OECD REPORT

TRACTOR

BLT reference number: 199/07

Report on test in accordance with the OECD-standard Code 2
Testing of Tractor performance for the Official Testing of Agricultural and Forestry Tractors

O.E.C.D. approval Number: **2/2 425**
Date of approval: **6 August 2008**



Tractor CASE IH Puma 195

Manufactured by:

CNH UK Limited
Basildon
Essex SS14 3AD
UNITED KINGDOM

CNH Österreich GmbH
Steyrerstraße 32
AT 4300 St. Valentin
AUSTRIA

This report has been approved by the O.E.C.D. Coordinating Centre (CEMAGREF, France) as being in accordance with the O.E.C.D. Tractors Test Code

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Tractor manufacturer's name and address:	CNH UK Limited Basildon Essex SS14 3AD United Kingdom	CNH Österreich GmbH Steyrerstraße 32 4300 St. Valentin Austria
Location of tractor assembly:	Basildon, Essex	St. Valentin, Austria
Submitted for test by:	The manufacturer	
Selected for test by:	The manufacturer with the agreement of the testing station	
Place of running in:	Basildon, Essex	
Duration of running in:	90 hours	
Location of test:	HBLFA Francisco Josephinum BLT Biomass – Logistics – Technology Rottenhauser Straße 1 AT 3250 Wieselburg	

1 SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1 Denomination

[C]	Make of tractor:	CASE IH
[C]	Model (trade name):	Puma 195
[C]	Type:	Four-Wheel Drive, unit construction

1.1.2 Numbers

[D]	1st Serial No or prototype:	Z6BH01001
[C]	Serial No:	Z7BH01013

1.1.3 Other specifications

[D]	Model(s) for other countries:	None
[C]	Transmission type or gears x ranges:	19-Speed Full – Power Shift
[C]	Speed version:	50 km/h
[D]	Manufacturer identification or Technical type number:	BHJCFC

1.2 Engine

[C]	Make:	CNH
[C]	Model:	667TA/EBC
[C]	Type:	4 stroke turbocharged direct injection & after cooled diesel
[C]	Serial No:	374028

1.2.1 Cylinders

[C]	Number/disposition:	6/vertical in-line
[D]	Bore/stroke:	104 mm/132 mm
[D]	Capacity:	6728 cm^3
[D]	Compression ratio:	16.5:1
[D]	Arrangement of valves:	Overhead
[D]	Cylinder liners:	None, monobloc construction

1.2.2 Supercharging

[C]	Make:	Holset
[C]	Model:	HX35
[C]	Type:	Exhaust driven
[D]	Pressure:	164 kPa at rated speed/load

1.2.3 Fuel system

[C]	Fuel feed system:	Gear pump
[C]	Make, type and model of fuel filter:	None, 3 total, 2 disposable canister filters incorporating sediment and water separation plus metal tank strainer and inline filter
[D]	Capacity of fuel tank:	405 dm^3
	Injection pump	
[C]	Make:	Bosch
[C]	Model:	0445020007
[C]	Type:	High pressure pump common rail
[C]	Serial No:	4898921 / A413 030 144
	Manufacturer's production setting of injection pump:	
[D]	Flow rate (rated engine speed and full load):	40.8 dm^3/h (103 mm^3 per stroke)
[C]	Flow rate in boosted mode (rated engine speed and full load):	46.7 dm^3/h (118 ±2 mm^3 per stroke)
[D]	Timing:	Variable
[D]	Injectors	
[C]	Make:	Bosch
[C]	Model:	DLLA 137 PV3
[C]	Type:	managed by electronic control unit
[D]	Injection pressure:	90 MPa

1.2.4 Governor

[C]	Make:	Bosch
[C]	Model:	EDC16
[C]	Type:	Managed by electronic control unit
[C]	Governed range of engine speed:	650 to 2425 min^{-1} (rev/min)
[C]	Rated engine speed:	2200 min^{-1} (rev/min)

1.2.5 Air cleaner

Pre-cleaner

[C]	Make:	None
[C]	Model:	None
[C]	Type:	Spin tubes incorporated
[C]	Location:	Air cleaner canister inlet

Main cleaner

[C]	Make:	Donaldson
[C]	Model:	None
[C]	Type:	3 stage dry paper element with replaceable cartridge exhaust aspirated
[C]	Location of air intake:	Under engine bonnet on front and above radiator.
[C]	Maintenance indicator:	Warning light on instrument panel

1.2.6 Lubrication system

[D]	Type of feed pump:	Force feed from concentric rotor pump
[C]	Type of filter:	Metal mesh strainer in sump on suction line and full flow disposable canister on pressure line to engine
[C]	Number of filters:	1

1.2.7 Cooling system

[C]	Type of coolant:	Water and antifreeze (50 % solution)
[C]	Type of pump:	Belt driven centrifugal impeller

Specification of fan

[C]	Number of fan blades:	9
[C]	Fan diameter:	620 mm
[D]	Coolant capacity:	27 dm^3
[C]	Type of temperature control:	Thermostat with full flow bypass
[D]	Over-pressure system:	100 kPa

1.2.8 Starting system

[C]	Make:	Iskra
[C]	Model:	AZF4115
[C]	Type:	Electrical, positive engagement, solenoid operated
[D]	Starter motor power rating:	4.2 kW
[C]	Cold starting aid:	Philips and Temro thermostarter
[C]	Safety device:	Starting inoperable unless shuttle lever in neutral, clutch pedal depressed and seat presence switch is activated

1.2.9 Electrical system

[C]	Voltage:	12 V
	Generator:	Alternator
[C]	Make:	Iskra
[C]	Model:	AAN5164
[C]	Type:	Belt driven
[D]	Power:	1.8 kW / 150 amp capacity
	Battery of accumulators	
[C]	Number:	1 Exide lead acid, Mounted on RHS fuel tank
[D]	Rating:	176 Ah at 20 hours

1.2.10 Exhaust system

[C]	Make:	Arvin Meritor
[C]	Model:	None
[C]	Type:	Vertical stack pipe with integral silencer
[C]	Location:	Engine rear on right hand side
	Height of outlet above ground:	3130 mm

1.3 Transmission

1.3.1 Clutch (Travel alone)

[D]	Make:	CNH
[D]	Model:	None
[D]	Type:	Wet multiplate in gearbox, for travel only
[D]	Number of plates:	12
[D]	Diameter of plates:	150 mm
[C]	Method of operation:	Electro-hydraulic with pedal override

1.3.2 Gear box

[D] Make: CNH

[D] Model: Full power shift

[C] Description: Electro/Hydraulic, 19 forward and 6 reverse powershift speeds, selected by 2 buttons on an adjustable lever mounted on the right-hand console.
Forward/reverse is actuated by a steering column mounted shuttle lever.

