OECD APPROVAL # 1576
(Restricted code)
Date of approval: 30 October, 1995

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REPORT ON TEST IN ACCORDANCE WITH OECD RESTRICTED CODE (CODE II)

FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS





JOHN DEERE 8200 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. 1689
Test Dates: April 24 through May 12, 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 30 October, 1995

John Deere 8200 Powershift MFWD
40 km/h Version (4WD) OECD # 1576

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SPECIFICATIONS OF TRACTOR.

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

TRACTOR SPECIFICATIONS.

Make	John Deere
Model	8200 Powershift MFWD, 40 km/h Version (4WD)
Type	Unit construction, mechanical front wheel drive (MFWD)
Number of driving wheels	2 or 4
Serial Number	*RW8200P001553*
1st Serial number	*RW8200P001002*

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 120.7 mm
Capacity	7627 cm^3
Compression Ratio	15.0 - 1
Arrangement of valves	Overhead
Cylinder liners	Wet; replaceable

Super charging

Make/Model/Type	Schwitzer/RE56237/ Exhaust gas driven
Pressure	141 ± 14 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 return line
Make/Model/Type Injection Pump	Bosch/(RE57372)/In-line; electric shutoff
Pump Serial number	4712400441
Production setting of pump Flow Rate (Rated Eng.Spd & Full Load)	33.4 ± 1.7 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/-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
Muffler and 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 in 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	Single speed - one (tested)
Optional shaft	Dual speed
Method of changing speeds	Reversible shaft

Standard single speed PTO-1000 rev/min. - tested version

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 dual speed PTO - 540 and 1000 rev/min.

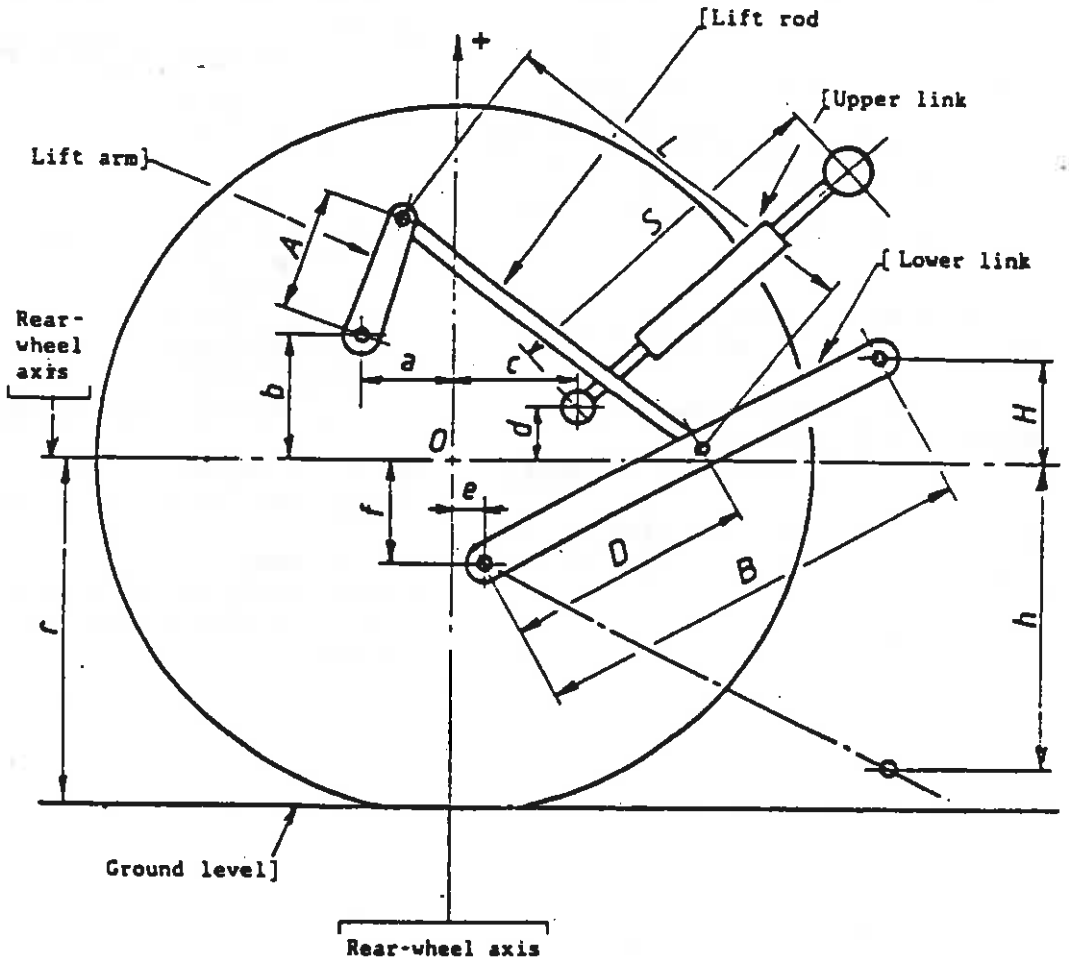
Location	Rear of tractor; center plane
Diameter of shaft	35 mm
Type of shaft	two sided - reversible
Number of splines	6; conforms to ISO 500/1991 and 21; conforms to ISO 500/1991
Height above ground	740 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	6785 mm
PTO Speed at rated 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 rev/min side	3.663:1
for 1000 rpm side	2.18:1
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



