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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 OFFICIAL TESTING OF AGRICULTURAL TRACTOR PERFORMANCE

RESTRICTED TEST-CODE II

JOHN DEERE 8560 POWERSHIFT SYNCHROMESH ARTICULATED 4WD TRACTOR.



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

NEBRASKA TEST NO.1623

Test date: 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 May 2, 1990

JOHN DEERE 8560 Powershift Synchromesh OECD # 1261

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

TRACTOR.

Make	John Deere
Model	8560 Powershift Synchromesh
Type	Articulated frame, four-wheel drive (4WD)
Number of driving wheels	8
Serial Number	*RW8560H001036*
1st Serial number	*RW8560H001001*

ENGINE.

Make	John Deere
Model	6076HRW01
Type	Diesel,turbocharged and intercooled
Serial Number	*RG6076H102244*
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, replaceable
Super charging	
Make/Model/Type	Air Research/RE33786/ exhaust gas driven
Pressure	100-125 kPa (15-18 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 l (220 US gal)

Make/Model/Type Injection pump	Bosch/RE32888/in line
Pump Serial number	85006085
Production setting of pump Flow Rate (Rated Eng.Spd & Full Load)	37.9 +/- 1.7 kg/hr 83.6 +/- 3.7 lb/hr
Make/Model/Type of injectors	Nippondenso/21 mm
Injection pressure	29.0 MPa (4200 psi)
Timing	21 degrees before TDC

Governor

Make/Model/Type	Bosch/RSV400/mechanical
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/AR70106/ pleated paper
Secondary element	
Make/Model/Type	Donaldson/AR70107/ 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	1
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	2 thermostats and variable speed fan
Superpressure system	103 kPa (15 psi)

Starting system.

Make/Model/Type of starter	Delco Remy/RE37961/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
Power rating	120 Ampere at 2100 engine rpm.
Batteries	
Number & connection	2-12 V batteries in parallel
	175 Ampere-hours per battery
	at 20 hour rating
Rating	925 Cold crank amp/battery
Exhaust system.	
Make/Model/Type	Donaldson/RE41891/
	expansion chamber
Location	Vertical, right front
	corner of cab

TRANSMISSION.

Clutch. (travel)	
Make/Type	John Deere/multiple plate/
	oil cooled
Number of plates	7
Plate diameter	279 mm (11.0 in)
Method of operation	Hydraulically actuated
	by foot pedal.
Gear Box.	
Make/Type	John Deere/Powrsync
Arrangement	countershaft and planetary
	design consisting of:
	one 12 speed gearbox with 4
	synchronized ranges and 3
	synchronized speeds in each range
	one 2 speed planetary gearset with
	a multiple wet disc and brake
Number of gears	24 forward, 6 reverse
	controlled by 2 hand levers
Oil cooler	Heat exchanger with air
Available options	12 forward, 3 reverse
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	limited slip
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			
A1	213.20	3.31	2.06
A2	177.66	3.98	2.47
A3	165.48	4.27	2.65
A4	138.07	5.12	3.18
A5	120.97	5.84	3.63
A6	100.86	7.00	4.35
B1	100.00	7.06	4.39
C1	90.71	7.79	4.84
B2	83.40	8.47	5.26
B3	77.66	9.10	5.65
C2	75.65	9.34	5.80
C3	70.45	10.03	6.23
B4	64.77	10.91	6.78
C4	58.76	12.02	7.47
B5	56.76	12.45	7.73
C5	51.48	13.72	8.53
B6	47.33	14.93	9.27
C6	42.94	16.45	10.22
D1	42.56	16.60	10.31
D2	35.50	19.90	12.36
D3	33.06	21.37	13.28
D4	27.57	25.63	15.92
D5	24.15	29.25	18.18
D6	20.15	35.06	21.78
Reverse			
A1	177.66	3.98	2.47
A2	148.20	4.77	2.96
B1	83.40	8.47	5.26
C1	75.65	9.34	5.80
B2	69.56	10.16	6.31
C2	63.08	11.20	6.96