		Forward	Reverse
[C]	Number of gears	19	6
[C]	Number of ranges/groups	1	1
[C]	Total of arrangements	19	6

[D] Available options:

17 x 6 with creep (30 km/h)
18 x 6 with creep (30 km/h Japan)
18 x 6 with creep (40 km/h)
19 x 6 with creep (40 km/h)
19 x 6 with creep (50 km/h)

1.3.3 Rear axle and final drivers

[D]	Make:	CNH
[D]	Model:	None
[D]	Type:	Crown wheel pinion with differential and inboard epicyclic reduction gear final drive
	Differential lock	
[D]	Type:	Multiplate clutch
[C]	Method of engagement:	Electro-hydraulic actuation in response to signal from switch on right-hand control panel or auto diff lock actuation
[C]	Method of disengagement:	Via panel switch or in response to signal from brakes on application, or auto diff lock disengagement

1.3.4 Front axle and final drives

[D]	Make:	CNH
[D]	Model:	None
[D]	Type:	Crown wheel and pinion with differential and outboard epicyclic reduction gear final drives
	Drive engagement	
[D]	Type:	Mechanical or multiplate clutch – located within the gearbox
[C]	Method of operation:	Electro-hydraulic actuation in response to signal from switch on right-hand control panel or auto 4WD engagement
	Differential lock	
[D]	Type:	Mechanical or multiplate clutch
[C]	Method of engagement:	Electro-hydraulic actuation in response to signal from switch on right-hand control panel or auto diff lock actuation
[D]	Method of disengagement:	Via panel switch or in response to signal from brakes on application, or auto diff lock disengagement

1.3.5 Total ratios and travelling speeds - 19 x 6 50 km/h

	Gear	Number of engine revolutions for one revolution of the driving wheels			Nominal travelling speed at rated engine speed:* 2200 (rev/min) km/h		
	Forward	As tested		New model	As tested		New model
[C]	1	396.08	/	388.31	1.94	/	1.98
[C]	2	329.38	/	324.99	2.33	/	2.36
[C]	3	274.21	/	270.34	2.80	/	2.84
[C]	4	228.03	/	226.25	3.36	/	3.39
[C]	5	189.58	/	190.12	4.05	/	4.04
[C]	6	157.65	/	159.12	4.87	/	4.82
[C]	7	136.44	/	133.77	5.62	/	5.74
[C]	8	113.47	/	111.95	6.76	/	6.85
[C]	9	94.46	/	93.13	8.12	/	8.24
[C]	10	78.55	/	77.94	9.76	/	9.84
[C]	11	65.31	/	65.49	11.75	/	11.71
[C]	12	54.31	/	54.81	14.13	/	14.00
[C]	13	47.25	/	46.32	16.24	/	16.56
[C]	14	39.29	/	38.77	19.52	/	19.79
[C]	15	32.71	/	32.25	23.45	/	23.79
[C]	16	27.20	/	26.99	28.20	/	28.42
[C]	17	22.62	/	22.68	33.92	/	33.83
[C]	18	18.81	/	18.98	40.79	/	40.42
[C]	19	14.80	/	14.37	49.94	/	49.87
	Reverse						
[C]	1	178.88	/	175.37	4.30	/	4.38
[C]	2	148.75	/	146.77	5.16	/	5.23
[C]	3	123.84	/	122.09	6.20	/	6.28
[C]	4	102.98	/	102.18	7.45	/	7.51
[C]	5	85.62	/	85.86	8.96	/	8.94
[C]	6	71.20	/	71.86	10.78	/	10.68

(*) Calculated with a tyre dynamic radius index of 925 mm – ETRTO Standards manual 2007

Remark: Engine restriction to 2120 rev/min in the 19th gear to limit the speed

[C] Number of revolutions of front-wheels for one revolution of rear wheels: 1.343 / 1.324

1.4 Power take-off

1.4.1 Main power take-off

[C]	Type:	Independent
[C]	Method of engagement:	Electro-hydraulic operated multi-plate clutch in response to a signal from switch on the right-hand control panel
[C]	Number of shafts:	1 interchangeable shaft, 6 or 21 splines to ISO 500/1991
[C]	Method of changing power take-off speeds:	Two speed shiftable, 540 or 1000 min^{-1} (rev/min) by lever on right-hand console and by changing shafts
	Clutch	
[D]	Make:	CNH
[D]	Model:	None
[D]	Type:	Multiplate, wet
[D]	Number of plates:	8
[D]	Diameter of plates:	140.0 mm

1.4.1.1 Power take-off proportional to engine speed

Power take-off at 540 min^{-1} (rev/min)

[C]	Location:	Rear of tractor
[C]	Diameter of power take-off shaft:	34.9 mm
[C]	Number of splines:	6 in conformity with ISO 500/1991 (available option: 21 / 20)
[C]	Height above ground:	865 mm
[C]	Distance from the median plane of the tractor:	Central
[C]	Distance behind rear-wheel axis:	637 mm
[C]	Pto speed at rated engine speed:	609 min^{-1} (rev/min)
[C]	Engine speed at standard power take-off speed:	1950 min^{-1} (rev/min)
[C]	Ratio of rotation speeds:	3.61
[D]	Power restriction:	None
[D]	Maximum torque transmissible:	No restriction
[C]	Direction of rotation (viewed from behind tractor):	Clockwise

