OECD APPROVAL # 1423
(Restricted code)
Date of approval: 25 January, 1993

NEBRASKA TRACTOR TESTING LABORATORY
DEPARTMENT OF AGRICULTURAL 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 5400 MFWD (4WD)



MANUFACTURED BY: John Deere Commercial Products Inc.
P.O.Box 15458
Augusta, GA 30919 USA

NEBRASKA TEST NO. 1662

Test dates: September-October, 1992

This test report provides the results of the tests conductedin 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 25 January, 1993

John Deere 5400 (MFWD) OECD # 1423

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SPECIFICATIONS OF TRACTOR.

Manufacturers name/address	John Deere Commercial Products Inc. P.O.Box 15458, Augusta Georgia, USA
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	102 hours
Location of Test	Tractor Testing Laboratory Lincoln, Nebraska,USA.

TRACTOR SPECIFICATIONS.

Make	John Deere
Model	5400
Type	Unit construction, mechanical front wheel drive (MFWD)
Number of driving wheels	4
Serial Number	LV5400C-130144
1st Serial number	LV5400C-130000

ENGINE.

Make	John Deere
Model	3029
Type	Diesel; 4-stroke; turbocharged direct injection
Serial Number	CD 3029D 105761
Cylinders	
Number/Disposition	3, in-line, vertical
Bore/stroke	106.4 mm x 110 mm (4.189 in x 4.33 in)
Capacity	2943 ml (179.6 in^3)
Compression Ratio	17.8 - 1
Arrangement of valves	Overhead
Cylinder liners	Wet; replaceable
Super charging	
Make/Model/Type	Garret/RE52019/Exh. driven
Pressure	60-70 kPa (8.7-10.2 psi)
Fuel System	
Feed system	Gravity
Make/Type/Model of filters	Stanadyne/RE50455/2-stage filter
Fuel tank capacity	68.1 liters (18 US gallons)

Make/Model/Type Injection Pump	CAV/DPA2 3239F200W(RE45521)/ rotary; electric shutoff
Pump Serial number	31235 AKG
Production setting of pump Flow Rate (Rated Eng.Spd & Full Load)	11.30 +/- 0.45 kg/hour (24.91 +/- 0.99 lbs/hr)
Make/Model/Type Injectors	Stanadyne/RE36936/Pencil
Injection pressure	400-500 bar (5804-7255 psi)
Timing	14 degrees BTDC
Governor	
Make/Model/Type	CAV/mechanical
Governed engine speed range	From 750 to 2575 rev/min
Rated engine speed	2400 rev/min
High-idle speed range	2575 +/- 25 rpm
Air Cleaner.	
Main Cleaner Make/Model/Type	Nelson/RE45827/Cellulose fiber paper; pleated
Air intake location	Under hood
Secondary cleaner	Nelson/RE45828/polyester felt; oiled; single wrap
Maintenance indicator	Dash mounted warning light
Lubrication system.	
Type of feed pump	Gear pump; engine driven
Type of filters	Full flow
Number	One spin-on.
Oil cooler	None
Cooling system.	
Type of coolant	Liquid
Type of pump	Centrifugal, belt driven
Fan specification	Belt driven; Suction type; steel
Number of fan blades	7
Fan diameter	405 mm (15.9 in)
Coolant system capacity	9.5 l (9.8 US qt)
Type of temperature control	Thermostat
Superpressure system	48 kPa (6.96 psi)
Starting system.	
Make/Model/Type of starter	DELCO/RE50095/Electric
Power Rating	2.5 kW (3.35 hp)
Cold starting aid	Electrical resistance plug in air intake
Safety device	Electrical lockout on gearshift

Electrical system.	
Voltage & grounding.	12 Volt DC;negative ground
Generator	
Make/Model/Type	Nippondenso/RE42778/Belt driven
Power rating	40 Amp at 1500 engine rpm. 13.5 Amp. at 25°C ambient
Batteries	
Number & connection	One 12 Volt battery
Rating	100 Amp-hour at 20 hour rating 700 cold cranking amps min at -18°C.
Exhaust system.	
Muffler Make/Model/Type	Nelson/RE42629/Expansion chamber
Location	Horizontal; under hood
Exhaust stack location	Vertical; left side of engine.

TRANSMISSION.

Clutch. (travel)	
Make/Model/Type	Carraro/RE42515/Dry clutch
Number of plates	One
Plate diameter	280 mm (11 in)
Method of operation	Mechanical; pedal actuated
Gear Box.	
Make/Model/Type	Kanzaki/RE42421/Collar shift
Arrangement	3-speed main gearbox ahead of 3-speed range.
Number of gears	9 forward and 3 reverse operated by two hand levers
Oil cooler	None
Available options	MFWD; Creeper range
Rear axle and final drives.	
Make/Model/Type	John Deere/AL76856/Planetary
Differential Lock	
Type	Mechanical
Method of engagement	Pedal
Method of disengagement	Self-disengaging by brake pedal

Front Axle and final drives.

Make/Model/Type	Carraro/RE40638/mechanical
Differential lock	None

Gear ratios and travel speeds.
(Tire dynamic radius of 695 mm (27.4 in) ISO 4251/1-1984)

Gear Number	Number of engine revolutions for one revolution of the driving wheels	Nominal travel speed at rated engine speed of 2400 rev/min [km/h]	[mph]
Forward			
I-1	289.78	2.17	1.35
I-2	200.71	3.13	1.94
I-3	147.18	4.27	2.65
II-1	125.32	5.02	3.12
II-2	86.80	7.24	4.50
II-3	63.65	9.88	6.14
III-1	45.64	13.78	8.56
III-2	31.61	19.89	12.36
III-3	23.18	27.13	16.85
Reverse			
I	172.42	3.65	2.27
II	74.57	8.43	5.24
III	27.16	23.15	14.39

Number of front wheel revolutions
for one rear wheel revolution: 1.35

Creeper gear ratios and travel speeds.
(not supplied with tested tractor)

(Tire dynamic radius of 695 mm (27.4 in) ISO 4251/1-1984)

Gear Number	Number of engine revolutions for one revolution of the driving wheels	Nominal travel speed at rated engine speed of 2400 rev/min [km/h]	[mph]
Forward			
C-1	1770.28	0.36	0.22
C-2	1226.15	0.51	0.32
C-3	899.14	0.70	0.43
Reverse			
C-R	1053.32	0.60	0.37

POWER - TAKE - OFF.

Main Power-Take-Off.

Type	Independent
Method of engagement	Mechanically actuated single plate dry clutch operated by hand lever
Number of shafts	One
Method of changing speeds	NA

Standard PTO. 540 rev/min.

