OECD Approval No. 860

Test in accordance with the OECD standard code for the official testing of agricultural tractors

Report on test of John Deere 8850 Tractor





Manufactured by John Deere,
Tractor Works, P.O. Box 3500,
Waterloo, IA 50704, USA

Test No. R82/70054/OECD

Report No. 691

Date August 1982

THE BRITISH SOCIETY FOR RESEARCH IN AGRICULTURAL ENGINEERING

National Institute of Agricultural Engineering
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SPECIFICATION OF TRACTOR

Manufacturer's name and address:	John Deere, Tractor Works, P.O. Box 3500, Waterloo, IA 50704, USA
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer with the agreement of the testing station.
Place of running-in:	John Deere Product Engineering Centre
Duration of running-in:	150 hours

Tractor

Make:	John Deere
Model:	8850
Type:	4-wheel drive, articulated
Serial No.:	RW8850H002113

Engine

Make:	John Deere
Model:	8955AR03
Type:	Diesel, turbo charged and intercooled
Serial No.:	001842RG
Cylinders:	
Number and disposition:	8, 90° Vee
Bore:	140.0 mm (5.51 in)
Stroke:	127.0 mm (5.00 in)
Capacity:	15640 cm^3 (954.5 in^3)
Compression ratio:	14:1 (nominal)
Arrangement of valves:	4 per cylinder head
Liners:	Wet, replaceable
Fuel system:	
Feed system:	Electric feed pump
Make, type and model of filter:	Dual Stanadyne, replaceable element, 22072 and Racor water separator
Tank capacity:	908 l (200 UK gal)
Make, type and model of injection pump:	Robert Bosch, PES8P 110A 120PS 3089
Injection pump Serial No.:	150 18595
Manufacturer's production setting of injection pump:	165-173 mm^3 per stroke at 1050 rev/min pump speed, bench test figures using fuel of 0.828 specific gravity at 15.6°C (60°F) and pump inlet temperature of 40°C (104°F)

Fuel system (Cont'd)	
Make, type and model of injectors:	Robert Bosch KDEL, multi-hole
Injection pressure:	26.2-27.9 MPa (258-275 atm)
Injection pump delivery starts:	30° before T.D.C.
Governor:	
Make and type:	Robert Bosch US-RSV400-1050 PO/492
Governed range of engine speed:	800 rev/min to 2325 rev/min
Rated engine speed:	2100 rev/min
Air cleaner:	
Make and type:	Donaldson, dry with safety element
Model:	6007J768
Oil capacity:	None
Position:	On right-hand side of safety cab, above fuel tank
Pre-cleaner:	
Make and type:	Donaldson PSH00-1463
Position:	Top of air cleaner
Turbo-charger:	
Make and type:	Air Research TV 7105, exhaust driven
Lubrication system:	
Type of feed and pump:	Full pressure positive displacement
Type of filter:	Bypass and full flow primary
Total oil capacity including filter:	54 l (95.0 UK pt)
Recommended oil:	S.A.E. 40, viscosity 110 cSt at 50°C (122°F)
M.I.L. standard:	L2104C
Oil change period:	200 hours
Filter change period:	200 hours
Cooling system:	
Coolant:	Liquid
Type of pump:	Centrifugal, gear driven
Fan diameter:	813 mm (32.0 in)
Number of fan blades:	8
Type of temperature control:	4 thermostats
Coolant capacity:	74 l (130 UK pt)
System pressure:	100 kPa (14.5 lb/in^2)
Starting system:	
Make, type and model:	Delco, 40MT electric motor
Starter motor power rating:	4.9 kW (6.6 hp)
Safety features:	Electrical lock-out on gear shift
Cold starting aids:	In-block coolant heater and ether spray in intake manifold

Exhaust system

Make and construction:	Donaldson
Dimensions of expansion chamber:	234 mm (9.2 in) dia x 1102 mm (43.4 in) long
Position:	Right-hand side of cab

Electrical system

Voltage:	12
Earth polarity:	Negative
Make and type of generator:	Neihoff alternator, Model N1114
Output:	110 A at 2100 rev/min
Make and type of battery:	John Deere, three 12 volt
Rating:	300 Ah at 20 hour rating