Power take-off at 1000 min^{-1} (rev/min)

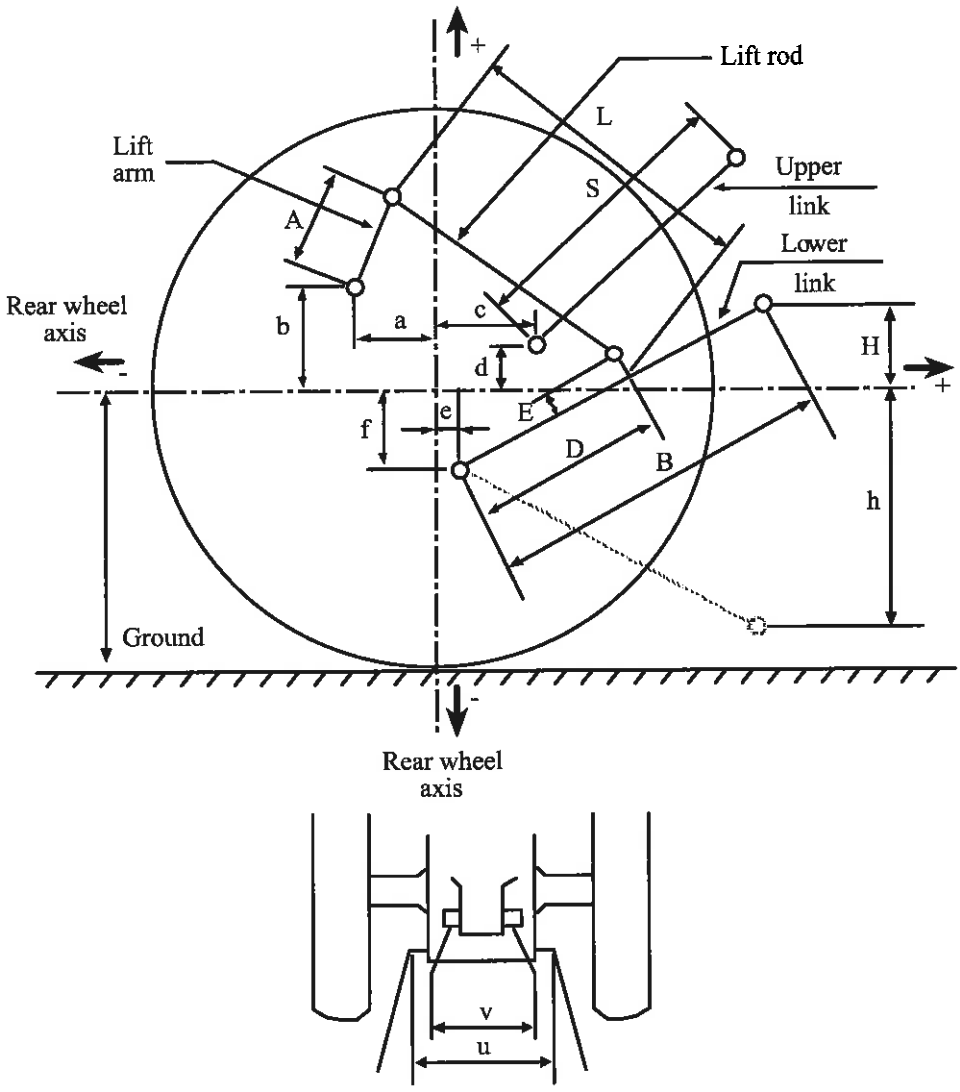
[C]	Location:	Rear of tractor
[C]	Diameter of power take-off shaft:	34.9 mm
[C]	Number of splines:	ISO 500/1991 (available option: 21 / 20)
[C]	Height above ground:	865 mm
[C]	Distance from the median plane of the tractor:	Central
[C]	Distance behind rear-wheel axis:	637 mm
[C]	Pto speed at rated engine speed:	1021 min^{-1} (rev/min)
[C]	Engine speed at standard power take-off speed:	2153 min^{-1} (rev/min)
[C]	Ratio of rotation speeds:	2.15
[D]	Power restriction:	None
[D]	Maximum torque transmissible:	No restriction
[C]	Direction of rotation (viewed from behind tractor):	Clockwise

1.5 **Hydraulic power lift** (as fitted to the test tractor)

[C]	Make:	CNH
[C]	Model:	None
[C]	Type:	Electro-hydraulic closed centre load sensing
[C]	Type and number of cylinders:	2 single acting, externally mounted (100 mm Dia)
[C]	Type of linkage lock for transport:	Hydraulic
[D]	Relief valve pressure setting:	20.5-21.9 MPa
[D]	Opening pressure of cylinder safety valve:	22.0-23.0 MPa
[D]	Lift pump type:	Variable displacement pump
[D]	Transmission between pump and engine:	Gear driven from PTO shaft, independent of main and PTO clutches
[C]	Type and number of filters:	1 disposable canister and 1 element filter
[C]	Site of oil reservoir:	Rear axle housing
[C]	Type, number and location of tapping points:	2,3,4 or 5 remote couplers at rear of tractor (4 remote valves fitted on test tractor)
[D]	Maximum volume of oil available to external cylinders:	28 dm^3 max. under normal conditions (flat fields) 40 dm^3 max. when operating stationary on level ground

1.6 Three-point linkage

[D]	Category:	Cat 3 in conformity with ISO 730-1:1994 + Cor.1:1995 and ISO 730-2:1979
[D]	Category adapter:	Cat 2 adaptors available
[D]	Controls:	Electronic draught/position control, with lower link sensing



LIFT TEST
Linkage geometry

Fig 2.1

Table 1.1

Dimensions of linkage when attached to the standard frame (ISO 730-1:1994 CAT 2/3)