Location	Rear of tractor;center plane
Diameter of shaft	35 mm (1.375 in)
Number of splines	6; conforms to ISO 500/1979.
Height above ground	691 mm (27.20 in)
Distance from median plane of tractor	0 mm
Distance behind rear axle	426 mm (16.77 in)
PTO Speed at rated engine spd	545 rev/min
Engine speed at Std. PTO spd	2376 rev/min
Engine speed/PTO speed ratio	4.4:1
Power restriction	None
Direction of rotation when viewed from shaft end	Clockwise.

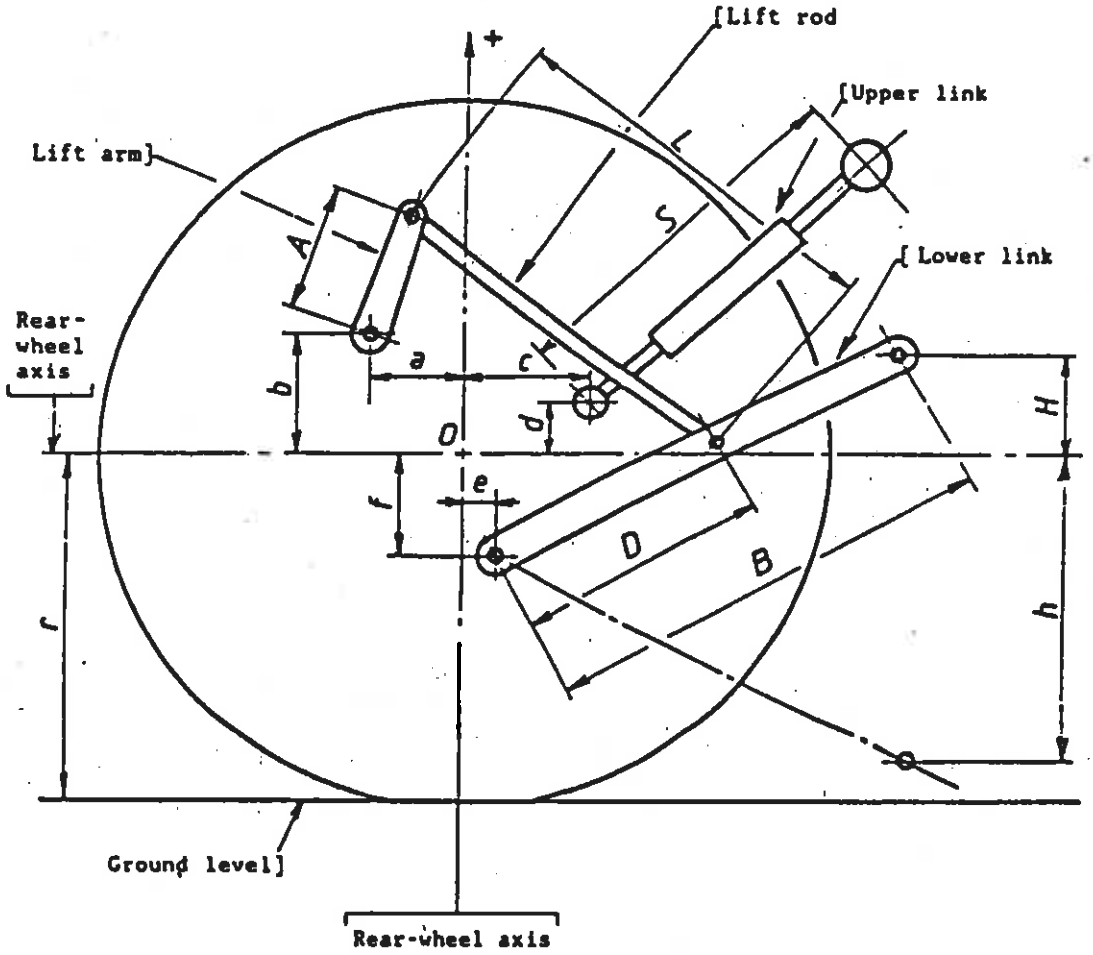
POWER LIFT.

Make/Model/Type	John Deere/RE46019/Draft & position control sensing through top link.
Type of hydraulic system	Open Center/Load sensing
Number/Type of cylinders	One internal, single acting
Type of linkage lock for transport	Rate of drop valve can be fully closed to lock hitch by parking lever in notch on quadrant
Relief valve spressure setting	190 -0/+7 bar (2757 -0/+102 psi)
Opening pressure of cylinder safety valve	235 +/- 5 bar (3410 +/- 73 psi)
Lift pump type	Gear
Power transmission to pump	Gear drive
Type/Number of filters	Pleated polyester felt/one
Location of oil reservoir	Transmission housing
Number/Type/Location of tapping points.	Up to 3 pairs of ISO standard couplings at rear of tractor.
Max. oil volume available for external cylinders.	10 liters (2.64 gallons)

THREE POINT LINKAGE.

- Category 2 in conformity with	ISO 730/1-1977
- Category adaptor	Convertible to Category I

THREE POINT LINKAGE



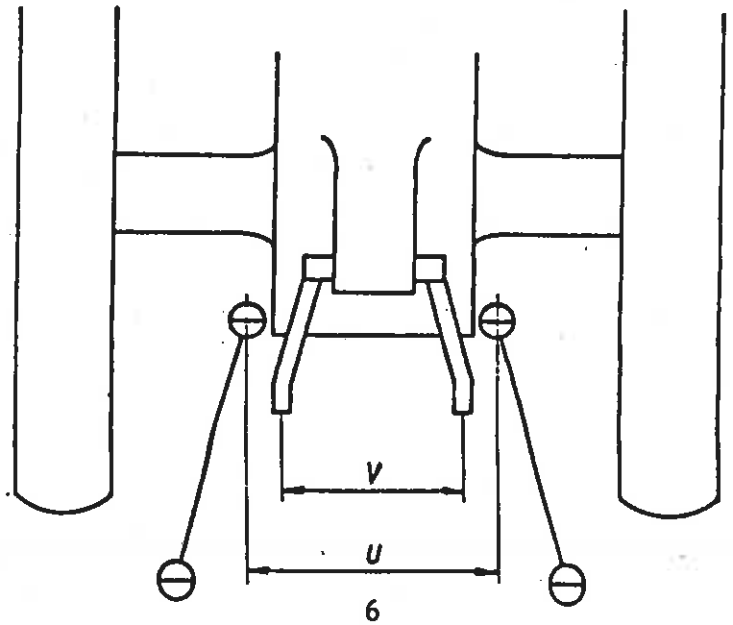


Table 1.1 -*Linkage geometry dimensions.

