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SILSOE RESEARCH INSTITUTE
Wrest Park, Silsoe,
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Report on test in accordance with the OECD STANDARD CODE II (RESTRICTED CODE) for the Official Testing of Agricultural and Forestry Tractors

New Holland 618510 (TS80) Two-Wheel Drive Tractor with 8-speed Manual Transmission (30 km/h)



Manufactured by: New Holland UK Ltd
Basildon
Essex
United Kingdom

Submitted for test by: The manufacturer

Report No: 798

Date: February 1999

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OECD/7587/0198

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Tractor manufacturer's name and address:	New Holland UK Ltd Basildon, Essex, United Kingdom
Location of tractor assembly:	Basildon, Essex
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer
Place of running in:	Basildon, Essex
Duration of running in:	75 hours
Location of test:	Silsoe Research Institute Wrest Park, Silsoe, United Kingdom

1. SPECIFICATIONS OF TRACTOR

1.1 Identification

Make:	New Holland
Model:	618510 (TS80) with 8-speed manual Transmission (30 km/h)
Type:	Two wheel drive unit construction
Serial:	047558B
1st Serial No:	082846B

1.2 Engine

Make:	New Holland
Model:	450/NG
Type:	4 stroke direct injection naturally aspirated diesel
Serial No:	NA794630

1.2.1 Cylinders

Number/disposition:	4 vertical In-line
Bore/stroke:	111.8 mm/127.0 mm
Capacity:	4987 cm^3
Compression ratio:	17.5 :1
Arrangement of valves:	Overhead
Cylinder liners:	None, monobloc construction

1.2.2 Supercharging

Make:	None
Model:	---
Type:	---
Pressure:	---

1.2.3 Fuel system

Fuel feed system:	Stanadyne electric
Make, type and model of fuel filter:	Plastic strainer in tank and one disposable canister filter with sediment bowl and water seperator plus secondary disposable canister filter between tank and injection pump
Capacity of fuel tank:	130 litres
Make, type and model of injection pump:	Lucas /CAV Rotary DPS - DSA No 993
Serial No:	28753 KPG
Manufacturer's production setting of injection pump:	
Flow rate:	60.0+/-1.8 mm^3 per stroke at 850 rev/min pump setting and full load
Timing:	Delivery starts 10° before T.D.C (dynamic)
Make, type and model of injectors:	Lucas /CAV, multihole, JB6801134
Injection pressure:	240-248 bar

1.2.4 Governor

Make:	Lucas
Model:	None
Type:	Mechanical incorporated in fuel injection pump
Governed range of engine speed:	700 rev/min to 2345 rev/min
Rated engine speed:	2170 rev/min

1.2.5 Air cleaner

Pre-cleaner	Standard
Make/Type:	Donaldson /Full View Pre-cleaner
Location:	Above oil bath air cleaner
Main cleaner	
Make:	Nelson Burgess
Type:	Oil bath
Model:	None
Location:	Right hand side of tractor outside bonnet above battery housing
Location of air intake:	From Pre- cleaner
Safety Filter	
Make:	Locker Filtration
Type:	3 stage dry paper element with replaceable cartridge
Location:	Under bonnet above engine
Maintenance indicator:	Oil bath daily Dry element via warning light on instrument panel

1.2.6 Lubrication system

Type of feed pump:	Forced feed from eccentric rotor pump
Type of filter:	Metal mesh strainer in sump on suction line and full flow disposable canister on pressure line to engine
Number:	1

1.2.7 Cooling system

Type of coolant:	Water or water and antifreeze (50% solution)
Type of pump:	Belt driven centrifugal impeller
Specification of fan:	Thermal controlled with viscous clutch
Number of fan blades:	4
Fan diameter:	480 mm
Coolant capacity:	14.0 litres
Type of temperature control:	Thermostat with full flow bypass
System pressure:	90 kPa

1.2.8 Starting system

Make:	Bosch JF
Model:	JF
Type:	Electrical, positive engagement, solenoid operated
Starter motor power rating:	3.1/3.6 kW
Cold starting aid:	CAV Thermostart - Lucas 357-33 or Iskra 11-720-375
Safety device:	Starting operable when all gear levers are in neutral

1.2.9 Electrical system

Voltage:	12 V
Generator:	Alternator
Make:	Magneti Marrelli
Model:	MME A 127
Type:	Belt driven
Power:	55/100 amps at 6000 rev/min
Batteries:	1 x 800 cca lead acid, mounted on right-hand side under footplate (2 x 800 option)
Rating:	107 AH at 20 hours rating

1.2.10 Exhaust system

Make:	Nelson Burgess
Model:	None
Type:	Underhood horizontal silencer with vertical stack pipe
Location:	Left-hand side of engine, under bonnet
Height of outlet above ground:	2820 mm

1.3 Transmission

1.3.1 Main clutch (Travel alone)

Make:	AP
Model:	None
Type:	Dry single plate
Number of plates:	1
Diameter of plates:	330mm
Method of operation:	Mechanical pedal rod operation