			Figure 2.1	Dimensions or range	Settings used in		
				[mm]	Test 3.2.2	Test 3.3.3.1	Test 3.2.2.2
[C]	Length of lift arms:		(A)	380	380	380	380
[C]	Length of lower links:		(B)	974	974	974	974
[C]	Distance of lift arm pivot point from rear-wheel axis:	horizontally: vertically:	(a) (b)	92 372	92 372	92 372	92 372
[C]	Horizontal distance between the two lower link points:		(u)	644	644	644	644
[C]	Horizontal distance between the two lift arm end points:		(v)	560	560	560	560
[C]	Length of upper link:		(S)	690 – 915	810	795	800
[C]	Distance of upper link pivot point from rear-wheel axis:	horizontally: vertically:	(c) (d)	440 – 500 217 – 277	500 277	500 277	500 277
[C]	Distance of lower link pivot point from rear-wheel axis:	horizontally: vertically:	(e) (f)	250 270	250 270	250 270	250 270
[C]	Distance of lower link points to lift rod pivot points on lower links:		(D)	612 – 682	682	682	682
[C]	Length of lift rods:		(L)	875 – 1022	1022	985	875
[C]	Height of lower hitch points (*) relative to the rear-wheel axis:	in low position: in high position:	(h) (H)	425 – 785 0 – 260	695 45	645 90	450 240
[C]	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 925 – ETRTO Standards manual 2007

1.7 Swing drawbar

[C]	Type:		Clevis	Hook
[C]	Height above ground unballasted	Maximum: Minimum:	503 mm None	533 mm None
[C]	Type of adjustment:		None	
[C]	Distance of hitch point from rear-wheel axis, horizontally:		1037 - 1421 mm	699 - 1083 mm
[C]	Distance of hitch point from power take-off shaft ends Vertically: Horizontally:		 338 mm 400 - 784 mm	 308 mm 62 - 446 mm
	Lateral adjustment (centre of clevis/hook) Right-hand: Left-hand:		 None None	 None None
[C]	Distance of pivot point from rear axis:		Not applicable	
[C]	Diameter of drawbar pinhole:		33 mm	
[C]	Width of clevis:		60 mm	
[D]	Maximum vertical permissible load clevis uppermost:		1500kg *) / 2000 kg**)	3000 kg

Remark: *) extended position, **) close coupled position

1.8 Trailer hitch

None fitted

1.9 Holed drawbar

None fitted

1.10 Steering

[D]	Make:	CNH
[D]	Model:	None
[D]	Type:	Hydrostatic
	Method of operation	
[D]	Pump:	Bosch Rexroth
[D]	Motor:	Sauer Danfoss OSPD 60/220 OR
[D]	Rams:	2, balanced system with double acting cylinders one operating each steering arm
[D]	Filter:	Integral with hydraulic power lift system
[D]	Working pressure:	18.5-19.0 MPa

1.11 Brakes

1.11.1 Service brake

[D]	Make:	CNH
[D]	Model:	None
[D]	Type:	Oil immersed two plate disc
[C]	Method of operation:	Hydrostatic and booster, independent on rear wheels (On 4WD models. When the service brakes are activated the front wheel drive is automatically engaged providing 4-wheel braking)
[C]	Trailer braking take-off:	Hydraulic connector fitted to ISO 5676-1983

1.11.2 Parking brake

[C]	Type:	Fully independent six plate disc operating on bevel pinion shaft
[C]	Method of operation:	Hand lever with ratchet

1.12 Wheels

Number

[D] Front: 2 driving/steering

[D] Rear: 2 driving

[D] Wheelbase: 2884 mm

Track width adjustment:

		Minimum [mm]	Maximum [mm]	Adjustment method
[D]	Front *	1538 / 1560	2238 / 2260	Reversing wheels and offset lug rims
[D]	Rear	1530	2230	Reversing wheels and offset lug rims Optional bar axle

* 55° steering angle available only on 1860 mm and larger track settings
Remark: 1538 mm track setting with smallest front tyres; 1560 mm as tested

1.13 Protective structure

[C] Make: CNH

[C] Model: CNH SLTV 14

[C] Type: Cab safety frame - suspended

[C] Manufacturer's name and address: CNH UK Ltd
Cranes Farm Road
Basildon
Essex
SS14 3AD

Protective device

[C] Cab/frame/rollguard/other: Safety cab

[C] Tiltable/Not tiltable: Not tiltable

OECD approval

[C] Approval number: 4/0960

[C] Date of approval: 12 July 2006

[C] Nos. minor modification certificates, if any: 1

The certificates for minor modifications established by Danish testing station

1.14 Seat

1.14.1 Driver's seat

[C]	Make/Model/Type:	SEARS Series 5000D / with belt, heated cushion and semi-active suspension II+III e11 1294/5
[C]	Seat and steering wheel reversible:	No
[C]	Type of suspension:	Low frequency, parallelogram suspension air spring
[C]	Type of damping:	Double acting, hydraulic
	Range of adjustment	
[C]	Longitudinally:	± 100 mm
[C]	Vertically:	± 38 mm
[C]	Safety belt:	Yes

1.14.2 Optional driver's seat

[D]	Make/Model/Type:	SEARS Series 5000D / with belt (optional with heated cushion), II+III e11 1294/5 or SEARS Series 5000 / with belt II+III e11 1294/5
[D]	Seat and steering wheel reversible:	No
[D]	Type of suspension:	Low frequency, parallelogram suspension air spring
[D]	Type of damping:	Double acting, hydraulic
	Range of adjustment	
[D]	Longitudinally:	± 100 mm
[D]	Vertically:	± 38 mm
[D]	Safety belt:	Yes
[D]	Make/Model/Type:	GRAMMER MSG95G/741 / with belt (optional with heated cushion), II+III e1 100519
[D]	Seat and steering wheel reversible:	No
[D]	Type of suspension:	Parallelogram suspension air spring
[D]	Type of damping:	Double acting, hydraulic
	Range of adjustment	
[D]	Longitudinally:	± 95 mm
[D]	Vertically:	± 40 mm
[D]	Safety belt:	Yes