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

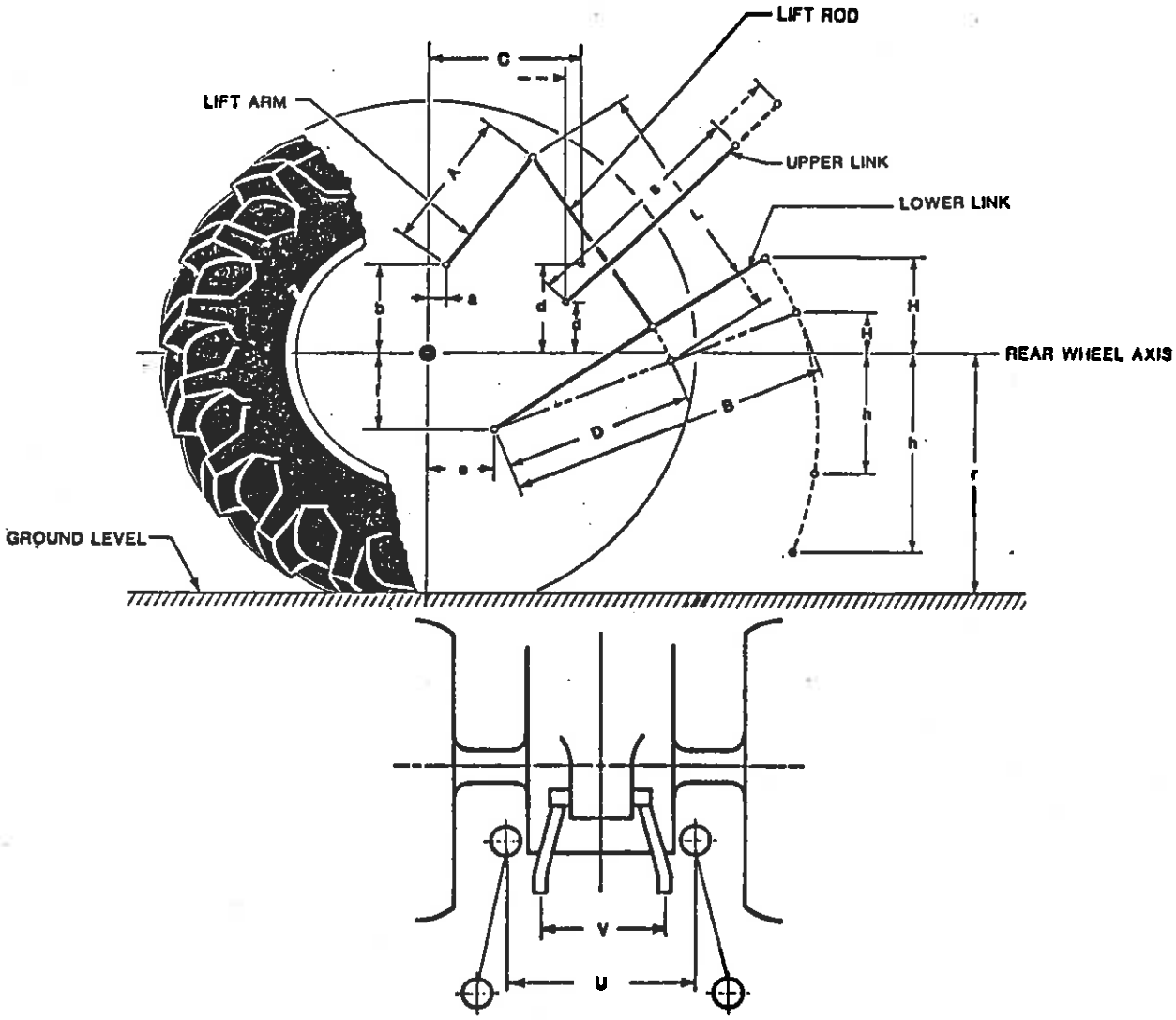


Figure 1.2

Table 1.1 -*Linkage geometry dimensions.

		Dimension or range [mm]	Dimension or range [in]	Settings used on test [mm]	Settings used on test [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 to 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 to 45.3	1137	44.8
Height of lower hitch points relative to rear wheel axis In low position	(h)	521 to 724	20.5 to 28.5	690	27.2
In high position	(H)	89 to 284	3.5 to 11.2	133	5.2
Height above ground of lower hitch points when locked in transport position.		980 to 1176	38.6 to 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	Transmission lock
Method of operation	Gear selector 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 Tractor Works Waterloo, Iowa
Protective device	Cab, not tiltable.
OECD approval number	CSS 0141/7

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 out - side edge to median plane of tractor. [mm]	Distance from out - side 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	8010	17660	8047	17740
	Rear	6539	14415	6577	14500
	Total	14549	32075	14624	32240

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)	2950 kg/tire (6500 lb/tire)	2950 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	1970 mm (77.5 in)	1970 mm (77.5 in)
- outer	3290 mm(129.5 in)	3290 mm (129.5 in)

Oils and Lubrication.

Capacity and change interval:

	Capacity liter	Capacity quart	Oil change hrs	Filter change hrs
Engine (w/o filter)	23	24.3	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 (6.912 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.

COMPULSORY TESTS.

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

Date of tests : 3 May 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.						
156.79 (210.25)	1900	1003	44.27 (11.69)	36.66 (80.83)	0.234 (0.384)	3.54 (17.98)
1.2 Power at rated engine speed (1 hour).						
151.12 (202.65)	2100	1108	44.53 (11.76)	36.88 (81.31)	0.244 (0.401)	3.39 (17.23)
1.3 Maximum power at standard PTO speed (1000 rev/min).						
156.69 (210.12)	2100	1003	44.25 (11.69)	36.65 (80.80)	0.234 (0.385)	3.54 (17.97)

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.						
151.12 (202.65)	2100	1108	44.53 (11.76)	36.88 (81.31)	0.244 (0.401)	3.39 (17.23)
(ii) 85% of the torque obtained in (i)						
133.31 (178.77)	2180	1151	41.07 (10.85)	34.02 (75.00)	0.255 (0.420)	3.25 (16.48)
(iii) 75% of the torque defined in (ii)						
101.49 (136.10)	2211	1167	35.65 (9.42)	29.53 (65.10)	0.291 (0.478)	2.85 (14.45)
(iv) 50% of the torque defined in (ii)						
68.83 (92.31)	2243	1184	26.78 (7.07)	22.18 (48.90)	0.322 (0.530)	2.57 (13.05)
(v) 25% of the torque defined in (ii)						
34.71 (46.55)	2272	1200	18.57 (4.90)	15.38 (33.90)	0.443 (0.728)	1.87 (9.49)
(vi) Unloaded						
0.65 (0.87)	2295	1212	11.83 (3.13)	9.80 (21.60)	15.183 (24.961)	0.05 (0.28)

1.5 Part Loads - governor hand lever set for maximum power at standard pto 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 maxmum power at rated engine speed.						
156.69 (210.12)	1900	1003	44.25 (11.69)	36.65 (80.80)	0.234 (0.385)	3.54 (17.97)
(ii) 85% of the torque obtained in (i)						
145.03 (194.48)	2066	1091	42.88 (11.33)	35.52 (78.30)	0.245 (0.403)	3.38 (17.17)
(iii) 75% of the torque defined in (ii)						
111.51 (149.54)	2121	1120	35.00 (9.24)	28.98 (63.90)	0.260 (0.427)	3.19 (16.18)
(iv) 50% of the torque defined in (ii)						
75.54 (101.30)	2156	1138	26.45 (6.99)	21.91 (48.30)	0.290 (0.477)	2.86 (14.50)
(v) 25% of the torque defined in (ii)						
38.27 (51.32)	2185	1153	18.40 (4.86)	15.24 (33.60)	0.398 0.655)	2.08 (10.56)
(vi) Unloaded						
0.79 (1.06)	2207	1165	10.68 (2.82)	8.85 (19.50)	18.315 (11.140)	0.07 (0.38)

No-load maximum engine speed 2295 rev/min

Equivalent engine torque:

at rated engine speed	687 Nm(2100 rev/min)
at maximum power	788 Nm(1900 rev/min)
at maximum torque	945 Nm(1350 rev/min)

Mean atmospheric conditions:

Temperature-dry bulb	24 °C (74 °F)
Relative Humidity	31 %
Barometer	98.29 kPa(29.03 in Hg)

Maximum temperatures:

Thermostat housing	98 °C	(208 °F)
Engine oil pan	116 °C	(240 °F)
Fuel at injection pump	58 °C	(137 °F)
Engine air intake	48 °C	(119 °F)
Trans./Hydr. Oil	63 °C	(146 °F)

Turbocharger boost pressure

at rated engine speed	110 kPa	(16.0 psi)
at maximum power	114 kPa	(16.5 psi)

2. HYDRAULIC POWER AND LIFTING FORCE.

Date of test: 16 May 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	165.0 l/m (43.6 gpm)

iii.

