OECD APPROVAL # 1262
Date of approval: May 2, 1990

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 OFFICIAL TESTING OF AGRICULTURAL TRACTOR PERFORMANCE

RESTRICTED TEST-CODE II

JOHN DEERE 8760 POWERSHIFT ARTICULATED 4WD TRACTOR.



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

NEBRASKA TEST NO.1631

Test date: 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.

This report has been approved by the OECD Coordinating Centre in Paris (CEMAGREF) on May 2 ,1990

JOHN DEERE 8760 Powershift 4WD OECD # 1262

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

Dr. Louis I. Leviticus

Senior Test Engineer

David L. Morgan

Test Engineers

Brent T. Sampson

Raymond E. Beckner

Chairman, Tractor Test Board

Dr. Kenneth von Bargen

Members, Tractor Test Board

Dr. Robert D. Grisso

Dr. Glenn J. Hoffman

Date: 24 January 1990

LINCOLN, NEBRASKA 68583-0832,USA

Table of Contents.

	Page
1. SPECIFICATIONS	1
2. TEST CONDITIONS	10
3. COMPULSORY TESTS	
Main Power Take-Off Performance	12
Power Lift and Hydr. Pump Perf.	15
Drawbar Performance	17
4. GRAPHS	20
5. OPTIONAL TESTS	
External noise levels	23
Drawbar Performance at 2100 rev/min	24

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	:	104 hours
Location of Test	:	Center for Agricultural Equipment, Lincoln, Nebraska, USA.

TRACTOR.

Make	John Deere
Model	8760 Powershift
Type	Articulated frame, four-wheel drive (4WD)
Number of driving wheels	8
Serial Number	*RW8760P001410*
1st Serial number	*RW8760P001001*

ENGINE.

Make	John Deere
Model	6101HRW02
Type	Diesel,turbocharged and intercooled
Serial Number	*RG6101H100402*
Cylinders	
Number & Disposition	6, in-line, vertical
Bore x stroke	130.0 mm x 127.0 mm (5.12 in x 5.00 in)
Cubic capacity	10144 ml (619 cu in)
Compression Ratio	15.2:1
Arrangement of valves	Overhead
Cylinder liners	Wet, replaceable
Super charging	
Make/Model/Type	Switzer/RE37725/ exhaust gas driven
Pressure	125-150 kPa (18-22 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	835 liter (220 US gallons)

Make/Model/Type Injection pump	Bosch/0 402 196 701/in line
Pump Serial number	946 10451 B
Production setting of pump Flow Rate (Rated Eng.Spd & Full Load)	50.3 +/- 2.3 kg/hr 110.9 +/- 5.1 lb/hr
Make/Model/Type of injectors	Bosch/AR103073
Injection pressure	29.0 MPa (4200 psi)
Timing	21 degrees before TDC

Governor

Make/Model/Type	Bosch/41129/Electrical
Governed engine speed range	From 800 to 2325 rev/min
Rated engine speed	2100 rev/min
High-idle speed range	2275 +/- 50 rev/min

Air Cleaner.

Pre-cleaner	
Make/Model/Type	Donaldson/plastic mesh chaff screen
Air intake location	Top of air stack
Main Cleaner	
Make/Model/Type	Donaldson/AR95758/ pleated paper
Secondary element	
Make/Model/Type	Donaldson/AR95759/ pleated paper
Maintenance indicator	Dash mounted light and horn

Lubrication system.

Type of feed pump	Full pressure, positive displacement.
Type of filters	Full flow with bypass
Number	2
Oil cooler	Heat exchanger with engine coolant

Cooling system.

Type of coolant	Liquid
Type of pump	Centrifugal
Fan specification	Belt driven, variable speed
Number of fan blades	8
Fan diameter	762 mm (30.0 in)
Coolant system capacity	55 l (58 qt)
Type of temperature control	3 thermostats and variable speed fan
Superpressure system	103 kPa (15 psi)

Starting system.

Make/Model/Type of starter	Delco Remy/RE38633/electric
Power Rating	6.9 kW (9.3 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/RE42123/belt driven
Power rating	120 Ampere at 2100 engine rpm.
Batteries	
Number & connection	2-12 V batteries in parallel
	175 amperes hours per battery
	at 20 hour rating
Rating	925 cold crank amp per battery
Exhaust system.	
Make/Model/Type	Donaldson/RE41891/
	expansion chamber
Location	Vertical, right front
	corner of cab

TRANSMISSION.

Clutch. (travel)	
Make/Type	Twin Disk Inc/wet multiple
	plate/oil cooled
Number of plates	8
Plate diameter	229 mm (9.0 in)
Method of operation	Hydraulically actuated
	by foot pedal.
Gear Box.	
Make/Type	Twin Disk Inc/Powershift
Arrangement	countershaft design with
	multiple wet disc clutches
	a combination of 3 of the 8
	clutches must be activated
	to provide forward or reverse
Number of gears	12 forward, 2 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	Depressing foot pedal
Method of disengagement	Releasing foot pedal

Front Axle and final drives.

Make/Model/Type	John Deere/crown wheel and pinion, differential and inboard planetary reduction
Differential lock	
Type	Hydraulic
Method of engagement	Depressing foot pedal
Method of disengagement	Releasing foot pedal

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 2100 rev/min [km/h]	[mph]
Forward			
1	192.27	3.67	2.28
2	145.17	4.86	3.02
3	110.57	6.39	3.97
4	94.46	7.48	4.65
5	81.82	8.63	5.36
6	71.22	9.92	6.16
7	61.77	11.43	7.10
8	54.23	13.02	8.09
9	47.06	15.00	9.32
10	40.14	17.59	10.92
11	30.28	23.32	14.48
12	23.08	30.60	19.00
Reverse			
R1	155.61	4.54	2.82
R2	76.35	9.25	5.74

Number of front wheel revolutions
for one rear wheel revolution 1.000

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

Standard PTO, 1000 rev/min.

Location	Rear of tractor, vertical center plane.
Diameter of shaft	44.5 mm (1.75 in)
Number of splines	20; conforms to ISO 500/1979.
Height above ground	770 mm (30.3 in)
Distance from median plane of tractor	0 mm
Distance behind rear axle	760 mm (29.9 in)
PTO Speed @ rated engine speed	1109 rev/min
Engine speed @ Std. PTO Speed	1895 rev/min
Ratio of Engine rpm to PTO rpm	1.895
Direction of rotation when facing shaft end	Clockwise.

POWER LIFT.

Make	John Deere
Type of hydraulic system	Hydraulic lift with electronic position control and adjustable speed of drop, closed center
Number/Type of cylinders	Two external,both 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	19.7 - 21.8 MPa (2857-3162 psi)
Lift pump type	Radial piston, variable delivery, constant pressure
Power transmission to pump	Direct drive
Type/Number of filters	spin on cartridge/one
Location of oil reservoir	Integral with right side fuel tank
Number/Type/Location of tapping points.	3 pairs of ISO standard coup - lings at rear of tractor. (A fourth set is optional)
Max. oil volume available for external cylinders.	19 l (20 qt) 32 l (34 qt) with 13 l (14 qt) allowable overfill

THREE POINT LINKAGE.