1.3.2 Gear box

Make:	New Holland (Econoshift™)
Model:	8 x 2 Non-Synchromesh
Operation:	Mechanical non-synchromesh operation, 4 forward speeds, 1 reverse and 2 ranges, selected in combination with two centrally mounted levers
Number of gears:	8 forward, 2 reverse (30 kM/h)
Available options:	16 x 4 Econoshift with Dual Command

1.3.3 Rear axle final drives

Make:	New Holland
Model:	None
Type:	Crown wheel and pinion with differential and inboard epicyclic reduction gear final drive
Differential lock:	
Type:	Mechanical
Method of engagement:	Foot operated "button" via rod on right hand side of footplate
Method of disengagement:	Self disengaging / spring return

1.3.4 Front axle and final drives

Make:	New Holland
Model:	None
Type:	Centrally pivoted square shape section, with symmetrical telescopic axles
Drive engagement:	
Type:	None
Method of operation:	—
Differential lock:	
Type:	None
Method of engagement:	—
Method of disengagement:	—

1.3.5 Total ratios and travelling speeds

Gear	Group No	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed at rated engine speed:* 2170 rev/min km/h
Forward			
1	1L	217.19	2.90
2	2L	174.03	3.62
3	3L	99.15	6.35
4	4L	72.85	8.65
5	1H	60.79	10.36
6	2H	48.71	12.93
7	3H	27.75	22.70
8	4H	20.39	30.89
Reverse			
1	L	151.09	4.17
2	H	42.29	14.89

L = Low range H = High range

(*) Calculated with a tyre dynamic radius index of 770 mm (ISO 4251/1 -1992)

1.4 Power take-off

1.4.1 Main power take-off

Type:	Independent
Method of engagement:	Mechanical lever operates multi-plate clutch
Number of shafts:	1, 6 spline to ISO 500/1991
Method of changing power take-off speeds:	None

Clutch

Make:	New Holland
Model:	None
Type:	Multiplate, wet
Number of plates:	5
Diameter of plates:	148.6 mm

1.4.1.1 Power take-off proportional to engine speed

Single speed power take-off
(Fitted for test)

540 rev /min

Location:	Rear of tractor
Diameter of power take-off shaft:	34.9 mm
Number of splines:	6
Height above ground:	730 mm
Distance from the median plane of the tractor:	Central
Distance behind rear wheel axis:	457 mm
Pto speed at rated engine speed:	616 rev/min at 2170
Engine speed at standard power take-off speed:	1902 rev/min
Ratio of rotation speeds:	3.522:1
Power restriction and maximum torque:	None
Direction of rotation (viewed from behind tractor):	Clockwise

1.4.2 Optional power take-off (not fitted for test)

Two speed shiftable power take-off selected by exchanging shafts

540 rev/min

Location:	Rear of tractor
Diameter of power take-off shaft:	34.9 mm
Number of splines:	6
Height above ground:	730 mm
Distance from the median plane of the tractor:	Central
Distance behind rear wheel axis:	457 mm
PTO speed at rated engine speed:	620 rev/min at 2170
Engine speed at standard power take-off speed:	1890 rev/min
Ratio of rotation speeds:	3.50:1
Power restriction and maximum torque:	None
Direction of rotation (viewed from behind tractor):	Clockwise

1000 rev/min

Location:	Rear of tractor
Diameter of power take-off shaft:	34.9 mm
Number of splines:	21
Height above ground:	730 mm
Distance from the median place of the tractor:	Central
Distance behind rear wheel axis:	457 mm
PTO speed at rated engine speed:	1059 rev/min at 2170
Engine speed at standard power take-off speed:	2049 rev/min
Ratio of rotation speeds:	2.049:1
Power restriction and maximum torque:	None
Direction of rotation (viewed from behind tractor):	Clockwise

