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CENTER FOR AGRICULTURAL EQUIPMENT
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
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OFFICIAL TESTING OF AGRICULTURAL TRACTOR PERFORMANCE

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RESTRICTED TEST-CODE II

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JOHN DEERE 4455 QUAD-RANGE (2 WD)



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

NEBRASKA TEST NO.1628

Test date: September-October 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.

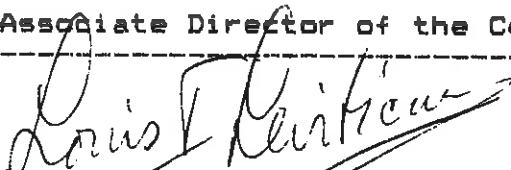
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John Deere 4455 Quad-Range

OECD # 1248

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Associate Director of the Center

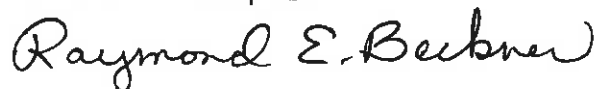

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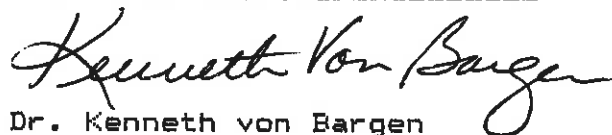

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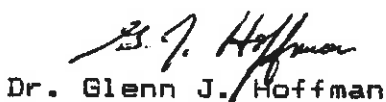

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Date:*24 May*.....1990

LINCOLN, NEBRASKA 68583-0832, USA

Table of Contents.
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	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 (Ballasted)	26

SPECIFICATIONS OF TRACTOR.

=====

Manufacturers name/address : John Deere Waterloo 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 : 79 hours
Location of Test : Center for Agricultural Equip-
ment, Lincoln, Nebraska, USA.

TRACTOR.

Make John Deere
Model 4455
Type Unit construction
Number of driving wheels 2
Serial Number *RW4455H002608*
1st Serial number *RW4455H001001*

ENGINE.

Make John Deere
Model 6076TRW04
Type Diesel, turbocharged
Serial Number *RG6076T109286*

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 Schwitzer/RE29310/
exhaust gas driven
Pressure 95-115 kPa (14-17 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	94101072
Production setting of pump	
Flow Rate (Rated Eng.Spd & Full Load)	26.7 +/- 1.2 kg/hr
	58.9 +/- 2.6 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

Plate diameter

304.8 mm (12.0 in)

Method of operation

Hydraulically actuated

by foot pedal.

Gear Box.

Make/Type

John Deere/Quad-Range

Arrangement

countershaft and planetary
design consisting of:

one 8 speed gearbox with 4
non-synchronized ranges and 2
synchronized speeds in each range
one 2 speed planetary gearset
with a multiple wet disc clutch
and brake

Number of gears

16 forward and 6 reverse
controlled by 2 hand levers

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

Make/Model/Type

John Deere/not propelled

Gear ratios and travel speeds.

(Tire dynamic radius of 892 mm (35.1 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]	

Forward				
A1	212.97	3.47	2.16	
A2	168.58	4.39	2.73	
A3	128.88	5.74	3.56	
A4	101.99	7.25	4.50	
B1	92.59	7.99	4.96	
C1	78.13	9.47	5.88	
B2	73.28	10.10	6.27	
C2	61.83	11.97	7.43	
B3	56.05	13.20	8.20	
D1	50.90	14.53	9.03	
C3	47.29	15.64	9.71	
B4	44.35	16.68	10.36	
D2	40.28	18.37	11.41	
C4	37.42	19.77	12.28	
D3	30.81	24.01	14.91	
D4	24.38	30.34	18.84	
Reverse				
AR1	133.09	5.56	3.45	
AR2	105.31	7.03	4.36	
BR1	57.88	12.78	7.94	
CR1	48.83	15.15	9.41	
BR2	45.80	16.15	10.03	
CR2	38.64	19.15	11.89	
=====				

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 shafts 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	726 mm (28.6 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; ISO 500/1979
Height above ground	726 mm (28.6 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 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 l (5.3 qt) 10 l (10.6 qt) with 5 l (5.3 qt) allowable overfill

THREE POINT LINKAGE.

=====

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

[illegible]

