

OECD APPROVAL # 1232
Date of approval: February 15, 1970

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 STANDARD CODE FOR THE
=====

OFFICIAL TESTING OF AGRICULTURAL TRACTOR PERFORMANCE

=====

RESTRICTED TEST-CODE II

=====

JOHN DEERE 4055 POWERSHIFT WITH MECHANICAL
FRONT WHEEL DRIVE (4 WD)



MANUFACTURED BY: John Deere Waterloo Works
P.O.Box 3500
Waterloo, Iowa 50706, USA

NEBRASKA TEST NO.1617

Test date: April-May 1989

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 February 15, 1990

John Deere 4055 Powershift with MFWD

OECD # 1232

No reproduction of this report or any part of it can be made without prior approval by the Center for Agricultural Equipment.

Associate Director of the Center

Louis I. Leviticus

Dr. Louis I. Leviticus

Senior Test Engineer

David L. Morgan

David L. Morgan

Test Engineers

Brent T. Sampson

Brent T. Sampson

Raymond E. Beckner

Raymond E. Beckner

Chairman, Tractor Test Board

Kenneth von Barga

Dr. Kenneth von Barga

Members, Tractor Test Board

Robert D. Grisso Jr.

Dr. Robert D. Grisso

Glenn J. Hoffman

Dr. Glenn J. Hoffman

Date: *27 April* 1990

LINCOLN, NEBRASKA 68583-0832, USA

Table of Contents.
=====

	Page

1. SPECIFICATIONS	1
2. TEST CONDITIONS	11
3. COMPULSORY TESTS	
Main Power Take-Off Performance	13
Power Lift and Hydr. Pump Perf.	16
Drawbar Performance	19
4. GRAPHS	22
5. OPTIONAL TESTS	
External noise levels	25
Drawbar performance at 2200 rev/min	26
Power lift test with Walterscheid lower link arms	27

SPECIFICATIONS OF TRACTOR.

=====

Manufacturers name/address	:	John Deere Tractor Works P.O. Box 3500 Waterloo, Iowa
Submitted for test by	:	The manufacturer
Selected for test by	:	The manufacturer in agreement with the test station.
Place of running in	:	John Deere P.E.C. Waterloo, Iowa
Duration of running in	:	52 hours.
Location of Test	:	Center for Agricultural Equip- ment, Lincoln, Nebraska, USA.

TRACTOR.

Make	John Deere
Model	4055
Type	Unit construction, mechanical front wheel drive (4 WD)
Number of driving wheels	4
Serial Number	*RW4055P001009*
1st Serial number	*RW4055P001001*

ENGINE.

Make	John Deere
Model	6076TRW08
Type	Diesel, turbocharged.
Serial Number	*RB6076T102415*

Cylinders

Number & Disposition	6, in-line, vertical
Bore x stroke	115.8 mm x 120.7 mm (4.56 in x 4.75 in)
Cubic capacity	7634 ml (466 cu.in.)
Compression Ratio	16.0 - 1
Arrangement of valves	Overhead
Cylinder liners	Wet, replacable

Super charging

Make/Model/Type	Air Research/RE29308/ exhaust gas driven
Pressure	70-90 kPa (10-13 psi) at rated speed & load.

Fuel System

Feed system	Transfer pump integral with injection pump
Make/Type/Model of filters	Stanadyne/RE27091/ paper element
Fuel Tank capacity	246 liter (65 US gallons)

Make/Model/Type Injection Pump	Bosch/RE36069/In line
Pump Serial number	85142756
Production setting of pump	
Flow Rate (Rated Eng.Spd & Full Load)	20.9 +/- 0.94 kg/hr 46.1 +/- 2.07 lb/hr
Make/Model/Type of injectors	Nippondenso/RE30084/21 mm
Injection pressure	29.0 MPa(4200 psi)
Timing	27 degrees before TDC
<u>Governor</u>	
Make/Model/Type	Bosch/RSV425/mechanical
Governed engine speed range	From 800 to 2400 rev/min
Rated engine speed	2200 rev/min
High-idle speed range	2375 +/- 25 rev/min
<u>Air Cleaner.</u>	
Pre-cleaner	
Make/Model/Type	Donaldson/plastic mesh chaff screen
Air intake location	top of air stack
Main Cleaner	
Make/Model/Type	Donaldson/AR79679/ pleated paper
Secondary element	
Make/Model/Type	Donaldson/AR79680/ pleated paper
Maintenance indicator	Dash mounted light and horn
<u>Lubrication system.</u>	
Type of feed pump	Full pressure, positive displacement.
Type of filters	Full flow with bypass
Number	One
Oil cooler	Heat exchanger with engine coolant
<u>Cooling system.</u>	
Type of coolant	Liquid
Type of pump	Centrifugal
Fan specification	Belt driven, variable speed
Number of fan blades	8
Fan diameter	610 mm (24.0 in)
Coolant system capacity	25.6 liter (27 qt)
Type of temperature control	2 thermostats and variable speed fan
Superpressure system	69 kPa (10 psi)
<u>Starting system.</u>	
Make/Model/Type of starter	Nippondenso/RE38336/electric
Power Rating	4.75 kW (6.4 hp)
Cold starting aid	Ether spray in intake manifold.
Safety device	Electrical lockout on gearshift

Electrical system.

Voltage & grounding.

12 Volt DC;negative ground

Generator

Make/Model/Type

Nippondenso/RE37201/belt driven

Power rating

120 Ampere at 2200 engine rpm.

Batteries

Number & connection

2-12 V batteries in parallel

Rating

175 Ampere hours per battery

at 20 hour rating

925 cold crank amps per battery

Exhaust system.

Make/Model/Type

Donaldson/RE35448/

expansion chamber

Location

Vertical above hood,

left of centerline

TRANSMISSION.

=====

Clutch. (travel)

Make/Type

John Deere/multiple plate

oil cooled

Number of plates

2, 3, or 5 (depending on gear)

Plate diameter

279.4 mm (11.0 in)

Method of operation

Hydraulically actuated

by foot pedal.

Gear Box.

Make/Type

John Deere/full powershift

Arrangement

planetary design consisting of:
one input planetary gearset,
one 2 speed planetary gearset,
two compound planetary gearsets,
all with multiple wet disc
clutches and brakes

Number of gears

15 forward and 4 reverse
controlled by a single
hand lever

Oil cooler

Heat exchanger with air

Available options

none

Rear axle and final drives.

Make/Type

John Deere/crown wheel and
pinion ,differential and
inboard planetary reduction

Differential Lock

Type

Hydraulic

Method of engagement

Foot pedal

Method of disengagement

Self disengaging with
brake pedal

Front Axle and final drives.

Make/Model/Type

John Deere/crown wheel and
pinion ,differential and
outboard 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 842 mm (33.1 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 2200 rev/min		
		[km/h]	[mph]	
1 fwd	307.69	2.27	1.41	
2 fwd	214.84	3.25	2.02	
3 fwd	182.27	3.83	2.38	
4 fwd	141.57	4.93	3.06	
5 fwd	122.84	5.68	3.53	
6 fwd	108.27	6.45	4.01	
7 fwd	93.98	7.43	4.61	
8 fwd	83.87	8.32	5.17	
9 fwd	72.82	9.58	5.96	
10 fwd	64.16	10.88	6.76	
11 fwd	55.68	12.53	7.79	
12 fwd	48.53	14.38	8.94	
13 fwd	39.22	17.80	11.06	
14 fwd	28.76	24.27	15.08	
15 fwd	23.25	30.02	18.65	
1 rev	252.58	2.76	1.72	
2 rev	176.42	3.96	2.46	
3 rev	116.16	6.01	3.73	
4 rev	77.11	9.05	5.62	
=====				

Number of front wheel revolutions
for one rear wheel revolution. 1.3422

POWER - TAKE - OFF.

=====

Main Power-Take-Off.

Type	Independent
Method of engagement	Hydraulically actuated multi-plate wet clutch operated by hand lever, independent of main drive clutch.
Number of shafts	one
Method of changing PTO shaft ends and speeds	Interchangeable shafts

Standard PTO. 1000 rev/min.