Transmission

Clutch:	
Make and type:	John Deere, multi-plate, oil cooled
Diameter of plates:	305 mm (12.0 in)
Method of operation:	Hydraulic by foot pedal
Gearbox:	
Make and type:	John Deere Quad-range
Number of speeds:	16 forward and 6 reverse
Arrangement:	2-speed power shift on 8-speed box
Rear axle and final drive:	
Make and type:	John Deere crown wheel and pinion, differential and planetary reductions
Type of differential lock and method of engagement:	Front and rear, mechanical, electro-hydraulic, self-disengaging
Front axle and final drive:	
Make and type:	John Deere crown wheel and pinion, differential and planetary reduction
Driven from:	Rear gear box

Transmission oils

	Gearbox, front and rear axles
Recommended oil:	John Deere Hy-Gard
Capacity:	166 l (292 UK pt)
Viscosity at 50°C (122°F)	38 cSt
M.I.L. standard	-
Oil change period	1200 hours
Filter change period	As required by warning system

Gear	Number of engine revolutions for one revolution of driving wheel	Nominal travelling speed for 2100 rev/min rated engine speed,* km/h	(mile/h)
Forward			
A1	197.72	3.34	(2.08)
A2	158.42	4.17	(2.59)
A3	109.41	6.04	(3.75)
B1	97.52	6.78	(4.21)
A4	87.67	7.54	(4.69)
B2	78.15	8.46	(5.26)
C1	74.38	8.89	(5.53)
C2	59.58	11.10	(6.90)
B3	53.96	12.25	(7.61)
D1	45.88	14.41	(8.96)
B4	43.25	15.28	(9.50)
C3	41.16	16.06	(9.98)
D2	36.76	17.98	(11.17)
C4	32.99	20.04	(12.45)
D3	25.41	26.02	(16.17)
D4	20.33	32.52	(20.21)
Reverse			
A1	103.69	6.38	(3.97)
A2	83.09	7.96	(4.95)
B1	51.14	12.93	(8.04)
B2	40.98	16.13	(10.02)
C1	39.03	16.94	(10.53)
C2	31.27	21.14	(13.14)

*Calculated with a tyre radius index of 835 mm (32.9 in)

Power take-off

Position:	At rear of tractor in vertical centre plane
Height above ground:	683 mm (26.9 in)
Distance behind rear axle:	610 mm (24.0 in)
Diameter:	44.45 mm (1.75 in)
Number of splines:	20 to I.S.O. 500
Proportional engine speed pto:	
Method of engagement:	By hydraulically actuated multi-plate clutch selected by hand lever independent of main clutch
Speed at rated engine speed:	996 rev/min
Engine speed at standard pto speed of 1000 rev/min:	2109 rev/min
Direction of rotation (viewed facing driving end:	Clockwise

Power lift

Make and type of pump:	John Deere, radial piston, variable delivery, constant pressure
Nominal working pressure:	15.5 MPa (2250 lb/in^2)
Pump drive:	From engine crankshaft
Oil supplied from:	Transmission via charge pump
Type, number and position of external tappings:	3 at rear of tractor - controls in cab with separate levers
Oil capacity:	172 l (37.8 UK gal)
Oil capacity available for external use:	6.0 l (1.3 UK gal)
Permissible additional fill for external use:	20.0 l (4.4 UK gal)
Linkage category:	4, to I.S.O. 730/111
Controls:	Lower link sensing, position/draught with intermediate steps, adjustable speed on drop

Drawbar

Type:	Swinging
Vertical height to centre of clevis:	max. 578 mm (22.8 in), min. 502 mm (19.8 in)
Changed by:	Inverting drawbar
Distance behind rear axle centre:	1115 mm (43.9 in)
Distance behind pto:	505 mm (19.9 in)
Lateral adjustment:	241 mm (9.5 in)
Pivot position relative to rear axle:	390 mm (15.4 in) forward
Drawbar pin hole diameter:	51 mm (2.0 in)

Steering

Make and type:	John Deere, full power, hydrostatic
Make and type of pump:	John Deere, variable delivery, constant presssure
Oil supplied from:	Transmission via charge pump or emergency steering system

Brakes

Make and type of service brakes:	John Deere, oil-immersed disc
Position:	On rear axle differential shafts
Method of operation:	Hydraulically actuated from main system, foot pedal operated or lever operated from reservoir
Type of parking brake:	Transmission lock
Method of operation:	Gear selector lever

Wheels

Make and size:	B.F. Goodrich Powergrip, 24.5-32
Type:	Cross-ply, 10 ply rating
Maximum mass on each tyre and pressure:	3950 kg (8708 lb) at 140 kPa (20 lb/in^2)
Track width:	2076 mm (81.7 in) to 3566 mm (140.4 in)
Changed by:	Rack and pinion on axle

Wheelbase

3380 mm (133.1 in)