	Flow Rate l/min (gal/min)	Pressure MPa (psi)	Power kW (hp)
At 90% of relief valve setting.	79.1 (20.9)	15.51 (2250)	20.5 (27.4)
At maximum hydraulic power.	155.2 (41.0)	12.76 (1850)	33.0 (44.3)

Tapping point(s)	Two hydraulic outlets combined
Hydraulic fluid temperature	
in oil reservoir	75 °C (167 °F)
at flow meter	72 °C (163 °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]	51.8/11643	50.3/11306
Corresponding pressure	[kPa/psi]	12755/1850	
Moment about rear axle	[kN.m/ft.lb]	81.3/59961	109.6/80837
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	-9.42	-5.2	0
Corrected lift forces.						
hitch points	[kN]	--	51.8	54.0	56.1	58.5
	[lb]	--	11643	12136	12614	13143
at frame	[kN]	53.1	--	53.5	54.1	54.4
	[lb]	11944	--	12038	12154	12233

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]	60.2	61.4	62.4	62.8	--
	[lb]	13542	13810	14027	14121	--
at frame	[kN]	54.3	53.5	52.3	--	50.3
	[lb]	12197	12023	11755	--	11306

3. DRAWBAR POWER AND FUEL CONSUMPTION (UNBALLASTED TRACTOR)

OECD Drawbar Data (SI)

Date of tests: 09-May-89 11-May-89 Fuel density: 0.828 kg/l
Type of track: Concrete Test # 1623

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 @ 1900 rev/min) Drawbar height: 457 mm								Tire pressure:		97 kPa, rear (inner) 97 kPa, rear (outer)		97 kPa, front (inner) 97 kPa, front (outer)		
1st(A1)*	122.31	141.80	3.11	2157	7.84%	0.295	2.80	58	83	103	15	10	53%	98.51
2nd(A2)	131.65	134.69	3.52	2022	6.99%	0.283	2.93	58	83	104	18	11	27%	98.54
3rd(A3)	135.23	128.26	3.80	2007	5.96%	0.273	3.03	60	83	104	20	13	44%	98.58
4th(A4)	136.58	111.89	4.39	1902	3.90%	0.268	3.09	58	83	104	16	11	54%	98.61
5th(A5)	137.15	97.88	5.04	1900	3.31%	0.267	3.10	59	83	104	18	11	41%	98.61
6th(A6)	135.90	80.13	6.11	1904	2.63%	0.270	3.07	57	84	105	19	12	43%	98.61
7th(B1)	138.07	80.94	6.14	1901	2.72%	0.266	3.11	58	84	104	22	12	28%	98.48
8th(C1)	139.18	73.67	6.80	1905	2.46%	0.264	3.14	58	84	104	21	12	20%	98.48
9th(B2)	139.75	67.81	7.42	1903	2.28%	0.262	3.16	58	84	104	23	13	30%	98.54
10th(B3)	140.72	63.55	7.97	1904	1.94%	0.261	3.18	57	84	105	18	12	49%	98.54
11th(C2)	138.84	61.03	8.19	1905	1.85%	0.264	3.13	58	84	105	21	12	32%	98.54
12th(C3)	141.60	57.85	8.81	1904	1.76%	0.259	3.19	58	84	104	21	12	32%	98.54
13th(B4)	137.06	51.27	9.62	1907	1.67%	0.266	3.11	57	84	105	21	12	32%	98.51
14th(C4)	139.45	47.31	10.61	1904	1.59%	0.263	3.15	57	84	105	20	12	37%	98.65
15th(B5)	139.77	45.81	10.98	1901	1.67%	0.262	3.16	57	84	105	20	12	37%	98.65
16th(C5)	138.08	40.93	12.14	1903	1.32%	0.266	3.12	58	84	105	21	11	26%	98.65
17th(B6)	134.61	36.64	13.22	1903	1.14%	0.272	3.05	57	84	104	22	10	17%	98.65

Note: *Pull limited due to tractor bouncing.

Date of tests: 09-May-89 11-May-89 Fuel density: 6.912 lb/gal
Type of track: Concrete Test # 1623