1.5 Hydraulic power lift - standard

Pump - standard

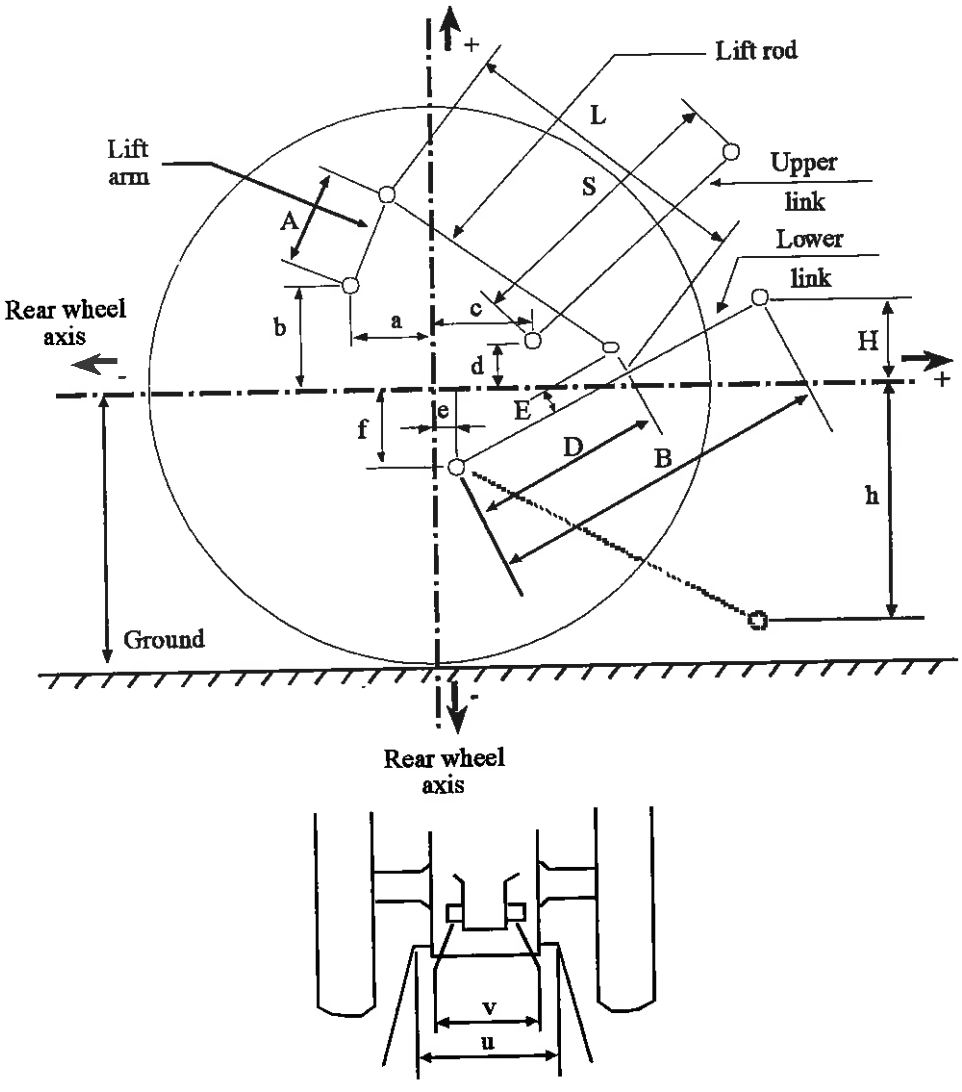
Make:	Sauer Sundstrand
Model:	None
Type:	Gear driven fixed displacement closed centre load sensing system
Type and number of cylinders:	1 located inside transmission housing plus the option of 1 or 2 single acting, externally mounted assistor rams (None fitted for test)
Type of linkage lock for transport:	Hydraulic
Relief valve pressure setting:	17.6 - 18.3 MPa
Opening pressure of cylinder safety valve:	19.7 MPa
Lift pump type:	Gear
Transmission between pump and engine:	Gear driven from pto shaft, independent of main and pto clutches
Type and number of filters:	1 replaceable paper element filter canister
Site of oil reservoir:	Rear axle housing
Type, number and position of tapping points:	1 on front face of hydraulic top cover if no remote valves are fitted,(1 remote valve fitted to test tractor)
Maximum volume of oil available to external cylinders:	18.2 litres

1.5.1 Auxilary hydraulic system

Make:	Sauer Sundstrand
Model:	None
Type	Gear type
Relief valve pressure setting:	17.6 - 18.3 Mpa
Opening pressure of cylinder safety valve:	None
Lift pump type:	None
Transmission between pump and engine:	Direct drive from camshaft gear
Type and number of filters:	1, replaceable paper element canister
Site of oil reservoir:	Rear axle housing

1.6 Three point linkage

Category:	2 to ISO standard 730-1:1994
Category adaptor:	None
Controls:	Draught or position control sensed through top link



LIFT TEST
Linkage geometry

Fig 2.1

Table 2.1
Dimensions of linkage when attached to the standard frame (ISO 730-1:1994 CAT 2)
(B2.3 ISO mast height from 730/3-1982 CAT 2)

			Dimensions or range	Settings used test		
				Main test	B2.2	B2.3
Length of lift arms		(A)	254	254	254	254
Length of lower links		(B)	915	915	915	915
Distance of lift arm pivot point from rear wheel centre line:	horizontally:	(a)	102	102	102	102
	vertically:	(b)	341	341	341	341
Horizontal distance between the two lower link points:		(u)	527	527	527	527
Horizontal distance between the two lift arm end points:		(v)	610	610	610	610
Length of upper link:		(S)	610 - 830	720	720	688
Distance of upper link pivot point from rear wheel centre line:	horizontally:	(c)	325	325	325	325
	vertically:	(d)	149 - 205	149	149	205
Distance of lower link pivot point from rear wheel centre line:	horizontally:	(e)	102	102	102	102
	vertically:	(f)	229	229	229	229
Distance of lower link points to lift rod pivot points on lower link centre line:	horizontally:	(D)	412 - 520	466	466	520
	vertically:	(E)	on centre line	on centre line	on centre line	on centre line
Length of lift rods:		(L)	743 - 879	815	790	743
ISO mast height				610	610	510
Height of lower hitch points (*) relative to the rear wheel centre line, situated 770 mm above the ground level:						
- in low position		(h)	308 to 794	576	542	280
- In high position		(H)	-77 to 224	90	108	245
Height of lower hitch points when locked in transport position (*)		Any height within lift range (hydraulic transport lock)				