Cab

Description: John Deere, Sound-Gard cab has integral four-post protective structure attached to the tractor through a support frame and four anti-vibration mounts. Fitted with a door and mounting steps on the left side, air conditioning system and noise reduction padding on inside

Lighting

Unrestricted beam angle of headlight in plan view: Outer 100°
Inner 120°

	Height above ground of centre, mm	(in)	Size, mm	(in)	Distance from outside edge of tractor at 3539 mm (139.3 in) outer wheel track, to centre, mm	(in)
Headlights -						
Outer	872	(34.3)	130	(5.1) dia	1236	(48.7)
Inner	872	(34.3)	130	(5.1) dia	1419	(55.9)
Side lights	907	(35.7)	70 20	(2.8) x (0.8)	691	(27.2)
Rear lights	1850	(72.8)	70 30	(2.8) x (1.2)	634	(25.0)
Reflectors -						
Outer	1766	(69.5)	76	(3.0) dia	589	(23.2)
Inner	1766	(69.5)	76	(3.0) dia	679	(26.7)

Number of grease points

Whole tractor: 29

Overall dimensions

	Length,		Width,				Maximum height to top of exhaust,	
			max.		min.			
	m	(in)	m	(in)	m	(in)	m	(in)
Single wheels	6.53	(257)	3.24	(128)	3.24	(128)	3.89	(153)
Dual wheels	6.53	(257)	4.24	(167)	4.24	(167)	3.89	(153)

Minimum ground clearance 338 mm (13.3 in) to underside of linkage restraints

Seat

Make and type: John Deere, Hydra Cushioned

Suspension and damping: By gas spring hydraulic accumulator power from main hydraulic system

Range of adjustment: longitudinal 150 mm (5.9 in)
vertical 64 mm (2.5 in)

CONDITIONS DURING TEST

Masses

Tractor (without driver and ballast but with tanks full)

	Front,		Rear,		Total,	
	kg	(lb)	kg	(lb)	kg	(lb)
Single wheels	9362	(20639)	6037	(13309)	15399	(33948)
Dual wheels	10138	(22350)	6836	(15071)	16974	(37421)

Track setting during tests

	Inner	Outer
Front:	2080 mm (81.9 in)	3539 mm (139.3 in)
Rear:	2080 mm (81.9 in)	3539 mm (139.3 in)

FUEL AND LUBRICANTS USED IN TESTS

Fuel: Diesel oil to S.A.E. J313 Grade 2-D, specific gravity for pto tests 0.8314 at 15°C (59°F), for drawbar tests 0.831 at 15°C (59°F), viscosity 2.0-4.0 cSt at 40°C (104°F), Cetane No. 48 min.

Oil

Engine: John Deere Torq-Gard Supreme, S.A.E. 15W-40, viscosity 110 cSt at 50°C (122°F)

Transmission and power lift: John Deere Hy-Gard, viscosity 38 cSt at 50°C (122°F)

COMPULSORY TESTS

1. MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 2nd July 1982, John Deere Works, USA

Type of dynamometer: Eaton, Water brake

Power, kW (hp)	Speed, rev/min		Fuel consumption,			
	Engine	P.t.o.	l/h (UKgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	kWh/l (hph/UKgal)
Maximum power - 2 hour test						
230.6 (309.2)	1938	919	72.66 (15.98)	60.41 (133.18)	0.262 (0.431)	3.17 (19.3)
The speed recommended by the manufacturer for drawbar work						
224.3 (300.8)	2100	996	73.84 (16.24)	61.39 (135.34)	0.274 (0.450)	3.04 (18.5)
Part loads						
(1) 85% of the torque obtained at rated speed						
193.5 (259.5)	2132	1011	65.89 (14.50)	54.78 (120.77)	0.283 (0.465)	2.94 (17.9)
(2) Unloaded						
0	2250	1067	19.24 (4.23)	16.00 (35.27)	-	-
(3) 50% of the torque defined in (1)						
99.4 (133.3)	2191	1039	42.58 (9.37)	35.40 (78.04)	0.356 (0.585)	2.33 (14.2)
(4) Maximum power						
224.3 (300.8)	2100	996	73.84 (16.24)	61.39 (135.34)	0.274 (0.450)	3.04 (18.5)
(5) 25% of the torque defined in (1)						
50.3 (67.5)	2219	1052	30.76 (6.77)	25.57 (56.37)	0.508 (0.835)	1.64 (10.0)
(6) 75% of the torque defined in (1)						
147.4 (197.7)	2164	1026	54.44 (11.98)	45.26 (99.78)	0.307 (0.505)	2.71 (16.5)