- Category 3 in conformity with ISO 730/1-1977
- Category adaptor - Quick Attach

THREE POINT LINKAGE

Figure 1.1

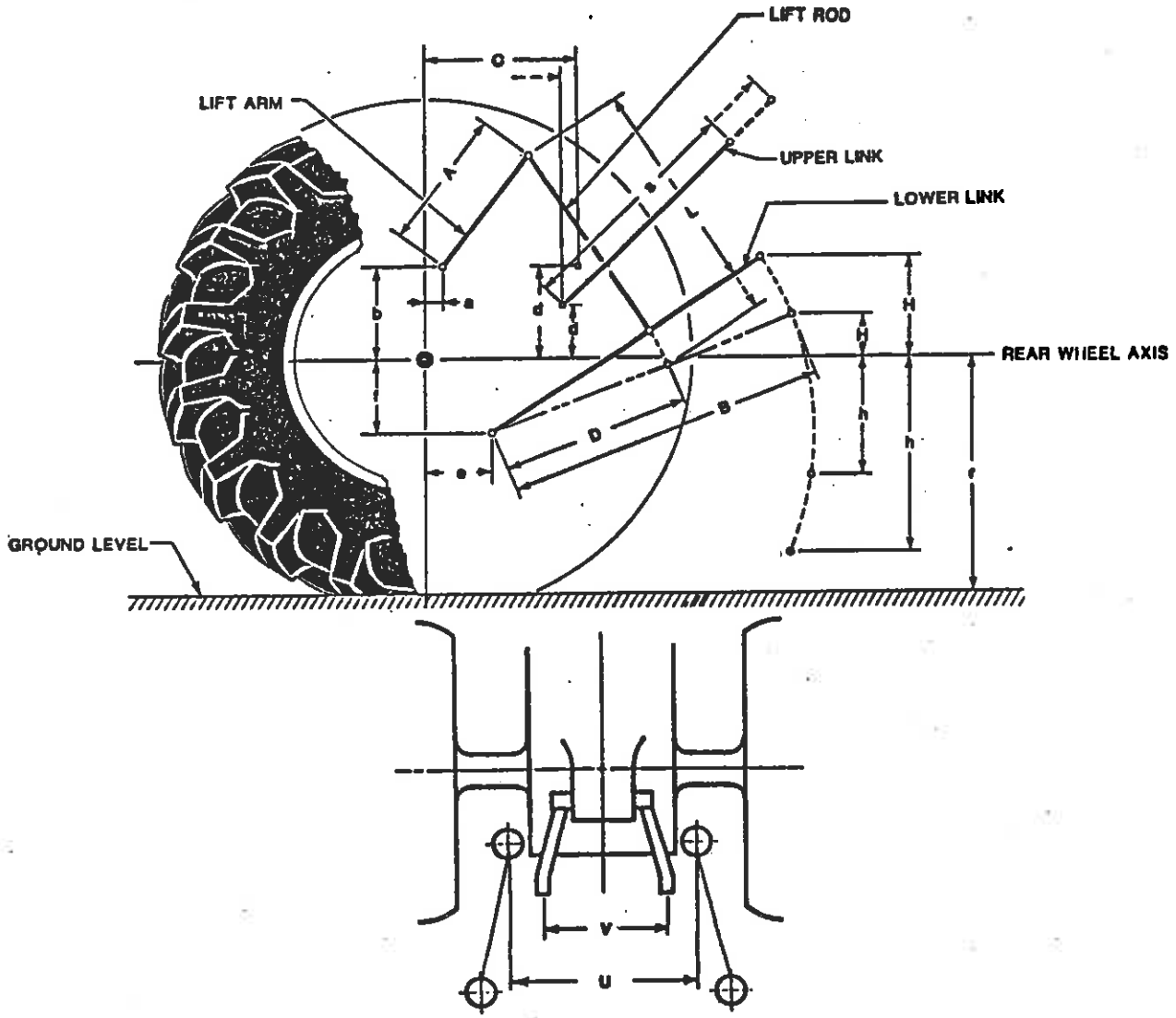


Figure 1.2

Table 1.1 -*Linkage geometry dimensions.

		Dimension or range [mm]	[in]	Settings used on test [mm]	[in]
Lift category		III			
Rear Tire - Radius Index	(r)	892	35.1		
Front Tire - Radius Index	(r')	892	35.1		
Length of lift arms	(A)	472	18.6	same	
Length of lower links	(B)	1117	44.0	same	
Distance of lift arm pivot from: horizontal	(a)	244	9.6	same	
rear wheel axis: vertical	(b)	620	24.4	same	
Horizontal distance between the 2 lower link points	(u)	640	25.2	same	
Horizontal distance between the 2 lift arm end points	(v)	750	29.5	same	
Length of upper link	(S)	705 to 825	27.8 32.5	800	31.5
Distance of upper link pivot from: horizontal	(c)	577	22.7	same	
rear wheel axis: vertical	(d)	288	11.3	same	
Distance of lower link pivot from: horizontal	(e)	288	11.3	same	
rear wheel axis: vertical	(f)	350	13.8	same	
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	731	28.8	same	
Length of lift rods	(L)	1030 to 1150	40.6 45.3	1137	44.8
Height of lower hitch points relative to rear wheel axis In low position	(h)	521 to 724	20.5 28.5	690	27.2
In high position	(H)	89 to 284	3.5 11.2	133	5.2
Height above ground of lower hitch points when locked in transport position.		980 to 1176	38.6 46.3	1024	40.3

*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: 394 mm (15.5 in) Maximum: 495 mm (19.5 in)
Adjustments	Removable clevis
Distance of hitch point from rear wheel axis, horizontal	1118 mm (44.0 in) 1268 mm (49.9 in)
Distance of hitch point from PTO shaft end	
Vertical	300 mm (11.8 in)
Horizontal	358 mm (14.1 in) 508 mm (20.0 in)
Lateral adjustment; Right side	200 mm (7.9 in)
Left side	200 mm (7.9 in)
Distance of pivot point from rear wheel axis; horizontal	435 mm (17.1 in) 585 mm (23.0 in)
Diamater of drawbar pin hole	40 mm (1.6 in)
Maximum vertical static permissible load	18.3 kN (4100 lb)

STEERING

Make/Model/Type	John Deere/Hydrostatic
Method of operation	Steering wheel
Pump(s)	Same as main hydraulic pump
Ram(s)	Two external with feedback
Working pressure	Same as main hydraulic pressure

BRAKE SYSTEM.

Service brake.

Make/Model/Type	John Deere/Oil immersed disc
Method of operation	Hydraulically actuated from main system; operated by one foot pedal

Parking brake.

Type	Drum on driveline
Method of operation	Hand lever

Trailer brake (optional)

Type	Hydraulic

WHEELS.

