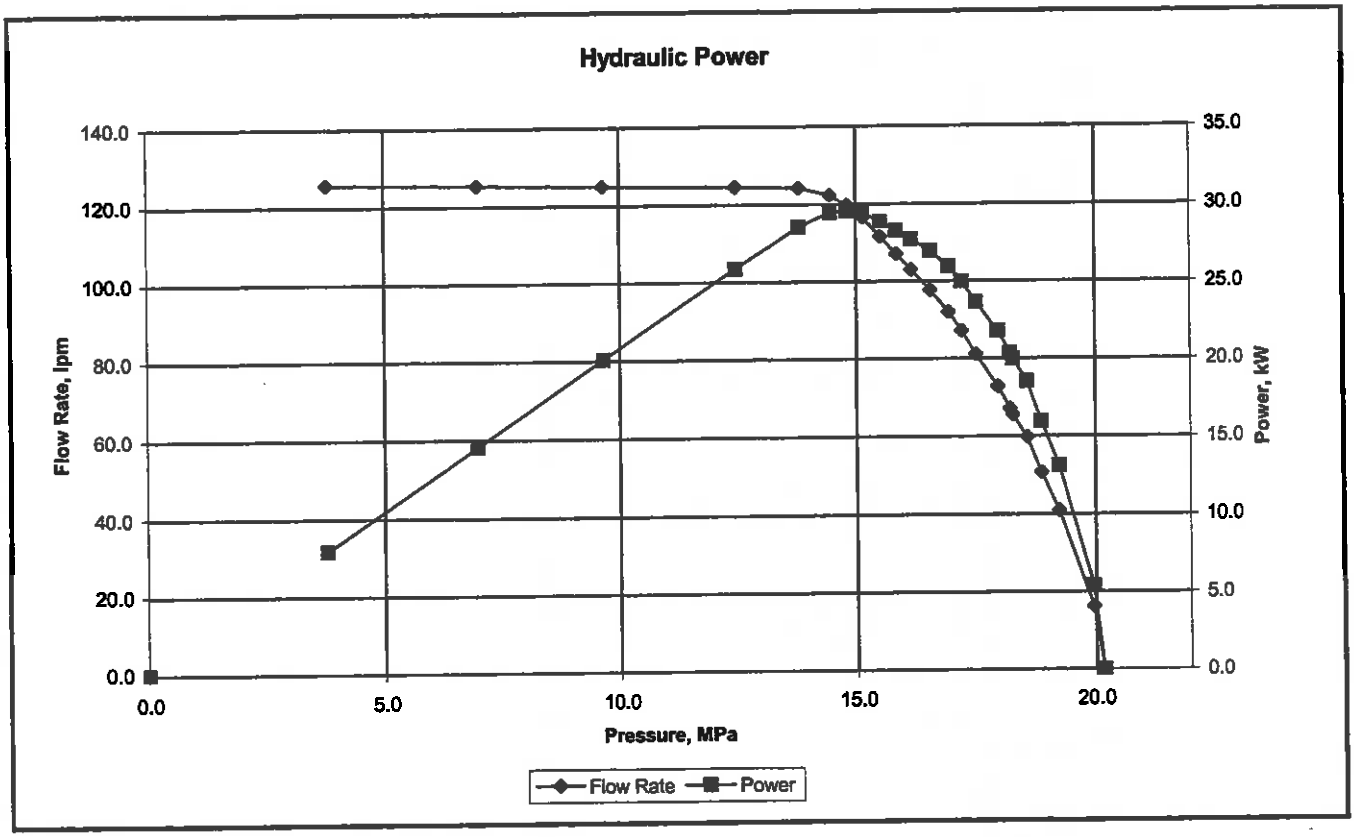
4.2 Drawbar Power (Ballasted - 2000 rev/min)

OECD Drawbar Data (SI)