Figure 1.1

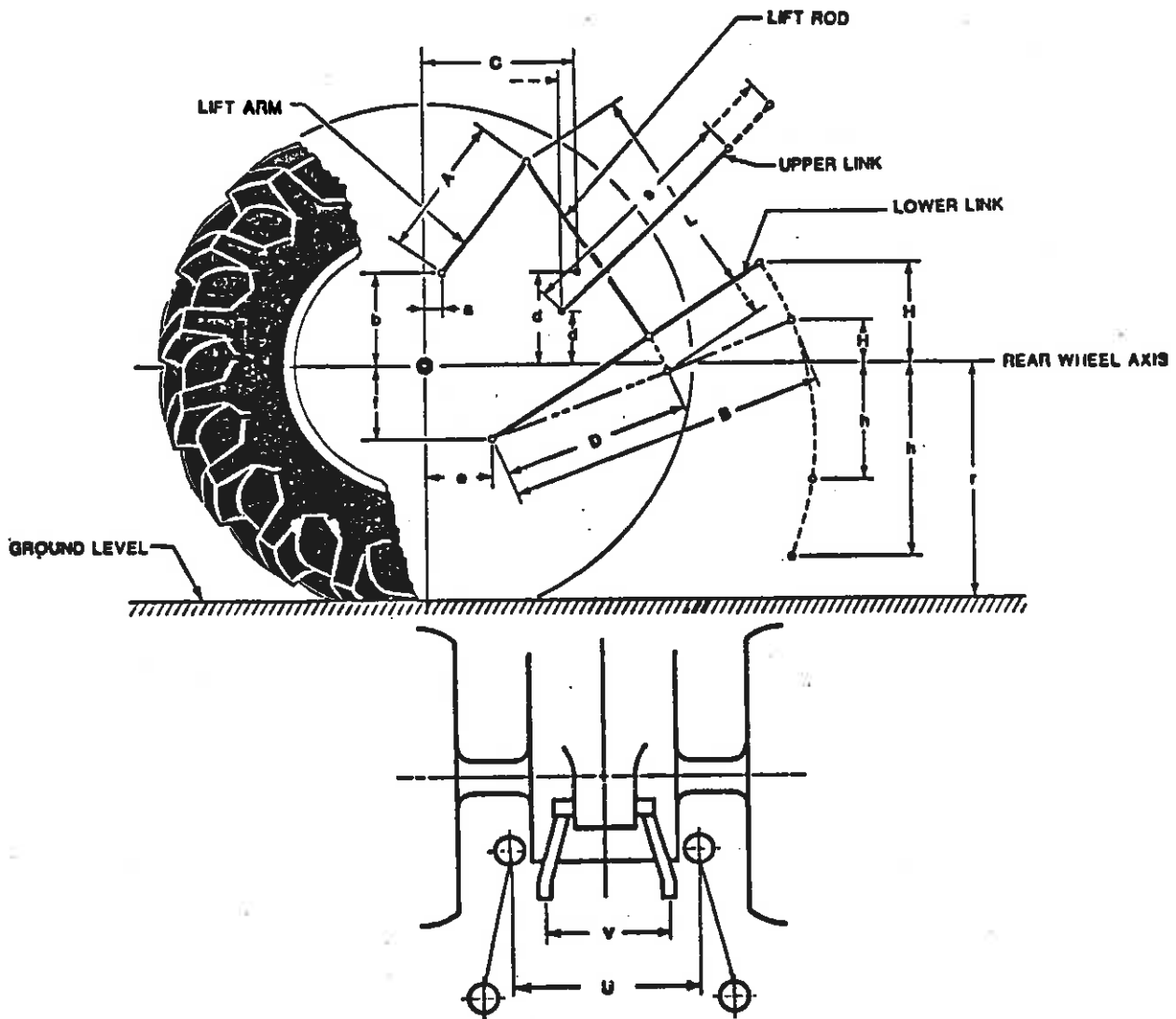


Figure 1.2

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)	892	35.1		
Front Tire - Radius Index	(r')	684	26.9		
Length of lift arms	(A)	292	11.5	same	
Length of lower links	(B)	942	37.1	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	676	26.6
	to	815	32.1		
Distance of upper					
link pivot from: horizontal	(c)	349	13.7		
		362	14.3	362	14.3
rear wheel axis: vertical	(d)	143	5.6	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	845	33.3		
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.		937	36.9	945	37.2
	to	1057	41.6		
=====					
*Assuming (r) with a dynamic tire index of 892 mm (35.1 in)					
ISO 4251/1-1984					

SWINGING DRAWBAR.

=====

Type	Oscillating
Height above ground	Minimum: 467 mm (18.4 in) Maximum: 582 mm (22.9 in)
Adjustments	Inverting drawbar and repositioning drawbar
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, 282, 347, 380 mm (8.0, 11.0, 13.7, 14.9 in)
Lateral adjustment: Right side	218 mm (8.6 in)
Left side	218 mm (8.6 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	14.1 kN (3150 lb)

STEERING

=====

Make/Model/Type	John Deere/hydrostatic
Method of operation	Steering wheel
Pump	Same as main hydraulic pump
Ram(s)	One internal
Working pressure	Same as main hydraulic pressure

BRAKE SYSTEM.

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Service brake.

Make/Type	John Deere/oil immersed disc
Method of operation	Hydraulically actuated from main system; operated by two pedals which can be locked together.

Parking brake.

Type	Transmission lock
Method of operation	Gear selector lever.

Trailering Brake(optional)

Type	Hydraulic
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WHEELS.

=====

Number.	
Front	Two; Steering
Rear	Two or four; Driving
Wheelbase	2710 mm (106.7 in)

Track width adjustment

	Minimum		Maximum		Adjustment method
	[mm]	[in]	[mm]	[in]	
Front	1470	58.0	2080	82.0	Adjustable front axle
Rear	1574	62.0	2950	116.0	Rack and pinion axle reversing wheels and offset lug rims.

PROTECTIVE STRUCTURE.

=====

Make/Model/Type	John Deere/SG046/ Sound-Gard Cab
Manufacturer's name/address	John Deere Tractor Works Waterloo, Iowa
Protective device	Cab, not tiltable.
OECD approval number	CSS 073/16

DRIVER'S SEAT.

=====

Make/Model/Type	John Deere/HydraCushioned
Type of damping and suspension	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 either way

LIGHTING.

=====

	Height above ground of center		Size	Distance from out - side edge to median plane of tractor.	
	[mm]	[in]		[mm]	[in]
Headlights	1727	68.0	50 x 125	250	9.8
	1933	76.1	100 dia.	978	38.5
Rearlights	2730	104.5	100 dia.	813	32.0
	2083	82.0	100 dia.	813	32.0
Rear reflectors	2910	114.6	50 x 197	554	21.8
	1935	76.2	83 x 190	870	34.3

TEST CONDITIONS.

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Overall dimensions.

Length		4285 mm (168.7 in)
Width	Minimum	2769 mm (109.0 in)
	Maximum	3023 mm (119.0 in)
Height - Top of cab		3025 mm (119.1 in)
- Top of exhaust		3142 mm (123.7 in)
Ground clearance (unballasted)		475 mm (18.7 in)
Clearance-limiting part		bottom of drawbar

Tractor Mass (with Cab, full fuel tank)

		Without driver		With driver	
		[kg]	[lb]	[kg]	[lb]
Unballasted	Front	1742	3840	1742	3840
	Rear	4298	9475	4372	9640
	Total	6040	13315	6115	13480
Ballasted	Front	1733	3820	1733	3820
	Rear	6073	13390	6148	13555
	Total	7806	17210	7881	17375

Ballast.

	Number of weights	Mass (total)		Water	
		[kg]	[lb]	[kg]	[lb]
Front	none	none		none	
Rear	4	907	2000	none	
Duals (rear)	2	776	1710		
Additional test equipment		84	185		

Tire Specifications.

	Front wheels	Rear wheels
Make	Goodyear	Goodyear
Dimensions	11.00-16	18.4R42
Ply rating	8 ply	2 star (10 ply)
Type	Rib	Radial
Max.load (tire manufacturer)	1300 kg/tire (2920 lb/tire)	3290 kg/tire (7400 lb/tire)
Max.load(tractor manufacturer)	same	same
Inflation pressure (tire mfr)	280 kPa(40 psi)	166 kPa(24 psi)
Dynamic Radius Index	457 mm(18.0 in)	892 mm (35.1 in)
Chosen track width - singles	1475 mm(58.0 in)	1675 mm (66.0 in)
- duals		3300 mm(130.0 in)

Oils and Lubrication.