		Dimension or range		Settings used on test	
		[mm]	[in]	[mm]	[in]
Lift category		II		same	
Rear Tire - Radius Index	(r)	695	27.4	same	
Front Tire - Radius Index	(r')	515	20.3	same	
Length of lift arms	(A)	280	11.0	same	
Length of lower links	(B)	836	32.9	same	
Distance of lift arm pivot from: horizontal	(a)	173	6.8	same	
rear wheel axis: vertical	(b)	311	12.2	same	
Horizontal distance between the 2 lower link points	(U)	405	15.9	same	
Horizontal distance between the 2 lift arm end points	(V)	530	20.9	same	
Length of upper link	(S)	500	19.7	613	24.1
	to	700	27.6		
Distance of upper link pivot point from rear wheel axis					
Top hole - horizontal	(c)	384	15.1	same	
- vertical	(d)	284	11.2	same	
Center hole - horizontal	(c)	400	15.7	not used	
- vertical	(d)	250	9.8	not used	
Bottom hole - horizontal	(c)	400	15.7	not used	
- vertical	(d)	213	8.4	not used	
Distance of lower link pivot from: horizontal	(e)	160	6.3	same	
rear wheel axis: vertical	(f)	166	6.5	same	
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	424	16.7	same	
Length of lift rods	(L)	475	18.7	527	20.7
	to	575	22.6		
Height of lower hitch points relative to rear wheel axis					
In low position	(h)	363	14.4	492	19.4
	to	573	22.6		
In high position	(H)	97	3.8	168	6.6
	to	272	10.7		
Height above ground of lower hitch points when locked in transport position.		790	31.1	863	34.0
	to	970	38.2		

*Assuming (r) with a tire dynamic index of 695 mm (27.4 in)
ISO 4251/1-1984

SWINGING DRAWBAR.

Type	Oscillating
Height above ground	475 mm (18.7 in)
Adjustments	Fore/aft with removable pin
Distance of hitch point from rear wheel axis-horizontal	615/782 mm (24.1/30.8 in)
Distance of hitch point from PTO shaft end: Vertical	220 mm (8.7 in)
Horizontal	189/356 mm (7.4/14.0 in)
Lateral adjustment-Right side	239 mm (9.4 in)
Left side	239 mm (9.4 in)
Distance of pivot point from rear wheel axis-horizontal	358 mm (14.1 in)
Diameter of drawbar pin hole	19.8 mm (0.8 in)
Maximum vertical static permissible load	Position 1:11.00 kN (2475 lb) Position 2: 7.12 kN (1602 lb)

STEERING.

Make/Model/Type	Danfoss/Hydrostatic
Method of operation	Steering wheel
Pump	Gear pump,engine mounted
Ram(s)	One double acting cylinder
Working pressure	130 bar Max (1886 psi)

BRAKES.

Service brake.	
Make/Model/Type	John Deere/Wet disk
Method of operation	Hydraulic; operated by two pedals which can be locked together.
Parking brake.	
Type	Transmission lock.
Method of operation	Gear selector lever engages park pawl in gearbox.
Trailer Brake	None

WHEELS.

Number.	
Front	Two; Driving and steering
Rear	Two; Driving
Wheel base	2050 mm (80.7 in)

Track width adjustment

	Minimum [mm]	Minimum [in]	Maximum [mm]	Maximum [in]	Adjustment method
Front	1292	50.9	2007	79.0	Reversing wheels and offset lug rims
Rear	1370	53.9	1820	71.7	Reversing wheels and offset lug rims

PROTECTIVE STRUCTURE.

Make/Model/Type	John Deere/2-post/foldable
Manufacturer's name/address	Crenlo Inc./1600 4th Ave NW Rochester, Minnesota 55901 USA
Protective device	2-post Roll-Gard/Foldable
OECD approval number	None
USA approval number	USA OSHA 29CFR Part 1928/ Subpart C, SAE J1194, May 89

DRIVER'S SEAT.

Make/Model/Type	Milscoe/RE42502/Mechanical
Type of suspension	Back mounted spring
Type of damping	Gas-filled shock absorber
Range of adjustment	16° incline for simultaneous longitudinal and vertical adj.
Longitudinal	146 mm (5.7 in)
Vertical	50 mm (2.0 in) plus 42 mm (1.7 in) on incline.

LIGHTING.

	Height above ground of center [mm]	Height above ground of center [in]	Size [mm]	Distance from outside edge to median plane of tractor. [mm]	Distance from outside edge to median plane of tractor. [in]
Head lights	1289	50.4	106x160	226	8.9
Rear lights	1777	70.0	111x112	507	20.0
Rear reflectors	1701	67.0	40x111	507	20.0

TEST CONDITIONS.

Overall dimensions.

Length		3561 mm (140.2 in)
Width	Minimum	1846 mm (72.7 in)
	Maximum	2249 mm (88.5 in)
Height - Top protective structure		2314 mm (91.1 in)
- Top of exhaust		2354 mm (92.7 in)
Ground clearance. (unballasted)		413 mm (16.3 in)
Clearance-limiting part		Drawbar support bracket

Tractor Mass (with cab,full fuel tank).

		without driver [kg]	without driver [lb]	with driver [kg]	with driver [lb]
Unballasted	Front	971	2141	986	2174
	Rear	1351	2978	1411	3111
	Total	2322	5119	2397	5285
Ballasted	Front	967	2132	982	2165
	Rear	2589	5708	2649	5840
	Total	3556	7840	3631	8005

Ballast.

	Number of weights	Mass (total) [kg]	Mass (total) [lb]	Water [kg]	Water [lb]
Front	0	--	--	--	--
Rear	10	500	1102	689	1519
Additional test equipment	--	45	99	--	--

Tire Specifications.

	Front Wheels	Rear Wheels
Make	Firestone	Firestone
Dimensions	11.2 x 24	16.9 x 30
Ply rating	6	6
Type	Bias	Bias
Max.load (tire manufacturer)	1047 kg/tire (2308 lb/tire)	1895 kg/tire (4178 lb/tire)
Max.load(tractor manufacturer)	same	same
Inflation pressure(tire mfr)-max	179 kPa/26 psi	124 kPa/18 psi
-min	83 kPa/12 psi	83 kPa/12 psi
Dynamic Radius Index	515 mm/20.3 in	695 mm/27.4 in
Chosen track width	1430 mm/56.3 in	1370 mm/53.9 in

Oils and Lubrication.