Number.	
Front	Four; Driving and steering
Rear	Four; Driving and steering
Wheelbase	3400 mm (133.9 in)

Track width adjustment

	Minimum [mm]	Minimum [in]	Maximum [mm]	Maximum [in]	Adjustment method
Inner	1871	73.7	2142	84.3	Rack and pinion axle, reversing wheels and offset lug rims
Outer	3081	121.3	3352	132.0	Same as inner wheels

(Front and rear axles same dimensions and adjustment methods)

PROTECTIVE STRUCTURE.

Make/Model/Type	John Deere/SG041/ Sound-Gard Cab
Manufacturer's name/address	John Deere Waterloo, Iowa
Protective device	Cab, not tiltable.
OECD approval number	CSS 0141/6

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	30 degrees each way

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]
Headlights	1990	78.3	100 dia.	483	19.0
Rearlights	1945	76.6	100 dia.	845	33.3
Reflectors					
front	3485	137.2	50 x 197	533	21.0
rear	3485	137.2	50 x 197	554	21.8

TEST CONDITIONS.

Overall dimensions.

Length		7266 mm (286.0 in)
Width	Minimum	3550 mm (140.0 in)
	Maximum	3825 mm (150.5 in)
Height -	Top of cab	3480 mm (137.0 in)
-	Top of exhaust	4100 mm (161.4 in)
Ground clearance (unballasted)		353 mm (13.9 in)
Clearance-limiting part		Drawbar rear support

Tractor Mass (with Cab, full fuel tank)

		Without driver [kG]	Without driver [lb]	With driver [kG]	With driver [lb]
Unballasted	Front	8054	17760	8092	17840
	Rear	6501	14335	6538	14415
	Total	14555	32095	14630	32255

Tire Specifications.

	Front wheels	Rear wheels
Make	Goodyear	Goodyear
Dimensions	18.4R42	18.4R42
Ply rating	2 star (10 ply)	2 star (10 ply)
Type	Radial	Radial
Max.load (tire manufacturer)	2890 kg/tire (6500 lb/tire)	2890 kg/tire (6500 lb/tire)
Max.load(tractor manufacturer)	same	same
Inflation pressure (tire mfr)	165 kPa(24 psi)	165 kPa(24 psi)
Dynamic Radius Index	892 mm (35.1 in)	892 mm (35.1 in)
Chosen track width - inner	1855 mm (73.0 in)	1855 mm (73.0 in)
- outer	3350 mm(132.0 in)	3350 mm(132.0 in)

Oils and Lubrication.

Capacity and change interval:

	Capacity liter	Capacity quart	Oil change hrs	Filter change hrs
Engine (w/o filter)	32	33.8	250	250
Gear Box	37.8	40.0	1500	750
Hydraulic system (includes steering, front and rear axles, and PTO)	140	148	1500	750

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		
Type	John Deere Hy-Gard	same
Viscosity	58 cSt	
Classification	NA	
Steering oil	Same as hydraulic	same
Front and rear axle	Same as hydraulic	same
Grease		
Number of lubrication points	24	

Fuel

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

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

Date of tests : 2 October 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 engine rev/min	Speeds PTO rev/min	Fuel Consumption hourly l/h (gal/h)	Fuel Consumption hourly kg/h (lb/h)	Fuel Consumption specific kg/kW.h (lb/hp.h)	Specific energy kW.h/l (hp.h/gal)
1.1 Maximum Power- 2 hour test.						
206.52 (276.95)	1749	923	59.14 (15.62)	48.97 (107.96)	0.237 (0.390)	3.49 (17.73)
1.2 Power at rated engine speed (1 hour).						
194.58 (260.94)	2100	1108	61.88 (16.35)	51.24 (112.96)	0.263 (0.433)	3.14 (15.96)
1.3 Maximum power at standard PTO speed (1000 rev/min).						
205.88 (276.09)	1895	1000	61.22 (16.17)	50.69 (111.76)	0.246 (0.405)	3.36 (17.07)

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

Power kW (hp)	Speeds engine rev/min	Speeds PTO rev/min	Fuel Consumption hourly l/h (gal/h)	Fuel Consumption hourly kg/h (lb/h)	Fuel Consumption specific kg/kW.h (lb/hp.h)	Specific energy kW.h/l (hp.h/gal)
(i) Torque obtained at maximum power at rated engine speed.						
194.58 (260.94)	2100	1108	61.88 (16.35)	51.24 (112.96)	0.263 (0.433)	3.14 (15.96)
(ii) 85% of the torque obtained in (i)						
170.96 (229.26)	2172	1146	56.04 (14.80)	46.40 (102.30)	0.271 (0.446)	3.05 (15.49)
(iii) 75% of the torque defined in (ii)						
130.17 (174.57)	2172	1162	45.69 (12.07)	37.83 (83.40)	0.291 (0.478)	2.85 (14.46)
(iv) 50% of the torque defined in (ii)						
87.79 (117.72)	2232	1178	35.83 (9.46)	29.66 (65.40)	0.338 (0.556)	2.45 (12.44)
(v) 25% of the torque defined in (ii)						
44.52 (59.70)	2265	1195	26.30 (6.95)	21.77 (48.00)	0.489 (0.804)	1.69 (8.59)
(vi) Unloaded						
0.64 (0.86)	2265	1208	16.60 (4.38)	13.74 (30.30)	21.369 (35.130)	0.04 (0.20)

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

Power kW (hp)	Speeds engine rev/min	PTO rev/min	Fuel Consumption hourly l/h (gal/h)	hourly kg/h (lb/h)	specific kg/kW.h (lb/hp.h)	Specific energy kW.h/l (hp.h/gal)
(i) Torque obtained at maxmum power at rated engine speed.						
205.88 (276.09)	1895	1000	61.22 (16.17)	50.69 (111.76)	0.246 (0.405)	3.36 (17.07)
(ii) 85% of the torque obtained in (i)						
177.61 (238.17)	1923	1015	53.41 (14.11)	44.23 (97.50)	0.249 (0.409)	3.33 (16.88)
(iii) 75% of the torque defined in (ii)						
135.67 (181.93)	1958	1033	43.22 (11.42)	35.79 (78.90)	0.264 (0.434)	3.14 (15.93)
(iv) 50% of the torque defined in (ii)						
91.98 (123.35)	1994	1052	33.03 (8.73)	27.35 (60.30)	0.297 (0.489)	2.78 (14.14)
(v) 25% of the torque defined in (ii)						
46.86 (62.84)	2026	1069	23.17 (6.12)	19.19 (42.30)	0.409 (0.673)	2.02 (10.27)
(vi) Unloaded						
0.69 (0.51)	2058	1086	13.64 (3.60)	11.29 (24.90)	22.030 (36.217)	0.04 (0.19)

No-load maximum engine speed	2289 rev/min	
Equivalent engine torque:		
at rated engine speed	885 Nm	(2100 rev/min)
at maximum power	1127 Nm	(1749 rev/min)
at maximum torque	1233 Nm	(1501 rev/min)
Mean atmospheric conditions:		
Temperature-dry bulb	24 'C	(75 'F)
Relative Humidity	49 %	
Barometer -	98.69 kPa	(29.14 in Hg)

Maximum Temperatures:

Thermostat housing	96 °C	(205 °F)
Engine oil pan	113 °C	(235 °F)
Fuel at injection pump	58 °C	(137 °F)
Engine air intake	41 °C	(105 °F)
Trans./Hydr. Oil	64 °C	(148 °F)

Turbocharger boost pressure

at rated engine speed	138 kPa	(20.0 psi)
at maximum power	138 kPa	(20.0 psi)

2. HYDRAULIC POWER AND LIFTING FORCE.

Date of test: 9 October 1989
Location: CAE/UNL, Lincoln, Nebr.