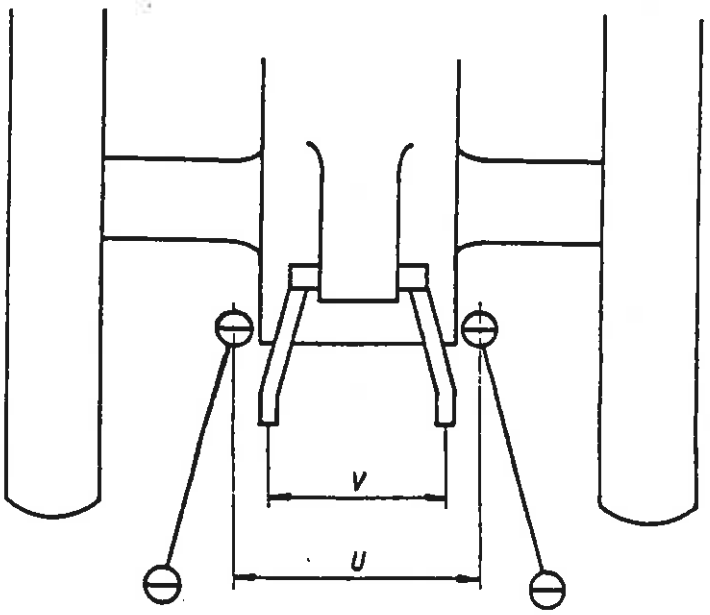


Table 1.1 - Linkage geometry dimensions.

(with Walterscheidt linkage)		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)	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 and 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	1184	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	16.2 kN	23.6	kN
-intermediate position	16.2 kN	----	
-extended position	16.2 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 8200 PS-MFWD CSS 0287/4

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	345
-rear	inner	1975	100x 53	790
	outer	1985	80x 52	947

TEST CONDITIONS.

Overall dimensions.

Length-Overall - without front weights	5447 mm
with front weights	5942 mm
Width -Minimum	3012 mm
-Maximum	3312 mm
Height - Top protective structure	3064 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	3472	3482
	Rear	5114	5179
	Total	8586	8661
Ballasted	Front	4222	4232
	Rear	6439	6504
	Total	10661	10736

Ballast added

	Number of weights	Total mass [kg]	Liquid [kg]
Front	10	480	----
Rear (duals)	2	894	----
Rear (weights)	4	597	----
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	117 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