Location	Rear of tractor, vertical center plane.
Diameter of shaft	34.9 mm (1.375 inch)
Number of splines	21; conforms to ISO 500/1979.
Height above ground	675 mm (26.6 in)
Distance from median plane of tractor	0 mm
Distance behind rear axle	498 mm (19.6 in.)
PTO Speed @ rated engine speed	1002 rev/min
Engine speed @ Std. PTO Speed	2195 rev/min
Ratio of Engine rpm to PTO rpm	2.195
Direction of rotation (viewed facing driving end)	Clockwise.

Standard PTO 540 rev/min. (not tested)

Location	Rear of tractor, vertical center plane.
Diameter of PTO shaft end.	34.9 mm (1.375 in)
Number of splines	6; conforms to ISO 500/1979
Height above ground	675 mm (26.6 in)
Distance from median plane of tractor	0 mm
Distance behind rear wheels	521 mm (20.5 in)
PTO speed @ rated engine speed	540 rev/min
Engine speed @ Std PTO Speed	2201 rev/min
Ratio of Eng spd./PTO spd.	4.0758
Maximum allowed power	56 kW (75 Hp)
Rotation direction when viewed from shaft end	Clockwise.

POWER LIFT.

=====

Make	John Deere
Type of hydraulic system	Hydraulic lift with variable mix of draft and position control; Lower link sensing with adjustable speed of drop, closed center
Number/Type of cylinders	one internal with one or two optional external, all single acting
Type of linkage lock for transport	Hydraulic
Relief valve setting	17.5 +/-0.3 MPa (2535 +/- 45 psi)
Opening pressure of cylinder safety valve	20.7 MPa (3000 psi)
Lift pump type	Radial piston, variable delivery, constant pressure
Power transmission to pump	Direct drive
Type/Number of filters	paper element/one
Location of oil reservoir	Transmission housing
Number/Type/Location of tapping points.	2 pairs of ISO standard couplings at rear of tractor. (a third set is optional)
Max. oil volume available for external cylinders.	5.0 l (5.3 qt) 10.0 l (10.6 qt) with 5.0 l (5.3 qt) allowable overfill

THREE POINT LINKAGE

=====

- Category 2 or 3N in conformity with ISO 730/1-1977
- Category adaptor - none

THREE POINT LINKAGE.

=====

Figure 1.1

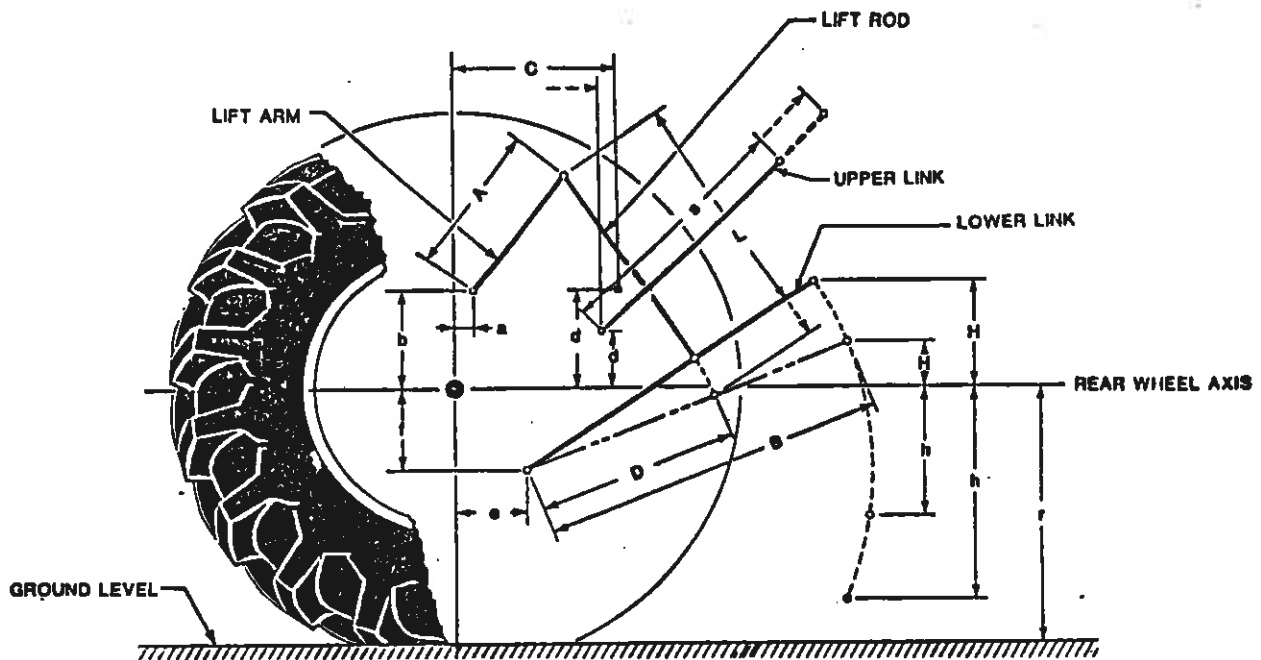


Figure 1.2

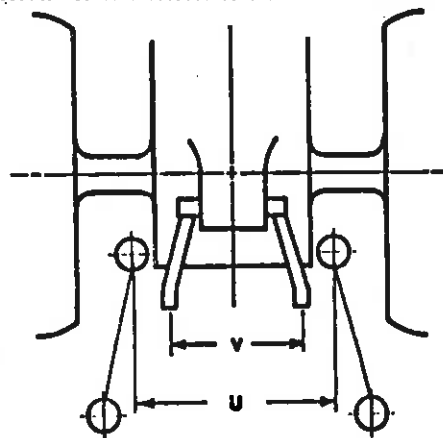


Table 1.1 -*Linkage geometry dimensions.

		Dimension or range		Settings used on test	
		[mm]	[in]	[mm]	[in]
Lift category		II			
Rear Tire - Radius Index	(r)	842	33.1		
Front Tire - Radius Index	(r')	628	24.7		
Length of lift arms	(A)	292	11.5	same	
Length of lower links	(B)	932	36.7	same	
Distance of lift					
arm pivot from: horizontal	(a)	70	2.8	same	
rear wheel axis: vertical	(b)	278	10.9	same	
Horizontal distance between the					
2 lower link points	(u)	427	16.8	same	
Horizontal distance between the					
2 lift arm end points	(v)	583	23.0	same	
Length of upper link	(S)	625	24.6	676	26.6
	to	790	31.1		
Distance of upper					
link pivot from: horizontal	(c)	343	13.5	same	
rear wheel axis: vertical	(d)	140	5.5	same	
Distance of lower					
link pivot from: horizontal	(e)	114	4.5	same	
rear wheel axis: vertical	(f)	259	10.2	same	
Distance of lower link pivot					
points to lift rod pivot pts					
on lower links	(D)	587	23.1	same	
Length of lift rods	(L)	775	30.5	833	32.8
	to	860	33.9		
Height of lower hitch points					
relative to rear wheel axis					
In low position	(h)	638	25.1	630	24.8
	to	478	18.8		
In high position	(H)	165	6.5	62	2.5
	to	48	1.9		
Height above ground of lower					
hitch points when locked in					
transport position.		886	34.9		
	to	1006	39.6	894	35.2

*Assuming (r) with a tire index dynamic index of 842 mm (33.1 in)
ISO 4251/1-1984

SWINGING DRAWBAR.

=====

Type	Oscillating
Height above ground	Minimum: 417 mm (16.4 in) Maximum: 531 mm (20.9 in)
Adjustments	Inverting drawbar and repositioning clevis
Distance of hitch point from rear wheel axis, horizontal	727, 804, 870, 903 mm (28.6, 31.7, 34.3, 35.6 in)
Distance of hitch point from PTO shaft end.....1000 rpm	
Vertical	108 mm (4.3 in) 223 mm (8.8 in)
Horizontal	228, 305, 371, 404 mm (9.0, 12.0, 14.6, 15.9 in)
.....540 rpm	
Vertical	108 mm (4.3 in) 223 mm (8.8 in)
Horizontal	204, 281, 347, 380 mm (8.0, 11.0, 13.7, 14.9 in)
Lateral adjustment; Right side	232 mm (9.1 in)
Left side	232 mm (9.1 in)
Distance of pivot point from rear wheel axis; horizontal	175 mm (6.9 in) forward.
Diameter of drawbar pin hole	33 mm (1.3 in)
Maximum vertical static permissible load	13.2 kN (2950 lb)

STEERING

=====

Make/Model/Type	John Deere/Hydrostatic
Method of operation	Steering wheel
Pump(s)	same as main hydraulic pump
Ram(s)	two internal
Working pressure	same as main hydraulic pressure

BRAKE SYSTEM.