2.1 HYDRAULIC POWER TEST - Hydraulic pump performance

i. Sustained pressure with pump stalled: 17.24 MPa (2500 psi)

ii. Pump delivery rate @ minimum pressure & rated engine speed: 174.5 l/m (46.1 gpm)

iii.

	Flow Rate l/min (gal/min)	Pressure MPa (psi)	Power kW (hp)
At 90% of relief valve setting.	82.1 (21.7)	15.58 (2260)	21.3 (28.6)
At maximum hydraulic power.	164.7 (43.5)	12.41 (1800)	34.1 (45.7)

Tapping point(s): Two hydraulic outlets combined

Hydraulic fluid temperature

in oil reservoir	56 °C (133 °F)
at flow meter	84 °C (184 °F)

2.2 POWER LIFT TEST.

		Hitch Points	Frame
Lower hitch points above ground - down position.	[mm/in]	225/8.9	215/8.5
Vertical movement without load	[mm/in]	823/32.4	895/35.3
Vertical movement with load	[mm/in]	749/29.5	828/32.6
Maximum corrected force through full range	[kN/lbf]	50.4/11328	48.9/11000
Corresponding pressure	[kPa/psi]	12411/1800	
Moment about rear axle	[kN.m/ft.lb]	79.1/58340	106.6/78652
Maximum mast tilt angle	[degrees]	--	6.5

Lifting height relative to the horizontal position of lower links

	[mm]	-327	-317	-233	-131	1
	[in]	-12.9	-12.5	-9.2	-5.2	0
Corrected lift forces.						
hitch points	[kN]	--	50.4	52.5	54.6	56.9
	[lb]	--	11328	11808	12273	12788
at frame	[kN]	51.7	--	52.1	52.6	52.9
	[lb]	11621	--	11712	11825	11903

Lifting height relative to the horizontal position of lower links

	[mm]	128	229	331	432	501
	[in]	5.0	9.0	13.0	17.0	19.7
Corrected lift forces.						
hitch points	[kN]	58.6	59.8	60.7	61.1	--
	[lb]	13176	13437	13648	13740	--
at frame	[kN]	52.8	52.0	50.9	--	48.9
	[lb]	11868	11698	11437	--	11000

3. DRAWBAR POWER AND FUEL CONSUMPTION (UNBALLASTED TRACTOR)

OECD Drawbar Data (SI)

Date of tests: 04-Oct-89 05-Oct-89 Fuel density: 0.828 kg/l
Type of track: Concrete Test # 1631

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
I. Maximum Power (unballasted, 4wd @ 1750 rev/min) Tire pressure: 97 kPa, rear (inner) 97 kPa, front (inner) Drawbar height: 445 mm 97 kPa, rear (outer) 97 kPa, front (outer)														
1st*	135.70	140.32	3.48	2184	7.33%	0.319	2.60	58	85	99	19	13	50%	97.46
2nd*	172.82	140.88	4.42	2060	5.99%	0.297	2.79	58	85	102	19	13	50%	97.43
3rd	183.96	122.66	5.40	1883	4.12%	0.274	3.02	57	87	102	20	14	51%	97.46
4th	184.91	112.16	5.94	1749	3.45%	0.266	3.12	56	88	104	19	13	50%	97.83
5th	186.81	97.45	6.90	1752	2.68%	0.263	3.14	55	88	104	19	13	50%	97.93
6th	188.58	85.29	7.96	1749	1.99%	0.261	3.18	56	88	104	15	10	53%	98.24
7th	190.40	74.51	9.20	1748	1.91%	0.257	3.23	55	88	105	16	11	54%	98.17
8th	187.71	64.26	10.52	1750	1.56%	0.261	3.17	56	88	104	17	11	47%	98.10
9th	187.95	55.56	12.18	1754	1.29%	0.262	3.16	55	89	104	18	12	49%	98.04
10th	187.43	47.23	14.29	1752	1.21%	0.264	3.13	54	89	104	19	13	50%	98.00

Note: *Pull limited due to tractor bouncing.

OECD Drawbar Data (US)

Date of tests: 04-Oct-89 05-Oct-89 Fuel density: 6.910 lb/gal
Type of track: Concrete Test # 1631

Gear	Power	Pull	Speed	Engine Speed	Slip	SFC		Temperature, deg F					Rel hum	Pressure
	hp	lb	mph	rpm	%	lb/hp-hr	hp-hr/gal	Fuel	Coolant	Oil	Dry	Wet	%	in Hg
I. Maximum Power (unballasted, 4wd @ 1750 rev/min) Tire pressure: 14 psi, rear (inner) 14 psi, front (inner) Drawbar height: 17.5 in 14 psi, rear (outer) 14 psi, front (outer)														
1st*	181.98	31545	2.16	2184	7.33%	0.524	13.18	137	185	210	67	56	50%	28.78
2nd*	231.76	31671	2.74	2060	5.99%	0.488	14.17	136	186	215	66	55	50%	28.77
3rd	246.69	27575	3.35	1883	4.12%	0.450	15.35	135	189	216	68	57	51%	28.78
4th	247.97	25214	3.69	1749	3.45%	0.437	15.83	133	190	220	66	56	50%	28.89
5th	250.51	21908	4.29	1752	2.68%	0.433	15.96	131	190	220	66	55	50%	28.92
6th	252.89	19175	4.95	1749	1.99%	0.429	16.13	133	190	220	59	50	53%	29.01
7th	255.34	16751	5.72	1748	1.91%	0.422	16.38	131	191	221	61	51	54%	28.99
8th	251.73	14446	6.53	1750	1.56%	0.429	16.11	132	191	220	63	52	47%	28.97
9th	252.04	12490	7.57	1754	1.29%	0.431	16.02	131	192	219	65	54	49%	28.95
10th	251.35	10619	8.88	1752	1.21%	0.434	15.90	129	192	219	66	55	50%	28.94

Note: *Pull limited due to tractor bouncing.