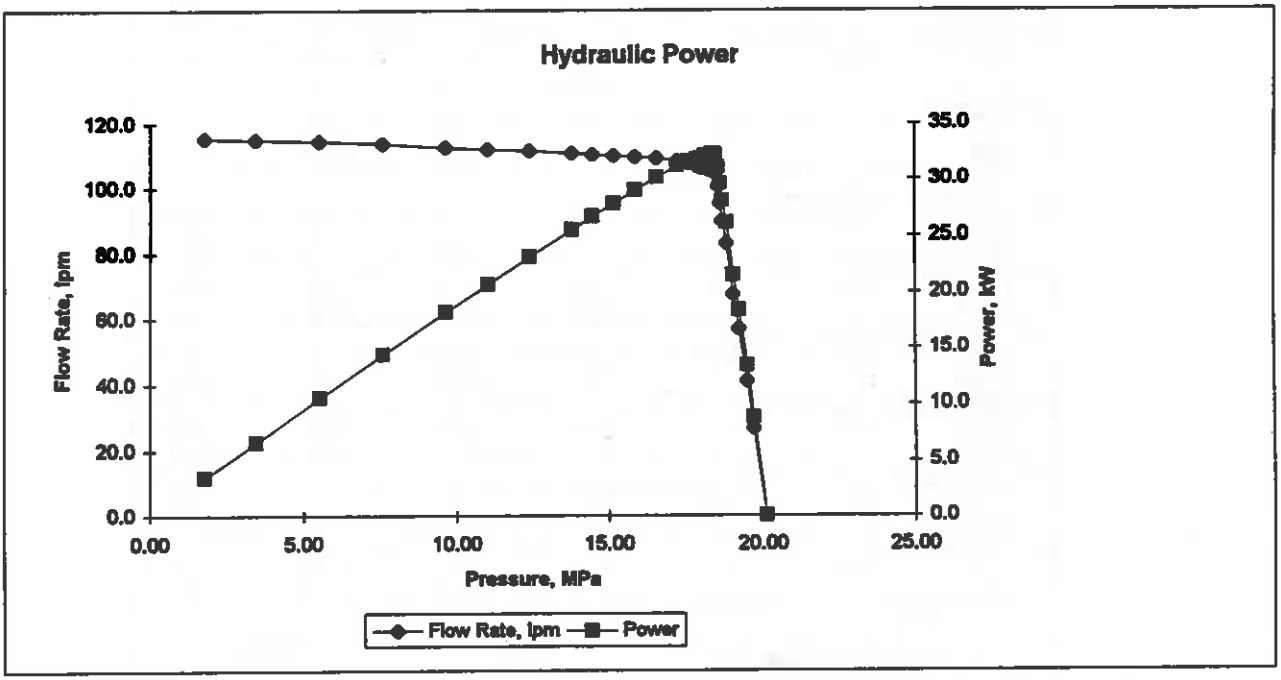
1. MAIN POWER TAKE OFF

Date: 24-Apr-85 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						
150.88	2000	917	41.35	34.55	0.229	3.65
202.33			*10.92*	*76.17*	*0.376*	*18.52*
1.2 Power at Rated Engine Speed - 1 hour						
135.50	2199	1009	39.30	32.84	0.242	3.45
181.71			*10.38*	*72.39*	*0.398*	*17.50*
1.3 Power at Standard Power Take Off Speed - 1 hour						
135.50	2199	1009	39.30	32.84	0.242	3.45
181.71			*10.38*	*72.39*	*0.398*	*17.50*
1.4 Part Loads						
1.4.1 Torque at maximum power at rated engine speed						
135.50	2199	1009	39.30	32.84	0.242	3.45
181.71			*10.38*	*72.39*	*0.398*	*17.50*
1.4.2 85% of torque obtained in 1.4.1						
117.87	2256	1035	35.35	29.53	0.251	3.33
158.07			*9.34*	*65.10*	*0.412*	*16.93*
1.4.3 75% of torque defined in 1.4.2						
88.59	2267	1040	28.83	24.09	0.272	3.07
118.80			*7.62*	*53.10*	*0.447*	*15.60*
1.4.4 50% of torque defined in 1.4.2						
59.31	2277	1044	22.15	18.51	0.312	2.68
79.54			*5.85*	*40.80*	*0.513*	*13.59*
1.4.5 25% of torque defined in 1.4.2						
29.77	2286	1049	15.80	13.20	0.443	1.88
39.93			*4.17*	*29.10*	*0.729*	*9.57*
1.4.6 unloaded						
0.37	2295	1053	9.45	7.89	21.126	0.04
0.50			*2.50*	*17.40*	*34.731*	*0.20*
1.5 Part Loads at Standard Power Take Off Speed						
1.5.1 Torque at maximum power						
135.50	2199	1009	39.30	32.84	0.242	3.45
181.71			*10.38*	*72.39*	*0.398*	*17.50*
1.5.2 85% of torque obtained in 1.5.1						
117.87	2256	1035	35.35	29.53	0.251	3.33
158.07			*9.34*	*65.10*	*0.412*	*16.93*
1.5.3 75% of torque defined in 1.5.2						
88.59	2267	1040	28.83	24.09	0.272	3.07
118.80			*7.62*	*53.10*	*0.447*	*15.60*
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59.31	2277	1044	22.15	18.51	0.312	2.68
79.54			*5.85*	*40.80*	*0.513*	*13.59*
1.5.5 25% of torque defined in 1.5.2						
29.77	2286	1049	15.80	13.20	0.443	1.88
39.93			*4.17*	*29.10*	*0.729*	*9.57*
1.5.6 unloaded						
0.37	2295	1053	9.45	7.89	21.126	0.04
0.50			*2.50*	*17.40*	*34.731*	*0.20*

No load maximum engine speed:	2295 rev/min	
Equivalent torque at rated speed:	588 N.m	*434 lb-ft*
Equivalent torque at maximum power:	720 N.m	*531 lb-ft*
(engine speed:	2000 rev/min)	
Maximum equilvanent crankshaft torque:	848 N.m	*626 lb-ft*
(engine speed:	1400 rev/min)	
Mean Dry bulb:	24 deg C	*75 deg F*
Wet bulb:	13 deg C	*56 deg F*
Relative Humidity	26 %	
Pressure:	97.97 kPa	*28.93 in Hg*
Maximum Coolant:	102 deg C	*216 deg F*
Engine Oil:	96 deg C	*205 deg F*
Fuel:	61 deg C	*143 deg F*
Air Intake:	31 deg C	*87 deg F*
Transmission/hydralic oil:	57 deg C	*134 deg F*
Intake manifold pressure at rated speed:	141 kPa	*20.5 psig*
Intake manifold pressure at maximum power:	150 kPa	*21.8 psig*

Date of Test		1-May-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:						
20.13	MPa					
2920	*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						
106.4	l/min	18.13	MPa	32.2	kW	
28.1	*gpm*	*2630*	*psi*	*43.1*	*hp*	
Maximum hydraulic power:						
105.2	l/min	18.41	MPa	32.3	kW	
27.8	*gpm*	*2670*	*psi*	*43.3*	*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 - (1)90 mm dia & (1)100 mm dia
Date of test: 10 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]	851/33.5	975/38.4
with load:	[mm/in]	833/32.8	950/37.4
Maximum corrected force through full range:	[kN/lb]	54.6/12272	53.6/12051
Corresponding pressure:	[kPa/psi]	18200/2635	
Moment about rear axle:	[kN.m/lb.ft]	72.8/53688	104.1/76825
Maximum mast tilt angle:	[deg]	--	9.1

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]	--	54.6	57.3	58.8	62.4	67.4
	[lb]	--	12272	12879	13221	14027	15156
at frame	[kN]	53.6	56.6	--	55.3	57.4	58.4
	[lb]	12051	12722	--	12429	12915	13131

Lifting height relative to horizontal position of lower links.

