OECD APPROVAL # 1578
(Restricted code)
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NEBRASKA TRACTOR TESTING 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 RESTRICTED CODE (CODE II)

FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS





JOHN DEERE 8400 POWERSHIFT MFWD
40 km/h Version (4WD)

MANUFACTURED BY: John Deere Waterloo Tractor Works Tractor Division
P.O. Box 270
Waterloo, Iowa 50704-0270
NEBRASKA TEST NO. 1691
Test Dates: April 12 through May 8, 1995

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 - Annex II, Restricted Code.

This report has been approved by the OECD Coordinating Centre in Paris (CEMAGREF) on 2 November, 1995

John Deere 8400 Powershift MFWD
40 km/h Version (4WD) OECD # 1578

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Associate Director

Dr. Louis L. Leviticus

Senior Test Engineer

David L. Morgan

Test Engineer

Brent T. Sampson

Chairman, Tractor Test Board

Dr. Leonard L. Bashford

Members, Tractor Test Board

Dr. Robert D. Grisso

Dr. Michael F. Kocher

Date: 28 Nov 1995

LINCOLN, NEBRASKA 68583-0832,USA

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SPECIFICATIONS OF TRACTOR.

Manufacturers name/address	John Deere Tractor Works P.O. Box 270 Waterloo, Iowa, USA
Location of tractor assembly	Same
Submitted for test by	The manufacturer
Selected for test by	The manufacturer in agreement with the test station.
Place of running in	John Deere Product Eng. Ctr Waterloo, Iowa, USA
Duration of running in	123 hours
Location of Test	Nebraska Power laboratory Tractor Testing Laboratory Lincoln, Nebraska,USA.

TRACTOR CHASSIS SPECIFICATIONS.

Make	John Deere
Model	8400 Powershift MFWD 40 km/h Version (4WD)
Type	Unit construction, mechanical front wheel drive (MFWD)
Number of driving wheels	2 or 4
Serial Number	*RW8400P001553*
1st Serial number	*RW8400P001002*

ENGINE.

Make	John Deere
Model	~~6076HRW34~~
Type	4-stroke diesel; direct injection; turbocharged; air-to air intercooled
Serial Number	*RG6076H543008*

Cylinders

Number/Disposition	6, in-line, vertical
Bore/stroke	115.8 mm x 128.5 mm
Capacity	8120 cm^3
Compression Ratio	15.8 - 1
Arrangement of valves	Overhead
Cylinder liners	Wet; replaceable

Super charging

Make/Model/Type	Schwitzer/RE56488/ Exhaust gas driven
Pressure	151 ± 15 kPa at rated speed and load

Fuel System	
Feed system	Transfer pump integral with injection pump
Make/Type/Model of filters	Stanadyne/RE27091/paper element
Fuel tank capacity	512 l
Fuel Cooler	Heat exchanger with air in fuel return line
Make/Model/Type Injection Pump	Bosch/(RE57372)/In-line; electric shutoff
Pump Serial number	4712400065
Production setting of pump Flow Rate (Rated Eng.Spd & Full Load)	40.6 ± 2.0 kg/h
Fuel Density	0.8355 kg/l at 15° C.
Make/Model/Type Injectors	Nippondenso/RE29318/9.5 mm Pencil type
Injection pressure	29.0 +0.8 MPa/-0.0 MPa
Timing	20 degrees BTDC
Governor	
Make/Model/Type	Bosch/Electronic
Governed engine speed range	From 800 to 2400 rev/min nominal
Rated engine speed	2200 rev/min
High-idle speed range	2300 ± 25 rpm
Air Cleaner.	
Pre-cleaner	
Make/Model/type	Donaldson/RE51631/Strato0tube precleaner with aspirator
Air intake location	Under hood, front of tractor
Main Cleaner	
Make/Model/Type	Donaldson/RE51629/pleated paper
Location	Under hood, front of tractor
Secondary element	Donaldson/RE51630/pleated paper
Maintenance indicator	Dash mounted warning light and audio signal
Lubrication system.	
Type of feed pump	Full pressure; positive displ.
Type of filters	Full flow
Number	One spin-on.
Oil cooler	Heat exchanger with engine coolant
Cooling system.	
Type of coolant	Liquid
Type of pump	Centrifugal, gear driven
Fan specification	Gear driven; Suction type; Variable speed
Number of fan blades	8

Fan diameter	711 mm
Coolant system capacity	34 l.
Type of temperature control	Two thermostats and variable speed fan
System pressure	69 kPa

Starting system.

Make/Model/Type of starter	Nippondenso/RE61516/Solenoid Engaged
Power Rating	4.0 kW
Cold starting aid	Ether spray in intake manifold
Safety device	Electrical lockout on gearshift

Electrical system.

Voltage & grounding.	12 Volt DC; negative ground
Alternator	
Make/Model/Type	Nippondenso/RE46608/Belt driven
Power rating	140 Amp at rated engine speed and 25°C ambient
Batteries	
Number & connection	Two; 12 Volt batteries in parallel; SAE tapered post
Rating	925 cold cranking amps/battery 175 Ah/battery at 20 h rating

Exhaust system.

Muffler Make/Model/Type	Nelson/RE44716/Expansion chamber
Location	Vertical muffler
Exhaust stack location	Vertical; right front of cab

TRANSMISSION.

Clutch. (travel)

Make/Model/Type	John Deere/Multiple plate/oil cooled
Number of plates	7
Plate diameter	232 mm
Method of operation	Hydraulic; pedal actuated

Gear Box.

Make/Model/Type	John Deere/Full powershift/ Mechanical
Arrangement	Countershaft design consisting of 8 multidisc hydraulically cooled clutches and 1 multidisc hydraulically cooled planetary brake
Number of gears	16 forward and 4 reverse operated by one lever
Oil cooler	Heat exchanger with air

Rear axle and final drives.	
Make/Model/Type	John Deere/Crown wheel and pinion, differential and inboard planetary reduction
Differential Lock	
Type	Electro-Hydraulic
Method of engagement	Pedal operated switch
Method of disengagement	Self-disengaging with brake pedal operation
Front Axle and final drives.	
Make/Model/Type	John Deere/1300/Crown wheel and pinion, differential and inboard planetary reduction
Differential Lock	
Type	Limited slip
Method of engagement	Self-engaging
Method of disengagement	Self-disengaging

Gear ratios and travel speeds.

(Tire dynamic radius of 905 mm. ISO 4251/1-1992)

Gear Number	Number of engine revolutions for one revolution of the driving wheels	Nominal travel speed at rated engine speed of 2200 rev/min [km/h]
Forward		
1	344.05	2.18
2	269.34	2.79
3	211.60	3.55
4	165.64	4.53
5	136.79	5.49
6	121.23	6.19
7	107.09	7.01
8	94.92	7.91
9	84.14	8.92
10	74.55	10.07
11	65.87	11.40
12	58.38	12.86
13	45.87	16.36
14	35.90	20.91
15	28.20	26.61
16	22.07	34.01
Reverse *		
1	394.43	1.90
2	156.82	4.79
3	138.99	5.40
4	52.58	10.38 *

Number of front wheel revolutions
for one rear wheel revolution: 1.32

* Engine speed is limited to 1600 rpm the NUMBER 4 reverse gear

POWER - TAKE - OFF.

Main Power-Take-Off.

Type	Independent
Method of engagement	Electro-hydraulically actuated multi-plate wet clutch operated by hand control knob
Number of shafts	One - single speed (tested)
Optiona shaft	One - dual speed
Method of changing speeds	Reversible shaft

Standard single speed PTO-1000 rev/min.