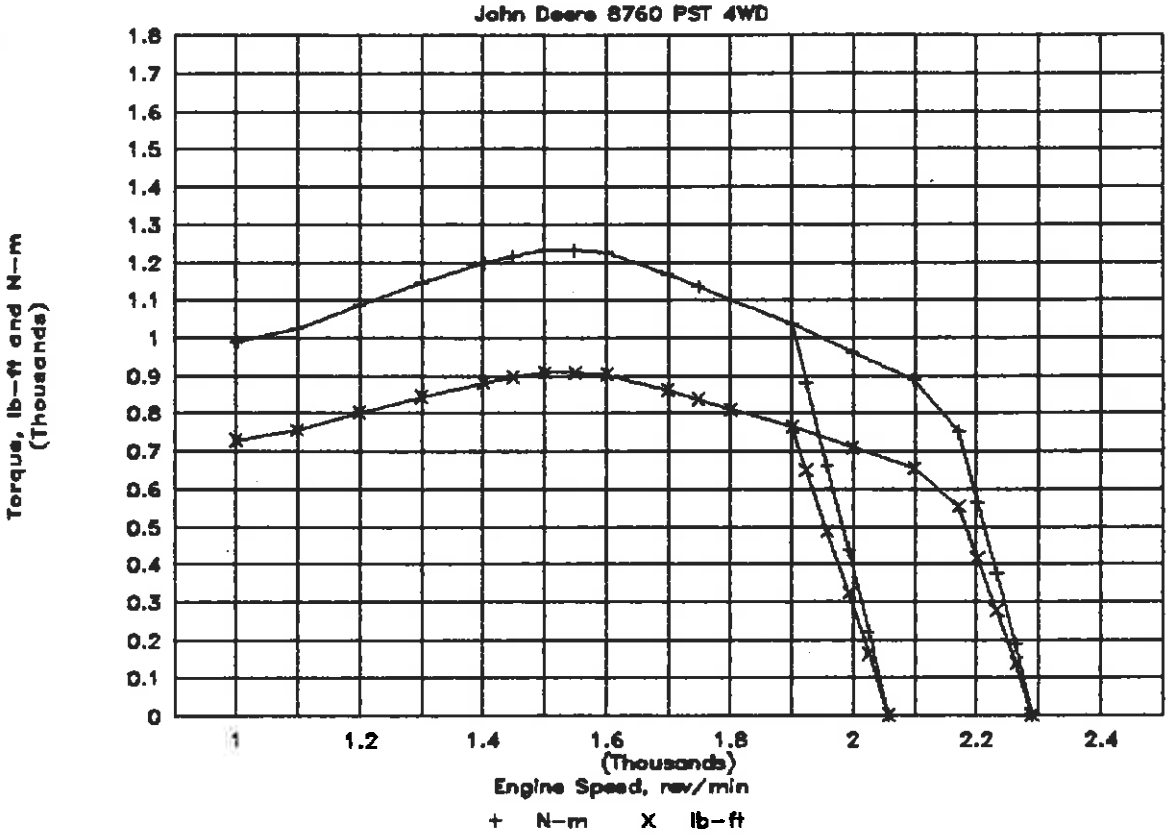
Date of tests: 04-Oct-89 06-Oct-89 Fuel density: 0.828 kg/l
Type of track: Concrete Test # 1631

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:		97 kPa, rear (inner)			97 kPa, front (inner)			
			Drawbar height:	445 mm				97 kPa, rear (outer)			97 kPa, front (outer)			
II.1 in selected gear at maximum power														
7th	190.40	74.51	9.20	1748	1.91%	0.257	3.23	55	88	105	16	11	54%	98.17
II.1.1 75% of pull at maximum power at rated speed														
7th 75%	139.95	43.55	11.57	2184	1.21%	0.305	2.71	42	84	96	14	9	51%	98.44
II.1.2 50% of pull at maximum power at rated speed														
7th 50%	94.95	29.00	11.79	2218	0.85%	0.351	2.36	43	82	95	15	9	44%	98.48
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
9th 75%	140.42	43.58	11.60	1668	1.21%	0.267	3.10	40	85	99	14	9	51%	98.44
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
9th 50%	95.04	29.05	11.78	1688	0.94%	0.297	2.79	39	82	96	16	9	38%	98.48
II.2 in selected gear nearest to 7.5 km/h														
4th	184.91	112.16	5.94	1749	3.45%	0.266	3.12	56	88	104	19	13	50%	97.83
II.2.1 75% of pull at maximum power at rated speed														
4th 75%	138.79	66.21	7.55	2190	1.82%	0.303	2.74	41	83	99	13	9	59%	98.37
II.2.2 50% of pull at maximum power at rated speed														
4th 50%	94.41	44.13	7.70	2222	1.29%	0.344	2.41	41	81	94	14	9	51%	98.41
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
6th 75%	138.75	66.24	7.54	1651	1.64%	0.261	3.17	39	85	99	13	9	59%	98.37
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
6th 50%	94.25	44.17	7.68	1673	1.29%	0.285	2.90	38	94	96	14	9	51%	98.41

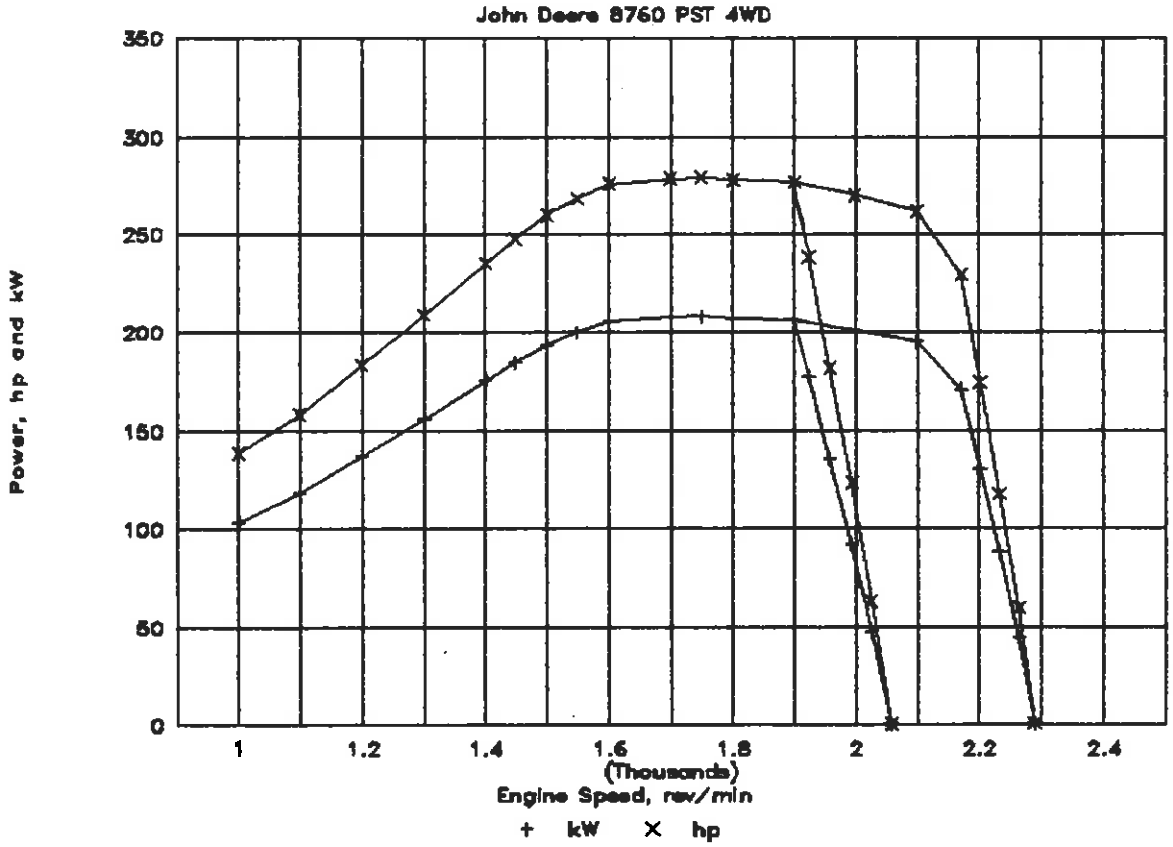
Date of tests: 04-Oct-89 06-Oct-89 Fuel density: 6.910 lb/gal
Type of track: Concrete Test # 1631