	[mm]	102	203	302	401	503	599
	[in]	4.0	8.0	11.9	15.8	19.9	23.6
Corrected lift forces							
Hitch point	[kN]	67.4	70.1	73.0	76.0	77.8	--
	[lb]	15156	15755	16421	17082	17483	--
at frame	[kN]	58.6	59.1	59.2	--	58.4	55.4
	[lb]	13172	13275	13298	--	13136	12447

OECD Drawbar Data (SI)

Date of tests:	08-May-95	Fuel density:	0.835 kg/l
Type of track:	Concrete	Test number:	1689

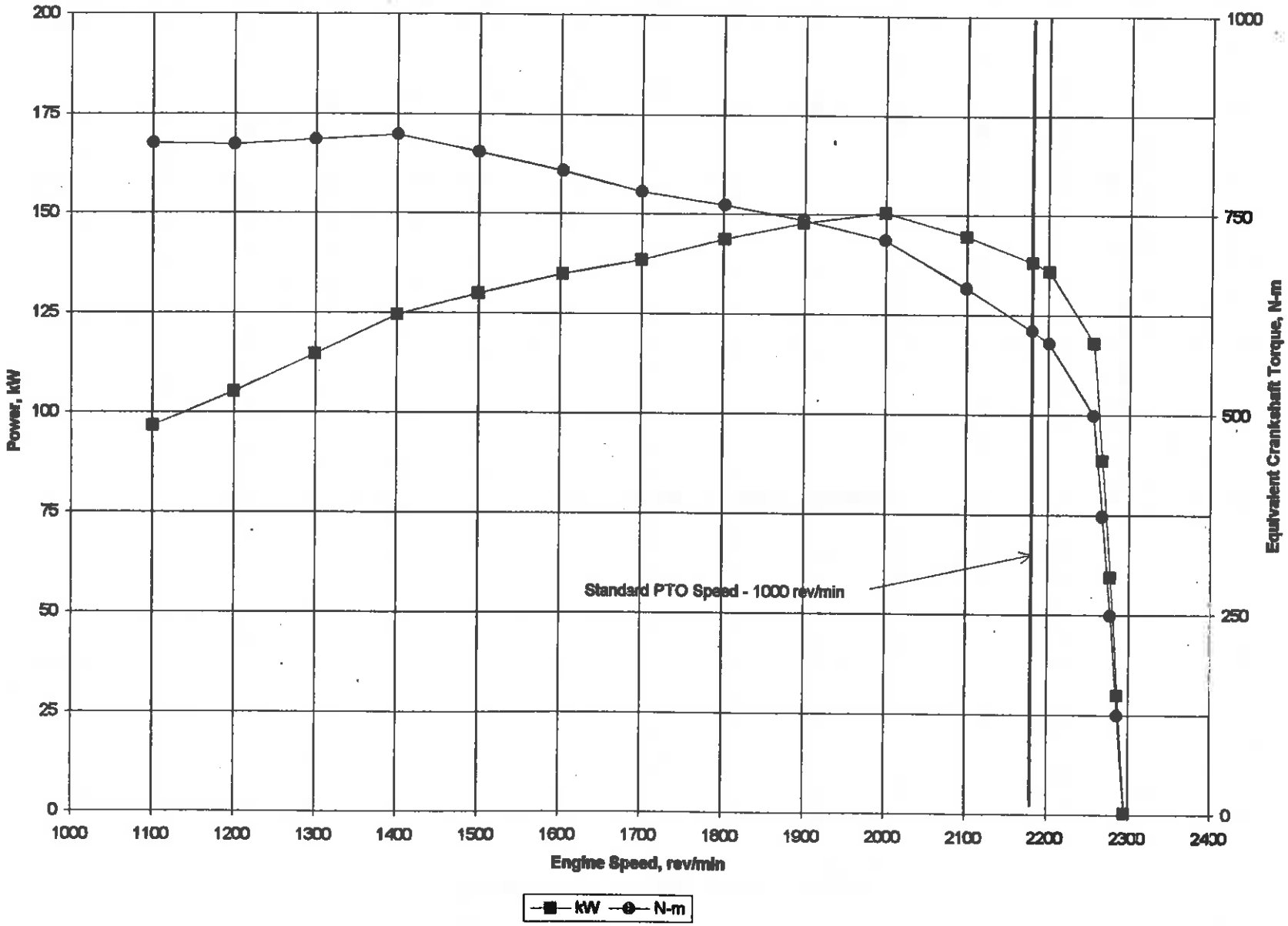
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel humidity	Baro. Pres
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (unballasted, 4wd at 2000 rev/min)						Tire pressure:		90 kPa, rear		117 kPa, front		Drawbar height:		508 mm
*3	74.94	83.90	3.22	2259	13%	0.333	2.51	56	83	96	11	9	82%	97.39
*4	96.37	84.91	4.09	2254	13%	0.314	2.67	58	87	100	11	9	82%	97.39
5	110.64	78.68	5.06	2230	11%	0.294	2.84	62	93	104	18	15	72%	96.17
6	116.86	76.14	5.53	2138	10%	0.285	2.93	62	93	107	19	16	72%	96.14
7	126.75	75.75	6.02	2039	9%	0.272	3.07	61	92	106	19	16	72%	96.14
8	130.80	68.62	6.86	1999	6%	0.264	3.17	62	96	109	19	16	68%	96.14
9	131.61	60.28	7.86	1998	5%	0.261	3.20	61	94	109	19	16	68%	96.14
10	132.73	53.33	8.96	1998	4%	0.258	3.24	60	93	108	19	16	68%	96.21
11	132.30	46.66	10.21	1996	3%	0.260	3.22	60	95	110	19	16	68%	96.21
12	131.76	41.06	11.55	1992	3%	0.260	3.22	60	97	109	19	15	64%	96.21
13	130.67	31.69	14.85	1996	2%	0.262	3.19	60	95	105	19	15	64%	96.21
* Note: Slip within operating conditions of test station.														
II. Part loads (unballasted,4wd)														
II.1 in selected gear at maximum power at rated engine speed														
10	118.86	42.97	9.96	2197	3%	0.274	3.05	62	94	109	19	16	68%	96.21
II.1.1 75% of pull at maximum power at rated engine speed														
10	92.29	32.24	10.31	2254	2%	0.296	2.82	59	88	101	19	15	64%	96.21
II.1.2 50% of pull at maximum power at rated engine speed														
10	62.58	21.52	10.47	2272	1%	0.336	2.49	56	87	98	19	15	64%	96.21
II.1.3 higher gear at reduced engine speed, same pull and travel speed as II.1.1														
12	92.39	32.31	10.29	1763	2%	0.264	3.17	53	88	101	19	15	64%	96.21
II.1.4 higher gear at reduced engine speed, same pull and travel speed as II.1.2														
12	62.53	21.55	10.44	1775	1%	0.293	2.85	51	87	98	19	15	64%	96.21
II.2 in selected gear nearest to 7.5 km/h at rated engine speed														
8	119.04	55.55	7.71	2197	4%	0.274	3.05	63	93	110	19	16	70%	96.17
II.2.1 75% of pull at maximum power at rated engine speed														
8	93.35	41.68	8.06	2260	3%	0.290	2.88	59	91	104	19	15	64%	96.21
II.2.2 50% of pull at maximum power at rated engine speed														
8	63.04	27.77	8.17	2267	2%	0.328	2.55	55	86	99	19	15	64%	96.21
II.2.3 higher gear at reduced engine speed, same pull and travel speed as II.2.1														
10	93.37	41.66	8.07	1778	3%	0.260	3.22	53	89	103	19	15	64%	96.21
II.2.4 higher gear at reduced engine speed, same pull and travel speed as II.2.2														
10	62.86	27.75	8.15	1778	2%	0.284	2.94	51	86	98	19	15	64%	96.21