Capacity and change interval:

	Capacity liter	Capacity quart	Oil change hours	Filter change hours
Engine (w/o filter)	8.5	9.0	250	250
Gear Box, final drive, rear axle and hydraulics	38.0	40.2	1200	
Front axle	5.0	5.3	600	
Final drive, front	0.6	0.6	600	

Oil and Lubricant specifications:

	Recommended	Used during test
Engine oil		
Type	John Deere, Torq-Gard Supreme; SAE 15W-40	same
Viscosity	102 cSt at 100°C	
Classification	API CE or CD, Mil-L-2104D	
Transmission		
Type	John Deere Hy-Gard; J20C SAE 10W-30	same
Viscosity	58 cSt at 100°C	
Classification	NA	
Hydraulic fluid	Same as transmission	same
Front axle and hubs		
Type	John Deere GL-5 Gear Lube SAE 80W-90	same
Viscosity		
Classification	API GL-5	
Steering system	Same as transmission	same
Grease	John Deere High Temp. Extreme pressure; non-clay	same
Number of lube points	8	

Fuel

Type/grade	Premier; Grade 2-D, in conformity with the national standard
Density (Pto test)	0.8392 kg/liter (6.987 lb/gallon) at 15° C (59° F)
(Drawbar test)	same as Pto test.
Cetane number	53.9
Viscosity	2.31 cSt at 37.8° C (100° F)

COMPULSORY TESTS

1. MAIN POWER TAKE-OFF

Date: 30-Sep-92 Location: UNL Tractor Test Lab, Lincoln, NE, U.S.A.

Type of dynamometer: Eddy current, Eaton Fuel density: 6.987 lb/gal

Power kW / *hp*	Eng rev/min	PTO rev/min	l/h / *gal/h*	kg/h / *lb/h*	kg/kW-hr / *lb/hp-hr*	kW-hr/l / *hp-hr/gal*
1.1 Maximum Power – 2 hours						
46.65	2249	511	13.24	11.08	0.238	3.52
62.56			*3.50*	*24.44*	*0.391*	*17.89*
1.2 Power at Rated Engine Speed – 1 hour						
45.24	2400	546	13.36	11.19	0.247	3.39
60.67			*3.53*	*24.66*	*0.406*	*17.19*
1.3 Power at Standard Power Take-Off Speed – 1 hour						
45.24	2400	546	13.24	11.08	0.247	3.42
60.67			*3.50*	*24.44*	*0.406*	*17.35*
1.4 Part Loads						
1.4.1 Torque at maximum power at rated engine speed						
45.24	2400	546	13.36	11.19	0.247	3.39
60.67			*3.53*	*24.66*	*0.406*	*17.19*
1.4.2 85% of torque obtained in 1.4.1						
40.10	2505	569	12.52	10.48	0.261	3.20
53.78			*3.31*	*23.10*	*0.430*	*16.27*
1.4.3 75% of torque defined in 1.4.2						
30.05	2505	569	10.08	8.44	0.281	2.98
40.30			*2.66*	*18.60*	*0.462*	*15.14*
1.4.4 50% of torque defined in 1.4.2						
20.41	2550	580	7.96	6.67	0.327	2.56
27.37			*2.10*	*14.70*	*0.537*	*13.01*
1.4.5 25% of torque defined in 1.4.2						
10.30	2574	585	6.01	5.03	0.489	1.71
13.82			*1.59*	*11.10*	*0.803*	*8.70*
1.4.6 unloaded						
0.34	2596	590	3.90	3.27	9.742	0.09
0.45			*1.03*	*7.20*	*16.019*	*0.44*
1.5 Part Loads at Standard Power Take-off Speed						
1.5.1 Torque at maximum power						
45.24	2400	546	13.24	11.08	0.247	3.42
60.67			*3.50*	*24.44*	*0.406*	*17.35*
1.5.2 85% of torque obtained in 1.5.1						
40.10	2505	569	12.52	10.48	0.261	3.20
53.78			*3.31*	*23.1*	*0.430*	*16.27*
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40.30			*2.66*	*18.6*	*0.462*	*15.14*
1.5.4 50% of torque defined in 1.5.2						
20.41	2550	580	7.96	6.67	0.327	2.56
27.37			*2.10*	*14.7*	*0.537*	*13.01*
1.5.5 25% of torque defined in 1.5.2						
10.30	2574	585	6.01	5.03	0.489	1.71
13.82			*1.59*	*11.1*	*0.803*	*8.70*
1.5.6 unloaded						
0.34	2596	590	3.90	3.27	9.742	0.09
0.45			*1.03*	*7.2*	*16.019*	*0.44*

No load maximum engine speed:	2596 rev/min	
Equivalent torque at rated speed:	180 N-m	*133 lb-ft*
Equivalent torque at maximum power:	198 N-m	*146 lb-ft*
(engine speed:	2249 rev/min)	
Maximum equivalent crankshaft torque:	230 N-m	*170 lb-ft*
(engine speed:	1586 rev/min)	
Mean Dry bulb:	24 deg C	*76 deg F*
Wet bulb:	17 deg C	*63 deg F*
Relative humidity:	49 %	
Pressure:	98.58 kPa	*29.11 in Hg*
Maximum Coolant:	92 deg C	*197 deg F*
Engine oil:	111 deg C	*231 deg F*
Fuel:	58 deg C	*136 deg F*
Air intake:	27 deg C	*81 deg F*
Transmission/hydraulic oil:	77 deg C	*170 deg F*
Intake manifold pressure at rated speed:	62 kPa	*9.0 psig*
Intake manifold pressure at maximum power:	62 kPa	*9.0 psig*

2. HYDRAULIC POWER AND LIFTING FORCE.

Date of test: 2 October 1992
Location: TTL/UNL, Lincoln, Nebr.

2.1 HYDRAULIC POWER TEST - HYDRAULIC PUMP PERFORMANCE

Sustained pressure with with relief valve open	19.58 MPa (2840 psi)
Pump delivery rate at minimum pressure & rated engine speed	44.7 l/m (11.8 g/m)

	Flow Rate l/min (gal/min)	Pressure MPa (psi)	Power kW (hp)
At 90% of relief valve setting	33.3 (8.8)	17.6 (2550)	9.8 (13.1)
At maximum hydraulic power.	38.2 (10.1)	17.0 (2470)	10.9 (14.6)

Tapping point(s)	remote hydraulic outlet
Hydraulic fluid temperature at flow meter	65'C (149'F)

2.2 POWER LIFT TEST.

Date of test: 5 October 1992

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	203/8.0	145/5.7
Vertical movement: without load:	[mm/in]	660/26.0	873/34.4
Vertical movement: with load:	[mm/in]	656/25.8	868/34.2
Maximum corrected force through full range:	[kN/lb]	16.9/3807	12.9/2905
Corresponding pressure:	[kPa/psi]	17561/2547	
Moment about rear axle:	[kN.m/lb.ft]	30.7/22668	31.3/23108
Maximum mast tilt angle:	[deg]	--	14.7

Lifting height relative to horizontal position of lower links.