Location	Rear of tractor; center plane
Diameter of shaft	44.5 mm
Number of splines	20; conforms to ISO 500/1991.
Height above ground	708 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	683.5 mm
PTO Speed at rated engine spd	1009 rev/min
Engine speed at Std. PTO spd	2180 rev/min
Engine speed/PTO speed ratio	2.18:1
Power restriction	None
Direction of rotation when viewed from shaft end	Clockwise.

Optional PTO - 540 rev/min.

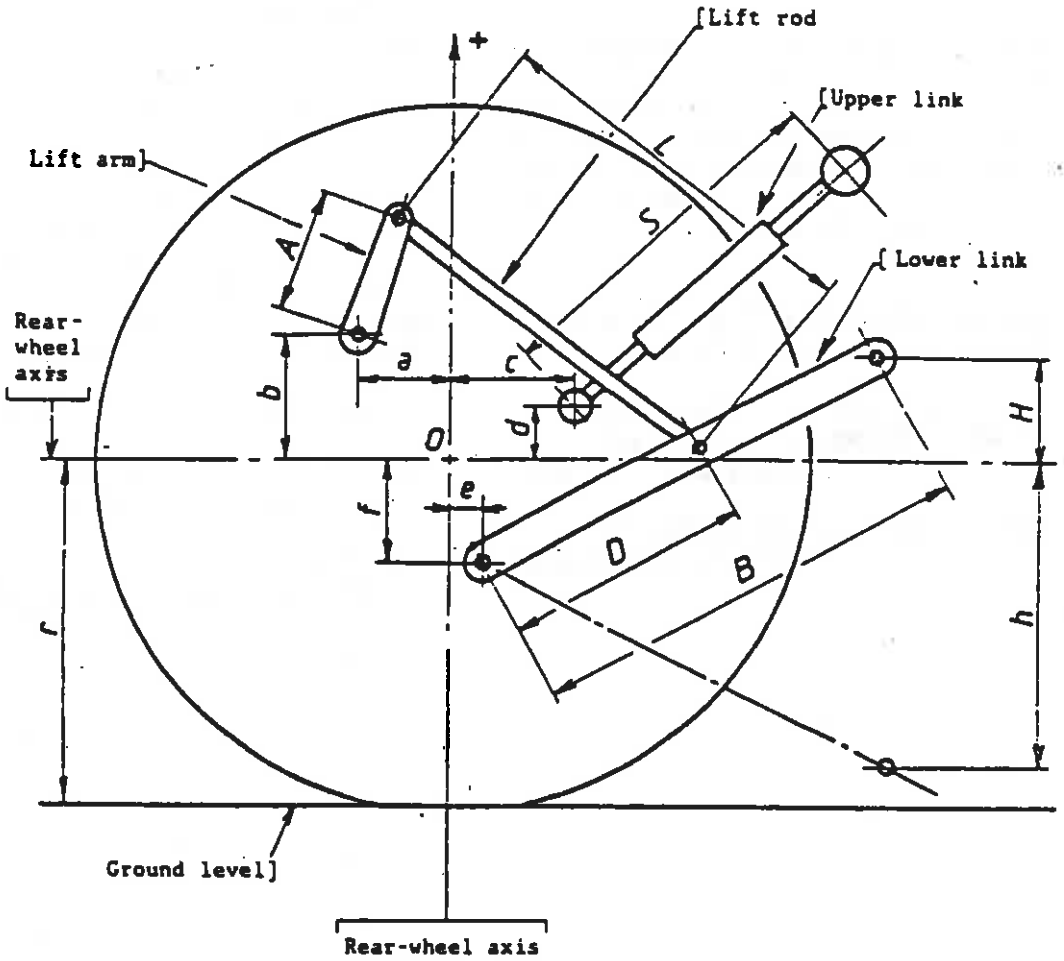
Location	Rear of tractor; center plane
Diameter of shaft	35 mm
Number of splines	
for 540 rev/min side	6; conforms to ISO 500/1991.
for 1000 rev/min side	21; conforms to ISO 500/1991
Height above ground	740 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	785 mm
PTO Speed at rated engine spd	
for 540 rev/min side	601 rev/min
for 1000 rev/min side	1009 rev/min
Engine speed at Std. PTO spd	
for 540 rev/min side	1978 rev/min
for 1000 rev/min side	2180 rev/min
Engine speed/PTO speed ratio	
for 540 rpm side	3.663:1
for 1000 rpm side	2.180:1
Power restriction	
for 540 rev/min side	56 kW
for 1000 rev/min side	112 kW
Direction of rotation when viewed from shaft end	Clockwise.

POWER LIFT.

Make/Model/Type	John Deere/Electro-hydraulic lower link sensing; adjustable mix of draft and position control;
Type of hydraulic system	Closed center; pressure/flow compensated
Number/Type of cylinders	Two external, single acting
Type of linkage lock for transport	Electro-hydraulic
Relief valve pressure setting	20.3 ± 0.3 MPa
Opening pressure of cylinder safety valve	23.25 ± 0.5 MPa
Lift pump type	Axial piston, variable delivery and flow, pressure and flow compensated
Power transmission to pump	Helical gear drive
Type/Number of filters	Synthetic media ,screw-on canister/one
Location of oil reservoir	Differential case housing
Number/Type/Location of tapping points.	Up to 5 pairs of ISO standard couplings at rear of tractor.
Max. oil volume available for external cylinders.	20 liters additional 10 liters allowable overfill for total of 30 liters

THREE POINT LINKAGE.

- Category 3 in conformity with ISO 730/1-1990
- Category adaptor Walterscheid lower links



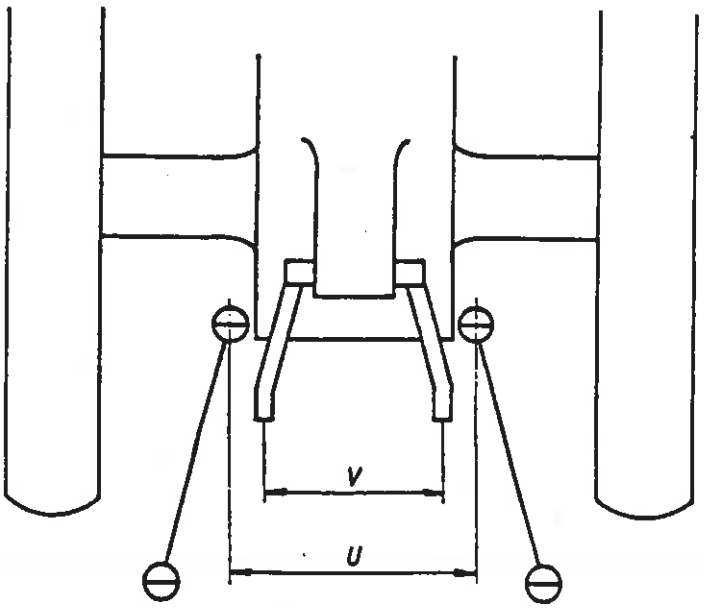


Table 1.1 - Linkage geometry dimensions.

(with Walterscheid lower links)		Dimension or range [mm]	Settings used on test [mm]
Lift category		III	III
Rear Tire - Radius Index	(r)	905	same
Front Tire - Radius Index	(r')	695	same
Length of lift arms	(A)	495	same
Length of lower links	(B)	~~1095~~ 1059	same
Distance of lift arm pivot from: horizontal	(a)	-240	same
rear wheel axis: vertical	(b)	495	same
Horizontal distance between the 2 lower link points	(U)	600	same
Horizontal distance between the 2 lift arm end points	(V)	750	same
Length of upper link	(S)	730 to 900	806
Distance of upper link pivot point from rear wheel axis - horizontal	(c)	515,528	528
- vertical	(d)	123,186,247	247
Distance of lower link pivot from: horizontal	(e)	275	same
rear wheel axis: vertical	(f)	350	same
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	716	same
Length of lift rods	(L)	968 to 1063	1045
Height of lower hitch points relative to rear wheel axis In low position	(h)	709 to 559	676
In high position	(H)	283 to 162	175
Height above ground of lower hitch points when locked in transport position		1193 to 1073	1080

Tire dynamic index of 905 mm ISO 4251/1-1992

SWINGING DRAWBAR.