=====

<u>Service brake.</u>	
Make/Model/Type	John Deere/oil immersed disc
Method of operation	Hydraulically actuated from main system; operated by two pedals which can be locked together.
<u>Parking brake.</u>	
Type	Transmission lock
Method of operation	Gear selector lever.
<u>Trailer Brake.</u> (optional)	
Type	Hydraulic

WHEELS.

=====

Number.	
Front	Two; Driving and steering
Rear	Two or four; Driving
Wheelbase	2675 mm (105.3 in)

Track width adjustment

	Minimum		Maximum		Adjustment method
	[mm]	[in]	[mm]	[in]	
Front	1538	60.6	2235	88.0	Reversing wheels and offset lug rims
Rear	1574	62.0	2800	110.2	Rack and pinion axle, reversing wheels and offset lug rims

PROTECTIVE STRUCTURE.

=====

Make/Model/Type	John Deere/S6046/ Sound-Gard Body
Manufacturer's name/address	John Deere Tractor Works Waterloo, Iowa
Protective device	Cab, not tiltable.
OECD approval number	CSS 073/21

DRIVER'S SEAT.

=====

Make/Model/Type	John Deere/HydraCushioned
Type of suspension and damping	Gas charged accumulator and spring loaded attenuator
Range of adjustment	
Longitudinal	150 mm (5.9 in)
Vertical	64 mm (2.5 in)
Rotation	25 degrees each way

LIGHTING.

=====

	Height above ground of center		Size	Distance from out - side edge to median plane of tractor.	
	[mm]	[in]		[mm]	[in]
Headlights	1768	69.6	50 x 125	250	9.8
	1898	74.7	100 dia.	978	38.5
Rearlights	2725	107.3	100 dia	813	32.0
	2002	78.8	100 dia.	813	32.0
Rear reflectors	2878	113.3	50 x 197	554	21.8
	1862	73.3	83 x 190	870	34.3

TEST CONDITIONS.

=====

Overall dimensions.

Length		4425 mm (174.2 in)
Width	Minimum	2438 mm (96.0 in)
	Maximum	2870 mm (113.0 in)
Height - Top of cab		3018 mm (118.8 in)
- Top of exhaust		3173 mm (124.9 in)
Ground clearance (unballasted)		399 mm (15.7 in)
Clearance-limiting part		bottom of drawbar

Tractor Mass (with Cab, full fuel tank)

=====

		Without driver		With driver	
		[kg]	[lb]	[kg]	[lb]
Unballasted	Front	2438	5375	2438	5375
	Rear	3891	8580	3966	8745
	Total	6329	13955	6404	14120

=====

Tire Specifications.

	Front wheels	Rear wheels
Make	Goodyear	Goodyear
Dimensions	14.9R26	18.4R38
Ply rating	3 star (10 ply)	1 star (8 ply)
Type	Radial	Radial
Max.load (tire manufacturer)	2135 kg/tire (4710 lb/tire)	2760 kg/tire (6080 lb/tire)
Max.load(tractor manufacturer)	2120 kg/tire (4680 lb/tire)	2720 kg/tire (6000 lb/tire)
Inflation pressure (tire mfr)	205 kPa(30 psi)	125 kPa(18 psi)
Dynamic Radius Index	628 mm(24.7 in)	842 mm(33.1 in)
Chosen track width	1690 mm(66.5 in)	1715 mm(67.6 in)

Oils and Lubrication.

Capacity and change interval:

	Capacity		Oil change	Filter change
	liter	quart	hrs	hrs
Engine (w/o filter)	18	19	250	250
Gear Box (includes rear axle and rear final drive)	60	63.6	1500	Annually
Front axle housing	8.5	9	1500	NA
Final drive, front	1.9	2	1500	NA
Hydraulic system	common with gear box			

Oil and Lubricant specifications:

	Recommended	Used during test
Engine oil		
Type	John Deere Torq-Gard Supreme	same
Viscosity	102 cSt	
Classification	API - CD MIL-L-2104D	
Transmission		
Type	John Deere Hy-Gard	same
Viscosity	58 cSt	
Classification	NA	
Hydraulic fluid	same as transmission oil	same
Steering oil	same as transmission oil	same
Front axle and hubs		
Type	Gear Lubricant	same
Viscosity	85W-140	
Classification	GL-5	
Grease		
Number of lubrication points	21	

Fuel

Type/grade	Diesel Fuel "Premier"; grade 2-D
Density (Pto test)	0.828 g/cubic-cm (6.912 lb/gallon) at 15 °C (59 °F)
(Drawbar test)	same as Pto test.
Cetane number	51.1
Viscosity	2.31 cSt at 38 °C (100 °F)

Remarks: This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed all power tests were conducted at approximately the same ambient air temperatures.

二、三、四、五、六、七、八、九、十、十一、十二、十三、十四、十五、十六、十七、十八、十九、二十、二十一、二十二、二十三、二十四、二十五、二十六、二十七、二十八、二十九、三十、三十一、三十二、三十三、三十四、三十五、三十六、三十七、三十八、三十九、四十、四十一、四十二、四十三、四十四、四十五、四十六、四十七、四十八、四十九、五十、五十一、五十二、五十三、五十四、五十五、五十六、五十七、五十八、五十九、六十、六十一、六十二、六十三、六十四、六十五、六十六、六十七、六十八、六十九、七十、七十一、七十二、七十三、七十四、七十五、七十六、七十七、七十八、七十九、八十、八十一、八十二、八十三、八十四、八十五、八十六、八十七、八十八、八十九、九十、九十一、九十二、九十三、九十四、九十五、九十六、九十七、九十八、九十九、一百

Date of tests : 6 April 1989
Location of tests : Center for Agricultural Equipment,
University of Nebraska, Lincoln, Nebraska.
Type of Dynamometer: Eaton Dynamatic 2025 D.G.

-13-

1.4 Part Loads - governor hand lever set for maximum power at rated engine speed

Power kW (hp)	Speeds		Fuel Consumption		Specific energy	
	engine rev/min	PTO rev/min	hourly l/h (gal/h)	kg/h (lb/h)	specific kg/kW.h (lb/hp.h)	kW.h/l (hp.h/gal)
(i) Torque obtained at maximum power at rated engine speed.						
81.41 (109.18)	2200	1002	25.16 (6.65)	20.84 (45.94)	0.256 (0.421)	3.24 (16.43)
(ii) 85% of the torque obtained in (i)						
72.52 (97.25)	2301	1048	24.15 (6.38)	20.00 (44.10)	0.276 (0.453)	3.00 (15.24)
(iii) 75% of the torque defined in (ii)						
54.81 (73.50)	2328	1061	20.54 (5.43)	17.01 (37.50)	0.310 (0.510)	2.67 (13.55)
(iv) 50% of the torque defined in (ii)						
36.77 (49.31)	2347	1069	16.92 (4.47)	14.02 (30.90)	0.381 (0.627)	2.17 (11.03)
(v) 25% of the torque defined in (ii)						
18.54 (24.86)	2365	1077	12.98 (3.43)	10.75 (23.70)	0.580 (0.953)	1.43 (7.25)
(vi) Unloaded						
0.28 (0.38)	2383	1086	9.36 (2.47)	7.76 (17.10)	27.564 (45.315)	0.03 (0.15)