Date of tests: 29,30-May-02							Fuel density: 0.844 kg/l							
Type of track: Concrete							Test number: 1799							
4.2.1 Maximum power in tested gears (ballasted, crwl)							Tire pressure: (trk) kPa, rear (trk) kPa, front					Drawbar Height: 470 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	117.85	128.58	3.30	2249	14	0.347	2.44	40	83	106	20	81	96.9
5	5	127.54	119.89	3.83	2227	10	0.322	2.62	40	84	108	21	82	97.0
6	6	137.59	116.19	4.26	2132	9	0.303	2.78	41	83	108	22	74	97.0
7	7	149.12	113.63	4.72	2020	8	0.289	2.92	42	86	110	23	74	97.0
8	8	154.01	99.46	5.57	2000	5	0.280	3.02	42	88	111	24	75	97.1
9	9	157.46	86.01	6.59	2002	3	0.273	3.09	41	87	108	22	78	97.2
10	10	156.87	73.74	7.66	2000	2	0.275	3.07	42	88	111	22	74	97.2
11	11	155.62	62.64	8.94	1998	2	0.277	3.05	42	89	112	23	74	97.2
12	12	155.63	54.02	10.37	2001	1	0.277	3.05	43	89	113	23	74	97.2
13	13	152.88	44.90	12.26	2001	1	0.283	2.98	42	89	111	24	75	97.1
* Note: Slip within operating procedures of testing station.														

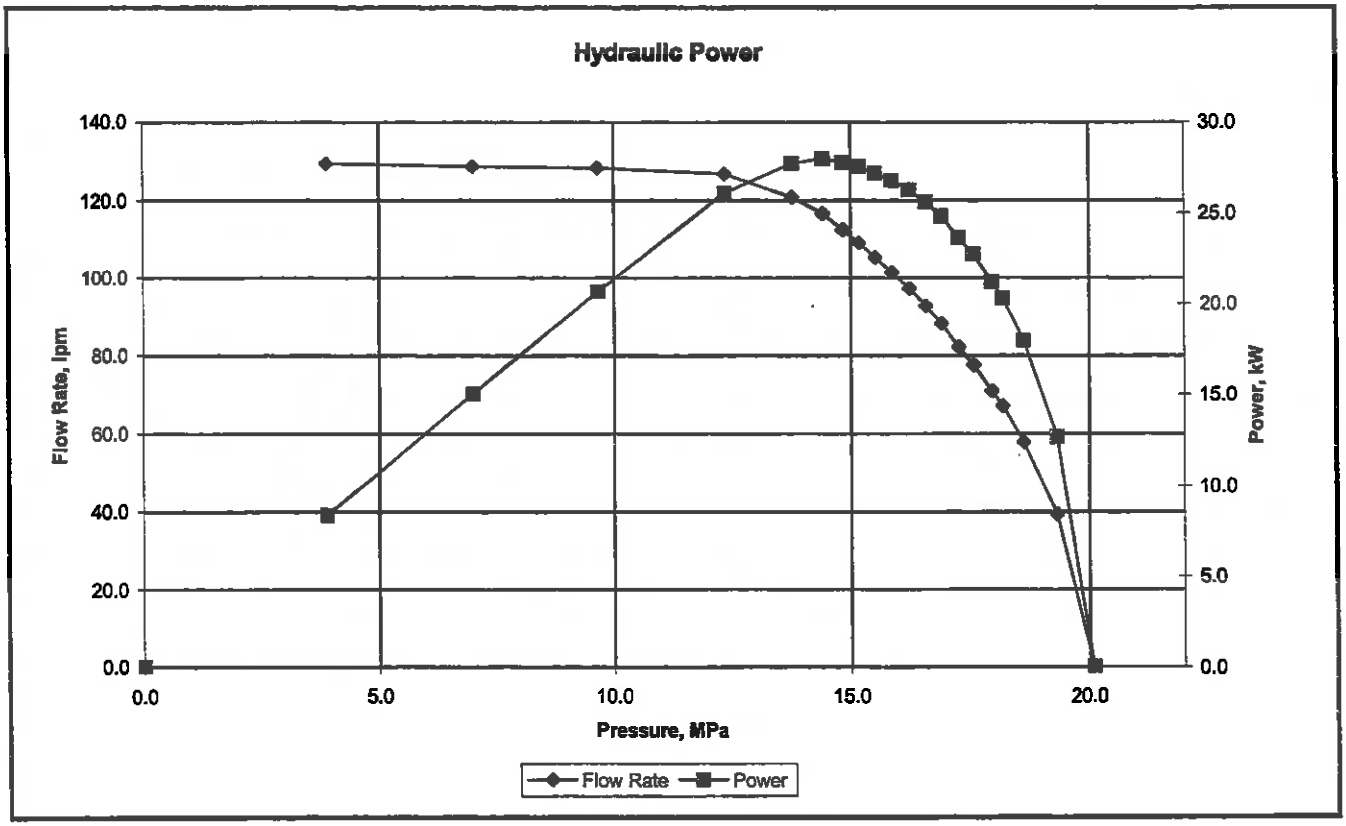
4.3 Hydraulic Power (Standard Pump - one outlet - test data from 8320T)

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.		