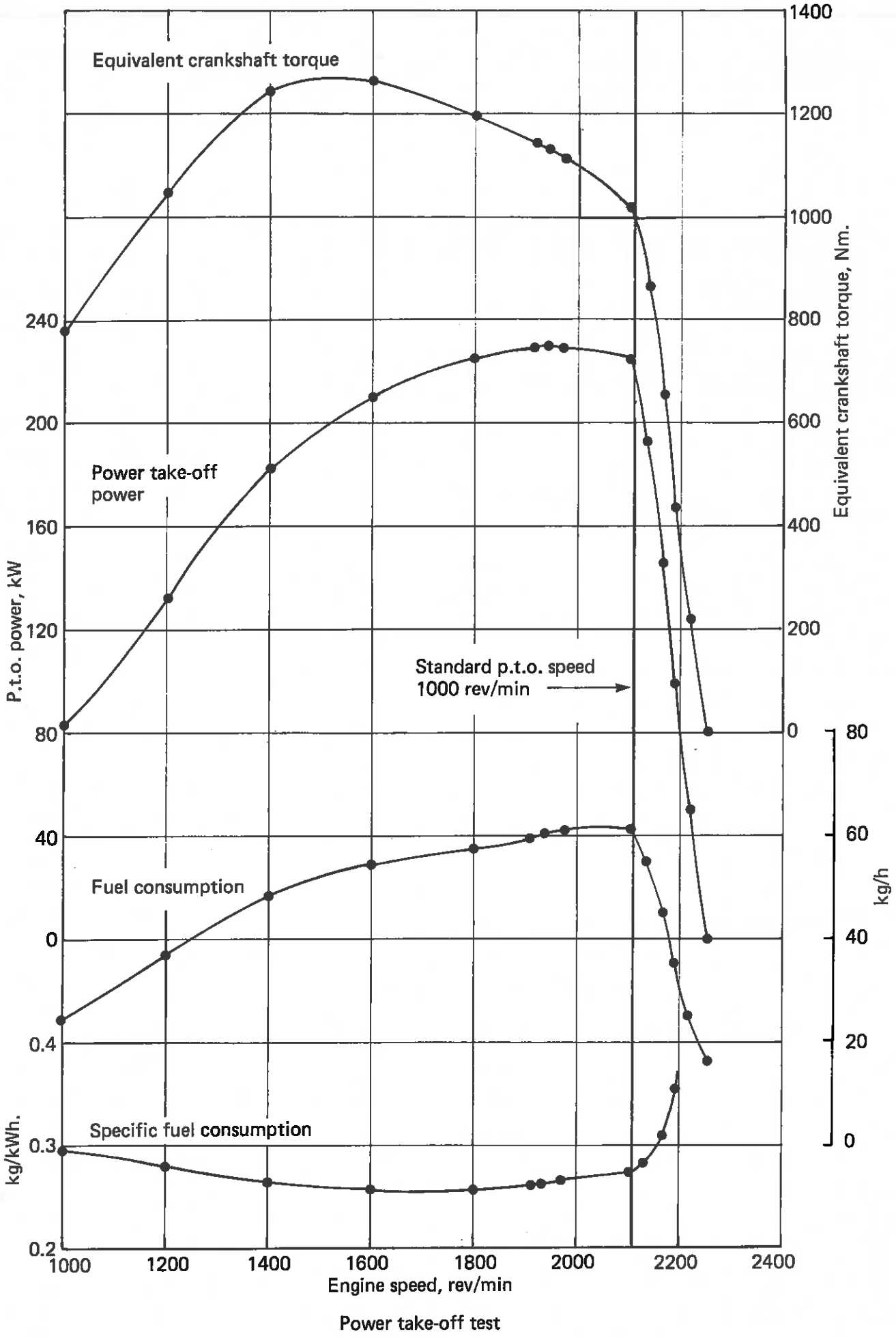
47,8 l/h

Power, kW (hp)	Speed, rev/min		Fuel consumption,			
	Engine	P.t.o.	l/h (UKgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	kWh/l (hph/UKgal)
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (1000 rev/min)						
(1) 85% of the torque obtained at maximum power						
193.5 (259.5)	2132	1011	65.89 (14.50)	54.78 (120.77)	0.283 (0.465)	2.94 (17.9)
(2) Unloaded						
0	2250	1067	19.24 (4.23)	16.00 (35.27)	-	-
(3) 50% of the torque defined in (1)						
99.4 (133.3)	2191	1039	42.58 (9.37)	35.40 (78.04)	0.356 (0.585)	2.33 (14.2)
(4) Maximum power						
224.3 (300.8)	2100	996	73.84 (16.24)	61.39 (135.34)	0.274 (0.450)	3.04 (18.5)
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50.3 (67.5)	2219	1052	30.76 (6.77)	25.57 (56.37)	0.508 (0.835)	1.64 (10.0)
(6) 75% of the torque defined in (1)						
147.4 (197.7)	2164	1026	54.44 (11.98)	45.26 (99.78)	0.307 (0.505)	2.71 (16.5)