Assuming r = tyre dynamic radius index of 770 mm ISO 4251/1-1984
or 740 mm for supplementary test (B2.2)

1.7 Swinging drawbar
(Stand alone type)

Type:	Clevis		
Height above ground, unballasted maximum:	538 mm		
minimum:	422 mm		
Type of adjustment:	Inverting drawbar		
Distance of hitch point from rear-wheel axis, horizontally:	700 mm	814 mm	865 mm
Distance of hitch point from power take-off shaft ends:			
Vertically:	192 mm	308 mm	
Horizontally:	243 mm	357 mm	408 mm
Lateral adjustment from the (centre of clevis):			
Right-hand	215 mm	248 mm	267 mm
Left-hand	215 mm	248 mm	267 mm
Distance of pivot point from rear axles horizontally:	13 mm behind rear axle		
Width of clevis:	70 mm		
Diameter of pin hole:	29/33 mm		
Maximum vertical permissible load - Clevis uppermost:	1630 kg	1065 kg	910 kg
Clevis underneath:	1135 kg	1065 kg	910 kg

1.8 Trailer Hitch

Type: None fitted

1.9 Holed drawbar

Type: None fitted

Front Towing Hitch

Type None fitted

1.10 Steering

Make:	New Holland
Model:	None
Type:	Hydrostatic
Method of operation:	
Pump:	Sauer Sundstrand
Motor:	Danfoss OSPC-125-OR
Ram:	Double acting balanced cylinder acting on both steering arms
Filter:	Integral with hydraulic power lift system
Working pressure:	142 - 145 bar

1.11 Brakes

1.11.1 Service brake

Make:	New Holland
Model:	None
Type:	Oil-immersed multi plate discs
Method of operation:	Hydraulic, independent on rear wheels
Trailer braking take-off:	None

1.11.2 Parking brake

Make:	New Holland
Type:	Mechanical ratchet mounted on service brakes pedal, rod operation
Method of operation:	Hand lever to pedal ratchet

1.12 Wheels

Number: 4

Front: 2 steering

Rear: 2 driving

Wheelbase: 2340 mm

Track settings

	Minimum mm	Maximum mm	Adjustment method
Front	1426	2272	Reversing wheels and offset lug rims
Rear	1528	2028	Reversing wheels and offset lug rims

1.13 Protective structure

Make:	New Holland
Model:	New Holland 618/A or B
Type:	Rear mounted - 2 post folding ROPS
Manufacturer's name and address:	New Holland UK Ltd, Basildon
Protective device:	
Rollguard:	ROPS
Tiltable/Not tiltable:	Tiltable
OECD approval	
Approval number:	CSD-1414/1-36
Date of approval:	7 April 1997
Nos. of minor modification certificates, if any:	

1.14 Seat

1.14.1 Drivers seat

Make/Model/Type:	Grammer DS44/1HBA
Seat and steering wheel reversible:	No
Type of suspension:	Low frequency, parallelogram suspension spring
Type of damping:	Double acting, hydraulic
Range of adjustment:	
Longitudinal:	± 75 mm
Vertical:	± 30 mm
Safety belt:	No

1.15 Lighting

In accordance with EEC Directive 78/933/EEC

Unrestricted beam angle of headlight in plan view: 140°

	Height above ground to centre mm	Size mm	Distance from outside edge to median plane of tractor mm
Headlight	1280	150 x 90	210
Sidelights	1622	125 x 40	862
Rear lights	1660	125 x 40	857
Axle reflectors	–	–	–
Rear fender reflectors	1620	125 x 45	857

2. TEST CONDITIONS

2.1 Overall dimensions

Length mm	Width		Height at top of	
	Minimum mm	Maximum mm	Protective structure mm	Exhaust pipe mm
3825	1625	2272	2923	2820

2.2 Ground clearance (unballasted tractor) 356 mm

Clearance-limiting part: Drawbar clevis in lowest position

2.3 Tractor mass (with ROPS)

	Unballasted		Ballasted	
	Without driver kg	With driver kg	Without driver kg	With driver kg
Front	1097	1107	–	–
Rear	2083	2148	–	–
Total	3180	3255	–	–

2.5 Tyres and track width specification

	Front	Rear
Tyres dimensions ply rating type	 7.50 x 16 6/8 ply Crossply	 18.4 x 34 6/8 ply Crossply
Maximum load (tyre manufacturer's), kg 30 km/h (40 km/h)	750 (875)	2300 (2575)
Maximum load (tractor manufacturer's), kg	750 (875)	2300 (2525)
Inflation pressure (tyre manufacturer's), Bar	2.8/3.7	1.1/1.4
Dynamic radius index, mm	376	770
Chosen track width (manufacturer's nominal), mm	1460	1635

2.6 Fuel

Type: Diesel oil to Class D, 1.5 to 5.5 cSt

Density at 15°C: 0.8370 g/cm^3

2.7 Oils and lubrication

2.7.1 Capacity and change interval

	Capacity litre	Oil change hours	Filter change hours
Engine	11.4	300	300
Front axle differential	---	None	None
Final drive (front) - per side	---	None	None
Rear axle	60.6	1200	600
Gearbox Hydraulic system Final drives (rear) Steering	Integral with rear axle		
Brakes	---	---	None