	Version I Tested	Version II Not Tested
Type	Oscillating	same
Height above ground	490 mm	460 mm
Adjustments	Removable clevis	same
Distance of hitch point from rear wheel axis-horizontal	1090,1141,1192 mm	1189,1278 mm
Distance of hitch point from PTO shaft end: Vertical	220 mm	250 mm
Horizontal	406,457,508 mm 506,595 mm	
Lateral adjustment-Right side	210 mm	223 mm
Left side	210 mm	223 mm
Distance of pivot point from rear wheel axis-horizontal	191 mm	same
Diameter of drawbar pin hole	36.5 mm	33.0 mm
Maximum vertical static permissible load-short position	17.3 kN	23.6 kN
-intermediate position	17.3 kN	----
-extended position	17.3 kN	16.2 kN

STEERING.

Make/Model/Type	Eaton 450 series hydrostatic gerotor metering unit with load sensing
Method of operation	Steering wheel
Pump(s)	Gear pump
Ram(s)	Two external; double acting
Working pressure	18.5 +/- 0.5 MPa

BRAKE SYSTEM.

Service brake.

Make/Model/Type	Vickers-John Deere load pressure sensing power with manual backup
Method of operation	Hydraulic/oil immersed disc operated by two pedals which can be locked together.

Parking brake.

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

Trailer Brake — None

WHEELS.

Number - Front	Two; Driving and steering
Rear	Two or four; Driving
Wheel base	2950 mm

Track width adjustment

	Minimum [mm]	Maximum [mm]	Adjustment method
Front	1524	2235	Reversing wheels and offset lug rims
Rear	1588	2752	Rack and Pinion axle Reversing wheels and offset lug rims

PROTECTIVE STRUCTURE.

Make/Model/Type	John Deere/SG-052/SoundGard SG 052
Manufacturer's name/address	John Deere Tractor Works Waterloo, Iowa, USA
Protective device	Cab; not tiltable
OECD approval number	John Deere 8400 PS-MFWD (4WD) CSS 0287/1

DRIVER'S SEAT.

Make/Model/Type	Sears/RE62264/JDAir suspension Personal posture cushioning
Type of suspension	Air
Type of damping	Air
Range of adjustment	
Longitudinal	167 mm
Vertical	80 mm
Rotation	20 degrees right 15 degrees left

LIGHTING.

		Height above ground of center [mm]	Size [mmxmm]	Distance from outside edge to median plane of tractor. [mm]
Head lights				
Hood	inner	1721	70x127	200
	outer	1721	70x127	335
Roof	inner	2985	51x127	350.
	outer	2985	51x127	501
Side lights		1030	70x127	930
Rear lights	-roof	2943	70x127	460
	-fender	2105	70x127	950
Tail lights		1980	89x210	895
Reflectors				
-front		1714	71x117	947
-rear	-inner	1975	100x 53	790
	-outer	1985	80x 52	947

TEST CONDITIONS.

Overall dimensions.

Length-without front weights	5447 mm
-with front weights	5942 mm
Width -Minimum	3012 mm
-Maximum	3312 mm
Height - Top protective structure	3090 mm
- Top of exhaust	3036 mm
Ground clearance	405 mm
Clearance-limiting part	Rear hitch frame

Tractor Mass (with cab,full fuel tank).

		without driver [kg]	with driver [kg]
Unballasted	Front	3499	3509
	Rear	5206	5271
	Total	8705	8780
Ballasted	Front	4858	4868
	Rear	8476	8541
	Total	13334	13409

Ballast Added

	Number of weights	Total mass [kg]	Liquid [kg]
Front	20	920	----
Rear (duals)	2	894	----
Rear (weights)	20	2711	----
Additional test equipment		104	----

Tire Specifications.

	Front Wheels	Rear Wheels
Make	Goodyear	Goodyear
Dimensions	16.9R30	20.8R42
Number/Ply rating	2 star	2 star
Type	Radial	Radial
Max.load	2470 kg/tire	4154 kg/tire
Inflation pressure(tire mfr)-max	165 kPa	165 kPa
-min	50 kPa	40 kPa
as tested	152 kPa	90 kPa
Dynamic Radius Index	695 mm	905 mm
Chosen track width-singles	1625 mm	1720 mm
-duals		3350 mm

Oils and Lubrication.

Capacity and change interval:

	Capacity liter	Oil change hours	Filter change hours
Engine (with filter)	23.5	250	250
Front axle	8.5	1500	As required or 750
Transmission, final drive, rear axle and hydraulics	140	1500	
Final drive, front	3.0	1500	

Oil and Lubricant specifications:

	Recommended	Used during test
Engine oil		
Type	John Deere, Torq-Gard Supreme Plus 50; SAE 15W-40	same
Viscosity	12.8 cSt at 100°C	
Classification	API CE or CD; CCMC specification D5 or D4	
Transmission		
Type	John Deere Hy-Gard (J20C) SAE 10W-30	same
Viscosity	58 cSt at 40°C	
Classification	NA	
Hydraulic fluid	Same as transmission	same
Front axle and hubs		
Type	John Deere EXTREME-GARD SAE 80W-90	same
Viscosity	13.5 cSt at 100°C	
Classification	API GL-5	
Steering system	Same as transmission	same
Grease	John Deere MOLY HIGH TEMPERATURE EP GREASE	same
Number of lube points	23	

Fuel

Type/grade	Premier; Grade 2-D, in conformity with the national standard
Density (Pto test)	0.8355 kg/l at 15° C
(Drawbar test)	same as Pto test.
Cetane number	50.6
Viscosity	2.51 cSt at 38° C