OECD Drawbar Data (US)

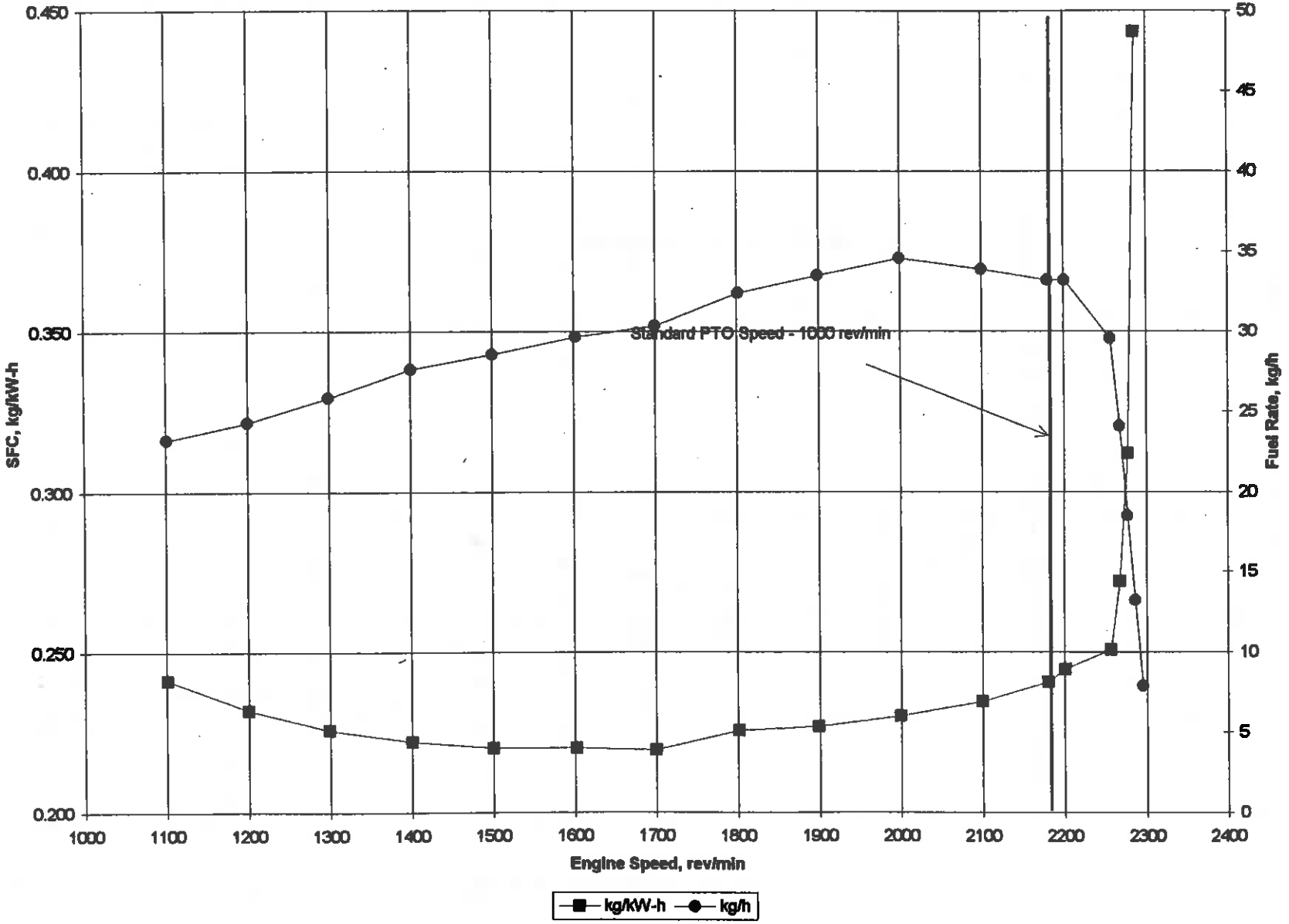
Date of tests:	08-May-95	Fuel density:	6.972 lb/gal
Type of track:	Concrete	Test number:	1689