2.7.2 Specifications

	NH spec	Recommended	Used during test
Engine oil			
Type:	82922933	SAE 10W/30	As recommended
Viscosity:		11.5 cSt at 100°C	
Classification:		API CE/SF	
Transmission oils			
Type:	85700812	Not specified	As recommended
Viscosity:		9 cSt at 100°C	
Classification:		API GL-4	
Rear final drives			
Type:	85700812	Not specified	As recommended
Viscosity:		9 cSt at 100°C	
Classification:		API GL-4	
Hydraulic fluid			
Type:	85700812	Not specified	As recommended
Viscosity:		9 cSt at 100°C	
Classification:		API GL-4	
Steering oil			
Type:	85700812	Not specified	As recommended
Viscosity:		9 cSt at 100°C	
Classification:		API GL-4	
Front differential and final drives			
Type:	85700812	Not specified	As recommended
Viscosity:		9 cSt at 100°C	
Classification:		API GL-4	
Hydraulic brakes			
Type:	82865344	Not specified	As recommended
Viscosity:		6 cSt at 100°C	
Classification:		No equivalent	
2.7.3 Grease			
Type:	82948889	Lithium based	As recommended
Classification:		NLG1 2	
Number of lubrication points:	12		

3. COMPULSORY TESTS RESULTS

3.1 Main power take-off (540)

Date and location of tests: 12 November 1998
Silsoe Research Institute,
Wrest Park, Silsoe, Bedford

Type of dynamometer: Eddy Current, Borghi and Saveri

Power kW	Speed		Fuel consumption			Specific energy kWh/l
	Engine rev/min	P.T.O. rev/min	Hourly kg/h	l/h	Specific g/kWh	
3.1.1 MAXIMUM POWER - TWO HOUR TEST						
51.9	2174	617	13.46	16.08	260	3.22
3.1.2 POWER AT RATED ENGINE SPEED						
51.9	2174	617	13.46	16.08	260	3.22
3.1.3 STANDARD POWER TAKE-OFF SPEED (540 ± 10 rev/min)						
49.5	1904	540	12.05	14.40	244	3.44
3.1.4 PART LOADS 3.1.4.1 The torque corresponding to maximum power at rated engine speed						
51.9	2174	617	13.46	16.08	260	3.22
3.1.4.2 85% of the torque defined in 3.1.4.1						
45.4	2242	636	12.48	14.91	275	3.05
3.1.4.3 75% of the torque defined in 3.1.4.2						
34.2	2257	641	10.27	12.27	300	2.79
3.1.4.4 50% of the torque defined in 3.1.4.2						
22.9	2271	645	8.15	9.73	357	2.35
3.1.4.5 25% of the torque defined in 3.1.4.2						
11.5	2281	648	6.20	7.41	538	1.56
3.1.4.6 Unloaded						
0	2295	652	4.36	5.20	–	–

Power kW	Speed		Fuel consumption			Specific energy kWh/l
	Engine rev/min	P.T.O. rev/min	Hourly kg/h	Hourly l/h	Specific g/kWh	
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (540 ± 10 rev/min)						
3.1.5.1 The torque corresponding to maximum power						
49.5	1904	540	12.05	14.40	244	3.44
3.1.5.2 85% of the torque obtained in 3.1.5.1						
44.2	1999	568	11.21	13.39	253	3.30
3.1.5.3 75% of the torque obtained in 3.1.5.2						
33.2	2018	573	9.13	10.90	275	3.05
3.1.5.4 50% of the torque obtained in 3.1.5.2						
22.5	2036	578	7.12	8.51	316	2.65
3.1.5.5 25% of the torque obtained in 3.1.5.2						
11.3	2056	584	5.29	6.32	469	1.79
3.1.5.6 Unloaded						
0	2069	588	3.48	4.16	–	–

No load, maximum engine speed: 2295 rev/min

Torque (equivalent crankshaft) at maximum power: 227.8 Nm

Torque (equivalent crankshaft) at rated speed: 227.8 Nm

Maximum torque (equivalent crankshaft): 284.2 Nm
(engine speed 1254 rev/min)

Mean atmospheric conditions:

- Temperature 26°C
- Pressure 99.9 kPa
- Relative humidity 35%

Maximum temperatures:

- Coolant 85°C
- Engine oil 116°C
- Fuel 49°C
- Engine air intake 32°C

3.2 Hydraulic power and lifting force

Date of tests: 30 November 1998

3.2.1 Hydraulic power test

Sustained pressure with relief valve open: 18.6 MPa

Pump delivery rate at minimum pressure: 39.2 l/min

	Flow rate l/min	Pressure MPa	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power	33.4	16.7	9.30
Flow rate and hydraulic pressure corresponding to maximum hydraulic power	33.1	17.5	9.66