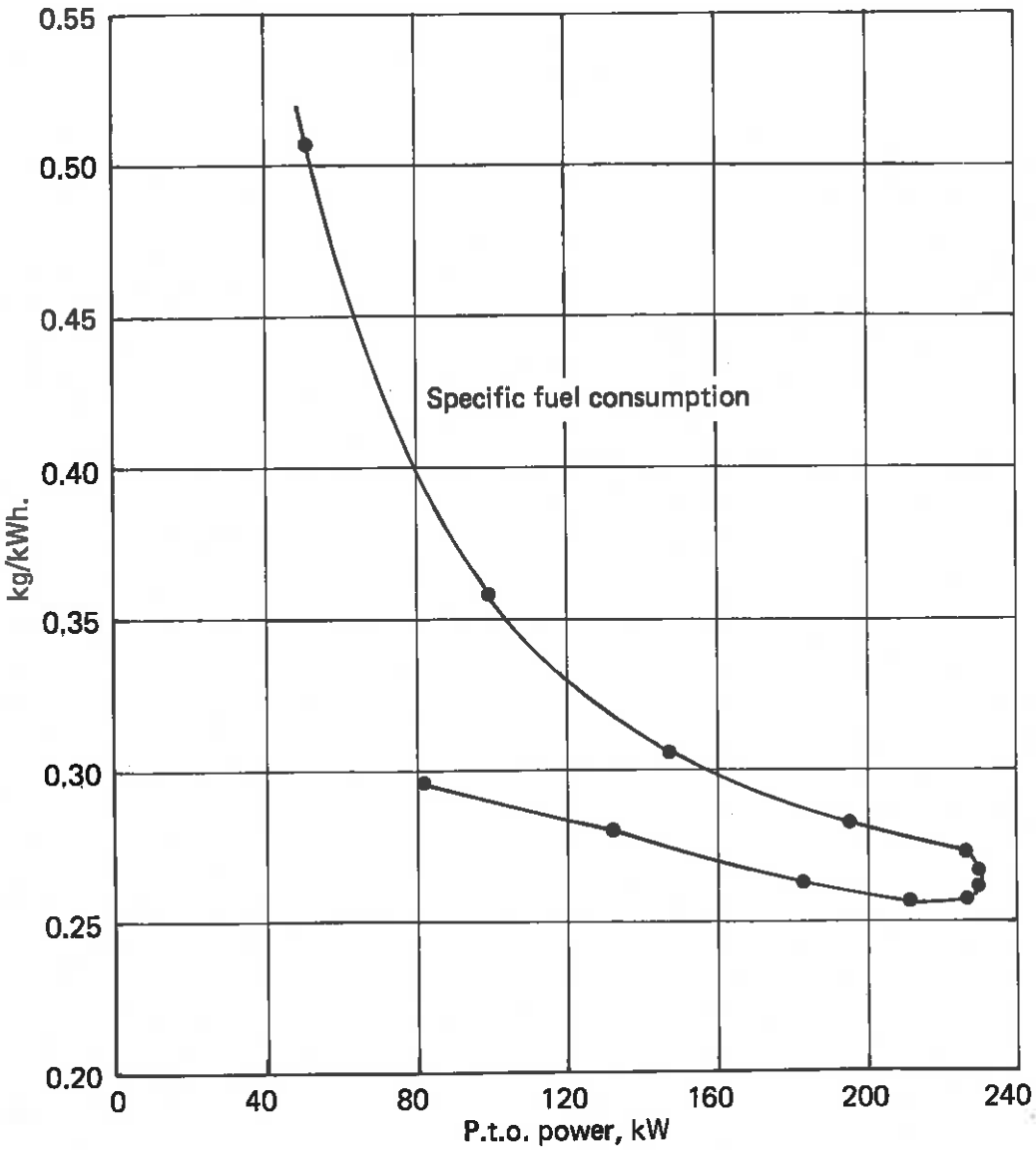
Standard specific fuel consumption, kg/kWh (lb/hph)