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel humidity	Baro. Pres
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
I. Maximum Power (unballasted, 4wd at 2000 rev/min)						Tire pressure:		13 psig, rear		17 psig, front		Drawbar height:		20.0 in
*3	100.50	18862	2.00	2259	13%	0.547	12.75	133	182	205	51	48	82%	28.76
*4	129.23	19089	2.54	2254	13%	0.516	13.53	137	189	212	51	48	82%	28.76
5	148.36	17688	3.15	2230	11%	0.484	14.42	143	199	220	65	59	72%	28.40
6	156.71	17117	3.43	2138	10%	0.468	14.88	144	199	225	66	60	72%	28.39
7	169.97	17030	3.74	2039	9%	0.448	15.58	142	198	223	66	60	72%	28.39
8	175.41	15427	4.26	1999	6%	0.434	16.07	143	205	229	66	60	68%	28.39
9	176.49	13551	4.88	1998	5%	0.430	16.23	142	202	229	67	60	68%	28.39
10	178.00	11989	5.57	1998	4%	0.424	16.43	140	200	226	67	60	68%	28.41
11	177.42	10489	6.34	1996	3%	0.427	16.34	140	204	230	67	60	68%	28.41
12	176.70	9230	7.18	1992	3%	0.427	16.33	140	206	228	67	59	64%	28.41
13	175.23	7124	9.22	1996	2%	0.431	16.18	140	204	222	67	59	64%	28.41
* Note: Slip within operating conditions of test station.														
II. Part loads (unballasted,4wd)														
II.1 in selected gear at maximum power at rated engine speed														
10	159.40	9661	6.19	2197	3%	0.451	15.46	144	202	228	67	60	68%	28.41
II.1.1 75% of pull at maximum power at rated engine speed														
10	123.77	7248	6.40	2254	2%	0.486	14.34	138	190	213	67	59	64%	28.41
II.1.2 50% of pull at maximum power at rated engine speed														
10	83.92	4838	6.51	2272	1%	0.553	12.62	133	189	209	67	59	64%	28.41
II.1.3 higher gear at reduced engine speed, same pull and travel speed as II.1.1														
12	123.89	7263	6.40	1763	2%	0.433	16.09	127	191	214	67	59	64%	28.41
II.1.4 higher gear at reduced engine speed, same pull and travel speed as II.1.2														
12	83.85	4845	6.49	1775	1%	0.482	14.46	124	189	209	67	59	64%	28.41
II.2 in selected gear nearest to 4.6 mph at rated engine speed														
8	159.63	12489	4.79	2197	4%	0.450	15.48	145	200	230	67	60	70%	28.40
II.2.1 75% of pull at maximum power at rated engine speed														
8	125.18	9371	5.01	2260	3%	0.478	14.60	138	197	220	67	59	64%	28.41
II.2.2 50% of pull at maximum power at rated engine speed														
8	84.53	6244	5.08	2267	2%	0.539	12.93	132	187	210	67	59	64%	28.41
II.2.3 higher gear at reduced engine speed, same pull and travel speed as II.2.1														
10	125.22	9365	5.01	1778	3%	0.427	16.32	128	192	217	67	59	64%	28.41
II.2.4 higher gear at reduced engine speed, same pull and travel speed as II.2.2														
10	84.30	6239	5.07	1778	2%	0.467	14.95	123	188	209	67	59	64%	28.41