1.14.3 Passenger seat: None

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	Size	Distance from outside edge of lights to median plane of tractor
		[mm]	[mm]	[mm]
[C]	Headlights	1410	140 x 130	360
[C]	Sidelights	1970	80 x 65	900
[C]	Rear lights	1950	260 x 55	1110
[C]	Rear fender reflectors	1950	260 x 55	1110
[C]	Axle reflectors	870	100 x 35	560

2 TEST CONDITIONS

2.1 Overall dimensions

	Length	Width		Height at top of	
		Minimum	Maximum	Protective structure	Exhaust Pipe
	[mm]	[mm]	[mm]	[mm]	[mm]
Unballasted	5110	2135	3395	3050	3130

2.2 Ground clearance (unballasted tractor): 450 mm

Clearance-limiting part: APUH carrier

2.3 Tractor mass (with safety cab)

	Unballasted		Ballasted	
	Without driver	With driver	Without driver	With Driver
	[kg]	[kg]	[kg]	[kg]
Front	3090	3090	N/A	N/A
Rear	4910	4985	N/A	N/A
Total	8000	8075	N/A	N/A

2.4 Ballast: Not applicable

2.5 Track specifications: Not applicable

2.6 Tyres and track width specification

	Front	Rear
Tyres dimensions ply rating type	600/65/R 28 142A8 Radial	710/70R 38 166A8 Radial
Maximum load (tyre manufacturer's) 50 (30,40) km/h	23.69 (27.81, 26.00) kN	47.33 (55.62, 51.99) kN
Maximum load (tractor manufacturer's)	23.69 (27.81, 26.00) kN	47.33 (55.62, 51.99) kN
Inflation pressure (tyre manufacturer's)	160 kPa	160 kPa
Dynamic radius index	700 mm	925 mm
Chosen track width (manufacturer's nominal)	1880 mm	2050 mm

2.7 Fuel

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

Density at 15°C: 0.831 g/cm^3

2.8 Oils and lubrication

2.8.1 Capacity and change interval

	Capacity	Oil change	Filter change
	[dm^3]	[h]	[h]
Engine	19.00	600	600
Front axle differential	14.00	1200	None
Front axle hub (each)	2.15	1200	None
Gearbox	100	1200	600
Rear axle Hydraulic system Final drives (rear) Steering	Integral with gearbox		
Brakes	0.5	Top-up	None

2.8.2 Specifications (SAE, APL, CCMC, ACEA, MILL, ISO)

Oils	Recommended	Used during test	IH spec
Engine oil Type: Viscosity: Classification:	SAE 10W/30 11.5 cSt at 100 °C API CG – 4	As recommended	MS 1121
Transmission oils Type: Viscosity: Classification:	SAE 10W/30 9 cSt at 100 °C API GL – 4	As recommended	MAT 3525
Rear final drives Type: Viscosity: Classification:	SAE 10W/30 9 cSt at 100 °C API GL – 4	As recommended	MAT 3525
Front differential and final drives Type: Viscosity: Classification:	SAE 10W/30 9 cSt at 100 °C API GL – 4	As recommended	MAT 3525
Hydraulic brakes Type: Viscosity: Classification:	No equivalent 6 cSt at 100 °C No equivalent	As recommended	LHM fluid
Hydraulic fluid Type: Viscosity: Classification:	SAE 10W/30 9 cSt at 100 °C API GL – 4	As recommended	MAT 3525
Steering oil Type: Viscosity: Classification:	SAE 10W/30 9 cSt at 100 °C API GL – 4	As recommended	MAT 3525

2.8.3 Grease

Grease Points Type	Lithium Based	As recommended	251 HEP

Number of lubrication points: 14

3 TESTS RESULTS

3.1 Main power take-off

Date and location of tests: 11 and 12 May 2007
FJ-BLT Wieselburg, Austria

Type of dynamometer bench: Eddy Current, SCHENCK W780

Power	Speed			Fuel consumption			Specific energy
	Engine	P. T.O.	Fan	Hourly		Specific	
[kW]	[min^{-1}(rev/min)]			[kg/h]	[l/h]	[g/kWh]	[kWh/l]
3.1.1 MAXIMUM POWER - ONE-HOUR TEST							
141.2	1900	882	2400	34.47	41.46	244.1	3.41
3.1.2 POWER AT RATED ENGINE SPEED							
127.7	2200	1022	2460	34.34	41.30	268.8	3.09
3.1.3 POWER AT STANDARD PTO SPEED							
133.0	2153	1000	2400	34.46	41.44	259.1	3.21
3.1.4 PART LOADS 3.1.4.1 the torque corresponding to maximum power at rated engine speed							
127.7	2200	1022	2460	34.34	41.30	268.8	3.09
3.1.4.2 85% of torque obtained in 3.1.4.1							
111.6	2260	1050	2280	31.80	38.21	285.0	2.92
3.1.4.3 75% of torque defined in 3.1.4.2							
84.6	2285	1061	1920	25.59	30.74	302.5	2.75
3.1.4.4 50 % of torque defined in 3.1.4.2							
57.2	2315	1075	1800	19.21	23.11	335.9	2.48
3.1.4.5 25 % of torque defined in 3.1.4.2							
28.8	2330	1082	1440	12.65	15.22	439.6	1.89
3.1.4.6 unloaded							
0	2348	1091	1440	7.42	8.93	-	-
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED 3.1.5.1 the torque corresponding to maximum power							
133.0	2153	1000	2400	34.46	41.44	259.1	3.21
3.1.5.2 85 % of torque obtained in 3.1.5.1							
114.3	2175	1010	2160	31.01	37.30	271.4	3.06
3.1.5.3 75 % of torque obtained in 3.1.5.2							
86.5	2195	1020	1860	24.76	29.78	286.3	2.90
3.1.5.4 50 % of torque obtained in 3.1.5.2							
58.2	2215	1029	1560	18.33	22.05	314.8	2.64
3.1.5.5 25 % of torque obtained in 3.1.5.2							
29.4	2240	1040	1440	12.01	14.45	407.9	2.03
3.1.5.6 unloaded							
0	2255	1047	1440	6.82	8.21	-	-

No load maximum engine speed: 2348 min^{-1} (rev/min)