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 @ 1900 rev/min) Drawbar height: 18 in							Tire pressure:	14 psi, rear (inner) 14 psi, rear (outer)			14 psi, front (inner) 14 psi, front (outer)			
1st(A1)*	164.02	31879	1.93	2157	7.84%	0.486	14.23	136	182	217	59	50	53%	29.09
2nd(A2)	176.54	30280	2.19	2022	6.99%	0.465	14.87	137	182	219	64	52	27%	29.10
3rd(A3)	181.35	28833	2.36	2007	5.96%	0.449	15.39	139	182	219	68	55	44%	29.11
4th(A4)	183.15	25154	2.73	1902	3.90%	0.440	15.71	136	181	219	61	51	54%	29.12
5th(A5)	183.92	22005	3.13	1900	3.31%	0.439	15.74	138	182	220	64	52	41%	29.12
6th(A6)	182.25	18015	3.79	1904	2.63%	0.444	15.57	134	183	222	66	53	43%	29.12
7th(B1)	185.16	18196	3.82	1901	2.72%	0.437	15.80	136	183	220	71	54	28%	29.08
8th(C1)	186.64	16561	4.23	1905	2.46%	0.434	15.93	136	183	220	70	54	20%	29.08
9th(B2)	187.40	15245	4.61	1903	2.28%	0.431	16.03	136	184	219	74	56	30%	29.10
10th(B3)	188.70	14286	4.95	1904	1.94%	0.428	16.14	135	183	221	65	54	49%	29.10
11th(C2)	186.19	13720	5.09	1905	1.85%	0.434	15.91	136	183	221	69	54	32%	29.10
12th(C3)	189.88	13006	5.48	1904	1.76%	0.426	16.21	136	183	220	69	54	32%	29.10
13th(B4)	183.80	11527	5.98	1907	1.67%	0.438	15.78	135	183	221	70	54	32%	29.09
14th(C4)	187.01	10636	6.59	1904	1.59%	0.432	16.00	135	183	221	68	53	37%	29.13
15th(B5)	187.44	10299	6.83	1901	1.67%	0.431	16.05	135	184	221	68	53	37%	29.13
16th(C5)	185.17	9203	7.55	1903	1.32%	0.437	15.83	136	184	221	69	51	26%	29.13
17th(B6)	180.51	8238	8.22	1903	1.14%	0.447	15.46	134	184	219	72	50	17%	29.13

Note: *Pull limited due to tractor bouncing.

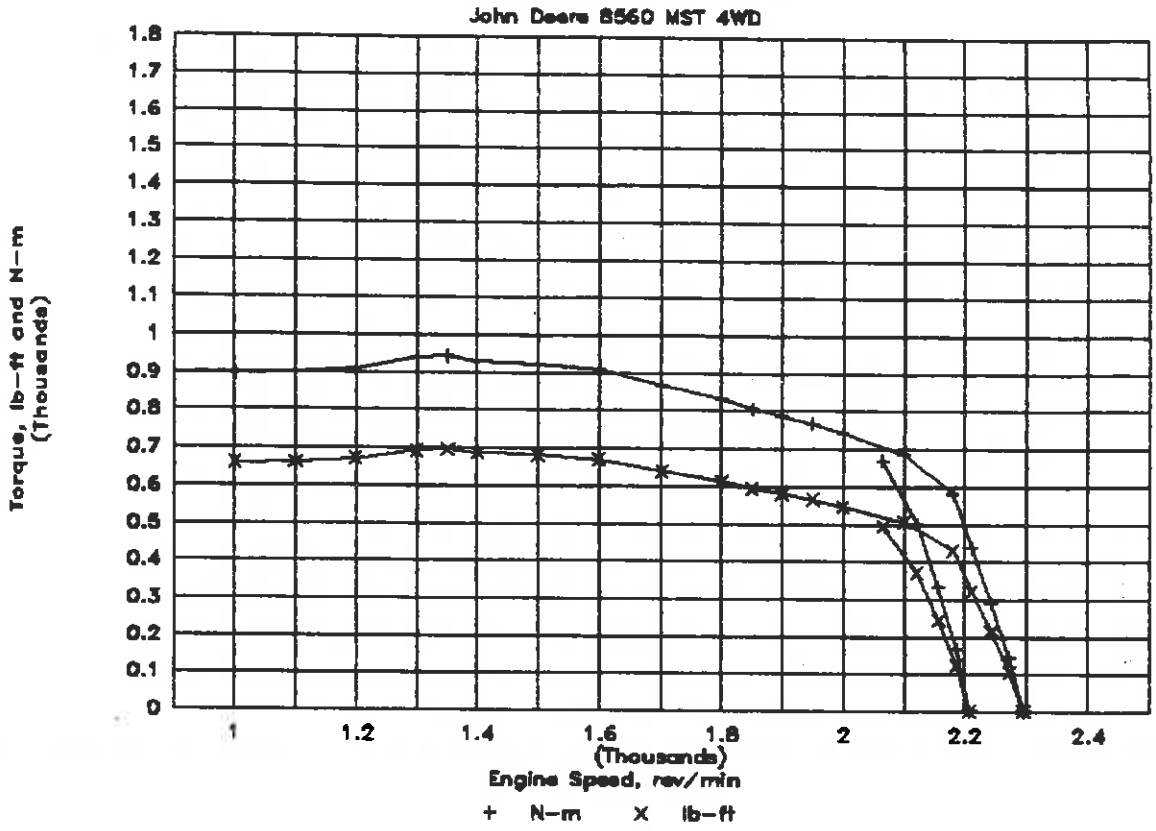
Date of tests: 09-May-89 11-May-89 Fuel density: 0.828 kg/l
Type of track: Concrete Test # 1623

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:	457 mm				97 kPa, rear (outer)		97 kPa, front (outer)			
II.1 in selected gear at maximum power														
12th(C3)	141.60	57.85	8.81	1904	1.76%	0.259	3.19	58	84	104	21	12	32%	98.54
II.1.1 75% of pull at maximum power at rated speed														
12th(C3)	106.07	37.24	10.25	2197	1.14%	0.298	2.78	50	83	103	24	13	37%	98.48
II.1.2 50% of pull at maximum power at rated speed														
12th(C3)	72.06	24.82	10.45	2231	0.88%	0.343	2.41	49	83	102	24	13	37%	98.44
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
15th(B5)	106.32	37.25	10.27	1774	1.14%	0.273	3.03	49	83	103	24	13	37%	98.48
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
15th(B5)	72.04	24.82	10.45	1798	0.70%	0.304	2.72	48	83	101	24	13	37%	98.41
II.2 in selected gear nearest to 7.5 km/h														
8th(C1)	139.18	73.67	6.80	1905	2.46%	0.264	3.14	58	84	104	21	12	32%	98.48
II.2.1 75% of pull at maximum power at rated speed														
8th(C1)	105.28	47.76	7.94	2199	1.50%	0.294	2.82	50	83	102	23	13	30%	98.54
II.2.2 50% of pull at maximum power at rated speed														
8th(C1)	71.59	31.86	8.09	2229	1.05%	0.341	2.43	50	83	102	24	13	26%	98.54
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
12th(C3)	105.44	47.74	7.95	1710	1.50%	0.265	3.13	49	83	102	24	13	26%	98.51
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
12th(C3)	71.50	31.83	8.09	1730	0.97%	0.293	2.83	48	82	101	24	13	26%	98.51