Gear	Power	Pull	Speed	Engine Speed	Slip	SFC		Temperature, deg F					Rel hum	Pressure
	hp	lb	mph	rpm	%	lb/hp-hr	hp-hr/gal	Fuel	Coolant	Oil	Dry	Wet	%	in Hg
II. Part Loads (unballasted) Drawbar height: 17.5 in								Tire pressure: 14 psi, rear (inner) 14 psi, rear (outer)			14 psi, front (inner) 14 psi, front (outer)			
II.1 in selected gear at maximum power														
7th	255.34	16751	5.72	1748	1.91%	0.422	16.38	131	191	221	61	51	54%	28.99
II.1.1 75% of pull at maximum power at rated speed														
7th 75%	187.68	9791	7.19	2184	1.21%	0.502	13.78	108	183	205	58	48	51%	29.07
II.1.2 50% of pull at maximum power at rated speed														
7th 50%	127.34	6521	7.32	2218	0.85%	0.577	11.98	109	180	203	59	49	44%	29.08
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
9th 75%	188.31	9798	7.21	1668	1.21%	0.439	15.76	104	185	210	58	48	51%	29.07
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
9th 50%	127.45	6531	7.32	1688	0.94%	0.488	14.16	103	180	206	61	49	38%	29.08
II.2 in selected gear nearest to 4.6 mph														
4th	247.97	25214	3.69	1749	3.45%	0.437	15.83	133	190	220	66	56	50%	28.89
II.2.1 75% of pull at maximum power at rated speed														
4th 75%	186.12	14885	4.69	2190	1.82%	0.498	13.89	105	182	211	56	48	59%	29.05
II.2.2 50% of pull at maximum power at rated speed														
4th 50%	126.60	9921	4.79	2222	1.29%	0.565	12.23	105	178	201	57	48	51%	29.06
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
6th 75%	186.07	14891	4.69	1651	1.64%	0.429	16.09	103	185	211	56	48	59%	29.05
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
6th 50%	126.39	9929	4.77	1673	1.29%	0.469	14.75	101	202	205	57	48	51%	29.06