Capacity and change interval:

	Capacity liter	Oil quart	change hrs	Filter change hrs
Engine (w/o filter)	18	19	250	250
Gear Box (includes rear axle and rear final drive)	60.5	64.0	1500	annually
Hydraulic system	common with gearbox			

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
Grease		
Number of lubrication points	17	

Fuel

Type/grade	Diesel Fuel "Premier"; grade 2-D
Density (Pto test)	0.828 g/cubic-cm (6.910 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.

COMPULSORY TESTS.

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(1) MAIN POWER TAKE-OFF PERFORMANCE (1000 rev/min).

 Date of tests : 14 September 1989
 Location of tests : Center for Agricultural Equipment,
 University of Nebraska, Lincoln, Nebraska.
 Type of Dynamometer: Eaton Dynamatic 2025 D.G.
 =====

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)	specific kg/kW.h (lb/hp.h)	

1.1 Maximum Power- 2 hour test.

110.47 (148.14)	1900	866	30.91 (8.16)	25.59 (56.42)	0.232 (0.381)	3.57 (18.14)
--------------------	------	-----	-----------------	------------------	------------------	-----------------

1.2 Power at rated engine speed (1 hour).

106.40 (142.69)	2200	1002	31.67 (8.37)	26.23 (57.82)	0.246 (0.405)	3.36 (17.05)
--------------------	------	------	-----------------	------------------	------------------	-----------------

1.3 Maximum power at standard PTO speed (1000 rev/min).

106.69 (142.69)	2200	1002	31.67 (8.37)	26.23 (57.82)	0.246 (0.405)	3.36 (17.05)
--------------------	------	------	-----------------	------------------	------------------	-----------------

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

Power kW (hp)	Speeds		Fuel Consumption			Specific energy kW.h/l (hp.h/gal)
	engine	PTD	hourly	specific		
	rev/min	rev/min	l/h (gal/h)	kg/h (lb/h)	kg/kW.h (lb/hp.h)	
(i) Torque obtained at maximum power at rated engine speed.						
106.40 (142.69)	2200	1002	31.67 (8.37)	26.23 (57.82)	0.246 (0.405)	3.36 (17.05)
(ii) 85% of the torque obtained in (i)						
93.86 (125.87)	2281	1039	29.42 (7.77)	24.36 (53.70)	0.260 (0.427)	3.19 (16.20)
(iii) 75% of the torque defined in (ii)						
71.12 (95.37)	2309	1052	24.16 (6.38)	20.00 (44.10)	0.281 (0.462)	2.94 (14.94)
(iv) 50% of the torque defined in (ii)						
47.87 (64.20)	2331	1062	19.06 (5.04)	15.79 (34.80)	0.330 (0.542)	2.51 (12.75)
(v) 25% of the torque defined in (ii)						
24.16 (32.40)	2353	1072	14.30 (3.78)	11.84 (26.10)	0.490 (0.806)	1.69 (8.58)
(vi) Unloaded						
0.77 (1.03)	2374	1082	9.20 (2.43)	7.62 (16.80)	9.921 (16.310)	0.42 (0.08)

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

Power kW (hp)	Speeds		Fuel Consumption		Specific	
	engine rev/min	PTO rev/min	hourly l/h (gal/h)	kg/h (lb/h)	specific kg/kW.h (lb/hp.h)	energy kW.h/l (hp.h/gal)
(i) Torque obtained at standard pto speed.						
106.40 (142.69)	2200	1002	31.67 (8.37)	26.23 (57.82)	0.246 (0.405)	3.36 (17.05)
(ii) 85% of the torque obtained in (i)						
93.86 (125.87)	2281	1039	29.42 (7.77)	24.36 (53.70)	0.260 (0.427)	3.19 (16.20)
(iii) 75% of the torque defined in (ii)						
71.12 (95.37)	2309	1052	24.16 (6.38)	20.00 (44.10)	0.281 (0.462)	2.94 (14.94)
(iv) 50% of the torque defined in (ii)						
47.87 (64.20)	2331	1062	19.06 (5.04)	15.79 (34.80)	0.330 (0.542)	2.51 (12.75)
(v) 25% of the torque defined in (ii)						
24.16 (32.40)	2353	1072	14.30 (3.78)	11.84 (26.10)	0.490 (0.806)	1.69 (8.58)
(vi) Unloaded						
0.77 (1.03)	2374	1082	9.20 (2.43)	7.62 (16.80)	9.921 (16.310)	0.42 (0.08)

No-load maximum engine speed

2374 rev/min

Equivalent engine torque:

at rated engine speed 462 Nm(2200 rev/min)

at maximum power 555 Nm(1900 rev/min)

at maximum torque 636 Nm(1350 rev/min)

Mean atmospheric conditions:

Temperature-dry bulb 23 °C (74 °F)

Relative Humidity 36 %

Barometer - 98.46 kPa(29.08 in Hg)

Maximum temperatures:

Thermostat housing	98 °C	(208 °F)
Engine oil pan	105 °C	(221 °F)
Fuel at injection pump	51 °C	(123 °F)
Engine air intake	40 °C	(104 °F)
Trans./Hydr. Oil	62 °C	(143 °F)

Turbocharger boost pressure

at rated speed	117 kPa (17.0 psi)
at maximum power	107 kPa (15.5 psi)

=====

2. HYDRAULIC POWER AND LIFTING FORCE.

Date of test: 26 September 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	102.6 l/m (27.1 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>61.7</td><td>15.86</td><td>16.3</td></tr><tr><td>(16.3)</td><td>(2300)</td><td>(21.9)</td></tr></table>	61.7	15.86	16.3	(16.3)	(2300)	(21.9)			
61.7	15.86	16.3								
(16.3)	(2300)	(21.9)								
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	73 °C (164 °F)									
at flow meter	70 °C (157 °F)									