1.5 Part Loads - governor hand lever set for maximum power at standard pto speed.

Power kW (hp)	Speeds		Fuel Consumption		Specific energy kW.h/l (hp.h/gal)	
	engine rev/min	PTO rev/min	hourly l/h (gal/h)	specific kg/h (lb/h)		
(i) Torque obtained at standard pto speed.						
81.41 (109.18)	2200	1002	25.16 (6.65)	20.84 (45.94)	0.256 (0.421)	3.24 (16.43)
(ii) 85% of the torque obtained in (i)						
72.52 (97.25)	2301	1048	24.15 (6.38)	20.00 (44.10)	0.276 (0.453)	3.00 (15.24)
(iii) 75% of the torque defined in (ii)						
54.81 (73.50)	2328	1061	20.54 (5.43)	17.01 (37.50)	0.310 (0.510)	2.67 (13.55)
(iv) 50% of the torque defined in (ii)						
36.77 (49.31)	2347	1069	16.92 (4.47)	14.02 (30.90)	0.381 (0.627)	2.17 (11.03)
(v) 25% of the torque defined in (ii)						
18.54 (24.86)	2365	1077	12.98 (3.43)	10.75 (23.70)	0.580 (0.953)	1.43 (7.25)
(vi) Unloaded						
0.28 (0.38)	2383	1086	9.36 (2.47)	7.76 (17.10)	27.564 (45.315)	0.03 (0.15)
No-load maximum engine speed				2383 rev/min		
Equivalent engine torque:						
at rated engine speed				353 Nm(2200 rev/min)		
at maximum power				410 Nm(1950 rev/min)		
at maximum torque				471 Nm(1200 rev/min)		
Mean atmospheric conditions:						
Temperature-dry bulb				24 °C (76 °F)		
Relative Humidity				37 %		
Barometer -				98.26 kPa(29.02 in Hg)		

Maximum temperatures :

Thermostat housing	89 °C (193 °F)
Engine oil pan	103 °C (217 °F)
Fuel at injection pump	48 °C (119 °F)
Engine air intake	34 °C (94 °F)
Trans./Hydr. Oil	61 °C (142 °F)

Turbocharger boost pressure

at rated engine speed	69 kPa (10.0 psi)
at maximum power	63 kPa (9.2 psi)

=====

2. POWER LIFT AND HYDRAULIC PUMP PERFORMANCE TEST.

Date of test: 18 April 1989

Location: CAE/UNL, Lincoln, Nebr.

2.1 HYDRAULIC POWER TEST - Hydraulic pump performance

i. Sustained pressure with pump stalled	17.65 MPa (2560 psi)									
ii. Pump delivery rate @ minimum pressure & rated engine speed	102.2 l/m (27.0 gpm)									
iii.	<table><tr><th>Flow Rate</th><th>Pressure</th><th>Power</th></tr><tr><th>l/min</th><th>MPa</th><th>kW</th></tr><tr><th>(gal/min)</th><th>(psi)</th><th>(hp)</th></tr></table>	Flow Rate	Pressure	Power	l/min	MPa	kW	(gal/min)	(psi)	(hp)
Flow Rate	Pressure	Power								
l/min	MPa	kW								
(gal/min)	(psi)	(hp)								
At 90% of relief valve setting.	<table><tr><td>57.9</td><td>15.86</td><td>15.3</td></tr><tr><td>(15.3)</td><td>(2300)</td><td>(20.5)</td></tr></table>	57.9	15.86	15.3	(15.3)	(2300)	(20.5)			
57.9	15.86	15.3								
(15.3)	(2300)	(20.5)								
At maximum hydraulic power.	<table><tr><td>98.8</td><td>14.48</td><td>23.8</td></tr><tr><td>(26.1)</td><td>(2100)</td><td>(32.0)</td></tr></table>	98.8	14.48	23.8	(26.1)	(2100)	(32.0)			
98.8	14.48	23.8								
(26.1)	(2100)	(32.0)								
Tapping point(s)	Two hydraulic outlets combined									
Hydraulic fluid temperature in oil reservoir	65 °C (149 °F)									
at flow meter	60 °C (141 °F)									

2.2 POWER LIFT TEST.

		Hitch Points		Frame	
Lower hitch points above ground - down position. [mm/in]					
		236/9.3		175/6.9	
Vertical movement					
without load	[mm/in]	692/27.2		810/31.9	
with load	[mm/in]	551/21.7		666/26.2	
Maximum corrected force through full range [kN/lbf]					
		28.4/6385		24.5/5504	
Corresponding pressure [kPa/psi]		14479/2100			
Moment about rear axle [kN.m/ft.lb]		29.7/21923		40.5/29903	
Maximum mast tilt angle [degrees]		---		5.0	
Lifting height relative to the horizontal position of lower links					
[mm]	-408	-347	-269	-170	-68
[in]	-16.1	-13.7	-10.6	-6.7	-2.7
Corrected lifting forces.					
hitch [kN]	---	28.4	28.9	30.6	31.7
points [lb]	---	6385	6507	6880	7134
at [kN]	28.3	---	27.6	28.1	27.7
frame [lb]	6367	---	6195	6310	6236
Lifting height relative to the horizontal position of lower links					
[mm]	1	102	204	257	
[in]	0	4.0	8.0	10.1	
Corrected lift forces.					
hitch [kN]	32.1	32.2	32.6	---	
points [lb]	7207	7248	7329	---	
at [kN]	27.0	25.8	---	24.5	
frame [lb]	6071	5808	---	5504	

THREE POINT LIFT PERFORMANCE
(With lift assist cylinder)
(for settings used see p.8)

			Hitch Points	Frame	
Lower hitch points above ground - down position. [mm/in]			243/9.6	182/7.2	
Vertical movement					
without load	[mm/in]		692/27.2	810/31.9	
with load	[mm/in]		543/21.4	660/26.0	
Maximum corrected force through full range [kN/lbf]			36.9/8287	32.4/7281	
Corresponding pressure [kPa/psi]			14479/2100		
Moment about rear axle [kN.m/ft.lb]			38.6/28451	53.6/39558	
Maximum mast tilt angle [degrees]			--	5.3	
=====					
Lifting height relative to the horizontal position of lower links					
[mm]	-401	-340	-264	-162	-60
[in]	-15.8	-13.4	-10.4	-6.4	-2.4
Corrected lifting forces.					
hitch [kN]	--	36.9	38.5	40.6	42.0
points [lb]	--	8287	8663	9137	9440
at [kN]	36.9	--	36.7	37.0	36.9
frame [lb]	8293	--	8251	8325	8284
Lifting height relative to the horizontal position of lower links					
[mm]	-2	102	204	260	
[in]	-0.1	4.0	8.0	10.2	
Corrected lift forces.					
hitch [kN]	43.1	43.3	43.9	--	
points [lb]	9694	9726	9865	--	
at [kN]	35.8	34.1	--	32.4	
frame [lb]	8046	7667	--	7281	

3. DRAWBAR POWER AND FUEL CONSUMPTION (UNBALLASTED TRACTOR)

OECD Drawbar Data (SI)

Date of tests: 13-Apr-89 13-Apr-89 Fuel density: 0.828 kg/l														
Type of track: Concrete Test # 1617														
Gear	Power	Pull	Speed	Engine	Slip	SFC		Temperature, deg C					Rel	Pressure
	kW	kN	km/h	Speed rev/min	%	kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet	hum %	kPa
I. Maximum Power (unballasted, fwa @ 1950 rpm)						Tire pressure:		110 kPa, rear			207 kPa, front			
Drawbar height: 432 mm														
2nd	50.79	61.42	2.98	2318	12.28%	0.366	2.26	47	81	98	14	9	51	98.27
3rd	58.21	61.75	3.39	2283	13.90%	0.356	2.33	47	81	98	12	9	68	98.31
4th	67.83	54.98	4.44	2141	6.80%	0.306	2.71	45	82	97	7	3	50	98.34
5th	70.04	54.20	4.65	1948	6.87%	0.291	2.85	45	84	99	16	9	38	98.27
6th	71.23	47.65	5.38	1952	5.21%	0.286	2.89	45	84	99	17	10	40	98.24
7th	71.97	41.29	6.27	1952	3.95%	0.284	2.92	45	85	98	21	12	32	97.93
8th	70.27	35.76	7.08	1950	3.48%	0.289	2.87	45	85	98	21	12	32	97.97
9th	70.37	30.93	8.19	1948	2.83%	0.288	2.87	46	85	98	21	12	32	98.00
10th	69.59	26.79	9.35	1953	2.34%	0.293	2.83	43	84	98	18	11	41	98.17
11th	69.75	23.25	10.80	1950	2.10%	0.293	2.83	45	84	98	20	12	37	98.10
12th	71.07	20.60	12.42	1947	1.77%	0.284	2.91	45	85	98	21	12	32	98.07
13th	69.12	16.11	15.44	1951	1.43%	0.294	2.82	44	84	96	21	12	32	98.04