Tapping point used for test: Auxiliary service connection

Temperature of hydraulic fluid if different from 65 ± 5°C: – °C

Opening pressure of the unloading valve: – MPa

Closing pressure of the unloading valve: – MPa

3.2.2 Power lift test - (To ISO 730-1:1994)

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	194 mm	194 mm
Vertical movement	666 mm	898 mm
Maximum corrected force exerted through full range	20.9 kN	14.8 kN
Corresponding pressure of hydraulic fluid	16.7 MPa	16.7 MPa
Moment about rear-wheel axis	21.3 kNm	24.1 kNm
Maximum tilt angle of mast from vertical	–	14 degrees

Linkage settings for test - see Table 2.1 and Figure 2.1

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	-446	-347	-300	-200	-100	0	100	200	250	319	452
Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure delivered by the hydraulic system)											
at the hitch points kN	–	20.9	21.0	21.9	22.9	23.7	23.8	23.7	23.8	23.7	–
Corresponding pressure: 16.7 MPa											
at the frame kN	16.1	16.4	16.7	17.3	17.3	17.3	16.8	16.3	16.1	15.7	14.8
Corresponding pressure: 16.7 MPa											

3.3 Drawbar power test (unballasted tractor) 2 wheel drive

Date and Location of tests: 1 February 1999
Silsoe Research Institute
Wrest Park
Silsoe
Bedford MK45 4HS

Type of track: Concrete

Height of drawbar above ground	Tyre inflation pressure (kPa) Front	Rear
510 mm	152	83

Gear and Range	Power	Drawbar Pull	Speed	Engine Speed	Slip of wheels or track	Spec Fuel cons	Spec energy	Temperature			Atmospheric conditions		
								Fuel	Coolant	Eng oil	Temp	Rel Humidity	Pressure
	kW	kN	km/h	rev/min	%	g/kwh	kWh/l	Deg C	Deg C	Deg C	Deg C	%	kPa
3.3.1 MAXIMUM POWER IN TESTED GEARS													
1L	19.7	27.2	2.60	2274	15.0	466	1.80	23	82	96	11	64	103.3
2L	24.5	27.1	3.24	2268	15.0	421	1.99	23	83	94	11	63	103.3
3L	41.2	27.0	5.49	2166	14.6	328	2.55	26	83	100	10	62	103.3
4L	43.6	19.6	7.98	2166	8.8	312	2.69	28	84	104	11	63	103.3
1H	45.1	16.6	9.78	2175	7.2	302	2.77	28	84	103	11	61	103.3
2H	44.9	13.0	12.40	2171	5.5	299	2.80	28	84	103	10	62	103.3
3.3.2 FUEL CONSUMPTION 3.3.2.1 In selected gear , at maximum power at rated speed													
1H	45.1	16.6	9.78	2175	7.2	302	2.77	28	84	103	11	61	103.3
3.3.2.1.1 75% of pull at maximum power at rated speed													
1H	35.9	12.5	10.35	2257	5.4	337	2.48	27	83	103	10	62	103.3
3.3.2.1.2 50% of pull at maximum power at rated speed													
1H	24.4	8.3	10.60	2271	3.6	389	2.15	26	83	101	10	62	103.3
3.3.2.1.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.1													
2H	36.0	12.5	10.33	1803	5.2	284	2.95	29	83	101	10	63	103.3
3.3.2.1.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2													
2H	24.3	8.3	10.57	1815	3.6	318	2.63	28	82	100	10	62	103.3
3.3.2.2 In selected gear nearest to 7.5 km/h, at maximum power at rated speed													
4L	43.6	19.6	7.98	2166	8.8	312	2.69	28	84	104	11	63	103.3
3.3.2.2.1 75% of pull at maximum power at rated speed													
4L	35.0	14.7	8.56	2257	6.2	344	2.44	27	83	99	10	63	103.3
3.3.2.2.2 50% of pull at maximum power at rated speed													
4L	24.0	9.8	8.79	2271	4.2	414	2.02	27	83	99	10	63	103.3
3.3.2.2.3 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.1													
1H	34.9	14.7	8.55	1884	6.3	290	2.89	26	83	98	10	61	103.3
3.3.2.2.4 Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2													
1H	24.0	9.8	8.79	1895	4.2	324	2.58	25	82	96	10	61	103.3

SUPPLEMENTARY TESTS

3.2 Hydraulic power and lifting force

3.2.2 Power lift test

I. B 2.2 Power lift test - **(To ISO 730-1:1994, alternative rear tyre size 13.6 R38)**

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	198mm	198mm
Vertical movement	650 mm	888 mm
Maximum corrected force exerted through full range	21.0 kN	14.7 kN
Corresponding pressure of hydraulic fluid	16.7 MPa	16.7 MPa
Moment about rear-wheel axis	21.4 kNm	23.9 kNm
Maximum tilt angle of mast from vertical	--	16 degrees

- Linkage settings for test - see Table 2.1 and Figure 2.1

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	-404	-313	-250	-150	-50	0	100	200	300	337	484
Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure delivered by the hydraulic system)											
at the hitch points kN	--	21.0	21.4	22.4	23.1	23.5	23.8	23.8	23.9	23.8	--
Corresponding pressure: 16.7 MPa											
at the frame kN	15.8	16.4	16.8	17.2	17.3	17.3	17.0	16.5	15.9	15.7	14.7
Corresponding pressure: 16.7 MPa											