Torque (equivalent crankshaft) at maximum power

At rated engine speed:	554.4 Nm
At 1-hour test:	709.7 Nm
Maximum torque (equivalent crankshaft): ((engine speed: 1400 min^{-1} (rev/min))	822.8 Nm

Mean atmospheric conditions:		
Temperature	16	°C
Pressure	99.7	kPa
Relative humidity	50	%
Maximum temperatures:		
Coolant	85	°C
Engine oil	**108**	°C
Fuel	28	°C
Engine air intake	27	°C

3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS 3.1.6.1 maximum power at rated engine speed							
127.7	2200	1022	2400	34.34	41.30	268.8	3.09
3.1.6.2 80 % of power obtained in 3.1.6.1 at max. speed setting							
102.2	2265	1052	2340	30.43	36.60	297.9	2.79
3.1.6.3 80 % of power obtained in 3.1.6.1 with governor control set to 90 % of rated engine speed							
102.2	1981	920	1860	27.59	33.18	269.9	3.08
3.1.6.4 40 % of power obtained in 3.1.6.1 with governor control set to 90 % of rated engine speed							
51.1	1981	920	1620	15.51	18.67	303.7	2.74
3.1.6.5 60 % of power obtained in 3.1.6.1 with governor control set to 60 % of rated engine speed							
76.6	1320	613	1440	17.40	20.95	227.1	3.66
3.1.6.6 40 % of power obtained in 3.1.6.1 with governor control set to 60 % of rated engine speed							
51.1	1320	613	1440	12.52	15.07	245.1	3.39

Optional power take-off test

Boosted power

Power	Speed			Fuel consumption			Specific energy
	Engine	P. T.O.	Fan	Hourly		Specific	
[kW]	[min^{-1}(rev/min)]			[kg/h]	[l/h]	[g/kWh]	[kWh/l]
3.1.1 MAXIMUM POWER - ONE-HOUR TEST							
160.6	1900	882	2340	38.92	46.81	242.3	3.43
3.1.2 POWER AT RATED ENGINE SPEED							
148.2	2200	1022	2460	38.83	46.70	262.1	3.17
3.1.3 POWER AT STANDARD PTO SPEED							
151.0	2153	1000	2520	39.14	47.08	259.2	3.21
3.1.4 PART LOADS 3.1.4.1 the torque corresponding to maximum power at rated engine speed							
148.2	2200	1022	2460	38.83	46.70	262.1	3.17
3.1.4.2 85% of torque obtained in 3.1.4.1							
128.3	2240	1040	2460	35.03	42.13	273.0	3.05
3.1.4.3 75% of torque defined in 3.1.4.2							
97.4	2270	1054	2460	28.97	34.85	297.4	2.79
3.1.4.4 50 % of torque defined in 3.1.4.2							
66.1	2305	1071	1860	21.68	26.08	328.2	2.53
3.1.4.5 25 % of torque defined in 3.1.4.2							
33.3	2330	1082	1800	13.87	16.68	416.1	2.00
3.1.4.6 unloaded							
0	2348	1091	1620	7.42	8.93	-	-
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED 3.1.5.1 the torque corresponding to maximum power							
151.0	2153	1000	2520	39.14	47.08	259.2	3.21
3.1.5.2 85 % of torque obtained in 3.1.5.1							
129.1	2165	1006	2400	34.26	41.21	265.4	3.13
3.1.5.3 75 % of torque obtained in 3.1.5.2							
98.2	2195	1020	2280	28.00	33.68	285.2	2.92
3.1.5.4 50 % of torque obtained in 3.1.5.2							
66.0	2215	1029	1860	20.61	24.79	312.0	2.66
3.1.5.5 25 % of torque obtained in 3.1.5.2							
33.4	2240	1040	1680	13.15	15.82	393.8	2.11
3.1.5.6 unloaded							
0	2260	1050	1680	6.96	8.38	-	-

No load maximum engine speed: 2348 min^{-1} (rev/min)

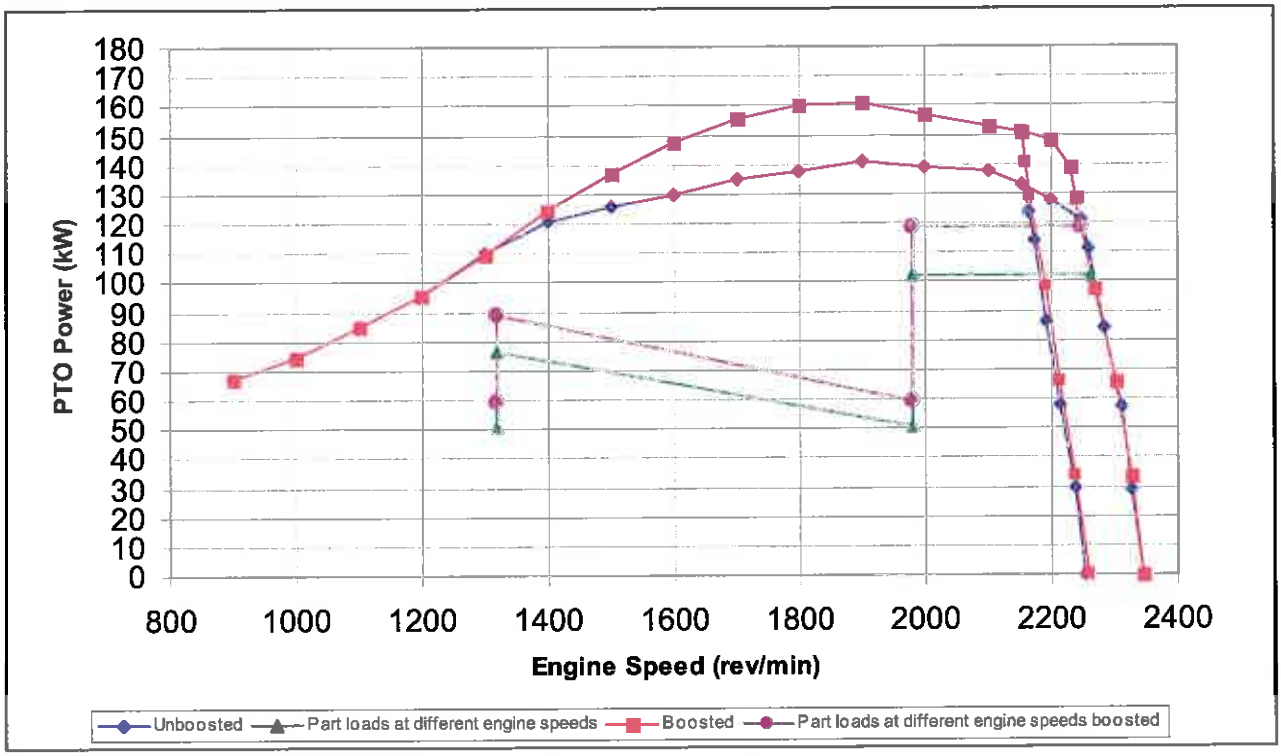
Torque (equivalent crankshaft) at maximum power