(a) 0.283 (0.465) (b) 0.356 (0.585) (c) 0.283 (0.465) (d) 0.356 (0.585

No load, maximum engine speed		2250 rev/min
Equivalent crankshaft torque at maximum power		1136 Nm (838 lb ft)
Equivalent crankshaft torque at rated engine speed		1019 Nm (752 lb ft)
Maximum equivalent crankshaft torque		1263 Nm (932 lb ft) at 1520 rev/min engine speed
Mean atmospheric conditions	temperature	22°C (72°F)
	pressure	984 m bar (29.07 in Hg)
	relative humidity	75%
Maximum temperature	coolant	92°C (198°F)
	engine oil	101°C (214°F)
	fuel	44°C (111°F)
	air intake	32°C (90°F)



Power take-off test



Power take-off test

2 DRAWBAR PERFORMANCE

Date of tests: July 1982
Type of track: Concrete

Height of drawbar above ground: Single wheels: 438 mm (17.2 in)
Dual wheels: 450 mm (17.7 in)

Gear	Speed, km/h (mile/h)	Power, kW (hp)	Drawbar pull, kN (lb)	Engine speed, rev/min	Wheel-slip, %	Specific fuel consumption, kg/kWh (lb/hph)	kWh/l (hph/UKgal)	Temperature, °C (°F) Fuel	Coolant	Engine oil	Atmospheric conditions Temperature, °C (°F)	Relative humidity, %	Pressure, m bar (in Hg)
(i) MAXIMUM POWER (single wheels) Tyre inflation pressure: front 140 kPa (20 lb/in^2), rear 140 kPa (20 lb/in^2)													
A2	3.74 (2.32)	131.9 (176.9)	127.0 (28550)	2156	11.3	-	-	46 (115)	82 (180)	97 (207)	25 (77)	84	982 (29.00)
A3	5.38 (3.34)	188.2 (252.4)	126.0 (28330)	2115	11.0	-	-	46 (115)	86 (187)	100 (212)	23 (73)	92	982 (29.00)
B1	5.80 (3.60)	194.8 (261.2)	121.0 (27200)	2030	9.5	-	-	41 (106)	84 (183)	95 (203)	20 (68)	100	982 (29.00)
A4	6.41 (3.98)	196.0 (262.8)	110.0 (24730)	1960	7.6	-	-	41 (106)	84 (183)	98 (208)	20 (68)	100	982 (29.00)
B2	7.47 (4.64)	200.9 (269.4)	96.8 (21760)	2004	5.8	-	-	45 (113)	85 (185)	98 (208)	20 (68)	100	982 (29.00)
C1	7.73 (4.80)	204.0 (273.6)	95.0 (21360)	1970	5.6	-	-	43 (109)	83 (181)	97 (207)	20 (68)	100	982 (29.00)
C2	9.66 (6.00)	206.6 (277.1)	77.0 (17310)	1936	4.0	-	-	43 (109)	85 (185)	96 (205)	21 (70)	91	982 (29.00)
B3	10.93 (6.79)	206.5 (276.9)	68.0 (15290)	1970	3.3	-	-	45 (113)	84 (183)	97 (207)	21 (70)	91	982 (29.00)
D1	12.73 (7.91)	205.4 (275.4)	58.1 (13060)	1937	2.6	-	-	44 (111)	84 (183)	96 (205)	23 (73)	83	982 (29.00)
(ii) MAXIMUM POWER (dual wheels) Tyre inflation pressure: front 80 kPa (12 lb/in^2), rear 80 kPa (12 lb/in^2)													
A1	3.02 (1.88)	128.5 (172.3)	153.0 (34400)	2168	11.5	0.373 (0.613)	2.23 (13.6)	52 (126)	83 (181)	94 (201)	30 (86)	72	984 (29.05)
A2	3.83 (2.38)	161.3 (216.3)	151.5 (34060)	2148	10.5	0.350 (0.575)	2.37 (14.4)	49 (120)	85 (185)	100 (212)	29 (84)	79	984 (29.05)
A3	5.43 (3.37)	200.6 (269.0)	133.0 (29900)	2020	6.6	0.305 (0.501)	2.72 (16.6)	45 (113)	85 (185)	98 (208)	22 (72)	100	984 (29.05)
B1	5.89 (3.66)	203.3 (272.6)	124.2 (27920)	1941	5.6	0.298 (0.490)	2.79 (17.0)	45 (113)	84 (183)	98 (208)	21 (70)	100	984 (29.05)
A4	6.62 (4.11)	200.5 (268.9)	109.0 (24500)	1938	4.5	0.303 (0.498)	2.74 (16.7)	44 (111)	86 (187)	99 (210)	23 (73)	92	984 (29.05)
B2	7.48 (4.65)	202.5 (271.6)	97.4 (21900)	1937	3.7	0.299 (0.492)	2.78 (16.9)	44 (111)	86 (187)	49 (210)	28 (82)	85	984 (29.05)
C1	7.89 (4.90)	211.3 (283.4)	96.4 (21670)	1940	3.6	0.287 (0.472)	2.90 (17.7)	43 (109)	86 (187)	97 (207)	21 (70)	100	984 (29.05)
C2	9.94 (6.18)	200.5 (268.9)	72.6 (16320)	1936	2.5	0.298 (0.490)	2.79 (17.0)	48 (118)	87 (189)	99 (210)	29 (84)	79	984 (29.05)
(iii) FIVE HOUR TEST AT 75% OF PULL AT MAXIMUM POWER													
C1	8.73 (5.43)	175.3 (235.1)	72.3 (16250)	2135	2.5	0.314 (0.516)	2.65 (16.2)	52 (126)	85 (185)	99 (210)	27 (81)	84	982 (28.99)
(iv) *FIVE HOUR TEST AT PULL CORRESPONDING TO 15% WHEELSLIP IN TEST (ii)													
A2	3.90 (2.42)	-	156.8 (35250)	-	-	-	-	57 (135)	87 (189)	100 (212)	24 (75)	91	986 (29.12)