COMPULSORY TESTS

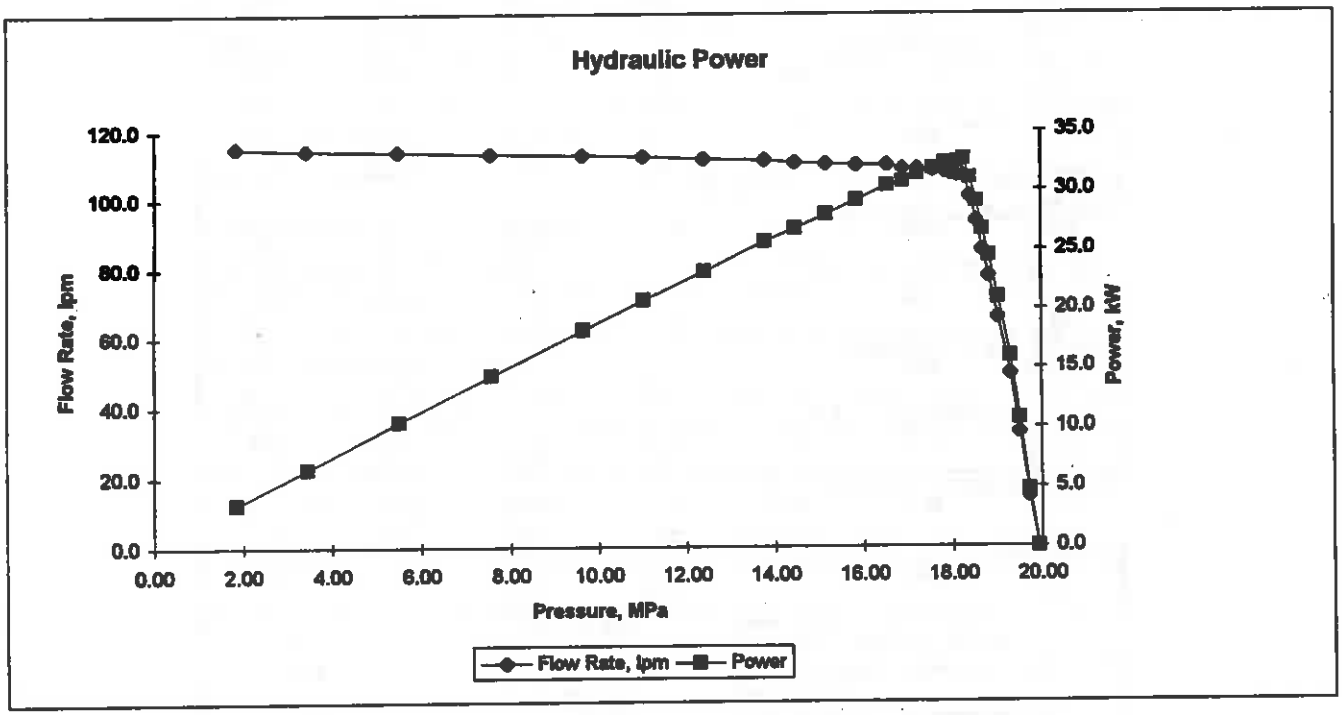
1. MAIN POWER TAKE OFF

Date: 11-Apr-95 Location: UNL Tractor Test Lab, Lincoln, NE, USA
Type of dynamometer: Eddy current, Eaton Fuel Density: 0.835 kg/l

Power kW / hp	Engine rev/min	PTO rev/min	l/h / gal/h	kg/h / lb/hr	kg/kW-h / lb/hp-h	kW-h/l / hp-h/gal
1.1 Maximum Power - 2 Hours						
188.07 / 252.21	1999	917	49.79 / 13.15	41.59 / 91.70	0.221 / 0.364	3.78 / 19.18
1.2 Power at Rated Engine Speed - 1 hour						
170.24 / 228.29	2200	1009	47.68 / 12.60	39.83 / 87.82	0.234 / 0.385	3.57 / 18.12
1.3 Power at Standard Power Take Off Speed - 1 hour						
170.24 / 228.29	2200	1009	47.68 / 12.60	39.83 / 87.82	0.234 / 0.385	3.57 / 18.12
1.4 Part Loads						
1.4.1 Torque at maximum power at rated engine speed						
170.24 / 228.29	2200	1009	47.68 / 12.60	39.83 / 87.82	0.234 / 0.385	3.57 / 18.12
1.4.2 85% of torque obtained in 1.4.1						
148.03 / 198.51	2262	1037	42.68 / 11.27	35.65 / 78.60	0.241 / 0.396	3.47 / 17.61
1.4.3 75% of torque defined in 1.4.2						
110.24 / 147.83	2273	1042	34.04 / 8.99	28.44 / 62.70	0.258 / 0.424	3.24 / 16.44
1.4.4 50% of torque defined in 1.4.2						
74.69 / 100.16	2282	1047	25.90 / 6.84	21.64 / 47.70	0.290 / 0.476	2.88 / 14.64
1.4.5 25% of torque defined in 1.4.2						
37.28 / 50.00	2291	1050	17.59 / 4.65	14.70 / 32.40	0.394 / 0.648	2.12 / 10.76
1.4.6 unloaded						
0.75 / 1.00	2299	1054	9.77 / 2.58	8.16 / 18.00	10.910 / 17.936	0.08 / 0.39
1.5 Part Loads at Standard Power Take Off Speed						
1.5.1 Torque at maximum power						
170.24 / 228.29	2200	1009	47.68 / 12.60	39.83 / 87.82	0.234 / 0.385	3.57 / 18.12
1.5.2 85% of torque obtained in 1.5.1						
148.03 / 198.51	2262	1037	42.68 / 11.27	35.65 / 78.60	0.241 / 0.396	3.47 / 17.61
1.5.3 75% of torque defined in 1.5.2						
110.24 / 147.83	2273	1042	34.04 / 8.99	28.44 / 62.70	0.258 / 0.424	3.24 / 16.44
1.5.4 50% of torque defined in 1.5.2						
74.69 / 100.16	2282	1047	25.90 / 6.84	21.64 / 47.70	0.290 / 0.476	2.88 / 14.64
1.5.5 25% of torque defined in 1.5.2						
37.28 / 50.00	2291	1050	17.59 / 4.65	14.70 / 32.40	0.394 / 0.648	2.12 / 10.76
1.5.6 unloaded						
0.75 / 1.00	2299	1054	9.77 / 2.58	8.16 / 18.00	10.910 / 17.936	0.08 / 0.39

No load maximum engine speed:	2299 rev/min	
Equivalent torque at rated speed:	739 N.m	545 lb-ft
Equivalent torque at maximum power:	898 N.m	663 lb-ft
(engine speed:	1999 rev/min)	
Maximum equivalent crankshaft torque:	1054 N.m	777 lb-ft
(engine speed:	1401 rev/min)	
Mean Dry bulb:	24 deg C	76 deg F
Wet bulb:	15 deg C	58 deg F
Relative Humidity	37 %	
Pressure:	97.83 kPa	28.89 in Hg
Maximum Coolant:	102 deg C	215 deg F
Engine Oil:	114 deg C	237 deg F
Fuel:	61 deg C	142 deg F
Air Intake:	27 deg C	80 deg F
Transmission/hydralic oil:	57 deg C	135 deg F
Intake manifold pressure at rated speed:	151 kPa	21.9 psig
Intake manifold pressure at maximum power:	160 kPa	23.3 psig

Date of Test		21-Apr-95			
Location of Test-City-State:		Tractor Test Lab, Lincoln, NE, USA			
Tapping point used for test:		Remote hydraulic outlets			
I. Sustained pressure with pump stalled:					
19.93	MPa				
2890	*psig*				
II. Pump delivery rate at minumum pressure and rated engine speed:					
115.5	l/min				
30.5	*gpm*				
III. Flow rate, pressure, power:					
90% of relief valve setting					
107.5	l/min	18.00	MPa	32.2	kW
28.4	*gpm*	*2610*	*psi*	*43.2*	*hp*
Maximum hydraulic power:					
107.1	l/min	18.27	MPa	32.6	kW
28.3	*gpm*	*2650*	*psi*	*43.8*	*hp*
IV. Hydraulic fluid temperature at flow meter					
64.7	°C				
148	°F				



Note: This hydraulic system does not use an accumulator. Opening and closing pressures of the unloading valve could not be measured.

2.2 POWER LIFT TEST. Cat III, ISO hook type lower link arms with lifting cylinders - (2)100 mm dia
Date of test: 10 July 1995

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	229/9.0	206/8.1
Vertical movement:			
without load:	[mm/in]	851/33.5	975/38.4
with load:	[mm/in]	833/32.8	950/37.4
Maximum corrected force through full range:	[kN/lb]	60.1/13500	59.3/13338
Corresponding pressure:	[kPa/psi]	18200/2633	
Moment about rear axle:	[kN.m/lb.ft]	80.0/59063	115.3/85030
Maximum mast tilt angle:	[deg]	--	8.9

Lifting height relative to horizontal position of lower links.

	[mm]	-353	-330	-297	-198	-97	3
	[in]	-13.9	-13.0	-11.7	-7.8	-3.8	0.1
Corrected lift forces							
Hitch point.	[kN]	--	60.1	63.5	65.0	68.5	71.5
	[lb]	--	13500	14279	14612	15395	16074
at frame	[kN]	59.3	62.0	--	61.9	63.6	64.9
	[lb]	13338	13928	--	13905	14297	14585

Lifting height relative to horizontal position of lower links.