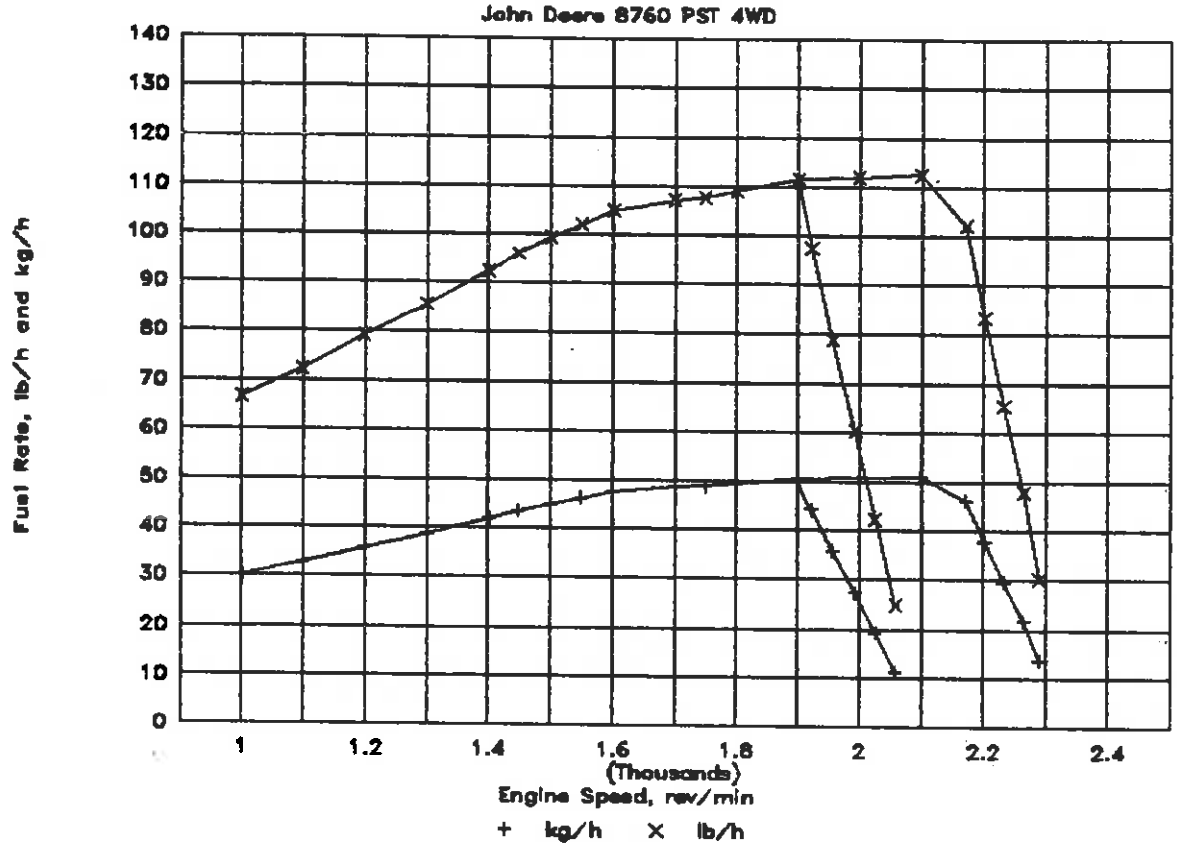
Equivalent Crankshaft Torque



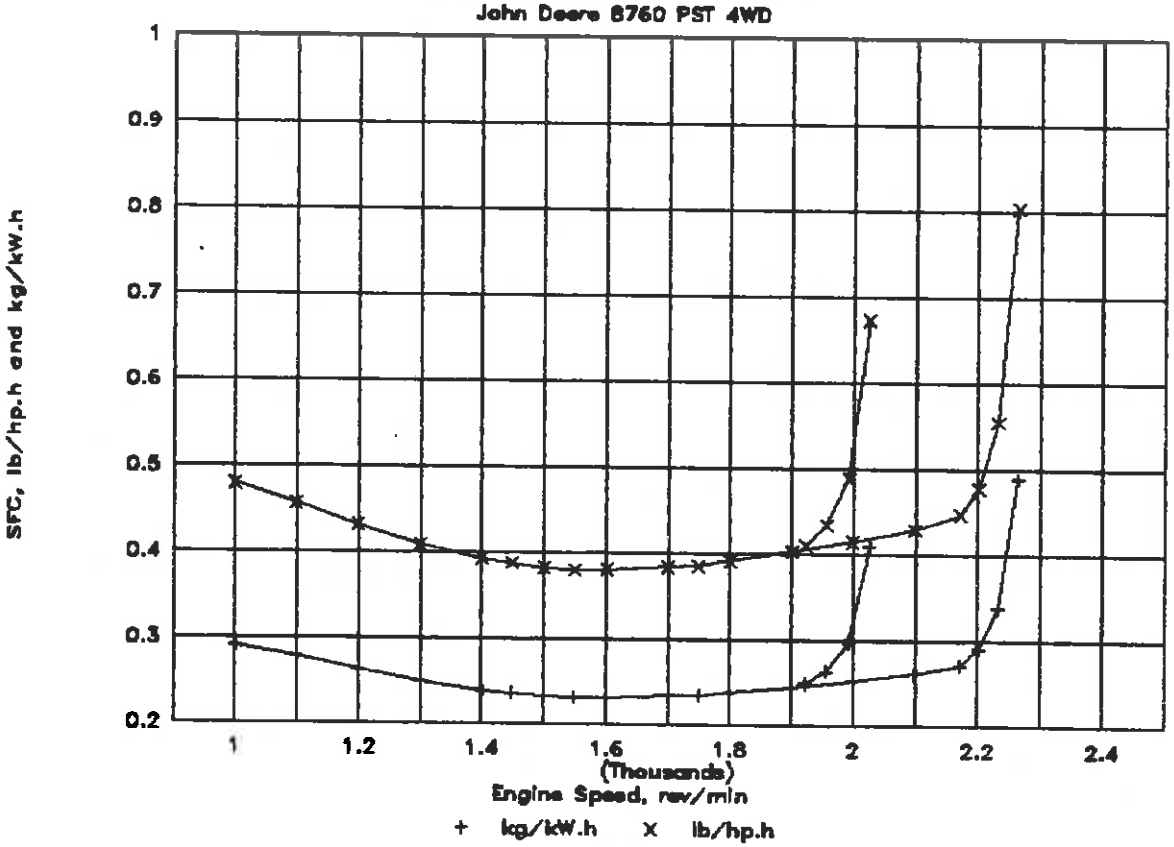
PTO Power

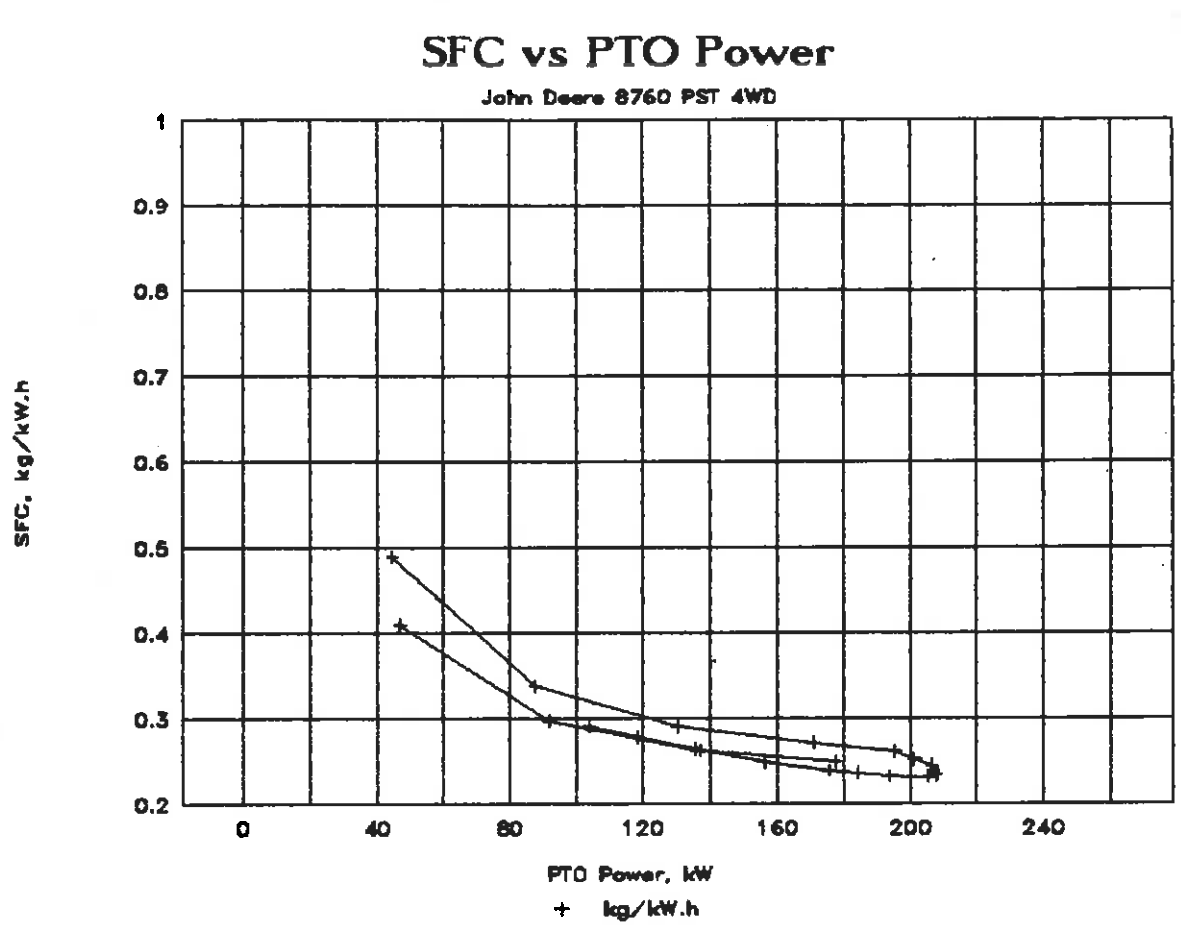


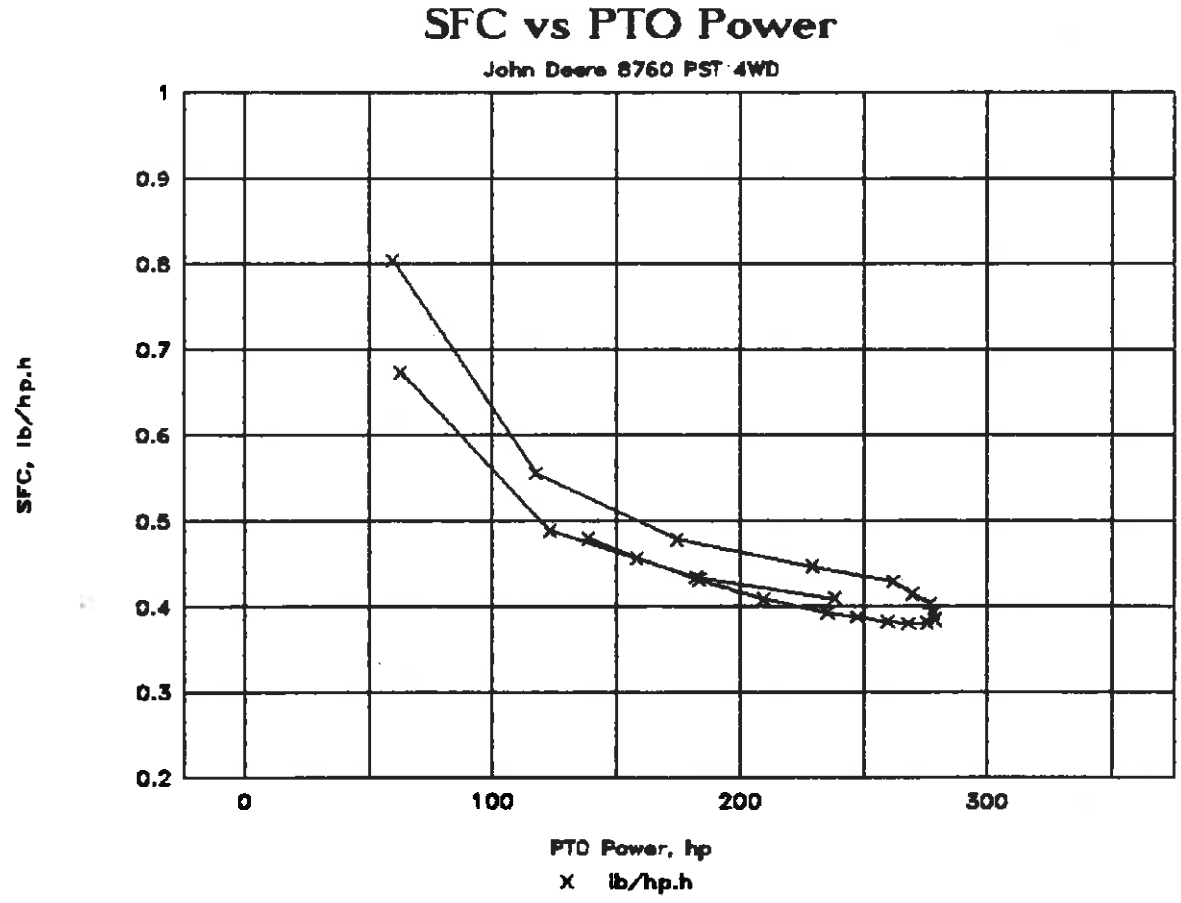
PTO Fuel Consumption



PTO Specific Fuel Consumption




SFC vs PTO Power
John Deere 8760 PST 4WD
SFC, kg/kW.h
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0
40
80
120
160
200
240
PTO Power, kW
+ kg/kW.h


SFC vs PTO Power
John Deere 8760 PST 4WD
SFC, lb/hp.h
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0
100
200
300
PTO Power, hp
X lb/hp.h

5. OPTIONAL TESTS.

5.1 MEASUREMENT OF EXTERNAL NOISE LEVEL.

Date of test	:	October 3, 1989
Location of test	:	CAE/UNL, Lincoln, Nebr.
Sound level meter	:	B & K 2203
Type of track	:	Concrete oval
Gear number	:	12th
Speed prior to acceleration	:	25.8 km/h (16.0 mph)
Sound level	:	90.0 dB(A)

5.2 MAXIMUM POWER AT 2100 REV/MIN (UNBALLASTED TRACTOR)

OECD Drawbar Data (SI)

Date of tests: 04-Oct-89 06-Oct-89 Fuel density: 0.828 kg/l
Type of track: Concrete Test # 1631

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, 4wd @ 2100 rev/min Drawbar height: 445 mm								Tire pressure:		97 kPa, rear (inner) 97 kPa, rear (outer)		97 kPa, front (inner) 97 kPa, front (outer)		
1st*	138.88	143.94	3.47	2181	7.64%	0.317	2.61	58	84	98	19	13	50%	97.46
2nd	172.69	136.72	4.55	2100	5.10%	0.297	2.79	58	85	100	18	13	57%	97.43
3rd	176.59	104.63	6.08	2099	3.19%	0.290	2.85	58	86	103	21	14	46%	97.46
4th	176.61	88.30	7.20	2100	2.25%	0.289	2.86	57	87	103	19	13	50%	97.90