OECD Drawbar Data (US)

Date of tests: 13-Apr-89 13-Apr-89 Fuel density: 6.912 lb/gal														
Type of track: Concrete Test # 1617														
Gear	Power	Pull	Speed	Engine	Slip	SFC		Temperature, deg F					Rel	Pressure
	hp	lb	mph	Speed rpm	%	lb/hp-hr	hp-hr/gal	Fuel	Coolant	Oil	Dry	Wet	hum	in Hg
I. Maximum Power (unballasted, fwa @ 1950 rpm)								Tire pressure:		16 psi, rear		30 psi, front		
Drawbar height: 17 in														
2nd	68.11	13809	1.85	2318	12.28%	0.601	11.49	116	177	208	57	49	51	29.02
3rd	78.06	13881	2.11	2283	13.90%	0.585	11.82	117	179	209	54	48	68	29.03
4th	90.97	12361	2.76	2141	6.80%	0.503	13.74	113	179	207	45	38	50	29.04
5th	93.93	12185	2.89	1948	6.87%	0.478	14.45	113	183	210	61	49	38	29.02
6th	95.52	10712	3.34	1952	5.21%	0.470	14.69	113	184	210	63	50	40	29.01
7th	96.51	9283	3.90	1952	3.95%	0.466	14.82	114	186	209	70	53	32	28.92
8th	94.24	8039	4.40	1950	3.48%	0.475	14.55	113	185	208	70	53	32	28.93
9th	94.37	6954	5.09	1948	2.83%	0.474	14.59	114	185	208	70	53	32	28.94
10th	93.33	6023	5.81	1953	2.34%	0.482	14.34	110	184	209	65	51	41	28.99
11th	93.54	5227	6.71	1950	2.10%	0.481	14.37	113	184	208	68	53	37	28.97
12th	95.30	4631	7.72	1947	1.77%	0.467	14.79	113	185	208	70	53	32	28.96
13th	92.69	3622	9.60	1951	1.43%	0.483	14.32	112	184	206	70	53	32	28.95

OECD Drawbar Data (SI)

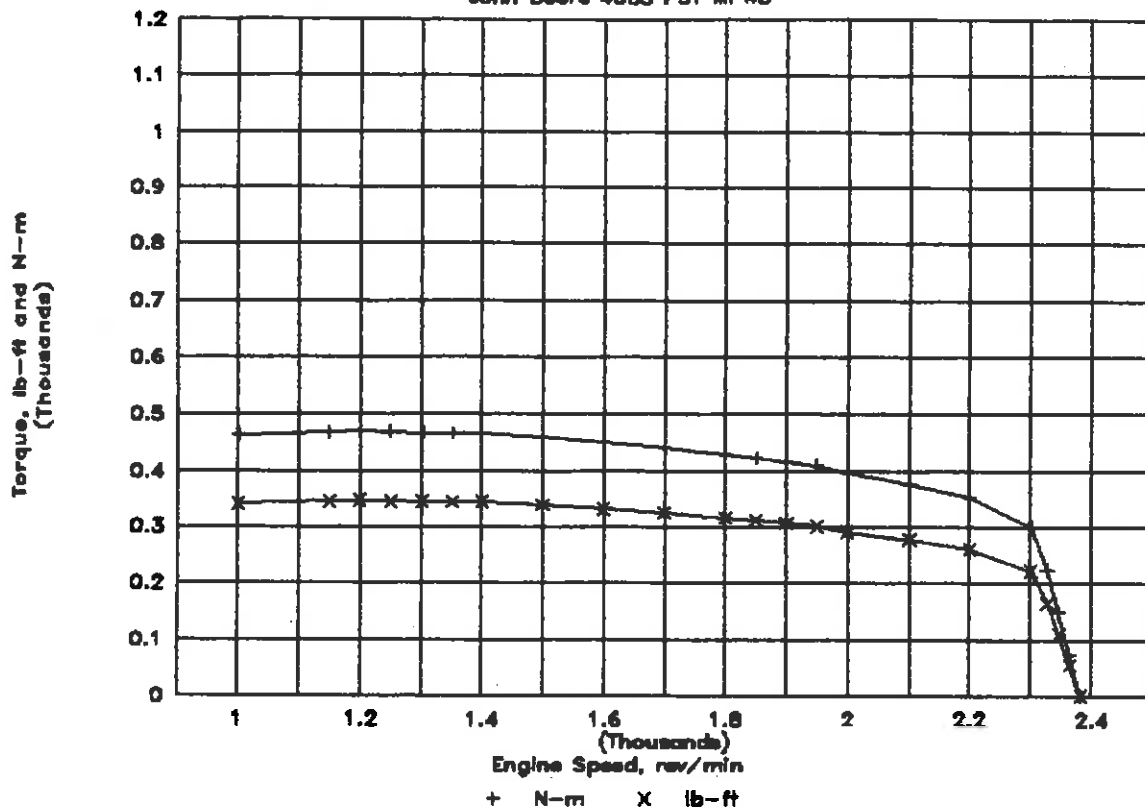
Date of tests: 13-Apr-89 13-Apr-89 Fuel density: 0.828 kg/l														
Type of track: Concrete Test # 1617														
Gear	Power	Pull	Speed	Engine Speed	Slip	SFC		Temperature, deg C					Rel hum	Pressure
	kW	kN	km/h	rev/min	%	kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet	%	kPa
II. Part Load runs (unballasted, fwa)														
Tire pressure: 110 kPa, rear 207 kPa, front														
Drawbar height: 432 mm														
II.1 in selected gear at maximum power														
7th	71.97	41.29	6.27	1952	3.95%	0.284	2.92	45	85	98	21	12	32	97.93
II.1.1 75% of pull at maximum power at rated speed														
7th 75% @	55.27	26.19	7.60	2321	2.26%	0.337	2.46	39	83	94	21	12	32	97.93
II.1.2 50% of pull at maximum power at rated speed														
7th 50% @	37.39	17.45	7.71	2339	1.60%	0.405	2.04	39	82	98	21	12	32	97.93
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as in II.1.1														
8th 75% @	55.31	26.16	7.61	2066	2.18%	0.318	2.61	38	83	96	21	12	32	97.90
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as in II.1.2														
8th 50% @	37.30	17.45	7.69	2082	1.52%	0.374	2.22	38	82	95	21	12	32	97.90
II.2 Note - selected gear is closest gear to 7.5 km/h														

OECD Drawbar Data (US)

Date of tests: 13-Apr-89 13-Apr-89 Fuel density: 6.912 lb/gal														
Type of track: Concrete Test # 1617														
Gear	Power	Pull	Speed	Engine	Slip	SFC		Temperature, deg F					Rel	Pressure
	hp	lb	mph	Speed rpm	%	lb/hp-hr	hp-hr/gal	Fuel	Coolant	Oil	Dry	Wet	hum %	in Hg
II. Part Load runs (unballasted, fwa)					Tire pressure:					16 psi, rear		30 psi, front		
Drawbar height:					17 in									
II.1 in selected gear at maximum power														
7th	96.51	9283	3.90	1952	3.95%	0.466	14.82	114	186	209	70	53	32	28.92
II.1.1 75% of pull at maximum power at rated speed														
7th 75% @	74.12	5889	4.72	2321	2.26%	0.554	12.47	103	182	202	70	53	32	28.92
II.1.2 50% of pull at maximum power at rated speed														
7th 50% @	50.14	3923	4.79	2339	1.60%	0.666	10.37	103	180	208	70	53	32	28.92
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as in II.1.1														
8th 75% @	74.17	5882	4.73	2066	2.18%	0.522	13.23	101	182	204	70	53	32	28.91
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as in II.1.2														
8th 50% @	50.01	3924	4.78	2082	1.52%	0.615	11.25	100	179	203	70	53	32	28.91
II.2 Note - selected gear is closest gear to 4.6 mph														