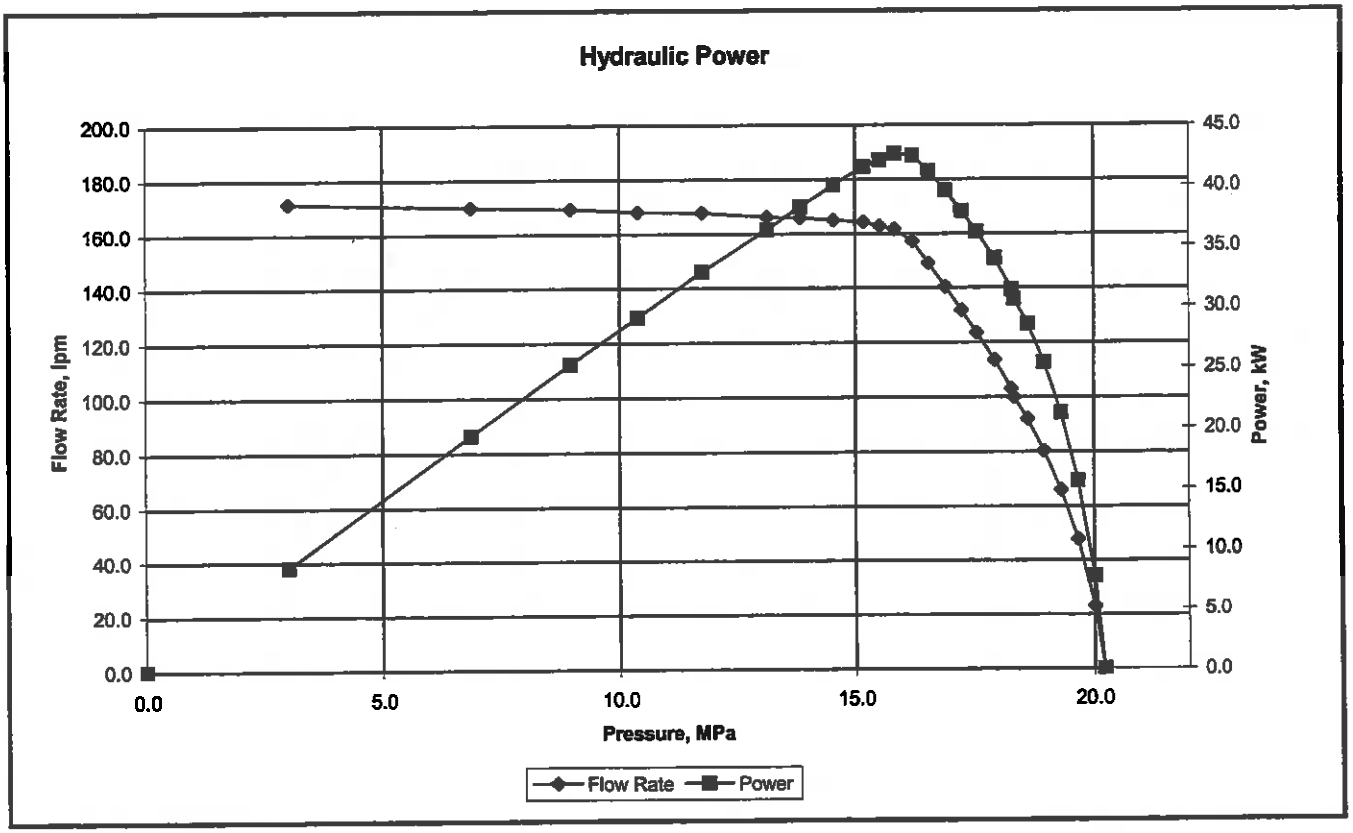
4.4 Hydraulic Power (High Flow Pump - one outlet - test data from 8520T)