5th	180.32	77.86	8.34	2101	1.99%	0.283	2.92	57	87	103	19	13	50%	97.97
6th	176.95	66.32	9.61	2100	1.56%	0.290	2.85	57	87	102	14	10	60%	98.27
7th	178.59	58.03	11.08	2096	1.44%	0.288	2.87	58	87	103	16	11	54%	98.21
8th	174.91	49.73	12.66	2099	1.29%	0.292	2.84	57	87	103	17	11	47%	98.14
9th	175.38	43.23	14.60	2097	1.12%	0.294	2.82	57	87	103	18	12	49%	98.07

Note: *Pull limited due to tractor bouncing.

OECD Drawbar Data (US)

Date of tests: 04-Oct-89 06-Oct-89 Fuel density: 6.910 lb/gal
Type of track: Concrete Test # 1631

Gear	Power	Pull	Speed	Engine Speed	Slip	SFC		Temperature, deg F					Rel hum	Pressure
	hp	lb	mph	rpm	%	lb/hp-hr	hp-hr/gal	Fuel	Coolant	Oil	Dry	Wet	%	in Hg
Ia. Maximum Power (unballasted, 4wd @ 2100 rev/min Drawbar height: 17.5 in								Tire pressure:		14 psi, rear (inner) 14 psi, rear (outer)		14 psi, front (inner) 14 psi, front (outer)		
1st*	186.24	32360	2.16	2181	7.64%	0.521	13.26	136	184	209	66	56	50%	28.78
2nd	231.58	30737	2.83	2100	5.10%	0.488	14.15	136	185	213	65	55	57%	28.77
3rd	236.81	23522	3.78	2099	3.19%	0.477	14.48	136	187	217	69	57	46%	28.78
4th	236.83	19850	4.47	2100	2.25%	0.476	14.52	135	189	217	66	55	50%	28.91
5th	241.82	17503	5.18	2101	1.99%	0.466	14.83	134	189	218	66	55	50%	28.93
6th	237.30	14909	5.97	2100	1.56%	0.477	14.49	135	188	216	58	50	60%	29.02
7th	239.49	13046	6.88	2096	1.44%	0.474	14.59	136	189	217	60	51	54%	29.00
8th	234.55	11180	7.87	2099	1.29%	0.480	14.40	135	189	217	62	52	47%	28.98
9th	235.19	9719	9.07	2097	1.12%	0.483	14.31	135	189	218	64	53	49%	28.96

Note: *Pull limited due to tractor bouncing.

Repairs: None

Remarks: None