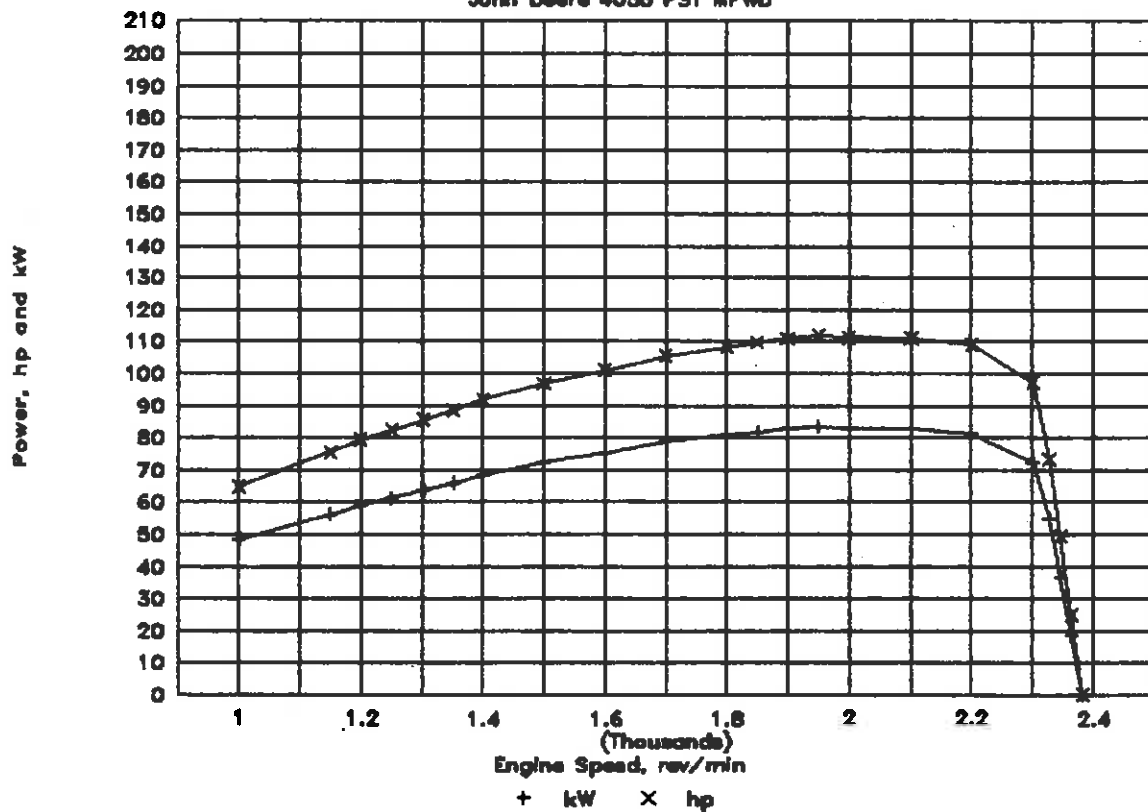
Equivalent Crankshaft Torque

John Deere 4055 PST MFWD



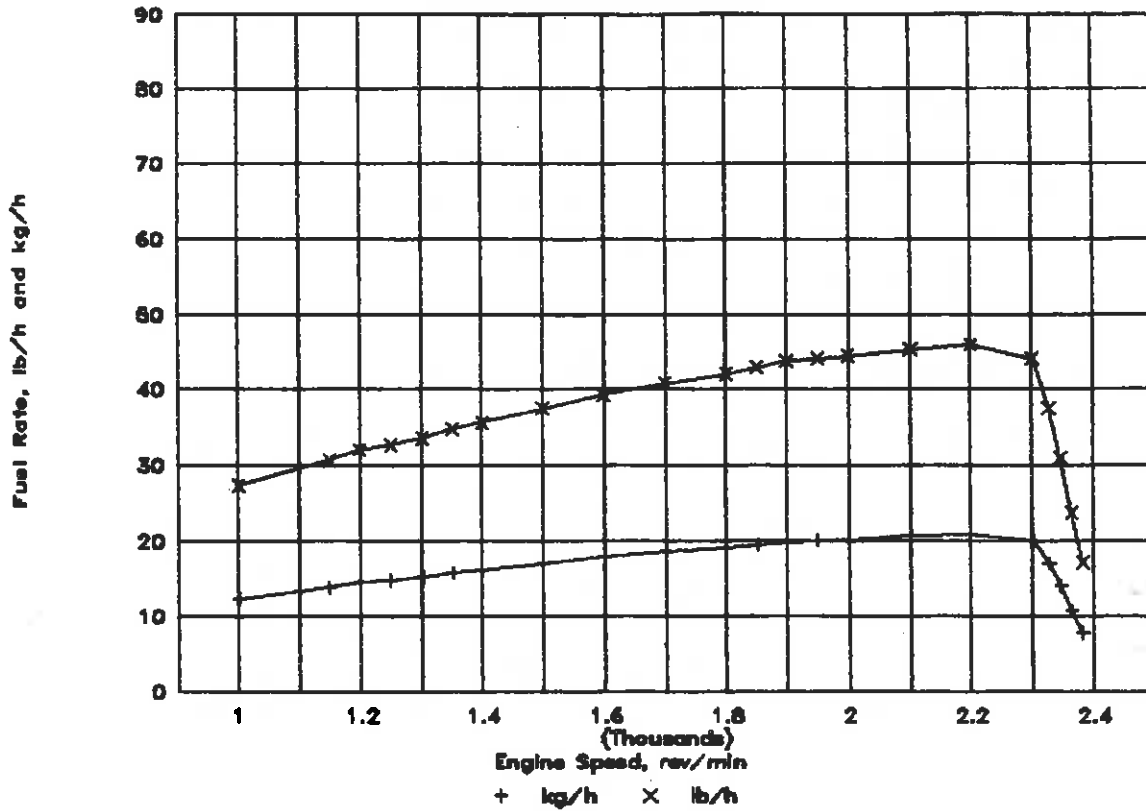
PTO Power

John Deere 4055 PST MFWD



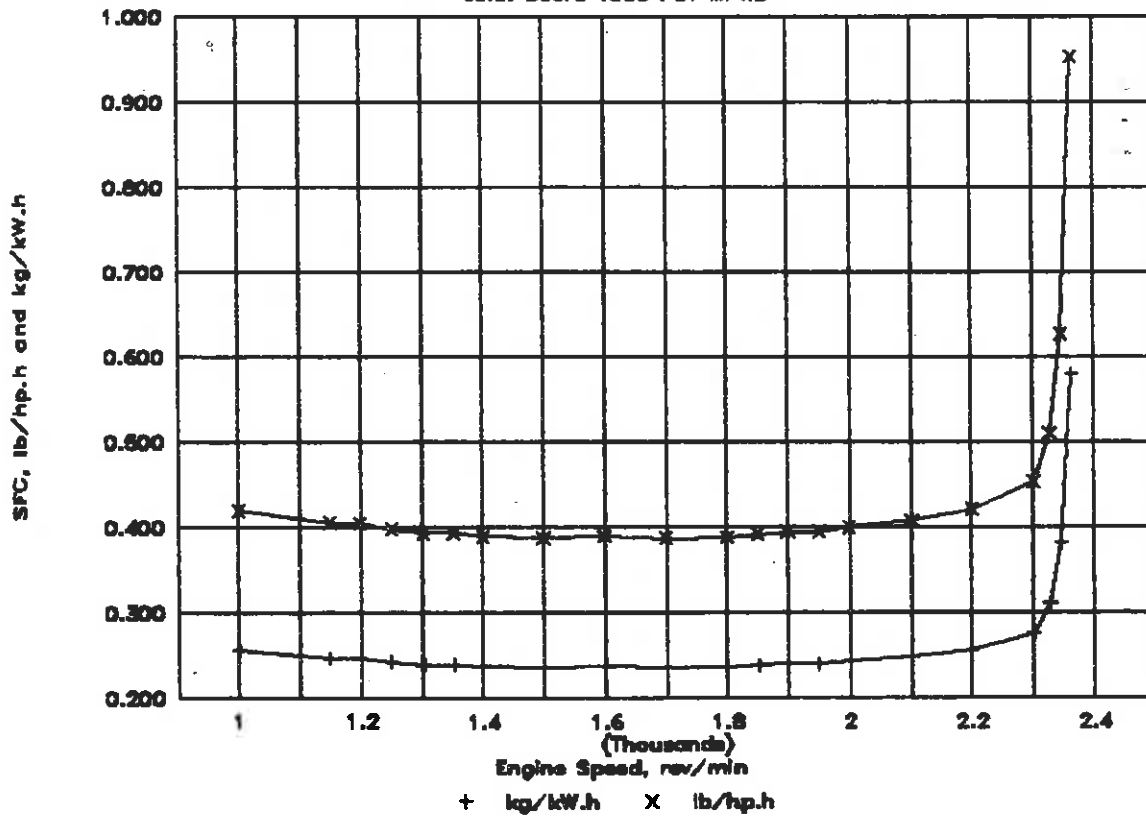
PTO Fuel Consumption

John Deere 4055 PST MFWD



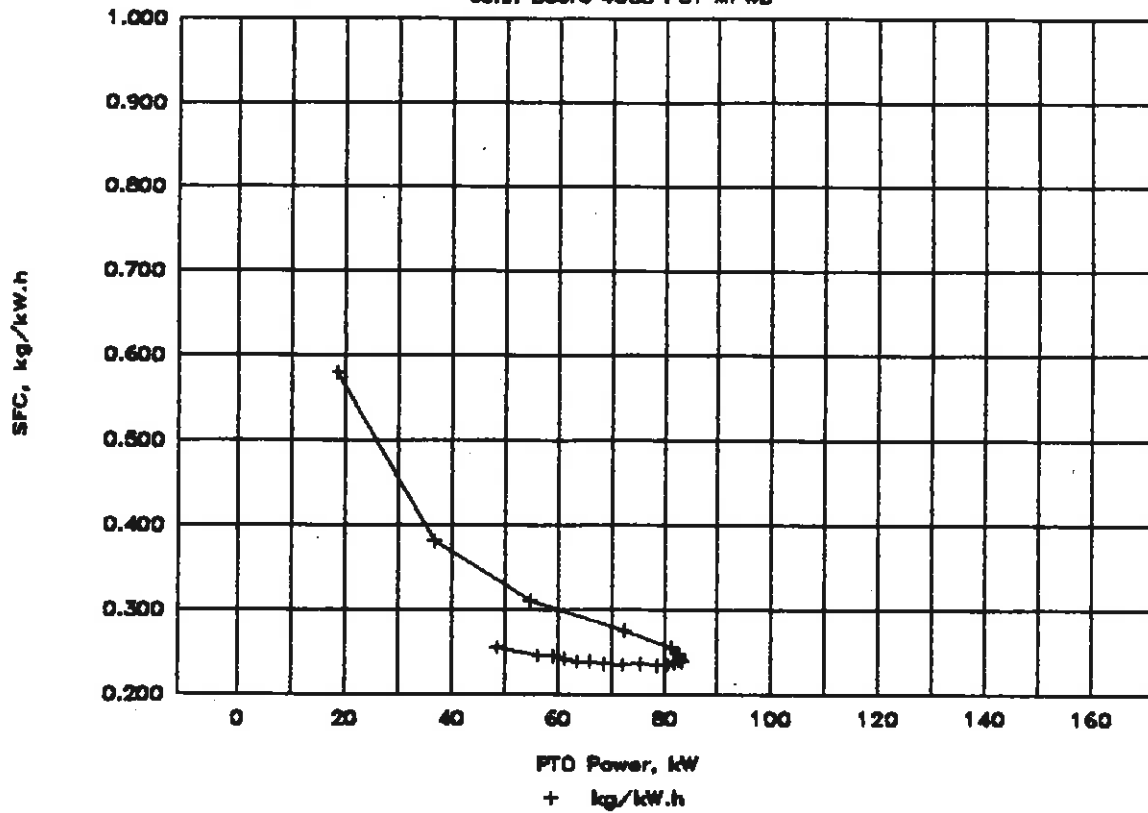
PTO Specific Fuel Consumption

John Deere 4055 PST MFWD



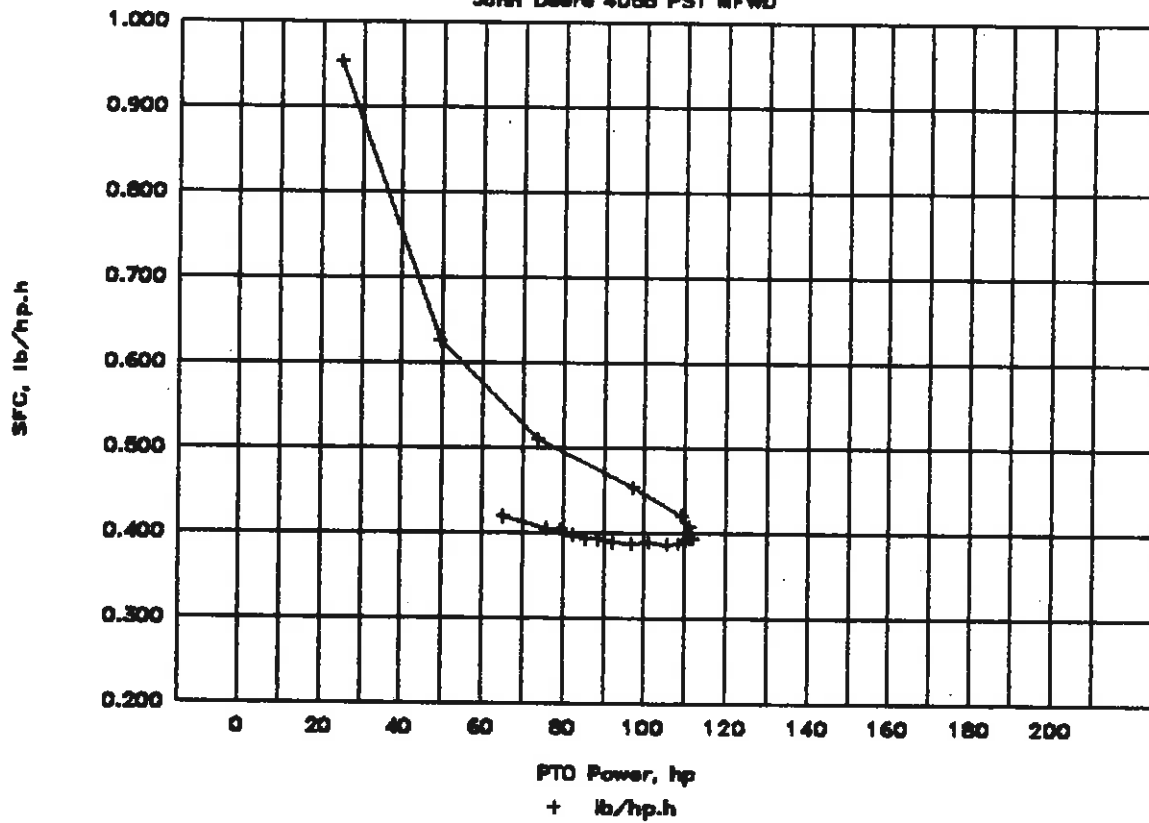
SFC vs PTO Power

John Deere 4055 PST MFWD



SFC vs PTO Power

John Deere 4055 PST MFWD



5. OPTIONAL TESTS.

=====

5.1 MEASUREMENT OF EXTERNAL NOISE LEVEL.

Date of test : April 18, 1989
Location of test : CAE/UNL, Lincoln, Nebr.
Sound level meter : B & K 2203
Type of track : Concrete oval
Gear number : 15th
Speed prior to acceleration : 23.8 km/h (14.8 mph)
Sound level : 87.0 dB(A)

5.2 DRAWBAR PERFORMANCE AT 2200 RPM

OECD Drawbar Data (SI)