	[mm]	-363	-305	-251	-152	-53	48
	[in]	-14.3	-12.0	-9.9	-6.0	-2.1	1.9
Corrected lift forces							
Hitch point.	[kN]	--	17.1	16.9	19.1	20.4	21.4
	[lb]	--	3847	3807	4293	4595	4811
at frame	[kN]	15.0	15.5	--	16.3	16.5	16.4
	[lb]	3371	3474	--	3665	3706	3695

Lifting height relative to horizontal position of lower links.

	[mm]	147	249	315	350	447	505
	[in]	5.8	9.8	11.8	15.8	16.4	19.9
Corrected lift forces							
Hitch point	[kN]	21.9	22.1	22.3	20.8	--	--
	[lb]	4912	4959	5022	4684	--	--
at frame	[kN]	--	15.7	--	14.9	14.1	12.9
	[lb]	--	3535	--	3343	3164	2905

OECD Drawbar Data (SI)

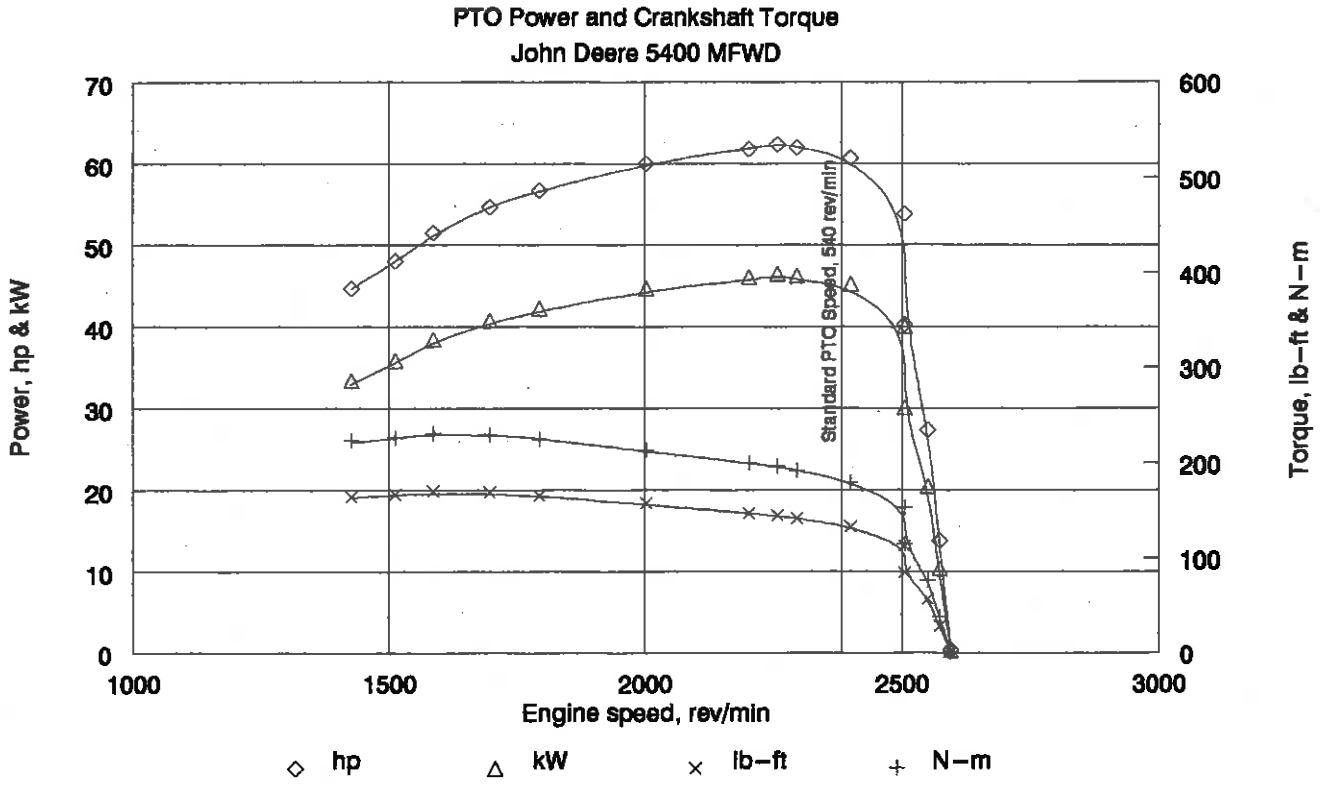
Date of tests:	2 Oct 92	Fuel density:	0.837 kg/l
Type of track:	Concrete	Test number:	1662