2.2 POWER LIFT TEST.

		Hitch Points	Frame		
Lower hitch points above ground - down position. [mm/in]		286/11.3	225/8.9		
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 lift 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]		287/11.3	126/8.9		
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 lift 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: 18-Sep-89 19-Sep-89 Fuel density: 0.828 kg/l														
Type of track: Concrete Test # 1628														
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, 2wd @ 1900 rev/min) Tire pressure: 110 kPa, rear 276 kPa, front														
Drawbar height: 635 mm														
2nd(A2)*	61.48	54.20	4.08	2310	10.26%	0.330	2.51	48	84	95	18	16	82%	97.83
3rd(A3)*	80.91	54.24	5.37	2286	8.85%	0.299	2.77	49	85	95	18	16	82%	97.80
4th(A4)	92.61	50.26	6.63	2182	6.60%	0.283	2.93	48	86	93	18	16	82%	97.87
5th(B1)	95.34	48.74	7.04	2100	6.52%	0.273	3.03	49	86	94	23	18	62%	97.83
6th(C1)	98.73	46.44	7.65	1905	5.48%	0.262	3.17	48	87	91	22	18	68%	97.80
7th(B2)	97.97	42.85	8.23	1904	4.66%	0.264	3.14	47	87	93	21	17	67%	97.73
8th(C2)	97.66	35.84	9.81	1903	4.00%	0.264	3.14	48	88	90	23	18	62%	97.80
9th(B3)	100.06	33.05	10.90	1903	3.41%	0.258	3.20	48	87	91	21	17	67%	97.77
10th(D1)	99.07	29.73	12.00	1900	3.24%	0.259	3.20	48	87	91	23	19	69%	97.80
11th(C3)	99.28	27.71	12.90	1893	2.98%	0.259	3.20	47	88	91	24	19	62%	97.80
Note: *Pull limited by tangential pull limit.														

OECD Drawbar Data (US)

Date of tests: 18-Sep-89 19-Sep-89 Fuel density: 6.910 lb/gal														
Type of track: Concrete Test # 1628														
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, 2wd @ 1900 rev/min)						Tire pressure:		16 psi, rear			40 psi, front			
Drawbar height: 25 in														
2nd(A2)*	82.44	12184	2.54	2310	10.26%	0.542	12.74	118	183	203	65	61	82%	28.89
3rd(A3)*	108.51	12195	3.34	2286	8.85%	0.491	14.07	121	185	203	65	61	82%	28.88
4th(A4)	124.19	11298	4.12	2182	6.60%	0.465	14.87	118	186	200	65	61	82%	28.90
5th(B1)	127.85	10958	4.38	2100	6.52%	0.449	15.39	120	187	202	73	65	62%	28.89
6th(C1)	132.40	10441	4.76	1905	5.48%	0.430	16.07	118	189	196	72	64	68%	28.88
7th(B2)	131.38	9634	5.11	1904	4.66%	0.433	15.94	117	189	199	69	63	67%	28.86
8th(C2)	130.97	8058	6.10	1903	4.00%	0.433	15.95	118	190	195	73	65	62%	28.88
9th(B3)	134.18	7430	6.77	1903	3.41%	0.425	16.27	118	189	196	70	63	67%	28.87
10th(D1)	132.85	6684	7.45	1900	3.24%	0.426	16.22	118	189	195	74	66	69%	28.88
11th(C3)	133.14	6229	8.02	1893	2.98%	0.425	16.26	117	190	195	75	66	62%	28.88
Note: *Pull limited by tangential pull limit.														

OECD Drawbar Data (SI)

Date of tests: 18-Sep-89 19-Sep-89 Fuel density: 0.828 kg/l														
Type of track: Concrete Test # 1628														
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 Loads (unballasted)								Tire pressure: 110 kPa, rear			276 kPa, front			
Drawbar height: 635 mm														
II.1 in selected gear at maximum power														
9th(B3)	100.06	33.05	10.90	1903	3.41%	0.258	3.20	48	87	91	21	17	67%	97.77
II.1.1 75% of pull at maximum power at rated speed														
9th 75%	75.73	20.41	13.36	2302	2.29%	0.298	2.78	42	86	93	25	19	57%	97.77
II.1.2 50% of pull at maximum power at rated speed														
9th 50%	51.51	13.62	13.61	2331	1.42%	0.344	2.41	42	84	94	25	19	57%	97.77
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
12th 75%	75.53	20.39	13.34	1822	2.12%	0.273	3.03	42	86	89	26	19	51%	97.77
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
12th 50%	51.33	13.58	13.61	1848	1.60%	0.303	2.73	41	83	86	26	19	57%	97.77
II.2 in selected gear nearest to 7.5 km/h														
5th(B1)	95.34	48.74	7.04	2100	6.52%	0.273	3.03	49	86	94	23	18	62%	97.83
II.2.1 75% of pull at maximum power at rated speed														
5th 75%	75.68	34.30	7.94	2304	3.91%	0.296	2.80	43	85	95	24	19	62%	97.77
II.2.2 50% of pull at maximum power at rated speed														
5th 50%	51.92	22.88	8.17	2334	2.55%	0.336	2.47	41	84	94	24	19	62%	97.77
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
7th 75%	75.60	34.25	7.95	1823	3.83%	0.270	3.07	41	86	90	24	19	62%	97.77
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
7th 50%	51.84	22.86	8.16	1845	2.38%	0.295	2.81	40	82	88	24	19	62%	97.77

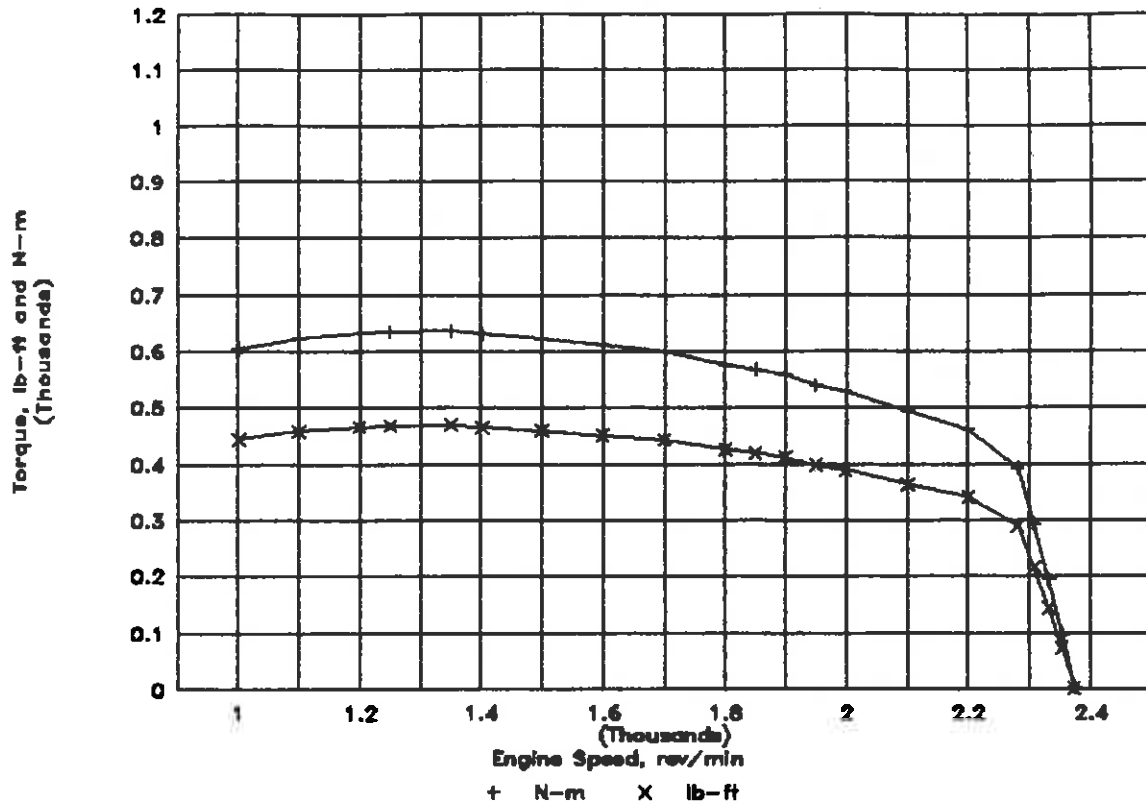
OECD Drawbar Data (US)