Power and Equivalent Crankshaft Torque



Specific Fuel Consumption and Fuel Rate



Power and Specific Fuel Consumption

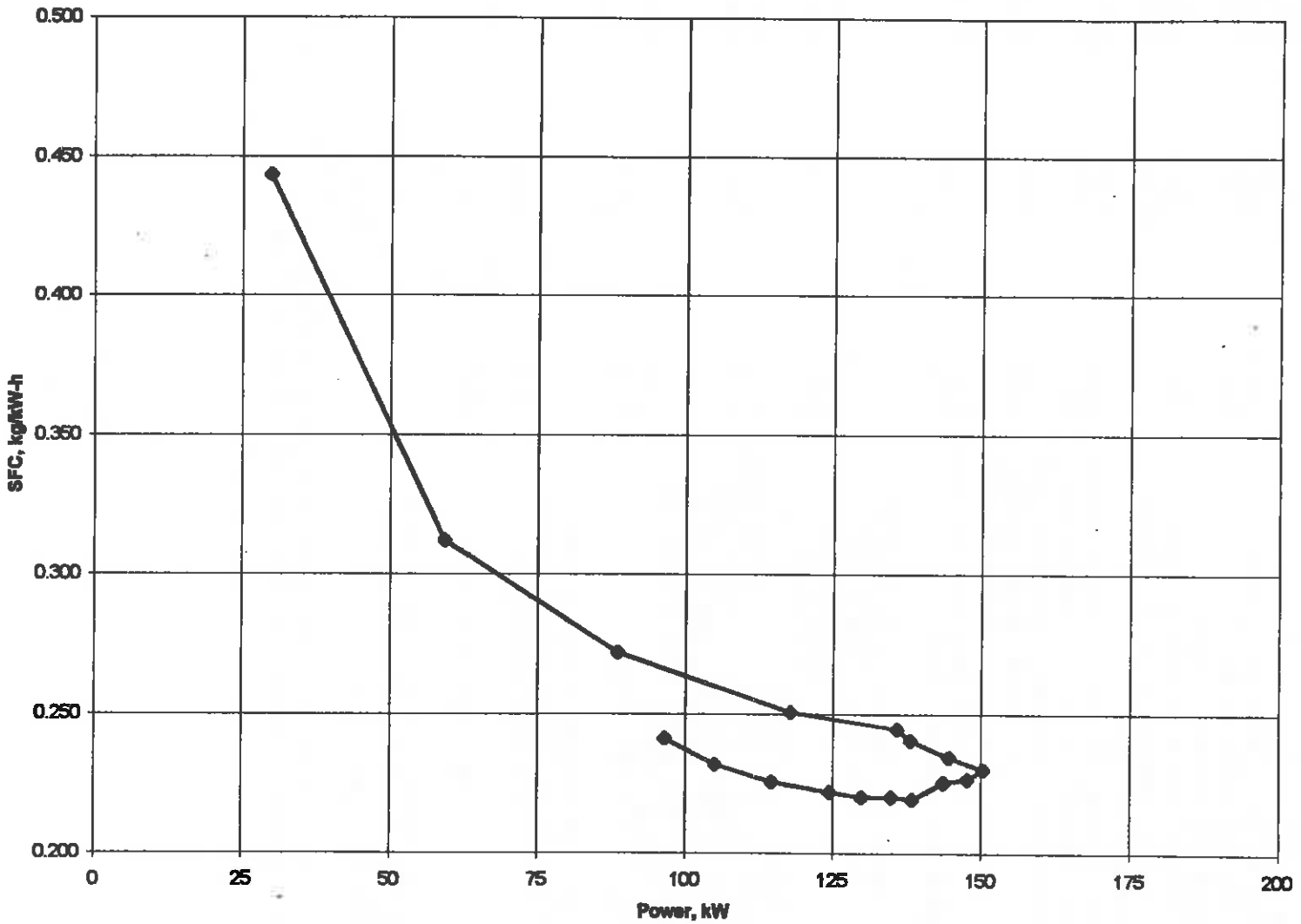


Table 1.2 - Linkage geometry dimensions-North American version - Standard setting.

(with Quick Attach linkage)		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		1056	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)	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 - (1)80 mm dia and (1)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	196/7.7
Vertical movement:			
without load:	[mm/in]	795/31.3	940/37.0
with load:	[mm/in]	770/30.3	902/35.5
Maximum corrected force through full range:	[kN/lb]	47.2/10602	42.8/9617
Corresponding pressure:	[kPa/psi]	18100/2630	
Moment about rear axle:	[kN.m/lb.ft]	62.8/46295	83.0/61225
Maximum mast tilt angle:	[deg]	--	9.4

Lifting height relative to horizontal position of lower links.

	[mm]	-363	-330	-295	-198	-97	3
	[in]	-14.3	-13.0	-11.6	-7.8	-3.8	0.1
Corrected lift forces							
Hitch point.	[kN]	--	47.9	47.2	49.9	52.3	54.6
	[lb]	--	10773	10602	11223	11750	12285
at frame	[kN]	45.6	45.2	--	46.2	46.8	47.0
	[lb]	10256	10157	--	10386	10526	10575

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 point	[kN]	56.8	58.9	60.6	62.3	62.1	--
	[lb]	12780	12780	13622	14004	13964	--
at frame	[kN]	46.9	46.4	--	45.2	43.7	42.8
	[lb]	10539	10427	--	10152	9828	9617

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

(with Quick Attach linkage)		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		1056	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)	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 – (1)90 mm dia and (1)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	211/8.3
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]	60.9/13694	60.6/13622
Corresponding pressure:	[kPa/psi]	18100/2627	
Moment about rear axle:	[kN.m/lb.ft]	81.1/59795	117.6/86724
Maximum mast tilt angle:	[deg]	--	3.6

Lifting height relative to horizontal position of lower links.

	[mm]	-348	-330	-297	-198	-97	3
	[in]	-13.7	-13.0	-11.7	-7.8	-3.8	0.1
Corrected lift forces							
Hitch point.	[kN]	--	62.8	60.9	65.1	69.6	70.9
	[lb]	--	14121	13694	14630	15647	15935
at frame	[kN]	66.7	66.4	--	65.9	66.2	66.5
	[lb]	14990	14922	--	14810	14886	14958

Lifting height relative to horizontal position of lower links.

	[mm]	102	203	302	401	439	478
	[in]	4.0	8.0	11.9	15.8	17.3	18.8
Corrected lift forces							
Hitch point	[kN]	73.4	74.9	77.2	80.7	80.7	--
	[lb]	16493	16830	17361	18140	18153	--
at frame	[kN]	68.1	65.5	64.4	--	62.1	60.6
	[lb]	15314	14729	14468	--	13968	13622

Tests Conducted under the Supervision of the Nebraska Tractor Testing Laboratory

OECD Drawbar Data (SI)

Date of tests: 1, 2-May-95 | Fuel density: 0.835 kg/l
Type of track: Concrete | Test number: 1689