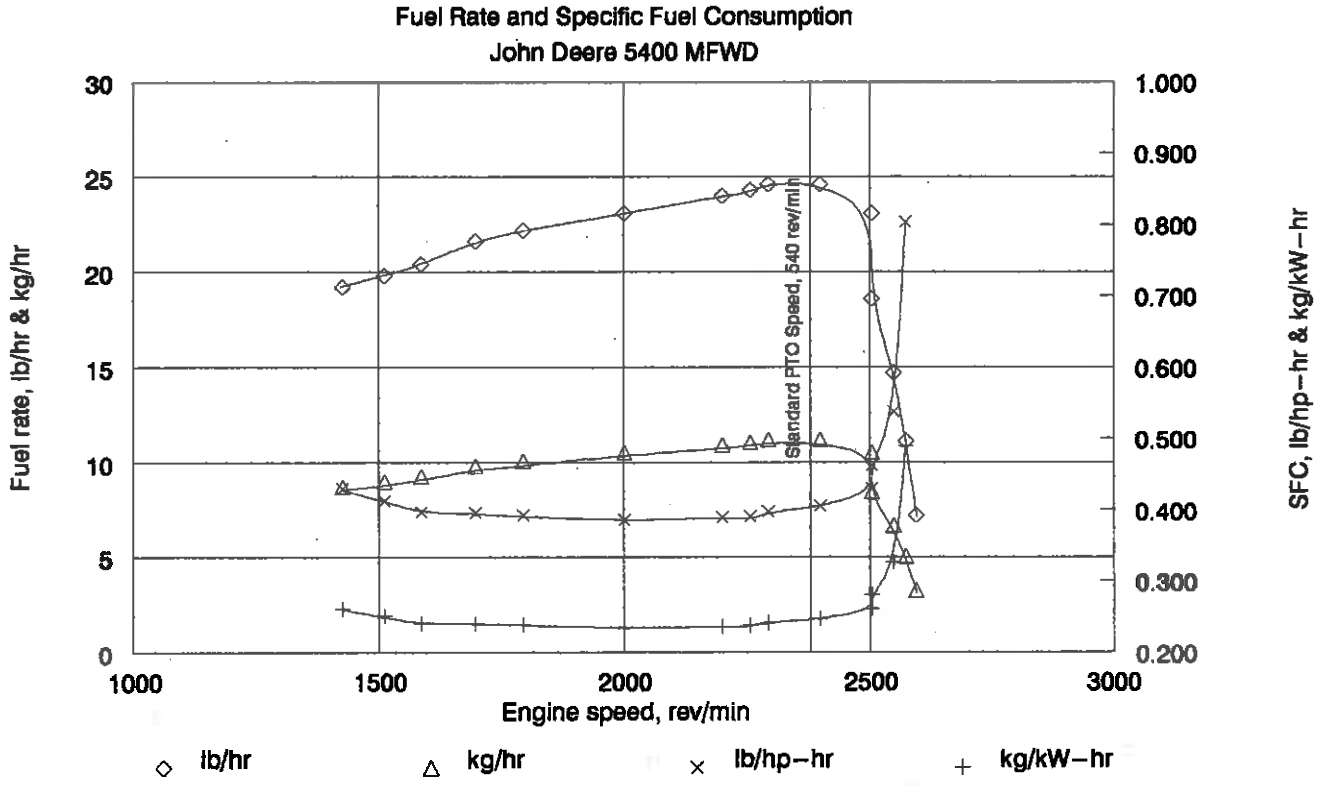
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel hum-	Pressure
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet	idity	kPa
I. Maximum Power (unballasted, 4wd at 2250 rev/min)						Tire pressure:		83 kPa, rear		83 kPa, front		Drawbar height	445 mm	
3 (I 3)	23.99	22.69	3.81	2519	14.67%	0.361	2.32	55	80	95	15	13	80%	97.77
4 (II 1)	28.50	23.12	4.44	2501	14.67%	0.342	2.45	57	81	96	15	13	80%	97.77
5 (II 2)	37.07	21.12	6.32	2400	12.44%	0.303	2.76	62	83	100	15	13	80%	97.77
6 (II 3)	39.26	16.66	8.48	2250	8.08%	0.284	2.94	61	84	102	17	14	72%	97.70
7 (III 1)	40.52	11.97	12.19	2248	5.10%	0.278	3.01	62	84	102	17	14	72%	97.70
II. Part loads (unballasted, 4wd)														
II.1 in selected gear at maximum power														
7 (III 1)	39.23	10.79	13.08	2398	4.52%	0.286	2.93	60	83	101	17	14	72%	97.70
II.1.1 75% of pull at maximum power at rated speed														
7 (III 1)	30.87	8.06	13.79	2493	3.27%	0.313	2.68	56	83	97	25	19	57%	97.70
II.1.2 50% of pull at maximum power at rated speed														
7 (III 1)	21.14	5.38	14.13	2528	2.19%	0.368	2.27	57	81	98	25	19	57%	97.70
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
8 (III 2)	30.86	8.09	13.74	1720	3.27%	0.271	3.09	58	83	95	25	19	57%	97.70
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
8 (III 2)	21.14	5.40	14.09	1745	2.26%	0.294	2.85	56	81	93	25	19	57%	97.70
II.2 in selected gear nearest to 7.5 km/h														
5 (II 2)	37.07	21.12	6.32	2400	12.44%	0.303	2.76	62	83	100	15	13	80%	97.77
II.2.1 75% of pull at maximum power at rated speed														
5 (II 2)	30.42	15.78	6.94	2494	7.54%	0.319	2.63	53	83	99	22	17	61%	97.77
II.2.2 50% of pull at maximum power at rated speed														
5 (II 2)	21.26	10.53	7.27	2530	4.33%	0.359	2.33	53	81	97	22	17	61%	97.77
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II2.1														
6 (II 3)	30.40	15.81	6.92	1825	7.48%	0.272	3.07	54	83	97	22	17	61%	97.77
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II2.2														
6 (II 3)	21.27	10.52	7.28	1858	4.39%	0.286	2.92	52	81	93	22	17	61%	97.77

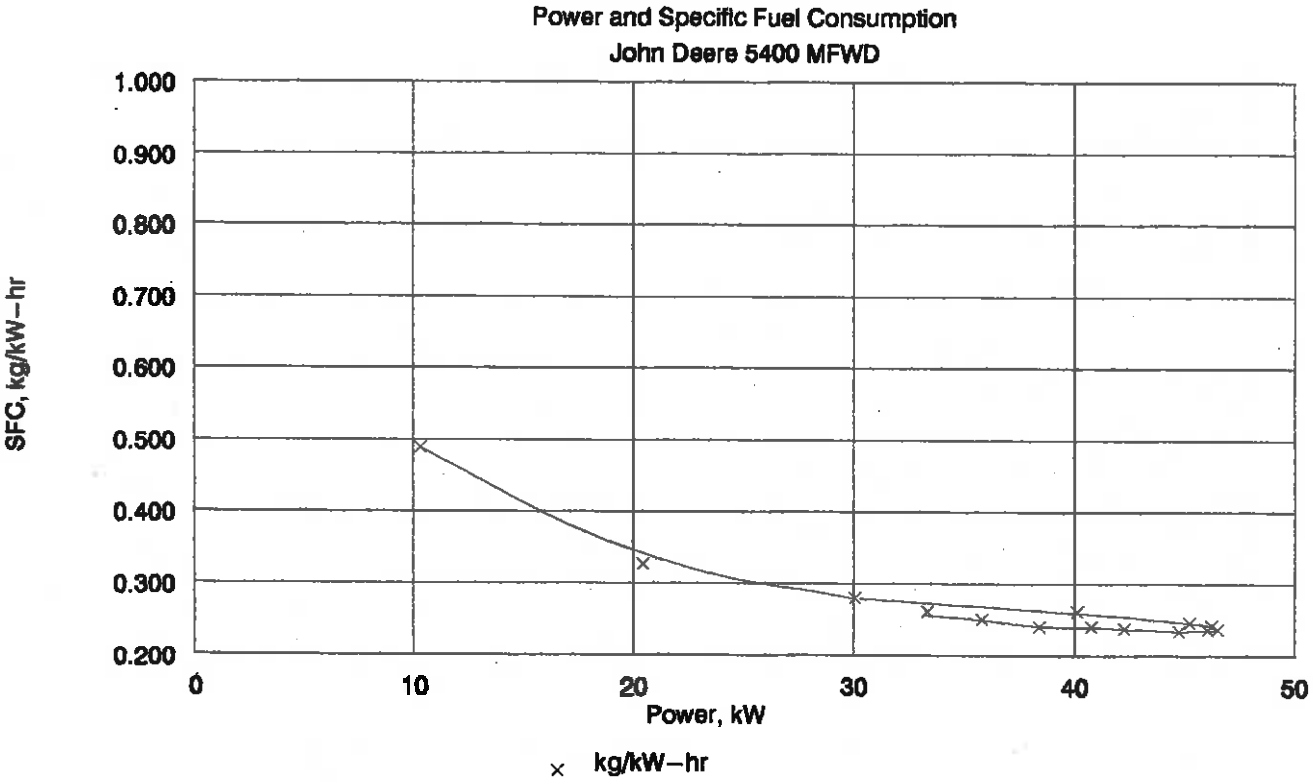
OECD Drawbar Data (US)