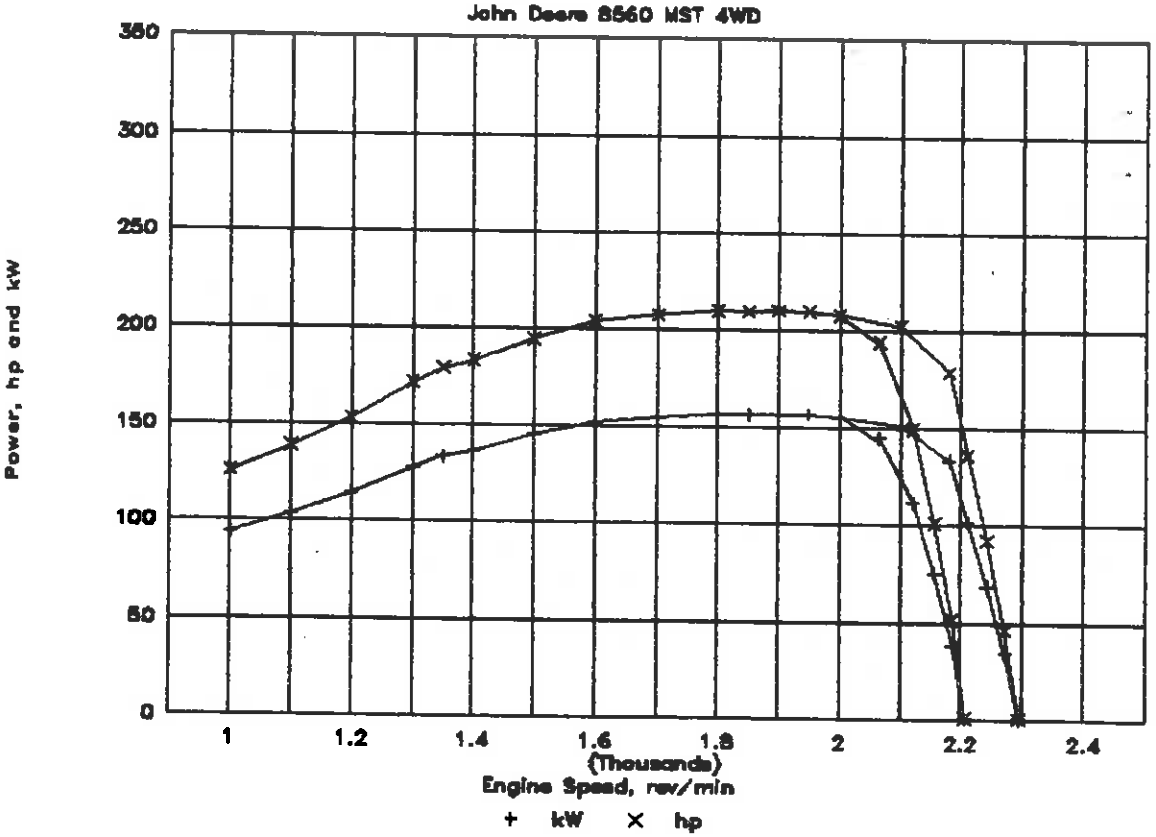
Date of tests: 09-May-89 11-May-89 Fuel density: 6.912 lb/gal
Type of track: Concrete Test # 1623

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)						Tire pressure:		14 psi, rear (inner)			14 psi, front (inner)			
			Drawbar height:	18.5 in				14 psi, rear (outer)			14 psi, front (outer)			
II.1 in selected gear at maximum power														
12th(C3)	189.88	13006	5.48	1904	1.76%	0.426	16.21	136	183	220	69	54	32%	29.10
II.1.1 75% of pull at maximum power at rated speed														
12th(C3)	142.24	8371	6.37	2197	1.14%	0.490	14.12	123	182	218	75	56	37%	29.08
II.1.2 50% of pull at maximum power at rated speed														
12th(C3)	96.63	5580	6.49	2231	0.88%	0.564	12.25	120	181	216	75	56	37%	29.07
II.1.3 next higher gear at reduced engine speed, same pull and travel speed as II.1.1														
15th(B5)	142.57	8375	6.38	1774	1.14%	0.449	15.39	120	182	217	75	56	37%	29.08
II.1.4 next higher gear at reduced engine speed, same pull and travel speed as II.1.2														
15th(B5)	96.61	5581	6.49	1798	0.70%	0.500	13.82	118	181	214	75	56	37%	29.06
II.2 in selected gear nearest to 4.6 mph														
8th(C1)	186.64	16561	4.23	1905	2.46%	0.434	15.93	136	183	220	70	54	32%	29.08
II.2.1 75% of pull at maximum power at rated speed														
8th(C1)	141.18	10737	4.93	2199	1.50%	0.483	14.31	122	182	216	74	56	30%	29.10
II.2.2 50% of pull at maximum power at rated speed														
8th(C1)	96.00	7162	5.03	2229	1.05%	0.561	12.32	123	181	216	75	56	26%	29.10
II.2.3 next higher gear at reduced engine speed, same pull and travel speed as II.2.1														
12th(C3)	141.39	10733	4.94	1710	1.50%	0.435	15.88	120	182	216	75	56	26%	29.09
II.2.4 next higher gear at reduced engine speed, same pull and travel speed as II.2.2														
12th(C3)	95.89	7156	5.03	1730	0.97%	0.481	14.36	118	180	213	75	56	26%	29.09