	[mm]	102	203	302	401	503	597
	[in]	4.0	8.0	11.9	15.8	19.8	23.5
Corrected lift forces							
Hitch point	[kN]	74.4	77.5	83.4	83.5	87.1	--
	[lb]	16731	17433	18756	18774	19584	--
at frame	[kN]	65.5	65.9	65.3	--	64.5	61.5
	[lb]	14733	14819	14733	--	14495	13820

OECD Drawbar Data (SI)

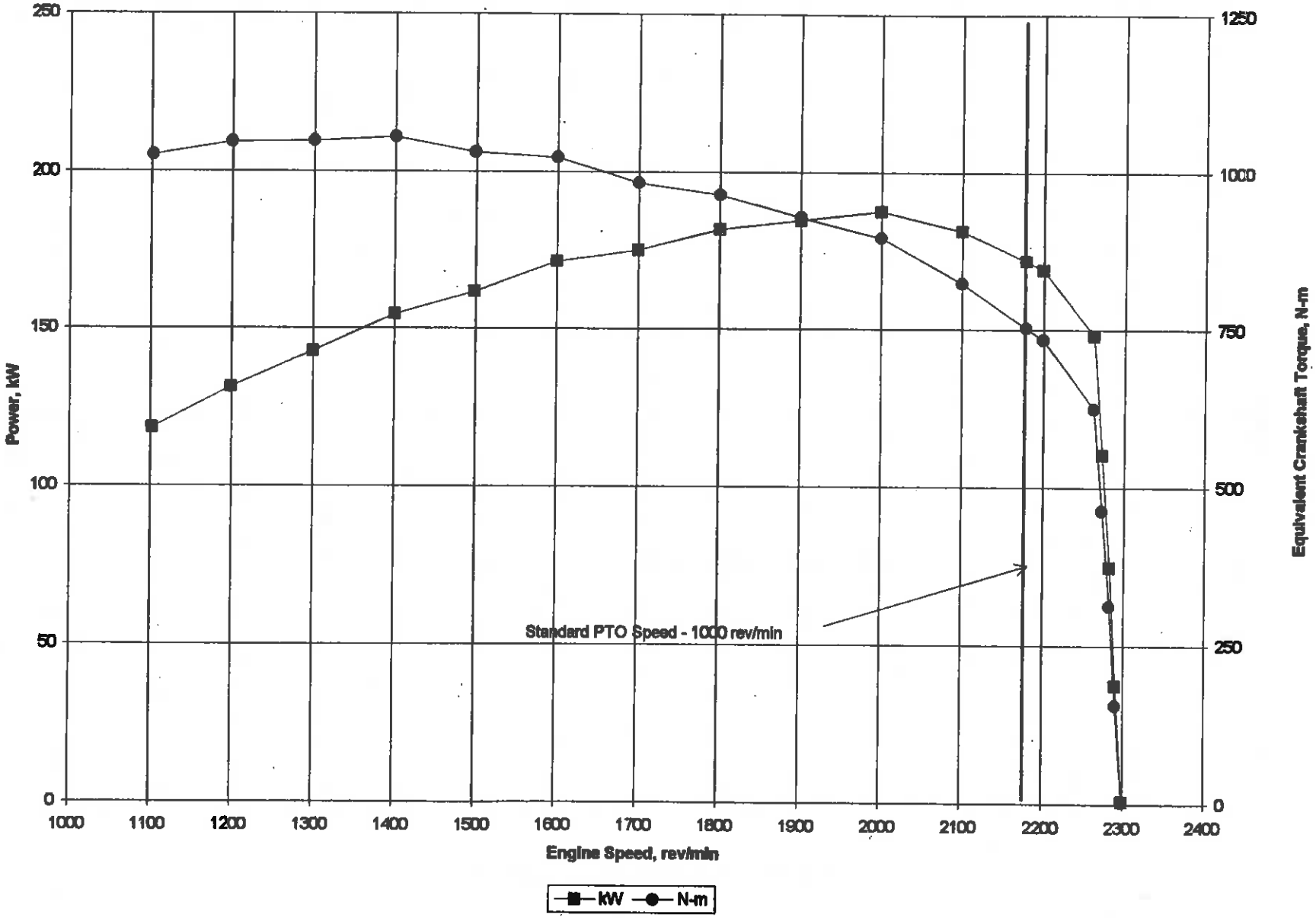
of tests:		14-Apr-95		Fuel density:		0.835 kg/l								
of track:		Concrete		Test number:		1691								
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel humidity	Barom. Press
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
Maximum Power (unballasted, 4wd at 2000 rev/min)						Tire pressure:		90 kPa, rear		152 kPa, front		Drawbar height:	508 mm	
5	116.90	84.62	4.97	2263	14%	0.302	2.77	60	87	107	12	8	61%	97.77
6	131.87	85.09	5.58	2258	14%	0.297	2.82	59	89	106	12	8	61%	97.77
7	147.38	83.08	6.39	2154	9%	0.272	3.07	60	91	109	12	8	61%	97.77
8	156.22	81.23	6.92	2070	9%	0.264	3.16	63	92	111	13	8	56%	97.77
9	162.67	75.52	7.75	2001	6%	0.255	3.28	63	93	111	13	8	56%	97.77
10	165.31	66.48	8.95	2006	5%	0.250	3.34	62	95	112	13	8	56%	97.77
11	165.37	58.46	10.18	1996	4%	0.247	3.38	60	94	112	13	8	56%	97.77
12	165.04	51.26	11.59	2001	3%	0.249	3.36	60	91	109	13	8	56%	97.77
13	164.08	39.77	14.85	1999	2%	0.249	3.35	60	95	109	13	8	56%	97.77
Note: Slip within operation conditions of test station.														
Part loads (unballasted, 4wd)														
In selected gear at maximum power at rated engine speed														
11	149.60	47.66	11.30	2196	3%	0.265	3.15	61	90	109	13	8	56%	97.77
1 75% of pull at maximum power at rated engine speed														
11	116.45	35.69	11.75	2266	2%	0.282	2.96	57	89	103	17	10	41%	97.60
2 50% of pull at maximum power at rated engine speed														
11	78.43	23.76	11.88	2276	1%	0.322	2.59	56	85	103	17	10	41%	97.60
3 higher gear at reduced engine speed, same pull and travel speed as II.1.1														
13	116.72	35.77	11.75	1579	2%	0.246	3.40	51	91	102	17	10	41%	97.60
4 higher gear at reduced engine speed, same pull and travel speed as II.1.2														
13	78.76	23.79	11.92	1590	1%	0.266	3.14	50	87	102	17	10	41%	97.60
In selected gear nearest to 7.5 km/h at rated engine speed														
8	150.84	70.85	7.66	2199	5%	0.263	3.17	62	91	107	13	8	56%	97.77
1 75% of pull at maximum power at rated engine speed														
8	118.47	53.06	8.04	2260	3%	0.274	3.05	57	90	106	16	10	47%	97.73
2 50% of pull at maximum power at rated engine speed														
8	80.56	35.40	8.19	2277	2%	0.306	2.73	55	85	104	16	10	47%	97.73
3 higher gear at reduced engine speed, same pull and travel speed as II.2.1														
10	118.14	53.05	8.02	1771	3%	0.246	3.39	54	90	106	16	10	47%	97.73
4 higher gear at reduced engine speed, same pull and travel speed as II.2.2														
10	80.32	35.39	8.17	1784	2%	0.268	3.12	51	85	100	17	10	41%	97.60