II. B 2.3 Power lift test - (To manufacturers lift rod setting and original tyres)

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	490 mm	490 mm
Vertical movement	525 mm	664mm
Maximum corrected force exerted through full range	26.9 kN	18.0 kN
Corresponding pressure of hydraulic fluid	16.7 MPa	16.7 MPa
Moment about rear-wheel axis	27.4 kNm	29.3 kNm
Maximum tilt angle of mast from vertical	--	14 degrees

Linkage settings for test - see Table 2.1 and Figure 2.1

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	-65	-51	0	100	200	250	300	400	474	500	599
Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure delivered by the hydraulic system)											
at the hitch points kN	--	28.5	28.3	28.2	28.5	28.3	28.3	27.2	26.9	--	--
Corresponding pressure: 16.7 MPa											
at the frame kN	24.4	24.4	24.3	24.1	23.1	22.6	22.1	20.7	19.6	19.3	18.0
Corresponding pressure: 16.7 MPa											

5. REPAIRS AND ADJUSTMENTS DURING TESTS None

6. REMARKS: None

Test carried out by: S J Devonshire

Signed: Officer in charge of tests

J P Evans

Signed: for the Director

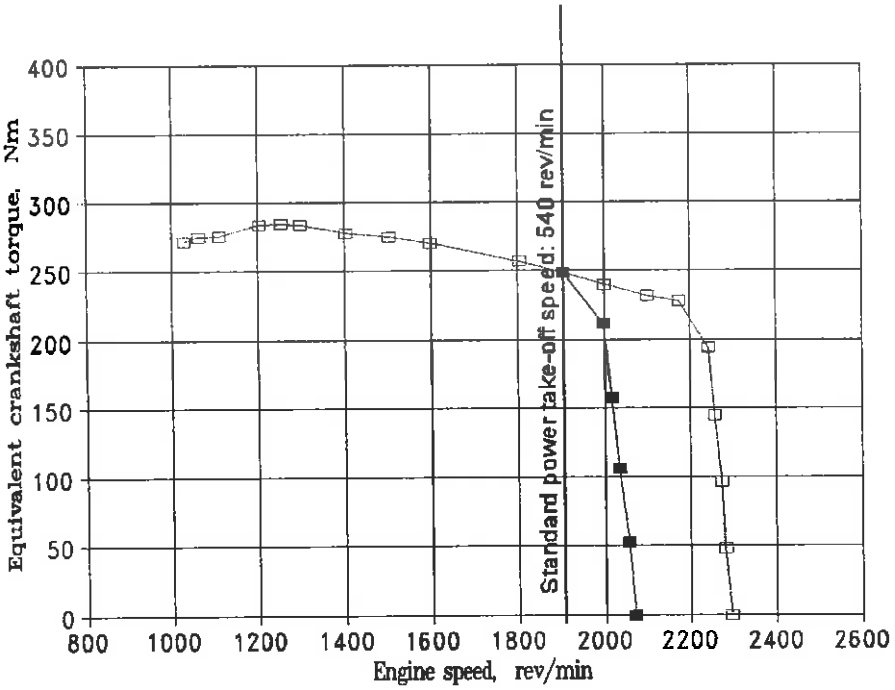
A G Douglass
Interim Manager - Test Engineering Group

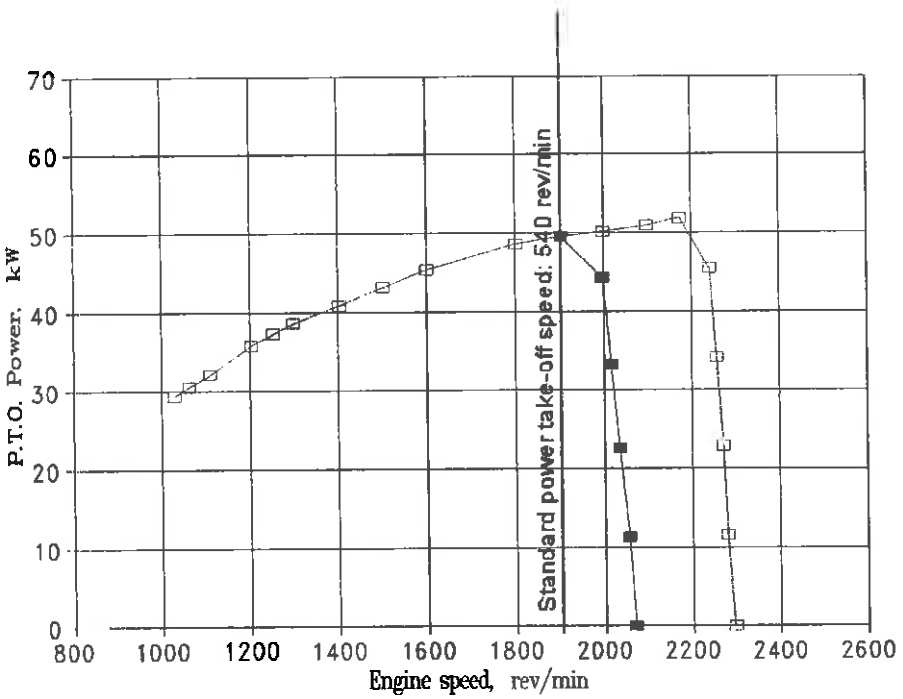
Date: 16/2/99

7. ANNEX 1 MAIN POWER TAKE-OFF CURVES

P.T.O. POWER TEST - NEW HOLLAND TS 80 TWO-WHEEL DRIVE (540 rev/min)