Date of tests: 18-Sep-89 19-Sep-89 Fuel density: 6.910 lb/gal
Type of track: Concrete Test # 1628

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 Loads (unballasted)						Tire pressure:		16 psi, rear		40 psi, front				
Drawbar height:						25 in.								
II.1 in selected gear at maximum power														
9th(B3)	134.18	7430	6.77	1903	3.41%	0.425	16.27	118	189	196	70	63	67%	28.87
II.1.1 75% of pull at maximum power at rated speed														
9th 75%	101.56	4589	8.30	2302	2.29%	0.489	14.12	108	186	200	77	67	57%	28.87
II.1.2 50% of pull at maximum power at rated speed														
9th 50%	69.08	3063	8.46	2331	1.42%	0.566	12.21	107	183	201	77	67	57%	28.87
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
12th 75%	101.29	4583	8.29	1822	2.12%	0.449	15.38	108	187	192	78	67	51%	28.87
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
12th 50%	68.83	3053	8.46	1848	1.60%	0.499	13.85	106	181	186	78	67	57%	28.87
II.2 in selected gear nearest to 4.6 mph														
5th(B1)	127.85	10958	4.38	2100	6.52%	0.449	15.39	120	187	202	73	65	62%	28.89
II.2.1 75% of pull at maximum power at rated speed														
5th 75%	101.49	7711	4.94	2304	3.91%	0.487	14.20	110	185	203	76	66	62%	28.87
II.2.2 50% of pull at maximum power at rated speed														
5th 50%	69.62	5144	5.08	2334	2.55%	0.552	12.52	106	183	201	76	66	62%	28.87
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
7th 75%	101.38	7700	4.94	1823	3.83%	0.444	15.57	107	188	194	76	66	62%	28.87
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
7th 50%	69.51	5140	5.07	1845	2.38%	0.485	14.25	104	180	191	76	66	62%	28.87