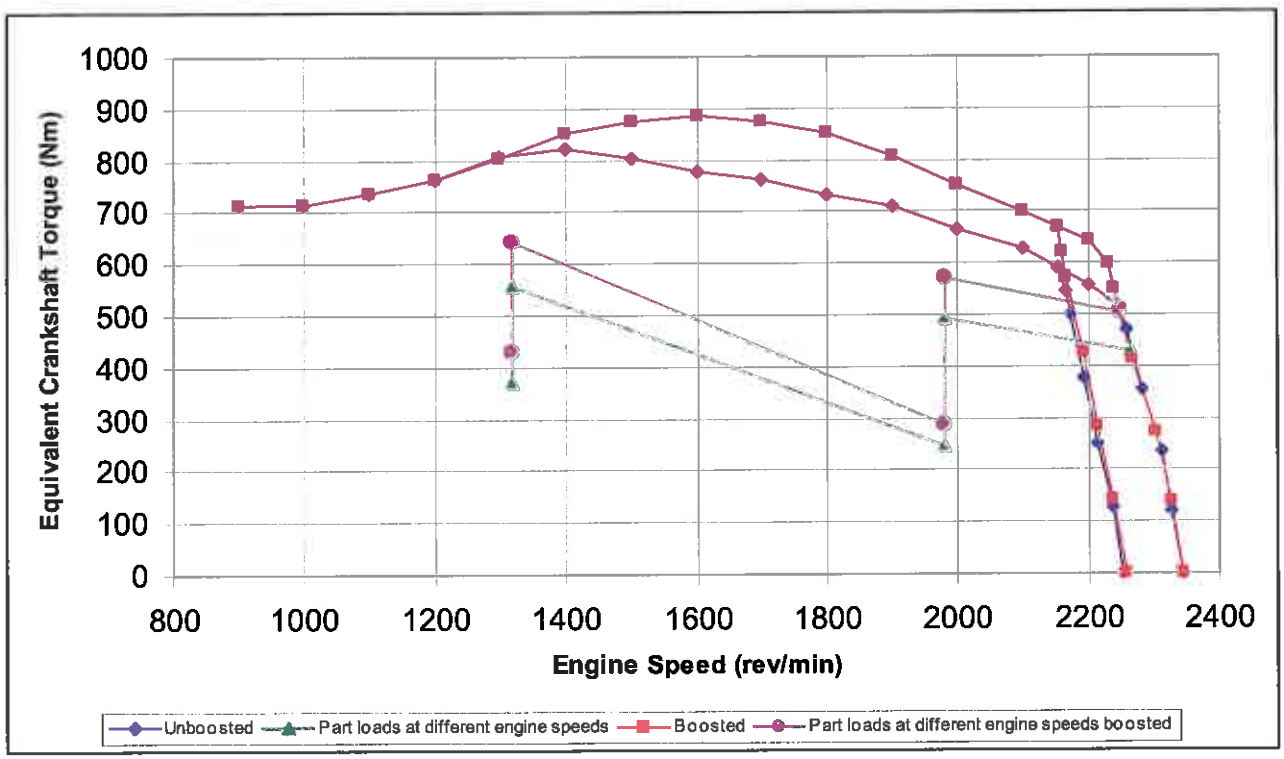
At rated engine speed:	643.1 Nm
At 1-hour test:	807.2 Nm
Maximum torque (equivalent crankshaft): ((engine speed: 1600 min^{-1} (rev/min))	882.6 Nm

Mean atmospheric conditions:		
Temperature	20	°C
Pressure	100.0	kPa
Relative humidity	47	%
Maximum temperatures:		
Coolant	85	°C
Engine oil	113	°C
Fuel	30	°C
Engine air intake	25	°C