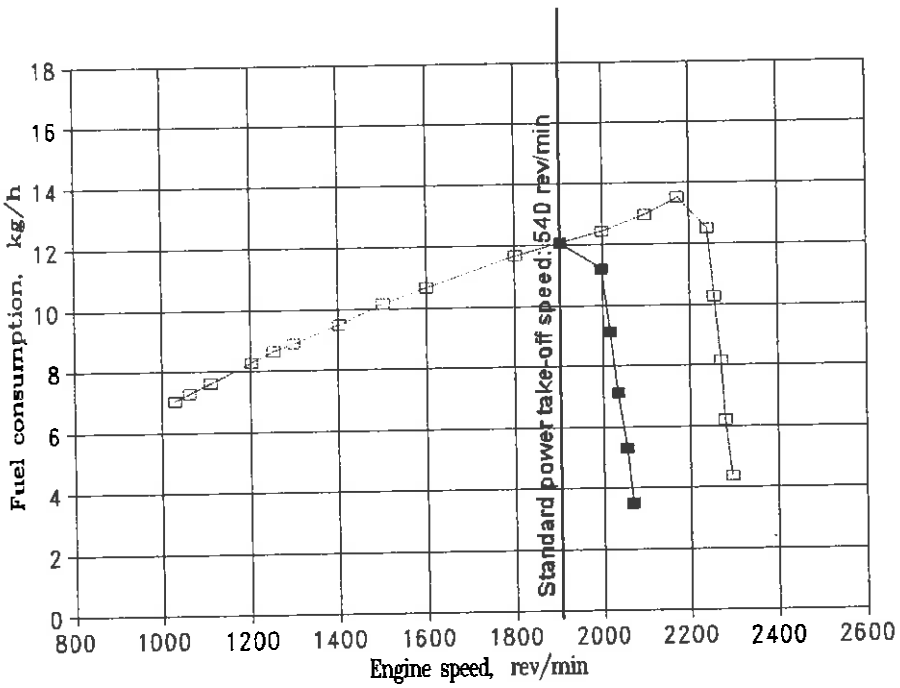
Governor set for maximum power at rated speed □
Governor set for maximum power at pto speed ■

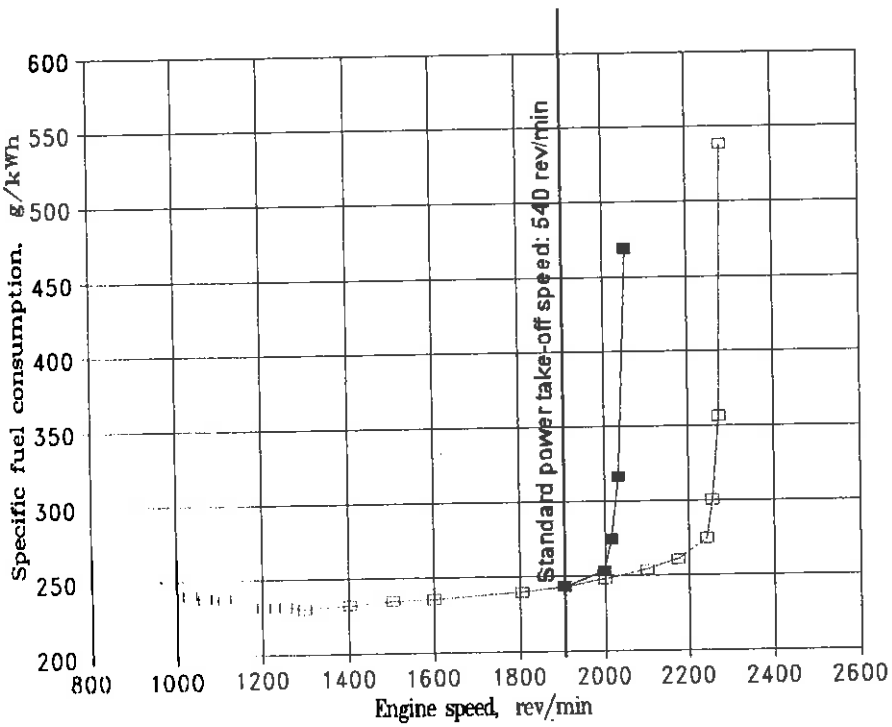




P.T.O. POWER TEST - NEW HOLLAND TS 80 TWO-WHEEL DRIVE (540 rev/min)

Governor set for maximum power at rated speed □
Governor set for maximum power at pto speed ■





P.T.O. POWER TEST - NEW HOLLAND TS 80 TWO-WHEEL DRIVE (540 rev/min)

Governor set for maximum power at rated speed □
Governor set for maximum power at pto speed ■