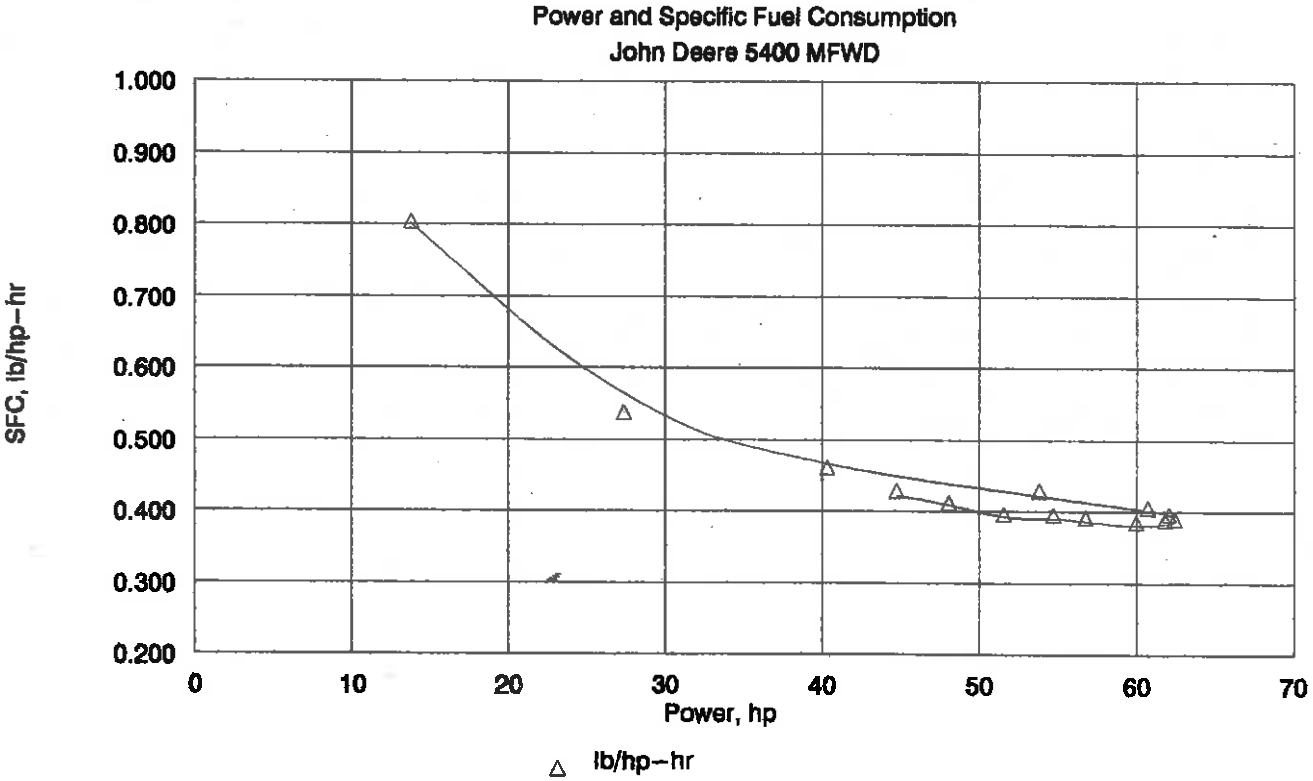
Date of tests:	2 Oct 92	Fuel density:	6.987 lb/gal
Type of track:	Concrete	Test number:	1662

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel hum-	Pressure
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet	idity	in Hg
I. Maximum Power (unballasted, 4wd at 2250 rev/min)						Tire pressure:		12 psig, rear		12 psig, front		Drawbar height	17.5 in	
3 (I 3)	32.17	5100	2.37	2519	14.67%	0.594	11.76	131	177	203	59	55	80%	28.87
4 (II 1)	38.22	5197	2.76	2501	14.67%	0.563	12.42	134	177	205	59	55	80%	28.87
5 (II 2)	49.71	4748	3.93	2400	12.44%	0.498	14.02	144	181	212	59	55	80%	28.87
6 (II 3)	52.65	3745	5.27	2250	8.08%	0.467	14.95	142	183	215	62	57	72%	28.85
7 (III 1)	54.33	2690	7.57	2248	5.10%	0.457	15.29	143	183	215	62	57	72%	28.85
II. Part loads (unballasted, 4wd)														
II.1 in selected gear at maximum power														
7 (III 1)	52.61	2427	8.13	2398	4.52%	0.470	14.87	140	182	215	62	57	72%	28.85
II.1.1 75% of pull at maximum power at rated speed														
7 (III 1)	41.40	1813	8.57	2493	3.27%	0.515	13.58	132	181	207	77	67	57%	28.85
II.1.2 50% of pull at maximum power at rated speed														
7 (III 1)	28.35	1211	8.78	2528	2.19%	0.605	11.54	135	178	208	77	67	57%	28.85
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
8 (III 2)	41.38	1818	8.54	1720	3.27%	0.445	15.69	137	182	203	77	67	57%	28.85
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
8 (III 2)	28.35	1215	8.75	1745	2.26%	0.483	14.48	133	178	199	77	67	57%	28.85
II.2 in selected gear nearest to 4.6 mph														
5 (II 2)	49.71	4748	3.93	2400	12.44%	0.498	14.02	144	181	212	59	55	80%	28.87
II.2.1 75% of pull at maximum power at rated speed														
5 (II 2)	40.79	3548	4.31	2494	7.54%	0.524	13.33	127	181	210	71	62	61%	28.87
II.2.2 50% of pull at maximum power at rated speed														
5 (II 2)	28.51	2368	4.52	2530	4.33%	0.590	11.85	128	178	206	71	62	61%	28.87
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II2.1														
6 (II 3)	40.77	3554	4.30	1825	7.48%	0.448	15.60	129	181	207	71	62	61%	28.87
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II2.2														
6 (II 3)	28.52	2364	4.52	1858	4.39%	0.471	14.85	126	177	200	71	62	61%	28.87