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 8320T

-- Date of Test	May 21, 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	88.7 dB(A)

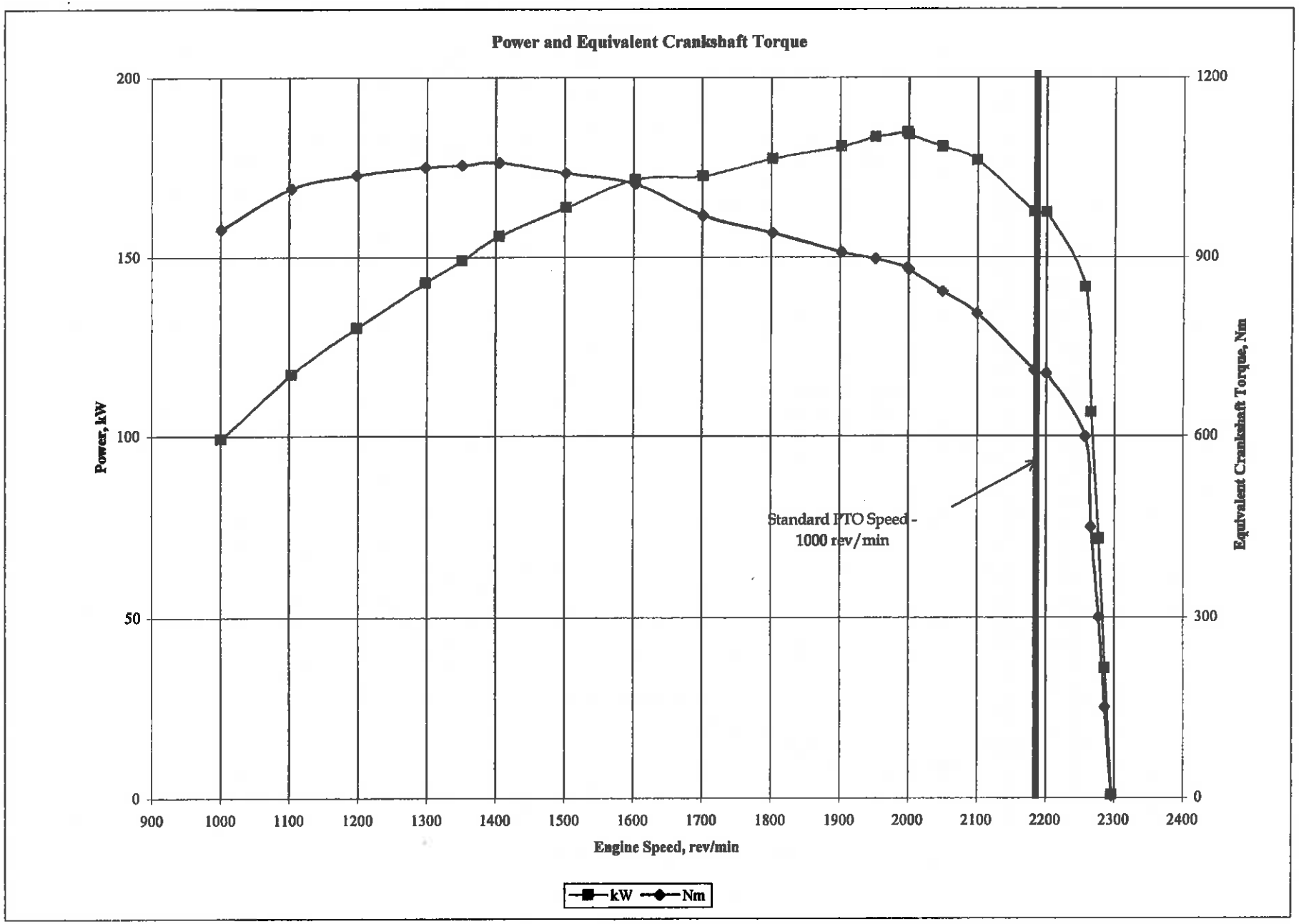
4.8 Measurement of Noise Level at Operator's Ear*