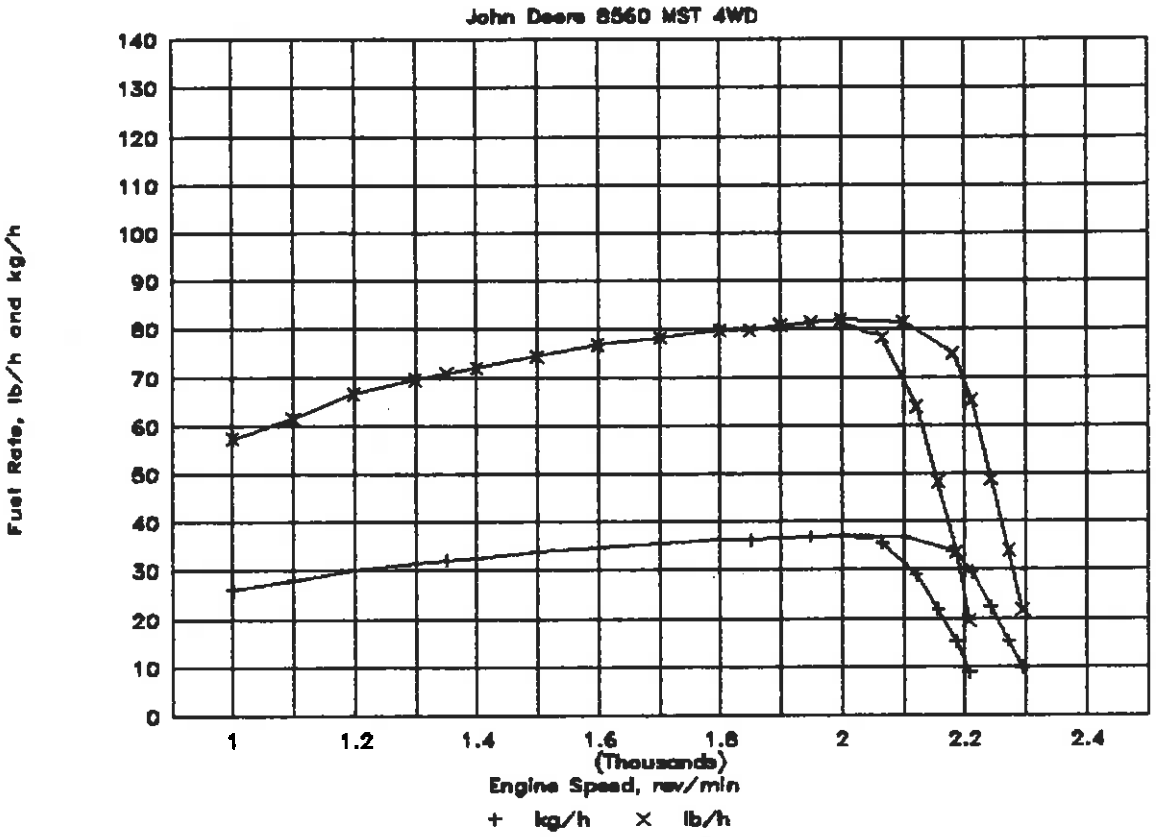
Equivalent Crankshaft Torque



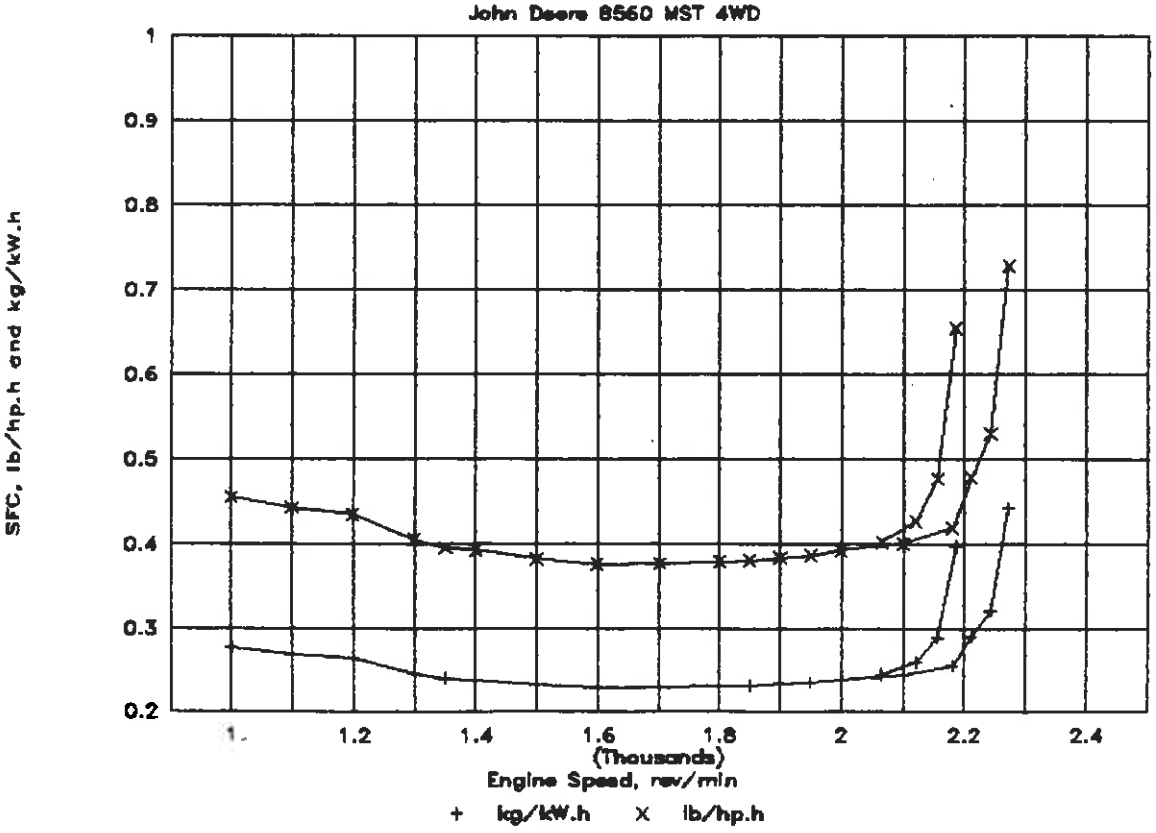
PTO Power

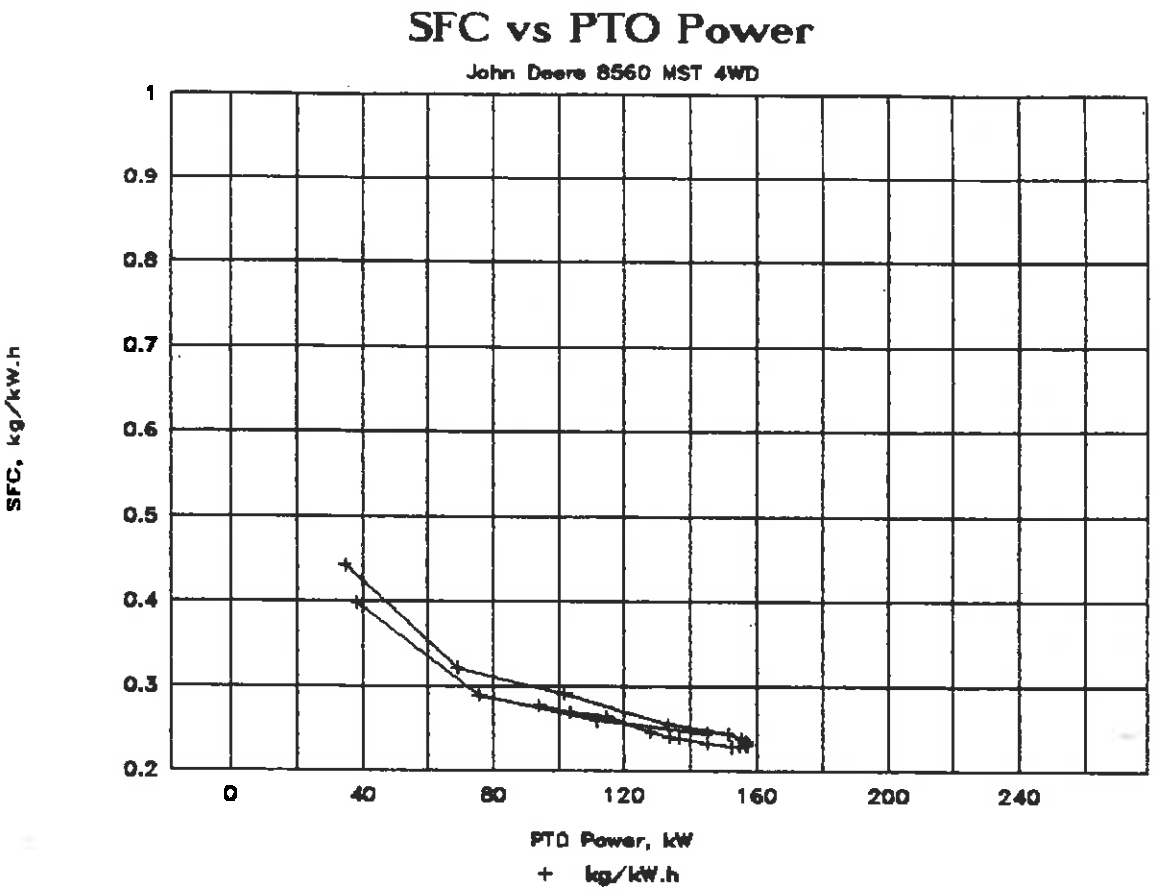


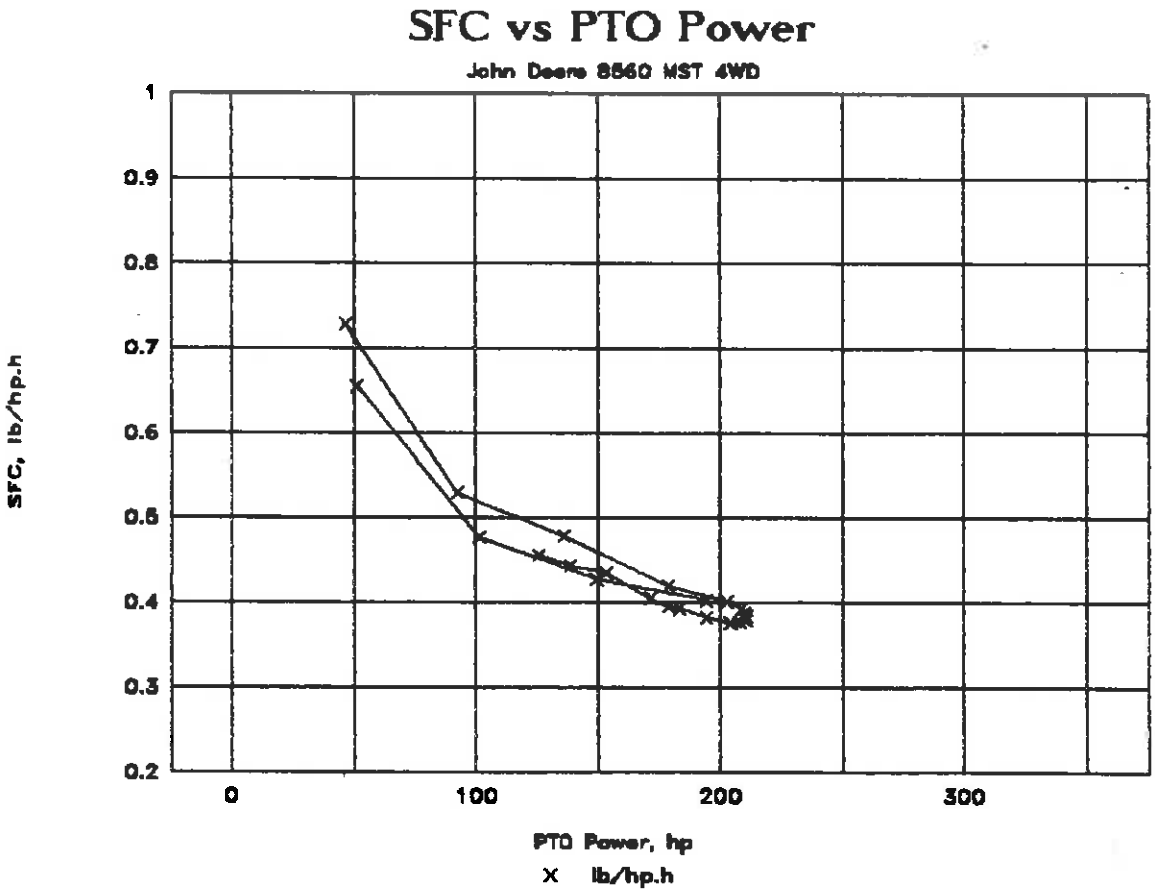
PTO Fuel Consumption



PTO Specific Fuel Consumption




SFC vs PTO Power
John Deere 8560 MST 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 8560 MST 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	:	May 16, 1989
Location of test	:	CAE/UNL, Lincoln, Nebr.
Sound level meter	:	B & K 2203
Type of track	:	Concrete oval
Gear number	:	24th (D6)
Speed prior to acceleration	:	28.1 km/h (17.4 mph)
Sound level	:	87.0 dB(A)

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

OECD Drawbar Data (SI)

Date of tests: 09-May-89 11-May-89 Fuel density: 0.828 kg/l
Type of track: Concrete Test # 1623

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 @ 2100 rev/min) Drawbar height: 457 mm								Tire pressure:	97 kPa, rear (inner) 97 kPa, rear (outer)		97 kPa, front (inner) 97 kPa, front (outer)			
1st(A1)*	121.29	143.08	3.05	2152	9.06%	0.300	2.77	58	83	103	17	11	47%	98.51
2nd(A2)	130.06	125.92	3.72	2098	5.31%	0.284	2.91	59	83	103	18	11	41%	98.54
3rd(A3)	132.76	118.97	4.02	2101	4.74%	0.278	2.98	59	83	104	19	12	43%	98.58
4th(A4)	132.36	97.23	4.90	2101	3.14%	0.279	2.97	58	83	101	13	8	50%	98.61