PTO Power and Crankshaft Torque
John Deere 5400 MFWD
Power, hp & kW
Torque, lb–ft & N–m
Engine speed, rev/min
Standard PTO Speed, 540 rev/min
70
60
50
40
30
20
10
0
600
500
400
300
200
100
0
1000
1500
2000
2500
3000
hp
kW
lb–ft
N–m


Fuel Rate and Specific Fuel Consumption
John Deere 5400 MFWD
Fuel rate, lb/hr & kg/hr
SFC, lb/hp–hr & kg/kW–hr
Engine speed, rev/min
Standard PTO Speed, 540 rev/min
30
25
20
15
10
5
0
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
1000
1500
2000
2500
3000
lb/hr
kg/hr
lb/hp–hr
kg/kW–hr


Power and Specific Fuel Consumption
John Deere 5400 MFWD
SFC, kg/kW–hr
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0
10
20
30
40
50
Power, kW
× kg/kW–hr


Power and Specific Fuel Consumption
John Deere 5400 MFWD
SFC, lb/hp–hr
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0
10
20
30
40
50
60
70
Power, hp
△ lb/hp–hr

OECD Drawbar Data (SI)

Date of tests: 23 Sep 92 Fuel density: 0.837 kg/l
Type of track: Concrete Test number: 1662

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel hum-idity	Press
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (ballasted, 2wd at 2400 rev/min)						Tire pressure:		110 kPa, rear		83 kPa, front	Drawbar height		432 mm	
4 (II 1)	31.41	25.98	4.35	2490	14.88%	0.332	2.52	59	81	97	10	9	88%	97
5 (II 2)	38.48	21.81	6.35	2400	10.72%	0.299	2.80	62	82	98	8	6	75%	97
6 (II 3)	38.85	15.52	9.01	2400	7.05%	0.296	2.83	63	82	98	9	7	76%	97
7 (III 1)	38.80	10.86	12.86	2400	4.88%	0.296	2.83	64	82	99	11	8	67%	97
II. Part loads (ballasted, 2wd)														
II.1 in selected gear at maximum power														
6 (II 3)	38.85	15.52	9.01	2400	7.05%	0.296	2.83	63	82	98	9	7	76%	97
II.1.1 75% of pull at maximum power at rated speed														
6 (II 3)	30.84	11.59	9.58	2499	5.13%	0.324	2.58	60	81	97	16	10	46%	97
II.1.2 50% of pull at maximum power at rated speed														
6 (II 3)	21.19	7.72	9.88	2534	3.53%	0.374	2.24	58	81	96	16	10	46%	..
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
7 (III 1)	30.83	11.63	9.54	1784	5.07%	0.271	3.09	59	82	94	16	10	46%	97
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
7 (III 1)	21.23	7.74	9.87	1815	3.46%	0.295	2.84	56	80	92	16	10	46%	97

OECD Drawbar Data (US)

Date of tests: 23 Sep 92 Fuel density: 6.987 lb/gal
Type of track: Concrete Test number: 1662

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel hum-idity	Press
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in H
I. Maximum Power (ballasted, 2wd at 2400 rev/min)						Tire pressure:		16 psig, rear		12 psig, front	Drawbar height		17.0 in	
4 (II 1)	42.12	5842	2.70	2490	14.88%	0.546	12.80	139	178	207	50	49	88%	28
5 (II 2)	51.60	4902	3.95	2400	10.72%	0.491	14.24	144	179	208	47	42	75%	28
6 (II 3)	52.10	3489	5.60	2400	7.05%	0.486	14.36	146	179	208	49	44	76%	28
7 (III 1)	52.03	2443	7.99	2400	4.88%	0.486	14.37	148	179	210	52	46	67%	28
II. Part loads (ballasted, 2wd)														
II.1 in selected gear at maximum power														
6 (II 3)	52.10	3489	5.60	2400	7.05%	0.486	14.36	146	179	208	49	44	76%	28
II.1.1 75% of pull at maximum power at rated speed														
6 (II 3)	41.35	2605	5.95	2499	5.13%	0.533	13.11	140	179	206	60	50	46%	28
II.1.2 50% of pull at maximum power at rated speed														
6 (II 3)	28.42	1737	6.14	2534	3.53%	0.615	11.37	136	177	205	60	50	46%	28
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
7 (III 1)	41.34	2614	5.93	1784	5.07%	0.445	15.69	138	179	202	60	50	46%	28
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
7 (III 1)	28.47	1741	6.13	1815	3.46%	0.485	14.42	132	177	197	60	50	46%	28

OPTIONAL TESTS - BALLASTED, FRONT DRIVE ENGAGED

OECD Drawbar Data (SI)

Date of tests:	7 Oct 92	Fuel density:	0.837 kg/l
Type of track:	Concrete	Test number:	1662

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel humidity	Pressure
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (ballasted, 4wd at 2400 rev/min)						Tire pressure:		110 kPa, rear		83 kPa, front	Drawbar height		432 mm	
4 (II 1)	36.65	30.67	4.30	2447	14.76%	0.313	2.67	60	81	97	10	9	88%	97.80
5 (II 2)	39.40	21.58	6.57	2395	7.89%	0.291	2.87	61	81	97	8	5	63%	97.26
6 (II 3)	39.45	15.42	9.21	2396	5.37%	0.291	2.88	63	82	97	9	6	64%	97.22
7 (III 1)	39.30	10.81	13.09	2399	3.70%	0.292	2.86	64	82	98	10	7	66%	97.19

OECD Drawbar Data (US)

Date of tests:	7 Oct 92	Fuel density:	6.987 lb/gal
Type of track:	Concrete	Test number:	1662

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel humidity	Pressure
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
I. Maximum Power (ballasted, 4wd at 2400 rev/min)						Tire pressure:		16 psig, rear		12 psig, front	Drawbar height		17.0 in	
4 (II 1)	49.15	6895	2.67	2447	14.76%	0.515	13.57	140	179	207	50	48	88%	28.88
5 (II 2)	52.84	4853	4.08	2395	7.89%	0.479	14.59	142	179	207	46	41	63%	28.72
6 (II 3)	52.91	3467	5.72	2396	5.37%	0.479	14.60	146	179	207	48	43	64%	28.71
7 (III 1)	52.71	2430	8.13	2399	3.70%	0.481	14.53	148	179	209	50	45	66%	28.70

Repairs: None
Remarks: During steady state operation on the PTO dynamometer, the character of the fuel system causes momentary engine speed fluctuations of +/- 10 rev/min.