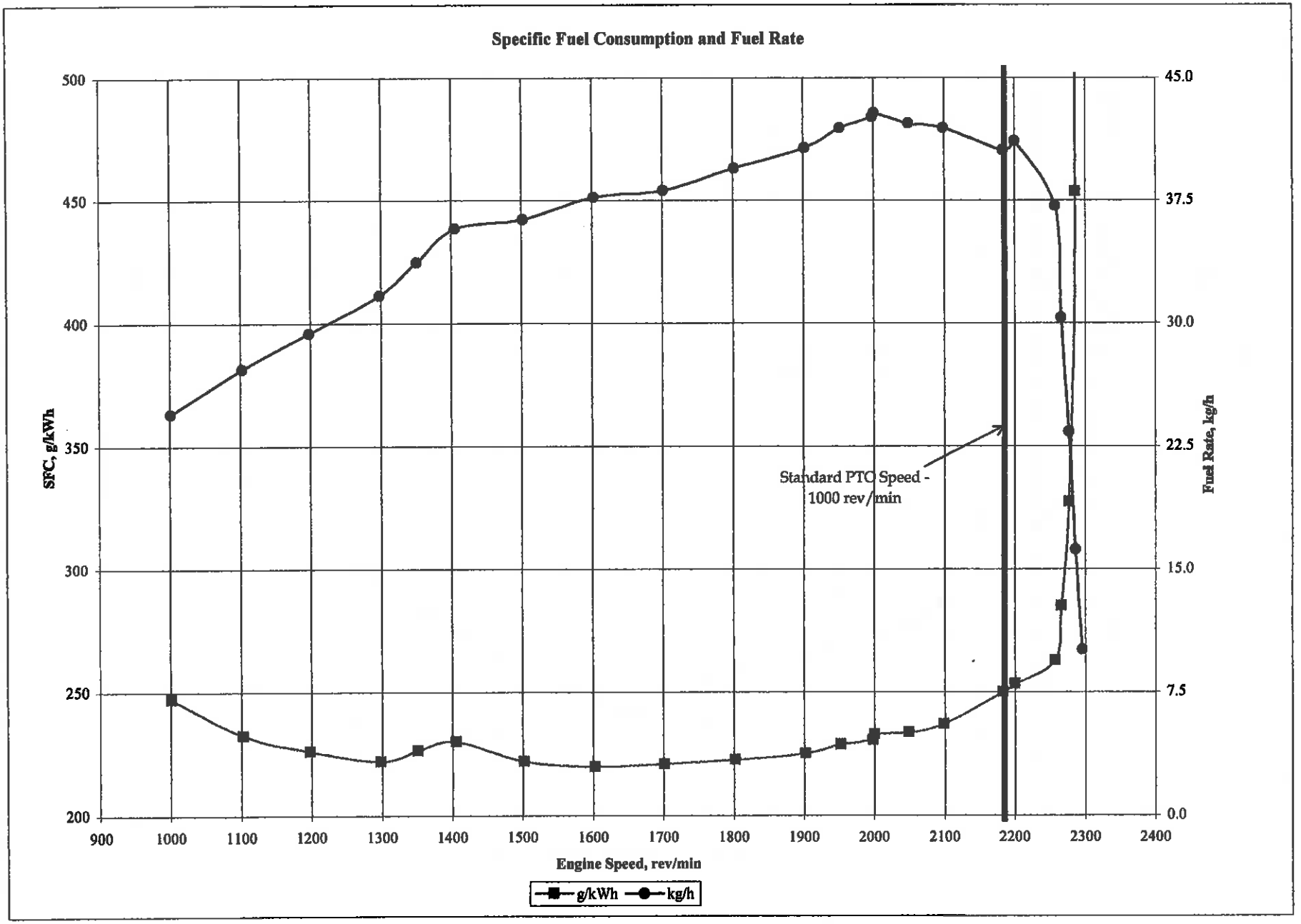
-- Date of Test	May 21, 2002
-- Location of Test	Nebraska Tractor Test Laboratory
-- Sound Level Meter	Bruel and Kjaer 2236
-- Type of Track	Concrete Oval
-- Gear Number	9
-- Drawbar Load	None
-- Noise at Operator Ear	75.2 d(B)A