Total oil consumption during ten hours duration of tests (iii) and (iv) 74 g/h (0.163 lb/h)

*Test (iv) was carried out with additional ballast and the results for power, slip and fuel consumption have no practical significance.

3. TURNING SPACE AND TURNING CIRCLE

Details of wheel equipment: As in specification, without ballast

Track of wheels:

	Inner	Outer
Front	2080 mm (81.9 in)	3539 mm (139.3 in)
Rear	2080 mm (81.9 in)	3539 mm (139.3 in)

		Single wheels		Dual wheels	
		Left-hand	Right-hand	Left-hand	Right-hand
Radius of turning space, m (in)		6.44 (254)	6.40 (252)	7.14 (281)	7.06 (278)
Radius of turning circle, m (in)	Front	5.69 (224)	5.69 (224)	6.63 (261)	6.56 (258)
	Rear	5.88 (231)	5.85 (230)	6.84 (269)	6.76 (266)

4. LOCATION OF CENTRE OF GRAVITY (single wheels)

Height above ground, mm (in)	1090 (42.9)
Distance forward from the vertical plane containing the axis of the rear wheels, mm (in)	2055 (80.9)
Distance from the median plane of the tractor, mm (in)	0

5. BRAKING

Date of tests: 22nd July 1982

Type of track: Concrete

Masses during brake tests

	Front, kg	(lb)	Rear, kg	(lb)	Total, kg	(lb)
Dual wheels	11840	(26102)	7893	(17401)	19733	(43503)
Single wheels	9362	(20639)	6037	(13309)	15399	(33948)

Type 0 Service brakes (cold)

Travelling speed before application of brakes, 33.7 km/h (20.9 mile/h)

Dual wheels	Force on brake pedal	N (lb)	240 (54)	300 (67)	360 (81)	420 (94)	480 (108)	540 (121)	600 (135)
	Mean deceleration	m/s^2 (ft/s^2)	1.1 (36)	1.5 (49)	2.0 (6.6)	2.4 (7.9)	2.8 (9.2)	3.3 (10.8)	3.7 (12.1)
Single wheels	Force on brake pedal	N (lb)	240 (54)	300 (67)	360 (81)	420 (94)	480 (108)	540 (121)	600 (135)
	Mean deceleration	m/s^2 (ft/s^2)	1.4 (4.6)	1.9 (6.2)	2.4 (7.9)	2.8 (9.2)	3.3 (10.8)	3.8 (12.5)	4.3 (14.1)

Type 1 Service brakes (hot)

Dual wheels	Force on brake pedal	N (lb)	240 (54)	300 (67)	360 (81)	420 (94)	480 (108)	540 (121)	600 (135)
	Mean deceleration	m/s^2 (ft/s^2)	1.3 (4.3)	1.7 (5.6)	2.2 (7.2)	2.7 (8.9)	3.2 (10.5)	3.6 (11.8)	4.1 (13.5)