Date of tests: 13-Apr-89 13-Apr-89 Fuel density: 0.828 kg/l														
Type of track: Concrete Test # 1617														
Gear	Power	Pull	Speed	Engine Speed	Slip	SFC		Temperature, deg C					Rel hum	Pressure
	kW	kN	km/h	rev/min	%	kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet	%	kPa
Ia. Maximum Power (unballasted, fwa @ 2200 rpm)						Tire pressure:		110 kPa, rear			207 kPa, front			
Drawbar height: 432 mm														
3rd	58.23	62.05	3.38	2286	14.34%	0.356	2.33	46	81	98	11	8	67	98.31
4th	66.98	52.33	4.61	2201	5.74%	0.310	2.67	45	82	98	9	8	88	98.34
5th	68.11	45.56	5.38	2202	4.58%	0.306	2.70	45	83	96	16	9	38	98.27
6th	68.42	40.13	6.14	2198	4.03%	0.304	2.73	46	83	99	17	10	18	98.24
7th	69.19	34.91	7.14	2201	3.32%	0.300	2.76	45	85	99	21	12	32	97.97
8th	67.29	30.17	8.03	2199	2.75%	0.309	2.68	45	84	98	21	12	32	97.97
9th	66.88	25.91	9.29	2199	2.34%	0.309	2.68	46	84	97	21	12	32	98.00
10th	66.58	22.63	10.59	2202	2.10%	0.310	2.67	44	83	96	21	12	32	98.04
11th	65.12	19.17	12.23	2200	1.68%	0.317	2.61	45	84	98	19	11	36	98.14
12th	67.10	17.18	14.06	2201	1.52%	0.311	2.67	44	84	97	21	12	32	98.07

OECD Drawbar Data (US)

Date of tests: 13-Apr-89 13-Apr-89 Fuel density: 6.912 lb/gal														
Type of track: Concrete Test # 1617														
Gear	Power	Pull	Speed	Engine	Slip	SFC		Temperature, deg F					Rel	Pressure
	hp	lb	mph	Speed rpm	%	lb/hp-hr	hp-hr/gal	Fuel	Coolant	Oil	Dry	Wet	hum %	in Hg
Ia. Maximum Power (unballasted, fwa @ 2200 rpm)						Tire pressure:		16 psi, rear			30 psi, front			
Drawbar height: 17 in														
3rd	78.09	13950	2.10	2286	14.34%	0.585	11.81	115	179	208	51	47	67	29.03
4th	89.82	11764	2.86	2201	5.74%	0.510	13.55	114	180	208	48	46	88	29.04
5th	91.33	10243	3.34	2202	4.58%	0.504	13.72	114	182	205	60	49	38	29.02
6th	91.75	9023	3.81	2198	4.03%	0.499	13.85	115	182	211	62	50	18	29.01
7th	92.79	7848	4.43	2201	3.32%	0.493	14.02	114	185	210	70	53	32	28.93
8th	90.23	6783	4.99	2199	2.75%	0.508	13.62	113	184	208	70	53	32	28.93
9th	89.69	5826	5.77	2199	2.34%	0.508	13.59	114	184	207	70	53	32	28.94
10th	89.28	5087	6.58	2202	2.10%	0.510	13.54	111	182	205	70	53	32	28.95
11th	87.33	4310	7.60	2200	1.68%	0.522	13.24	113	183	209	66	52	36	28.98
12th	89.98	3862	8.74	2201	1.52%	0.511	13.53	112	183	207	69	54	32	28.96

5.3 POWER LIFT TEST

*Linkage geometry dimensions. (Tractor equipped with Walterscheid lower link ends)					
		Dimension or range		Settings used on test	
		[mm]	[in]	[mm]	[in]

Lift category		II			
Rear Tire - Radius Index	(r)	842	33.1		
Front Tire - Radius Index	(r')	628	24.7		
Length of lift arms	(A)	292	11.5	same	
Length of lower links	(B)	1022	40.2	same	
Distance of lift					
arm pivot from: horizontal	(a)	70	2.8	same	
rear wheel axis: vertical	(b)	278	10.9	same	
Horizontal distance between the					
2 lower link points	(u)	427	16.8	same	
Horizontal distance between the					
2 lift arm end points	(v)	583	23.0	same	
Length of upper link	(S)	635	25.0	752	29.6
	to	815	32.1		
Distance of upper					
link pivot from: horizontal	(c)	380	15.0		
		367	14.4	367	14.4
rear wheel axis: vertical top	(d)	380	15.0		
middle		216	8.5		
bottom		155	6.1	155	6.1
Distance of lower					
link pivot from: horizontal	(e)	114	4.5	same	
rear wheel axis: vertical	(f)	259	10.2	same	
Distance of lower link pivot					
points to lift rod pivot pts					
on lower links.	(D)	587	23.1	same	
Length of lift rods	(L)	775	30.5	814	32.1
	to	860	33.9		
Height of lower hitch points					
relative to rear wheel axis					
In low position	(h)	638	25.1	621	24.5
	to	478	18.8		
In high position	(H)	48	1.9	116	4.6
	to	165	6.5		
Height above ground of lower					
hitch points when locked in					
transport position		886	34.9		
	to	1006	39.6	958	37.7
=====					
*Assuming (r) with a tire dynamic index of 842 mm (33.1 in)					
ISO 4251/1-1984					

THREE POINT LIFT PERFORMANCE
(Upper link in bottom hole on tractor)
(Tractor equipped with 2 lift assist cylinders)

		Hitch point	Frame			
Lower hitch points above ground - down position.						
	[mm/in]	281/11.1	188/7.4			
Vertical movement						
without load	[mm/in]	737/29.0	866/34.1			
with load	[mm/in]	683/26.9	783/30.8			
Maximum corrected force through full range						
	[kN/lbf]	45.9/10325	37.8/8498			
Corresponding pressure		14479/2100				
Moment about rear axle [kN.m/ft.lb]		52.1/38459	66.0/48652			
Maximum mast tilt angle [degrees]		--	7.7			
=====						
Lifting height relative to the horizontal position of lower links						
[mm]	-395	-302	-201	-99	0	
[in]	-15.6	-11.9	-7.9	-3.9	0	
Corrected lift forces.						
hitch	[kN]	--	45.9	47.5	49.8	51.2
points	[lb]	--	10325	10686	11197	11517
at	[kN]	43.1	43.2	43.8	43.8	42.9
frame	[lb]	9691	9708	9856	9839	9650
Lifting height relative to the horizontal position of lower links						
[mm]	102	203	305	381	387	
[in]	4.0	8.0	12.0	15.0	15.3	
Corrected lift forces.						
hitch	[kN]	51.9	52.5	53.0	53.4	---
points	[lb]	11665	11797	11904	12011	---
at	[kN]	41.4	39.8	---	--	37.8
frame	[lb]	9313	8951	---	--	8498
=====						

THREE POINT LIFT PERFORMANCE
(Upper link in top hole on tractor)
(Tractor equipped with 2 lift assist cylinders)
(for settings used see p.27)

		Hitch point	Frame		
Lower hitch points above ground - down position.					
	[mm/in]	281/11.1	351/13.8		
Vertical movement					
without load	[mm/in]	735/28.9	610/24.0		
with load	[mm/in]	683/26.9	419/16.5		
Maximum corrected force through full range					
	[kN/lbf]	45.9/10325	53.5/12027		
Corresponding pressure		[kPa/psi]	14479/2100		
Moment about rear axle		[kN.m/ft.lb]	52.1/38459	93.4/68857	
Maximum mast tilt angle		[degrees]	--	5.3*	
*Tilt angle of mast from vertical position to uppermost position - 1.7° negative					
Lifting height relative to the horizontal position of lower links					
[mm]	-302	-232	-99	0	
[in]	-11.9	-9.2	-3.9	0	
Corrected lift forces.					
hitch [kN]	45.9	47.5	49.8	51.2	
points [lb]	10325	10686	11197	11517	
at [kN]	--	65.8	58.6	56.5	
frame [lb]	--	14783	13179	12694	
Lifting height relative to the horizontal position of lower links					
[mm]	102	187	203	305	381
[in]	4.0	7.4	8.0	12.0	15.0
Corrected lift forces.					
hitch [kN]	51.9	--	52.5	53.0	53.4
points [lb]	11665	--	11797	11904	12011
at [kN]	54.2	53.5	--	--	--
frame [lb]	12192	12027	--	--	--

Repairs: None
Remarks: None