5th(A5)	132.48	84.83	5.62	2104	2.72%	0.278	2.97	60	83	104	17	11	47%	98.61
6th(A6)	130.69	69.50	6.77	2102	2.11%	0.282	2.94	58	84	105	19	12	43%	98.61
7th(B1)	134.03	70.90	6.81	2099	2.37%	0.275	3.01	59	83	104	21	12	32%	98.48
8th(C1)	133.28	63.67	7.54	2101	2.02%	0.278	2.98	58	84	105	21	12	32%	98.48
9th(B2)	133.27	58.34	8.22	2103	1.94%	0.278	2.98	58	84	104	21	12	32%	98.51
10th(B3)	134.70	54.93	8.83	2100	1.59%	0.274	3.02	57	83	105	19	12	43%	98.54
11th(C2)	133.04	52.72	9.09	2104	1.67%	0.277	2.99	58	84	105	21	12	32%	98.54
12th(C3)	134.78	49.65	9.77	2104	1.59%	0.275	3.01	58	83	105	21	12	32%	98.51
13th(B4)	131.46	44.50	10.64	2101	1.50%	0.282	2.94	58	83	105	21	12	32%	98.51
14th(C4)	132.14	40.55	11.73	2100	1.23%	0.279	2.97	58	84	105	20	12	37%	98.61
15th(B5)	132.43	39.22	12.16	2101	1.14%	0.279	2.97	58	84	105	20	12	37%	98.65
16th(C5)	131.64	35.29	13.43	2100	1.05%	0.281	2.95	58	84	104	20	11	31%	98.65

Note: Pull limited due to tractor bouncing.

Date of tests: 09-May-89 11-May-89 Fuel density: 6.912 lb/gal
Type of track: Concrete Test # 1623

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 @ 2100 rev/min) Drawbar height: 18 in								Tire pressure:		14 psi, rear (inner) 14 psi, rear (outer)		14 psi, front (inner) 14 psi, front (outer)		