OECD Drawbar Data (US)

of tests:		14-Apr-95		Fuel density:		6.972 lb/gal								
e of track:		Concrete		Test number:		1691								
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel humidity	Barom. Press
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
Maximum Power (unballasted, 4wd at 2000 rev/min)						Tire pressure:		13 psig, rear		22 psig, front		Drawbar height:	20.0 in	
5	156.76	19024	3.09	2263	14%	0.497	14.04	140	189	225	54	47	61%	28.87
6	176.85	19130	3.47	2258	14%	0.488	14.30	138	193	223	54	47	61%	28.87
7	197.64	18677	3.97	2154	9%	0.447	15.58	141	196	229	54	47	61%	28.87
8	209.50	18261	4.30	2070	9%	0.435	16.03	145	198	232	55	47	56%	28.87
9	218.15	16978	4.82	2001	6%	0.419	16.65	146	200	233	55	47	56%	28.87
10	221.68	14946	5.56	2006	5%	0.411	16.98	143	203	233	55	47	56%	28.87
11	221.77	13142	6.33	1996	4%	0.407	17.14	141	201	234	55	47	56%	28.87
12	221.32	11525	7.20	2001	3%	0.409	17.05	140	196	229	55	47	56%	28.87
13	220.03	8941	9.23	1999	2%	0.410	17.02	139	204	228	55	47	56%	28.87
Note: Slip within operation conditions of test station.														
Part loads (unballasted, 4wd)														
In selected gear at maximum power at rated engine speed														
11	200.62	10716	7.02	2196	3%	0.436	15.99	141	194	229	55	47	56%	28.87
1 75% of pull at maximum power at rated engine speed														
11	156.17	8023	7.30	2266	2%	0.464	15.03	135	193	217	63	50	41%	28.82
2 50% of pull at maximum power at rated engine speed														
11	105.17	5342	7.38	2276	1%	0.530	13.15	133	185	217	63	50	41%	28.82
3 higher gear at reduced engine speed, same pull and travel speed as II.1.1														
13	156.52	8042	7.30	1579	2%	0.404	17.27	124	196	216	63	50	41%	28.82
4 higher gear at reduced engine speed, same pull and travel speed as II.1.2														
13	105.61	5349	7.40	1590	1%	0.437	15.96	121	189	216	63	50	41%	28.82
In selected gear nearest to 4.6 mph at rated engine speed														
8	202.28	15928	4.76	2199	5%	0.433	16.12	144	196	225	55	47	56%	28.87
1 75% of pull at maximum power at rated engine speed														
8	158.87	11928	4.99	2260	3%	0.450	15.50	135	194	223	61	50	47%	28.86
2 50% of pull at maximum power at rated engine speed														
8	108.03	7958	5.09	2277	2%	0.503	13.87	131	185	219	61	50	47%	28.86
3 higher gear at reduced engine speed, same pull and travel speed as II.2.1														
10	158.43	11925	4.98	1771	3%	0.405	17.21	129	194	223	61	50	47%	28.86
4 higher gear at reduced engine speed, same pull and travel speed as II.2.2														
10	107.71	7955	5.08	1784	2%	0.441	15.83	124	185	212	63	50	41%	28.82