Brakes were heated by: 20 applications of service brakes

Comments on deviation and vibration: None

Parking brake Transmission lock, engaged by gear selector lever

6. MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests: 16th July 1982
Type of sound level meter: Bruel and Kjaer 2204
Type of track: Concrete
Results of tests:
Gear: D4
Travelling speed before acceleration: 25.3 km/h (15.7 mile/h)
Sound level: 89 dBA

7. NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 16th July 1982
Type of sound level meter: Bruel and Kjaer 2209
Type of track: Concrete
Cab fitted: Yes

Results of tests

Gear	Drawbar pull at which the tractor develops maximum sound level, kN (lb)	Measured travelling speed, km/h (mile/h)	Sound level, dBA
All openings closed with cab fitted			
*A4	90 (20230)	7.1 (4.4)	81
*A4	Light load	7.9 (4.9)	80
B3	60 (13490)	11.9 (7.4)	82
D4	Light load	33.7 (20.9)	80

*The A4 gear corresponds to the nominal travelling speed nearest to 7.5 km/h (4.7 mile/h)

8. POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of tests: 6th-8th July 1982

Hydraulic fluid

Make and type: John Deere Hy-Gard
Viscosity: 38 cSt at 50°C (122°F)

Type of linkage lock for transport: Hydraulic

Power lift

	Height of lower hitch point above ground in down position, mm (in)	Vertical movement, mm (in)	Maximum force exerted through full range, kN (lb)	Corresponding pressure of hydraulic fluid, MPa (lb/in^2)	Moment about rear axle, kNm (lb ft)	Maximum tilt angle of mast over range of lift, degrees
At the hitch points	281 (11.1)	855 (33.7)	42.4 (9530)	13.7 (1990)	53.0 (39090)	-
On the frame	281 (11.1)	1606 (39.6)	48.1 (10810)	13.7 (1990)	89.5 (66012)	15

Temperature of hydraulic fluid at start of test 62°C (144°F)

Hydraulic pump performance

Opening pressure of the relief valve:	10.2 MPa (1480 lb/in^2)
Sustained pressure with relief valve open:	15.4 MPa (2234 lb/in^2)
Opening pressure of the unloading valve:	Not applicable
Closing pressure of the unloading valve:	Not applicable
Pump delivery rate at minimum pressure, the governor control lever set for maximum power:	190.0 l/min (41.8 gal/min)
Pressure specified by the manufacturer for an external hydraulic motor:	10.0 MPa (1450 lb/in^2)
Hydraulic power at 10.0 MPa (1450 lb/in^2)	31.4 kW (42.1 hp)
Pump delivery rate at stated power:	188.4 l/min (41.4 gal/min)
Tapping point:	Three outlets at rear of tractor
Temperature of hydraulic fluid:	68°C(154°F)

Linkage geometry when connected to the standard frame, mm (in)

Projected length in side view					
Lower links	1096	(43.1)			
Lift arms	468	(18.4)			
Lift rods	992	(39.1)			
Top link	797	(31.4)			
Distance of lift rod connection point from pivot point of lower link	718	(28.3)			
The following dimensions are given relative to the rear wheel centre line, situated 835 mm (32.9 in) above the ground level					
Lower link pivot point	154	(6.1)	behind, 353	(13.9)	below
Top link pivot point	455	(17.9)	behind, 279	(11.0)	above
Lift arm pivot point	9	(0.4)	behind, 454	(17.9)	above
Maximum and minimum height of lower link hitch points	301	(11.9)	above, 554	(21.8)	below
Height of lower link hitch points when locked in transport position	Any height within lift range				

REPAIRS AND ADJUSTMENTS DURING TESTS: None

REMARKS:

The 'ballasted' tests were carried out with the tractor fitted with dual wheels and without additional ballast. This condition gives 86% of the manufacturer's maximum allowable tractor mass and is recommended for field work.

The tractor was fitted with single wheels for the 'unballasted' tests. In this condition, with the largest capacity tyres fitted, the front wheels had a static overload of 18% (see manufacturer's note).

Test carried out by: N.R. Baker

Signed: D.W. Smith. Head of Tractor Test Section

for the Director

Date: 25th August 1982.

Manufacturer's Note

The overload on single tyres (18%) falls within the overload allowed by tyre manufacturers for transport; however, transport should not exceed 10 mph.

Dual tyres are recommended for field work where tyre carrying capacity allows added ballast to control drive wheel slip.