1st(A1)*	162.65	32166	1.90	2152	9.06%	0.492	14.04	136	182	218	62	51	47%	29.09
2nd(A2)	174.41	28308	2.31	2098	5.31%	0.467	14.79	138	182	218	64	52	41%	29.10
3rd(A3)	178.04	26747	2.50	2101	4.74%	0.457	15.11	139	182	220	66	53	43%	29.11
4th(A4)	177.50	21858	3.05	2101	3.14%	0.458	15.08	137	181	214	55	47	50%	29.12
5th(A5)	177.65	19072	3.49	2104	2.72%	0.458	15.10	140	182	220	63	51	47%	29.12
6th(A6)	175.26	15625	4.21	2102	2.11%	0.464	14.90	137	183	222	66	53	43%	29.12
7th(B1)	179.74	15938	4.23	2099	2.37%	0.452	15.29	138	182	220	70	54	32%	29.08
8th(C1)	178.74	14314	4.68	2101	2.02%	0.456	15.14	137	183	221	70	54	32%	29.08
9th(B2)	178.72	13115	5.11	2103	1.94%	0.457	15.11	136	183	219	70	54	32%	29.09
10th(B3)	180.64	12349	5.49	2100	1.59%	0.451	15.34	135	182	221	67	54	43%	29.10
11th(C2)	178.42	11852	5.65	2104	1.67%	0.456	15.15	136	183	221	69	54	32%	29.10
12th(C3)	180.74	11162	6.07	2104	1.59%	0.452	15.28	136	182	221	69	54	32%	29.09
13th(B4)	176.29	10004	6.61	2101	1.50%	0.463	14.92	137	182	221	70	54	32%	29.09
14th(C4)	177.20	9117	7.29	2100	1.23%	0.458	15.08	136	183	221	68	53	37%	29.12
15th(B5)	177.59	8817	7.55	2101	1.14%	0.458	15.09	136	183	221	68	53	37%	29.13
16th(C5)	176.53	7934	8.34	2100	1.05%	0.462	14.97	137	183	220	68	52	31%	29.13

Note: Pull limited due to tractor bouncing.

Repairs: None
Remarks: None