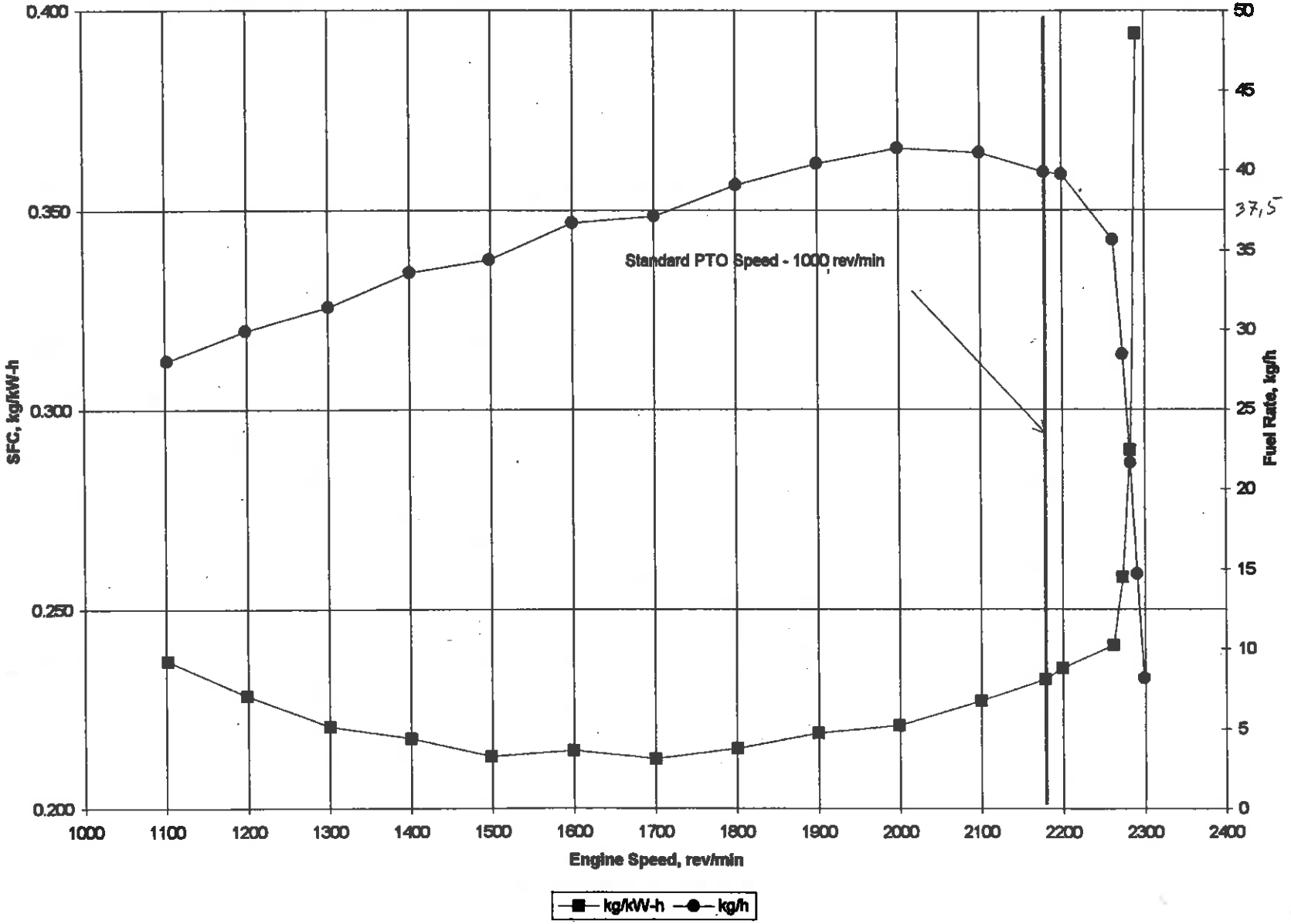
John Deere 8400

Power and Equivalent Crankshaft Torque



John Deere 8400

Specific Fuel Consumption and Fuel Rate



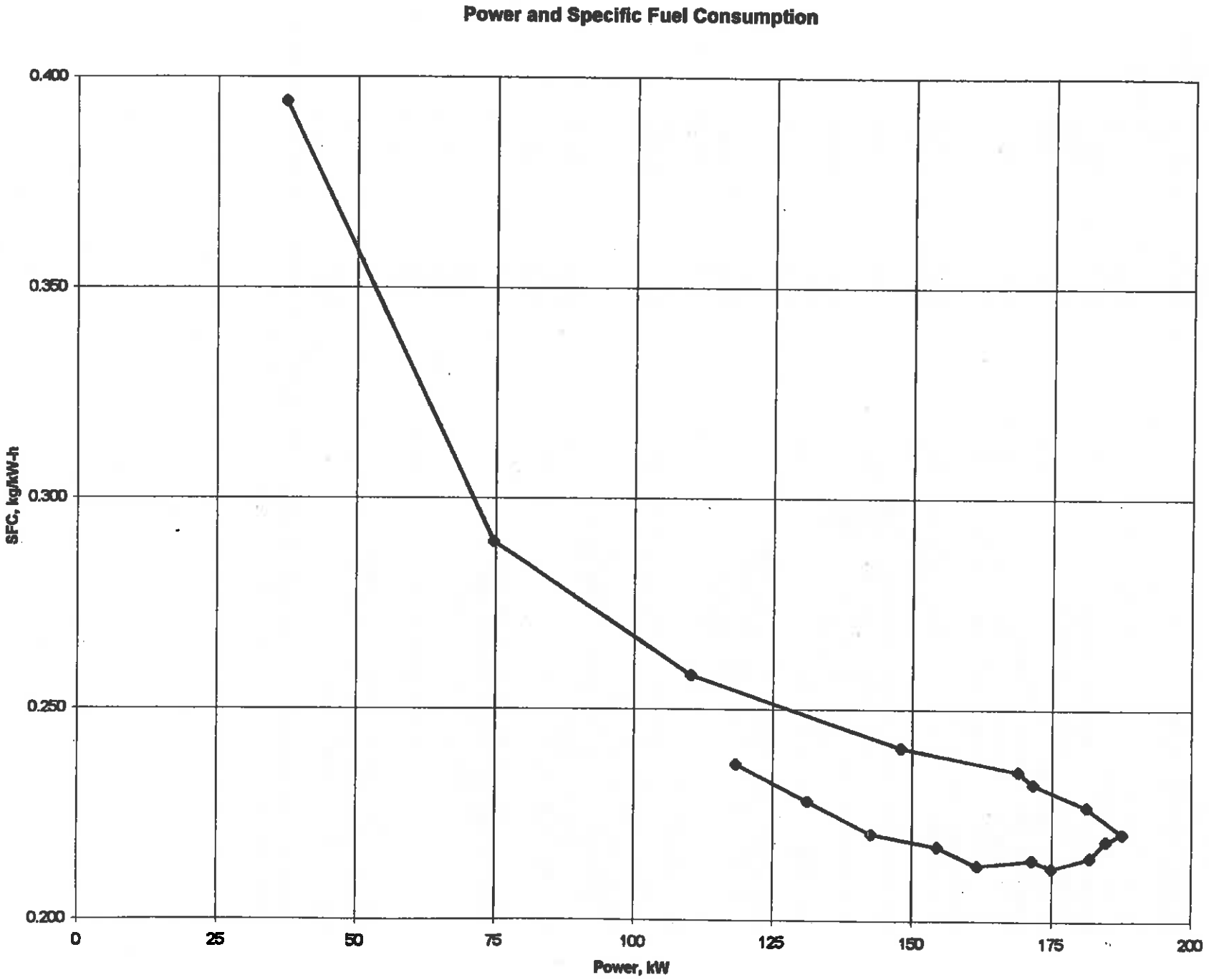

Power and Specific Fuel Consumption
SFC, kg/kW-h
0.400
0.350
0.300
0.250
0.200
0
25
50
75
100
125
150
175
200
Power, kW

Table 1.2 - Linkage geometry dimensions-Northa American Version - Standard Setting.

(with Quick-Attach hitch)		Dimension or range [mm]	Settings used on test [mm]
Lift category		III	III
Rear Tire - Radius Index	(r)	905	same
Front Tire - Radius Index	(r')	695	same
Length of lift arms	(A)	495	same
Length of lower links			
without Quick-Attach hitch	(B)	967	same
with Quick-Attach hitch	(B)	1056	
Distance of lift arm pivot from: horizontal	(a)	-240	same
rear wheel axis: vertical	(b)	495	same
Horizontal distance between the 2 lower link points	(U)	600	same
Horizontal distance between the 2 lift arm end points	(V)	750	same
Length of upper link	(S)	695 to 813	718
Distance of upper link pivot point from rear wheel axis			
- horizontal	(c)	515	same
- vertical	(d)	123	same
Distance of lower link pivot from: horizontal	(e)	275	same
rear wheel axis: vertical	(f)	350	same
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	716	same
Length of lift rods	(L)	968 to 1063	1054
Height of lower hitch points relative to rear wheel axis			
In low position	(h)	689 to 552	676
In high position	(H)	243 to 96	114
Height above ground of lower hitch points when locked in transport position		1126 to 1022	1092

Tire dynamic index of 905 mm ISO 4251/1-1992

2.2 POWER LIFT TEST. Cat III, N.A. quick attaching coupler with lifting cylinders - (2)90 mm dia
(for dimensions see p.22)
Date of test: 11 July 1995

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	229/9.0	198/7.8
Vertical movement:			
without load:	[mm/in]	795/31.3	940/37.0
with load:	[mm/in]	769/30.3	899/35.4
Maximum corrected force through full range:	[kN/lb]	52.1/11709	48.2/10827
Corresponding pressure:	[kPa/psi]	18000/2614	
Moment about rear axle:	[kN.m/lb.ft]	69.3/51129	93.5/68932
Maximum mast tilt angle:	[deg]	---	9.4

Lifting height relative to horizontal position of lower links.

[mm]	-361	-330	-297	-198	-97	3
[in]	-14.2	-13.0	-11.7	-7.8	-3.8	0.1
Corrected lift forces						
Hitch [kN]	---	52.1	55.5	56.7	59.5	61.8
point. [lb]	---	11709	12483	12749	13365	13883
at [kN]	50.7	53.0	---	52.1	52.7	52.8
frame [lb]	11394	12925	---	11705	11840	11867

Lifting height relative to horizontal position of lower links.

[mm]	102	203	302	401	439	538
[in]	4.0	8.0	11.9	15.8	17.3	21.2
Corrected lift forces						
Hitch [kN]	63.9	66.1	67.8	69.6	70.1	---
point [lb]	14364	14859	15233	15651	15768	---
at [kN]	52.5	54.4	---	50.9	48.9	48.2
frame [lb]	11795	12222	---	11439	10998	10827

Table 1.3 - Linkage geometry dimensions-North American Optional High Lift version and setting.

(with Quick-Attach hitch)		Dimension or range [mm]	Settings used on test [mm]
Lift category		III	III
Rear Tire - Radius Index	(r)	905	same
Front Tire - Radius Index	(r')	695	same
Length of lift arms	(A)	495	same
Length of lower links			
without Quick-Attach hitch	(B)	967	same
with Quick-Attach hitch	(B)	1056	
Distance of lift arm pivot from: horizontal	(a)	-240	same
rear wheel axis: vertical	(b)	495	same
Horizontal distance between the 2 lower link points	(U)	600	same
Horizontal distance between the 2 lift arm end points	(V)	750	same
Length of upper link	(S)	695 to 813	724
Distance of upper link pivot point from rear wheel axis			
- horizontal	(c)	515	same
- vertical	(d)	186	same
Distance of lower link pivot from: horizontal	(e)	275	same
rear wheel axis: vertical	(f)	350	same
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	716	same
Length of lift rods	(L)	968 to 1063	1054
Height of lower hitch points relative to rear wheel axis			
In low position	(h)	689 to 552	676
In high position	(H)	243 to 96	114
Height above ground of lower hitch points when locked in transport position		1126 to 1022	1092

Tire dynamic index of 905 mm ISO 4251/1-1992

2.2 POWER LIFT TEST, Cat III, N.A. quick attaching coupler with lifting cylinders - (2)100 mm dia
(for dimensions see p.24)
Date of test: 11 July 1995

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	229/9.0	208/8.2
Vertical movement:			
without load:	[mm/in]	782/30.8	848/33.4
with load:	[mm/in]	770/30.3	826/32.5
Maximum corrected force through full range:	[kN/lb]	65.6/14747	67.4/15147
Corresponding pressure:	[kPa/psi]	18100/2618	
Moment about rear axle:	[kN.m/lb.ft]	87.3/64393	130.7/96436
Maximum mast tilt angle:	[deg]	---	3.3

Lifting height relative to horizontal position of lower links.