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
I. Maximum Power (ballasted, 4wd at 2200 rev/min)						Tire pressure:		48 kPa, rear		152 kPa, front		Drawbar height:		521 mm
*3	96.92	104.42	3.34	2251	10%	0.302	2.76	58	86	98	12	8	61%	98.17
4	115.28	100.85	4.12	2160	9%	0.287	2.91	61	91	103	12	8	61%	98.17
5	130.50	97.64	4.81	2036	7%	0.264	3.17	61	93	107	12	8	63%	97.97
6	132.52	87.61	5.45	2001	5%	0.260	3.21	60	90	104	13	8	56%	97.97
7	134.83	77.78	6.24	2003	4%	0.255	3.28	59	95	106	14	9	53%	97.97
8	134.61	68.43	7.08	2001	3%	0.255	3.27	61	95	107	13	8	56%	97.97
9	134.18	60.26	8.02	1996	3%	0.255	3.27	59	94	106	14	9	53%	97.97
10	134.18	53.15	9.09	1999	2%	0.255	3.28	60	98	110	14	9	53%	97.97
11	133.00	46.42	10.31	1998	2%	0.259	3.23	60	95	104	14	8	48%	97.90
12	132.10	40.71	11.68	1999	2%	0.261	3.21	60	94	103	14	8	48%	97.90
13	128.54	31.03	14.91	1998	1%	0.266	3.14	58	94	97	14	8	48%	97.90
* Note: Pull limited to avoid excessive tractor bouncing.														
II. Maximum Power (ballasted, 4wd at 2000 rev/min)						Tire pressure:		48 kPa, rear		152 kPa, front		Drawbar height:		521 mm
*3	95.25	103.23	3.32	2251	10%	0.306	2.73	59	88	99	12	8	61%	98.17
4	114.59	96.24	4.29	2200	7%	0.286	2.93	59	87	98	12	8	61%	98.17
5	120.79	81.14	5.36	2198	4%	0.270	3.09	59	87	100	11	8	70%	97.93
6	120.39	71.25	6.08	2199	3%	0.271	3.08	60	88	103	13	8	56%	97.93
7	121.57	63.26	6.92	2198	3%	0.269	3.10	60	91	102	13	8	56%	97.97
8	119.76	54.86	7.86	2203	3%	0.272	3.07	62	94	108	13	8	56%	97.97
9	119.44	48.40	8.88	2200	2%	0.272	3.07	59	94	106	14	9	53%	97.97
10	119.31	42.86	10.02	2194	2%	0.275	3.04	62	94	107	14	9	53%	97.97
11	117.10	37.00	11.39	2197	2%	0.278	3.00	60	93	102	14	8	48%	97.90
12	115.45	32.19	12.91	2199	1%	0.283	2.95	60	92	101	14	8	48%	97.90
* Note: Pull limited to avoid excessive tractor bouncing.														

OECD Drawbar Data (US)

Date of tests: 1, 2-May-95 | Fuel density: 6.972 lb/gal
Type of track: Concrete | Test number: 1689

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
I. Maximum Power (ballasted, 4wd at 2200 rev/min)						Tire pressure:		7 psig, rear		22 psig, front		Drawbar height:		20.5 in
*3	129.98	23474	2.08	2251	10%	0.497	14.03	136	188	208	54	47	61%	28.99
4	154.59	22673	2.56	2160	9%	0.472	14.76	141	197	218	54	47	61%	28.99
5	175.01	21951	2.99	2036	7%	0.434	16.07	142	200	224	53	47	63%	28.93
6	177.71	19696	3.38	2001	5%	0.427	16.32	139	195	220	55	47	56%	28.93
7	180.80	17486	3.88	2003	4%	0.419	16.64	138	203	223	57	48	53%	28.93
8	180.52	15383	4.40	2001	3%	0.420	16.62	141	204	225	55	47	56%	28.93
9	179.94	13547	4.98	1996	3%	0.419	16.62	138	202	224	57	48	53%	28.93
10	179.94	11949	5.65	1999	2%	0.419	16.63	141	208	230	57	48	53%	28.93
11	178.36	10436	6.41	1998	2%	0.425	16.40	140	203	219	57	47	48%	28.91
12	177.16	9153	7.26	1999	2%	0.428	16.28	139	202	218	57	47	48%	28.91
13	172.38	6976	9.27	1998	1%	0.437	15.95	137	201	207	57	47	48%	28.91
* Note: Pull limited to avoid excessive tractor bouncing.														
II. Maximum Power (ballasted, 4wd at 2000 rev/min)						Tire pressure:		7 psig, rear		22 psig, front		Drawbar height:		20.5 in
*3	127.73	23207	2.06	2251	10%	0.503	13.87	139	190	211	54	47	61%	28.99
4	153.67	21636	2.66	2200	7%	0.469	14.85	138	188	209	54	47	61%	28.99
5	161.99	18242	3.33	2198	4%	0.444	15.70	139	189	212	51	46	70%	28.92
6	161.44	16019	3.78	2199	3%	0.446	15.62	141	190	218	55	47	56%	28.92
7	163.03	14221	4.30	2198	3%	0.443	15.75	141	196	216	55	47	56%	28.93
8	160.61	12334	4.88	2203	3%	0.448	15.57	143	202	227	55	47	56%	28.93
9	160.17	10880	5.52	2200	2%	0.448	15.57	139	201	223	57	48	53%	28.93
10	160.00	9635	6.23	2194	2%	0.452	15.42	143	202	225	57	48	53%	28.93
11	157.03	8317	7.08	2197	2%	0.457	15.25	140	199	215	57	47	48%	28.91
12	154.82	7236	8.02	2199	1%	0.465	14.99	140	197	215	57	47	48%	28.91
* Note: Pull limited to avoid excessive tractor bouncing.														

MEASUREMENT OF EXTERNAL NOISE

Date of Test	11 May 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	28.1 km/h
Measured noise level	90.5 dB(A)

Remarks : None
Repairs : None