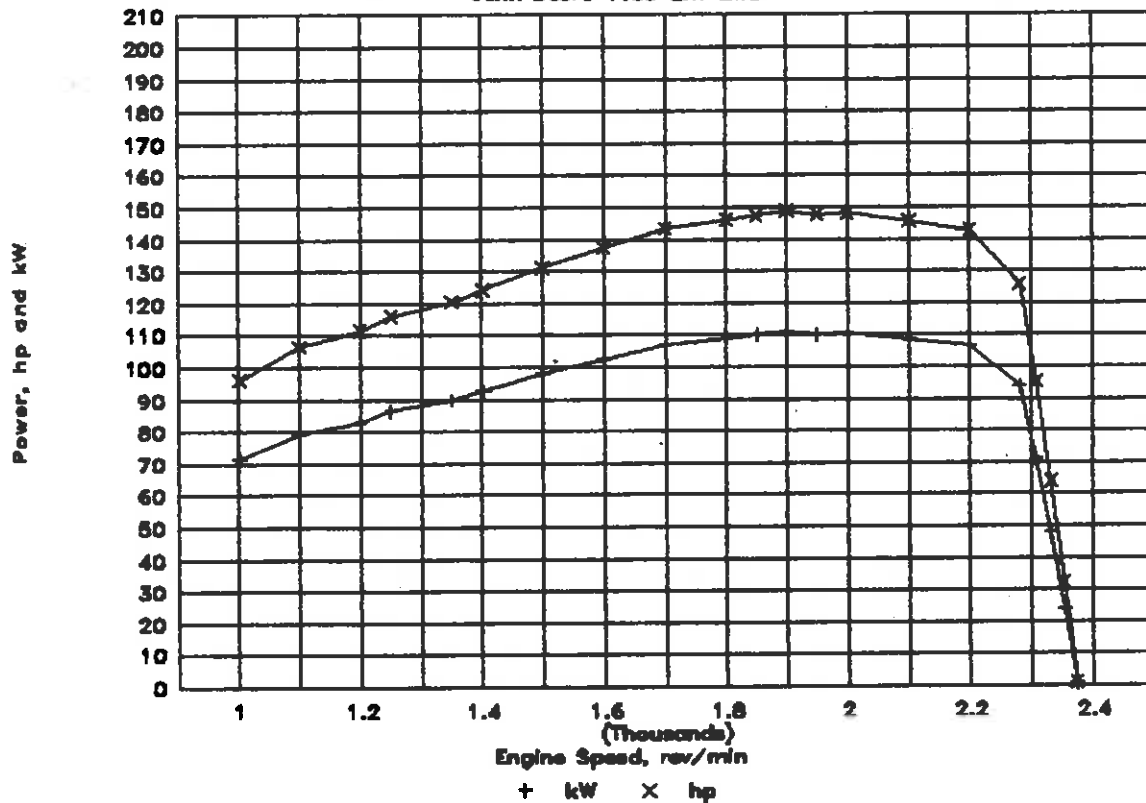
Equivalent Crankshaft Torque

John Deere 4455 QRT 2WD



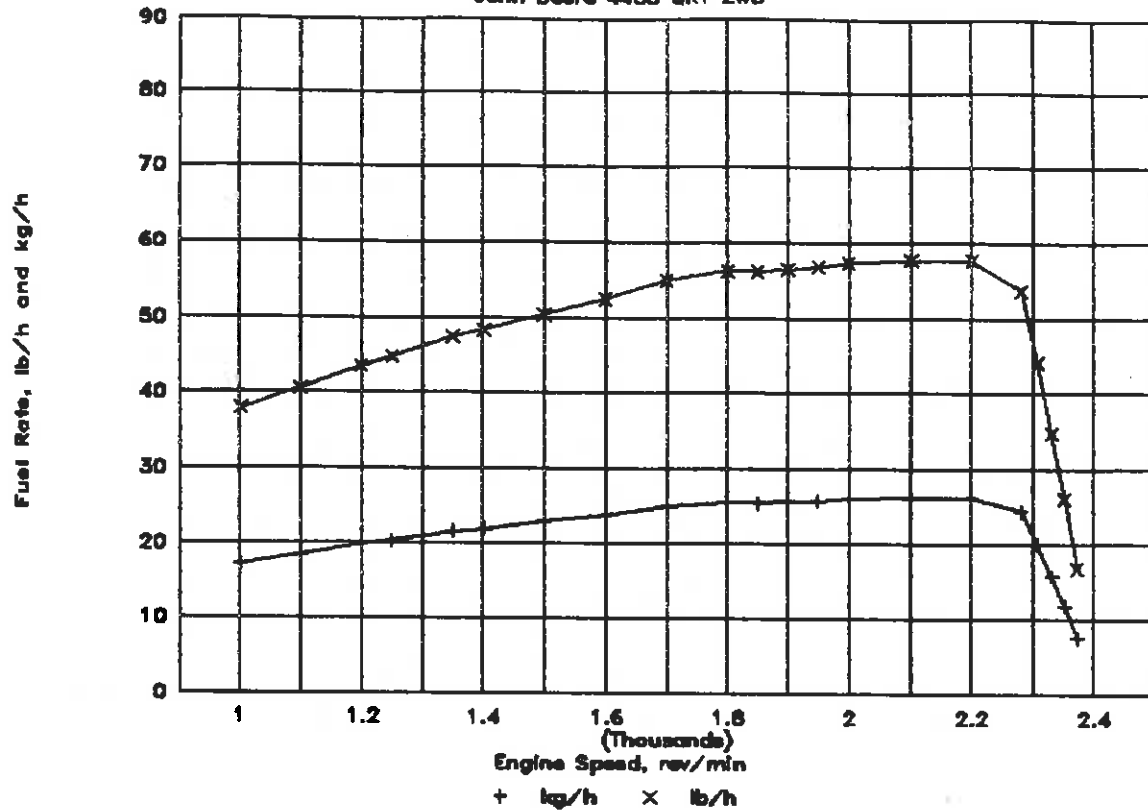
PTO Power

John Deere 4455 QRT 2WD



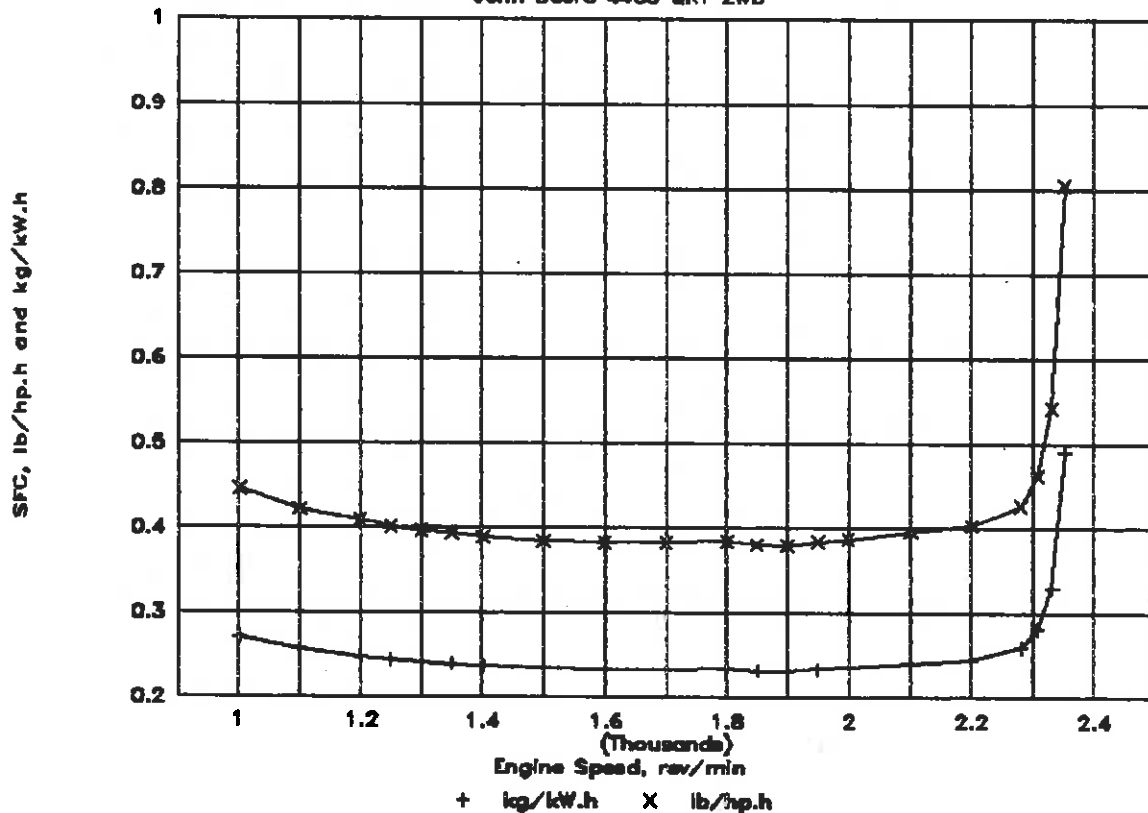
PTO Fuel Consumption

John Deere 4455 QRT 2WD



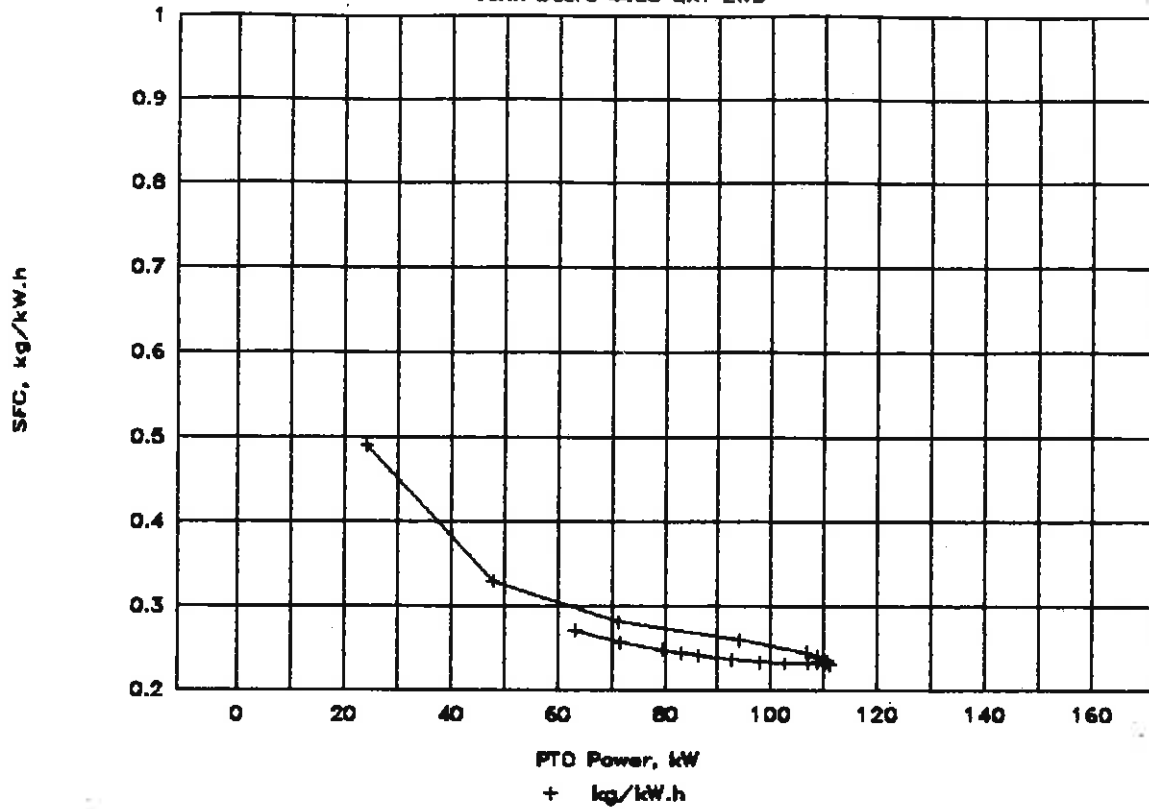
PTO Specific Fuel Consumption

John Deere 4455 QRT 2WD



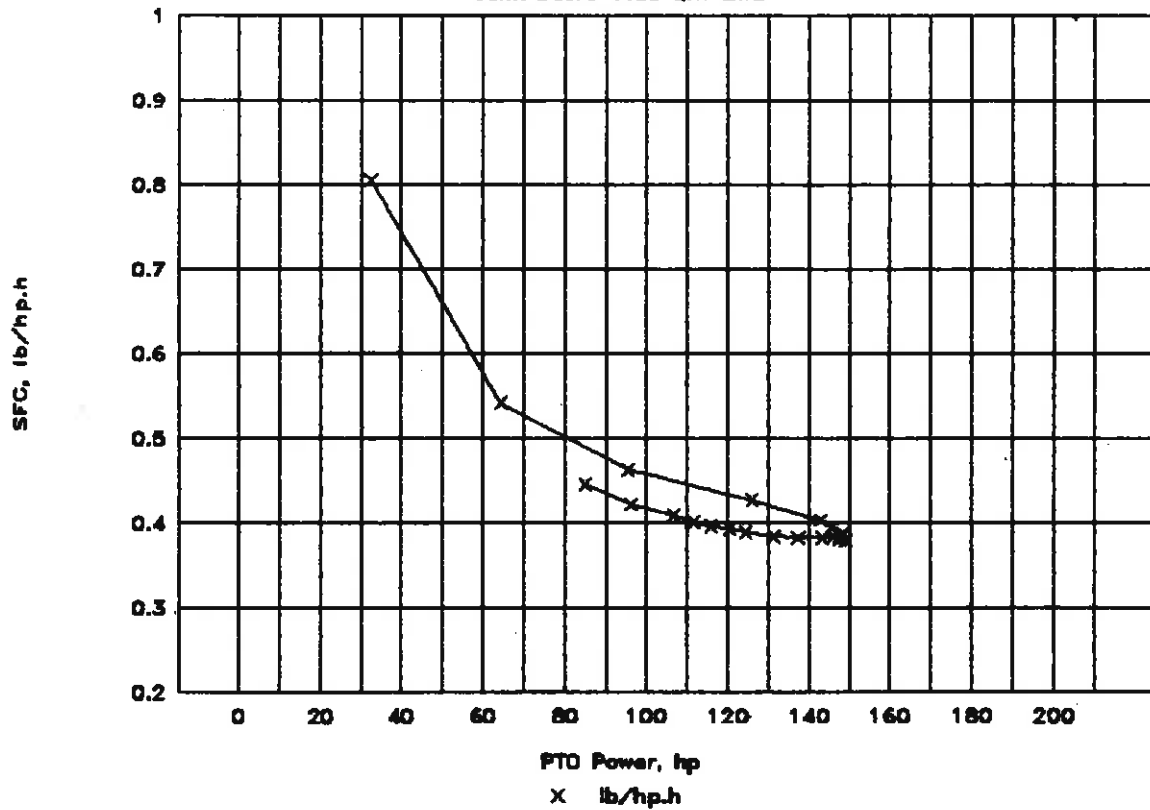
SFC vs PTO Power

John Deere 4455 QRT 2WD



SFC vs PTO Power

John Deere 4455 QRT 2WD



5. OPTIONAL TESTS.

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5.1 MEASUREMENT OF EXTERNAL NOISE LEVEL.

Date of test : 15 September 1989
Location of test : CAE/UNL, Lincoln, Nebr.
Sound level meter : B & K 2203
Type of track : Concrete oval
Gear number : 16th(D4)
Speed prior to acceleration : 24.3 km/h (15.1 mph)
Sound level : 85.0 dB(A)

5.2 MAXIMUM POWER AT 1900 REV/MIN (BALLASTED TRACTOR)

OECD Drawbar Data (SI)