	[mm]	-351	-330	-297	-198	-97	3
	[in]	-13.8	-13.0	-11.7	-7.8	-3.8	0.1
Corrected lift forces							
Hitch point.	[kN]	---	65.6	66.7	71.2	73.8	77.6
	[lb]	---	14747	14990	16011	16592	17438
at frame	[kN]	73.3	74.9	---	75.5	73.7	73.7
	[lb]	16470	16830	---	16979	16569	16574

Lifting height relative to horizontal position of lower links.

	[mm]	102	203	302	401	439	475
	[in]	4.0	8.0	11.9	15.8	17.3	18.7
Corrected lift forces							
Hitch point	[kN]	80.5	83.2	85.7	88.2	88.3	---
	[lb]	18095	18693	19269	19818	19850	---
at frame	[kN]	75.1	72.7	71.3	---	69.1	67.4
	[lb]	16880	16344	16034	---	15530	15147

(Tests conducted under the supervision of the Nebraska Tractor Testing Laboratory)

OECD Drawbar Data (SI)

f tests:		05-May-95		Fuel density:		0.835 kg/l								
f track:		Concrete		Test number:		1691								
ear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel hum-idity	Baro. Pres
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
aximum Power (ballasted, 4wd at 2000 rev/min)						Tire pressure:		83 kPa, rear		159 kPa, front		Drawbar height:		521 mm
3	121.69	130.07	3.37	2263	9%	0.288	2.90	58	86	103	12	11	88%	98.68
	144.60	125.91	4.13	2160	9%	0.277	3.02	61	90	108	14	12	81%	98.65
	158.43	121.97	4.68	2000	8%	0.259	3.23	61	92	111	16	12	69%	98.58
	163.82	108.67	5.43	1999	5%	0.249	3.36	61	93	112	16	12	69%	98.54
	165.55	95.82	6.22	1998	4%	0.245	3.40	61	93	112	16	12	60%	98.48
	165.57	84.29	7.07	1998	3%	0.247	3.39	61	93	112	17	12	61%	98.51
	164.91	73.90	8.03	2001	3%	0.247	3.38	60	94	112	17	12	61%	98.48
	164.83	65.22	9.10	2000	2%	0.247	3.38	60	93	112	17	12	57%	98.44
	164.22	57.16	10.34	2002	2%	0.247	3.38	61	94	112	17	12	57%	98.41
	163.10	50.31	11.67	1996	2%	0.249	3.35	60	94	112	17	12	57%	98.41
	161.07	38.95	14.89	1992	1%	0.250	3.34	60	95	111	17	12	57%	98.41
ote:	Pull limited to avoid excessive tractor bouncing.													
aximum Power (ballasted, 4wd at 2200 rev/min)						Tire pressure:		83 kPa, rear		159 kPa, front		Drawbar height:		521 mm
3	121.19	129.54	3.37	2263	9%	0.288	2.90	59	87	104	12	11	88%	98.68
	142.89	120.26	4.28	2199	7%	0.277	3.02	61	89	109	16	13	74%	98.65
	150.86	101.86	5.33	2198	5%	0.262	3.19	60	90	107	16	12	69%	98.58
	151.28	89.89	6.06	2194	4%	0.260	3.21	61	91	111	16	12	60%	98.51
	151.82	79.00	6.92	2199	3%	0.258	3.23	61	93	109	16	12	61%	98.51
	150.09	68.88	7.84	2199	3%	0.261	3.21	60	91	110	17	12	61%	98.51
	150.07	60.89	8.87	2198	2%	0.260	3.21	60	93	110	17	12	61%	98.48
	147.80	52.88	10.06	2201	2%	0.263	3.17	61	92	111	17	12	57%	98.41
	147.32	46.48	11.41	2199	2%	0.264	3.16	60	93	109	17	12	57%	98.41
	145.74	40.73	12.88	2195	2%	0.267	3.13	61	93	110	17	12	57%	98.41
ote:	Pull limited to avoid excessive tractor bouncing.													

OECD Drawbar Data (US)

f tests:		05-May-95		Fuel density:		6.972 lb/gal								
f track:		Concrete		Test number:		1691								
ear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel hum-idity	Baro. Pres
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
ptimum Power (ballasted, 4wd at 2000 rev/min)						Tire pressure:		12 psig, rear		23 psig, front		Drawbar height:		20.5 in
3	163.18	29240	2.09	2263	9%	0.473	14.73	136	187	217	53	51	88%	29.14
4	193.91	28306	2.57	2160	9%	0.455	15.33	142	195	227	57	54	81%	29.13
5	212.46	27421	2.91	2000	8%	0.425	16.39	142	198	232	60	54	69%	29.11
6	219.69	24431	3.37	1999	5%	0.409	17.03	142	200	234	60	54	69%	29.10
7	222.01	21542	3.86	1998	4%	0.403	17.28	143	200	234	61	53	60%	29.08
8	222.03	18950	4.39	1998	3%	0.405	17.20	142	199	233	62	54	61%	29.09
9	221.15	16613	4.99	2001	3%	0.406	17.15	139	201	234	62	54	61%	29.08
10	221.04	14662	5.65	2000	2%	0.406	17.15	140	200	234	63	54	57%	29.07
11	220.22	12850	6.43	2002	2%	0.407	17.14	141	202	234	63	54	57%	29.06
12	218.72	11310	7.25	1996	2%	0.410	17.02	141	202	234	63	54	57%	29.06
13	216.00	8756	9.25	1992	1%	0.412	16.94	140	203	232	63	54	57%	29.06
ote:	Pull limited to avoid excessive tractor bouncing.													
aximum Power (ballasted, 4wd at 2200 rev/min)						Tire pressure:		12 psig, rear		23 psig, front		Drawbar height:		20.5 in
13	162.51	29123	2.09	2263	9%	0.474	14.71	138	189	219	53	51	88%	29.14
4	191.61	27036	2.66	2199	7%	0.455	15.33	143	193	228	60	55	74%	29.13
5	202.31	22899	3.31	2198	5%	0.431	16.19	140	194	225	60	54	69%	29.11
6	202.86	20208	3.76	2194	4%	0.427	16.32	142	197	232	61	53	60%	29.09
7	203.60	17761	4.30	2199	3%	0.425	16.41	142	199	229	62	54	61%	29.09
8	201.27	15486	4.87	2199	3%	0.428	16.28	141	196	230	62	54	61%	29.09
9	201.24	13688	5.51	2198	2%	0.428	16.28	139	200	230	62	54	61%	29.08
10	198.20	11889	6.25	2201	2%	0.433	16.10	141	197	233	63	54	57%	29.06
11	197.57	10448	7.09	2199	2%	0.434	16.07	140	199	229	63	54	57%	29.06
12	195.43	9158	8.00	2195	2%	0.439	15.88	141	199	231	63	54	57%	29.06
ote:	Pull limited to avoid excessive tractor bouncing.													

MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test	19 April, 1995
Location of test	Nebraska Power Lab Lincoln, NE. USA
Sound level meter	Bruel and Kjär 2203
Type of track	Concrete oval
Gear number	16th
Speed prior to acceleration	28.7 km/h
Noise level	89.5 dB(A)

Remarks : None
Repairs : None