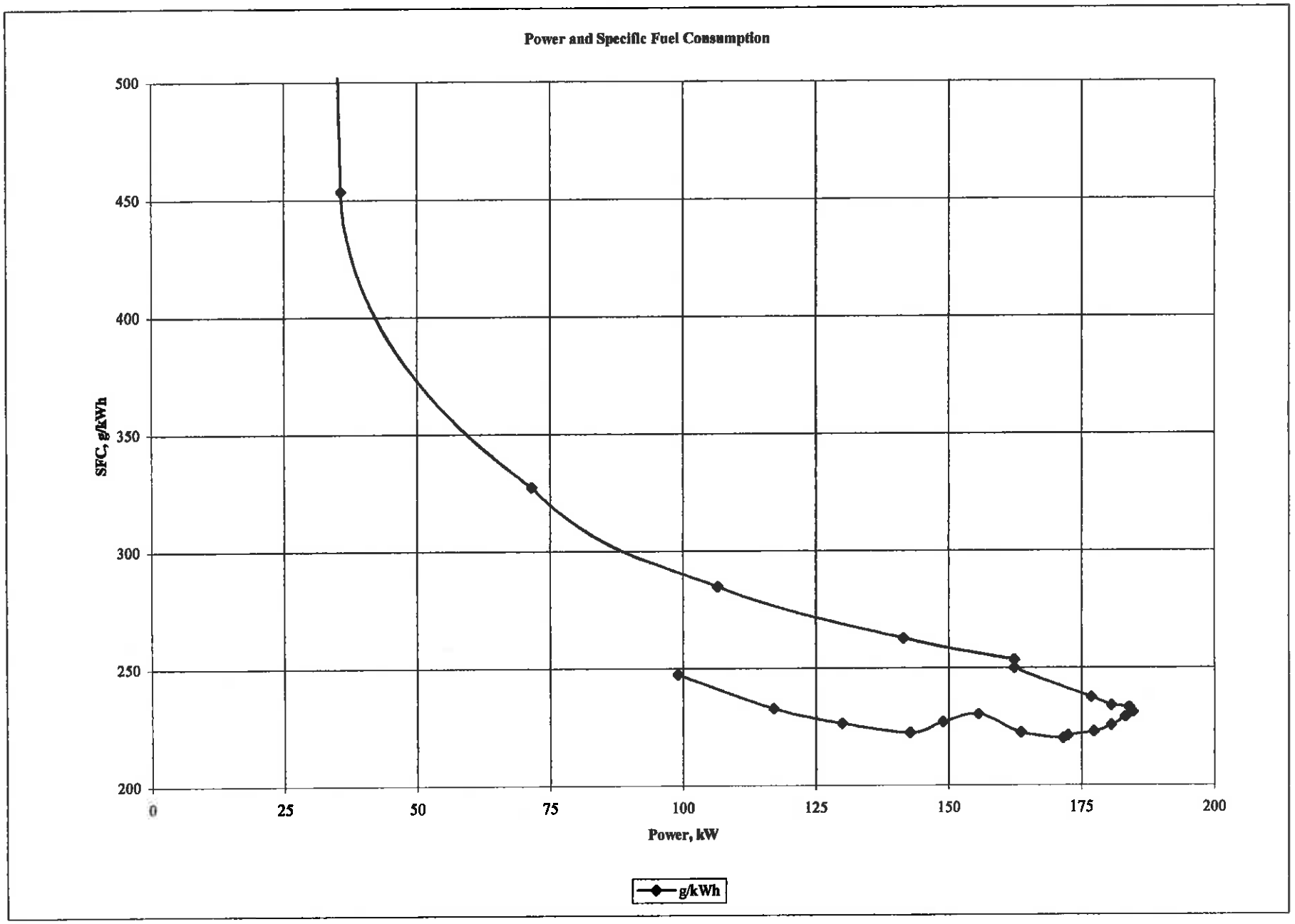
* Note: Nebraska tractor test station guidelines.

5. Repairs and Adjustments: None

6. Remarks: None


Power and Equivalent Crankshaft Torque
Power, kW
Equivalent Crankshaft Torque, Nm
Engine Speed, rev/min
Standard PTO Speed -
1000 rev/min
kW
Nm
200
150
100
50
0
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
500
450
400
350
300
250
200
45.0
37.5
30.0
22.5
15.0
7.5
0.0
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400


Power and Specific Fuel Consumption
SFC, g/kWh
500
450
400
350
300
250
200
0
25
50
75
100
125
150
175
200
Power, kW
g/kWh