Date of tests: 27-Sep-89 27-Sep-89		Fuel density: 0.828 kg/l												
Type of track: Concrete		Test # 1628												
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
1b. Maximum Power (ballasted, 2wd @ 1900 rev/min)						Tire pressure:		97 kPa, rear (inner)		276 kPa, front				
Drawbar height: 483 mm								97 kPa, rear (outer)						
1st(A1)*	69.07	76.30	3.26	2300	9.29%	0.314	2.64	48	83	96	14	10	60%	99.12
2nd(A2)*	85.51	76.33	4.03	2263	9.74%	0.299	2.77	49	84	96	13	9	59%	99.12
3rd(A3)	96.99	70.46	4.96	2049	6.36%	0.271	3.06	47	86	96	17	11	47%	99.15
4th(A4)	97.90	57.92	6.09	1951	4.41%	0.266	3.11	47	86	93	17	11	47%	99.12
5th(B1)	100.18	55.13	6.54	1901	4.08%	0.258	3.21	48	86	94	19	12	43%	99.09
6th(C1)	101.24	46.58	7.82	1905	3.40%	0.255	3.24	47	87	91	19	12	43%	99.09
7th(B2)	98.45	42.44	8.35	1899	3.06%	0.262	3.16	47	87	93	21	13	39%	99.02
8th(C2)	98.98	35.75	9.97	1902	2.46%	0.261	3.17	47	87	93	21	13	39%	98.98
9th(B3)	100.36	32.83	11.01	1899	2.29%	0.257	3.22	47	87	93	21	13	39%	98.95
10th(D1)	100.57	29.78	12.16	1902	2.12%	0.257	3.22	47	87	92	21	13	39%	98.92
11th(C3)	100.27	27.59	13.08	1898	1.94%	0.258	3.21	47	88	92	21	13	39%	98.88
Note: *Pull limited by tractor stability.														

OECD Drawbar Data (US)

Date of tests: 27-Sep-89 27-Sep-89		Fuel density: 6.910 lb/gal												
Type of track: Concrete		Test # 1628												
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
1b. Maximum Power (ballasted, 2wd @ 1900 rev/min)						Tire pressure:		14 psi, rear (inner)		40 psi, front				
Drawbar height: 19 in								14 psi, rear (outer)						
1st(A1)*	92.63	17153	2.03	2300	9.29%	0.516	13.40	118	182	205	58	50	60%	29.27
2nd(A2)*	114.68	17159	2.51	2263	9.74%	0.492	14.05	120	184	206	56	48	59%	29.27
3rd(A3)	130.06	15839	3.08	2049	6.36%	0.445	15.52	117	186	204	62	51	47%	29.28
4th(A4)	131.29	13021	3.78	1951	4.41%	0.438	15.78	117	188	200	62	51	47%	29.27
5th(B1)	134.35	12394	4.07	1901	4.08%	0.424	16.28	118	188	202	66	54	43%	29.26
6th(C1)	135.77	10473	4.86	1905	3.40%	0.420	16.47	116	189	196	67	54	43%	29.26
7th(B2)	132.03	9542	5.19	1899	3.06%	0.431	16.04	117	189	200	69	55	39%	29.24
8th(C2)	132.74	8037	6.19	1902	2.46%	0.429	16.09	116	189	200	69	55	39%	29.23
9th(B3)	134.59	7380	6.84	1899	2.29%	0.422	16.36	117	189	199	69	55	39%	29.22
10th(D1)	134.86	6695	7.55	1902	2.12%	0.423	16.34	116	189	198	70	55	39%	29.21
11th(C3)	134.46	6202	8.13	1898	1.94%	0.424	16.31	117	190	197	70	55	39%	29.20
Note: *Pull limited by tractor stability.														

MAXIMUM POWER AT 2200 REV/MIN (BALLASTED TRACTOR)

OECD Drawbar Data (SI)

Date of tests: 27-Sep-89 27-Sep-89		Fuel density: 0.828 kg/l												
Type of track: Concrete		Test # 1628												
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
Ic. Maximum Power (ballasted, 2wd @ 2200 rev/min)				Tire pressure:				97 kPa, rear (inner)			276 kPa, front			
Drawbar height: 483 mm								97 kPa, rear (outer)						
2nd(A2)*	86.57	76.34	4.08	2265	8.61%	0.296	2.80	49	85	95	12	8	58%	99.12
3rd(A3)	94.95	63.32	5.40	2200	4.99%	0.276	3.00	48	85	96	16	11	54%	99.15
4th(A4)	94.11	48.97	6.92	2200	3.66%	0.278	2.98	48	86	95	17	11	47%	99.15
5th(B1)	96.03	45.18	7.65	2204	3.32%	0.272	3.04	48	85	96	18	12	49%	99.12
6th(C1)	96.07	38.02	9.10	2197	2.72%	0.271	3.05	48	86	96	19	12	43%	99.05
7th(B2)	94.51	34.93	9.74	2201	2.38%	0.274	3.02	48	86	96	19	12	43%	99.02
8th(C2)	93.88	29.18	11.58	2198	2.12%	0.277	2.99	48	87	96	21	13	39%	98.98
9th(B3)	95.68	26.95	12.78	2196	1.94%	0.273	3.03	47	87	95	21	13	39%	98.95
10th(D1)	95.17	24.28	14.11	2198	1.68%	0.274	3.02	47	87	95	21	13	39%	98.92
Note: *Pull limited by tractor stability.														

OECD Drawbar Data (US)

Date of tests: 27-Sep-89 27-Sep-89		Fuel density: 6.910 lb/gal												
Type of track: Concrete		Test # 1628												
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
Ic. Maximum Power (ballasted, 2wd @ 2200 rev/min)				Tire pressure:				14 psi, rear (inner)			40 psi, front			
Drawbar height: 19 in								14 psi, rear (outer)						
2nd(A2)*	116.10	17161	2.54	2265	8.61%	0.486	14.21	120	185	203	54	46	58%	29.27
3rd(A3)	127.33	14235	3.35	2200	4.99%	0.454	15.21	119	185	204	60	51	54%	29.28
4th(A4)	126.20	11008	4.30	2200	3.66%	0.457	15.13	118	186	203	62	51	47%	29.28
5th(B1)	128.78	10157	4.75	2204	3.32%	0.448	15.44	118	186	205	64	53	49%	29.27
6th(C1)	128.84	8547	5.65	2197	2.72%	0.446	15.49	119	187	205	67	54	43%	29.25
7th(B2)	126.74	7853	6.05	2201	2.38%	0.450	15.35	119	188	204	67	54	43%	29.24
8th(C2)	125.90	6559	7.20	2198	2.12%	0.456	15.17	118	188	205	69	55	39%	29.23
9th(B3)	128.32	6060	7.94	2196	1.94%	0.450	15.37	116	188	204	69	55	39%	29.22
10th(D1)	127.62	5459	8.77	2198	1.68%	0.451	15.34	117	189	204	69	55	39%	29.21
Note: *Pull limited by tractor stability.														

Repairs: None

Remarks: None