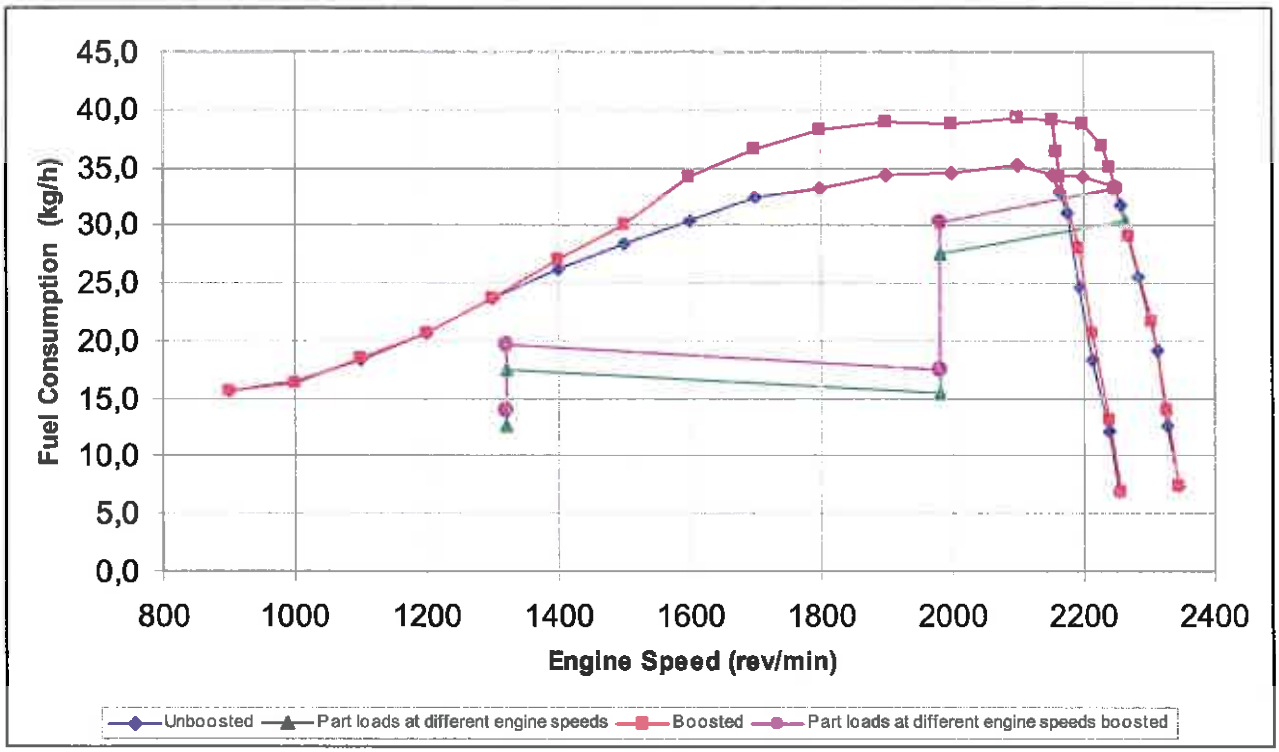
3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS 3.1.6.1 maximum power at rated engine speed							
148.2	2200	1022	2460	38.83	46.70	262.1	3.17
3.1.6.2 80 % of power obtained in 3.1.6.1 at max. speed setting							
118.6	2250	1045	2460	33.31	40.10	280.8	2.96
3.1.6.3 80 % of power obtained in 3.1.6.1 with governor control set to 90 % of rated engine speed							
118.6	1981	920	2100	30.26	36.44	255.2	3.25
3.1.6.4 40 % of power obtained in 3.1.6.1 with governor control set to 90 % of rated engine speed							
59.3	1981	920	1740	17.54	21.10	296.1	2.81
3.1.6.5 60 % of power obtained in 3.1.6.1 with governor control set to 60 % of rated engine speed							
88.9	1320	613	1440	19.68	23.69	221.3	3.75
3.1.6.6 40 % of power obtained in 3.1.6.1 with governor control set to 60 % of rated engine speed							
59.3	1320	613	1500	14.02	16.88	236.4	3.51

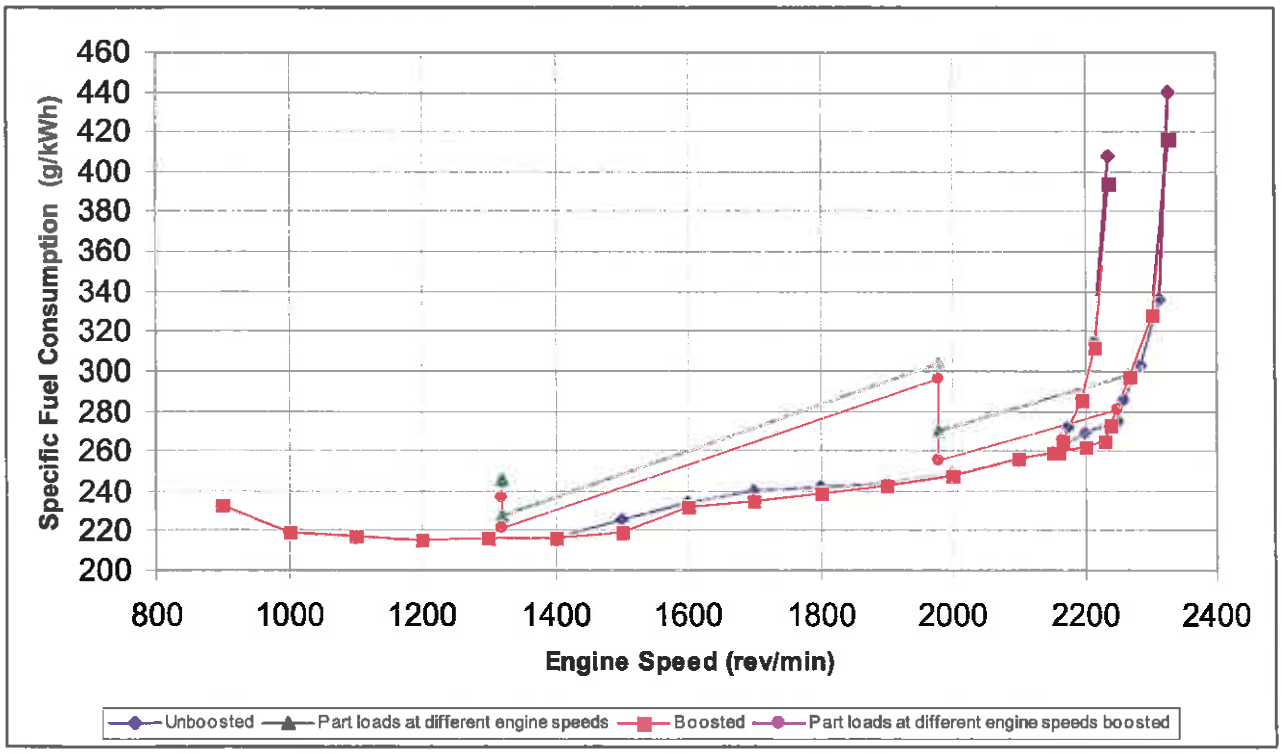
Power take-off curves



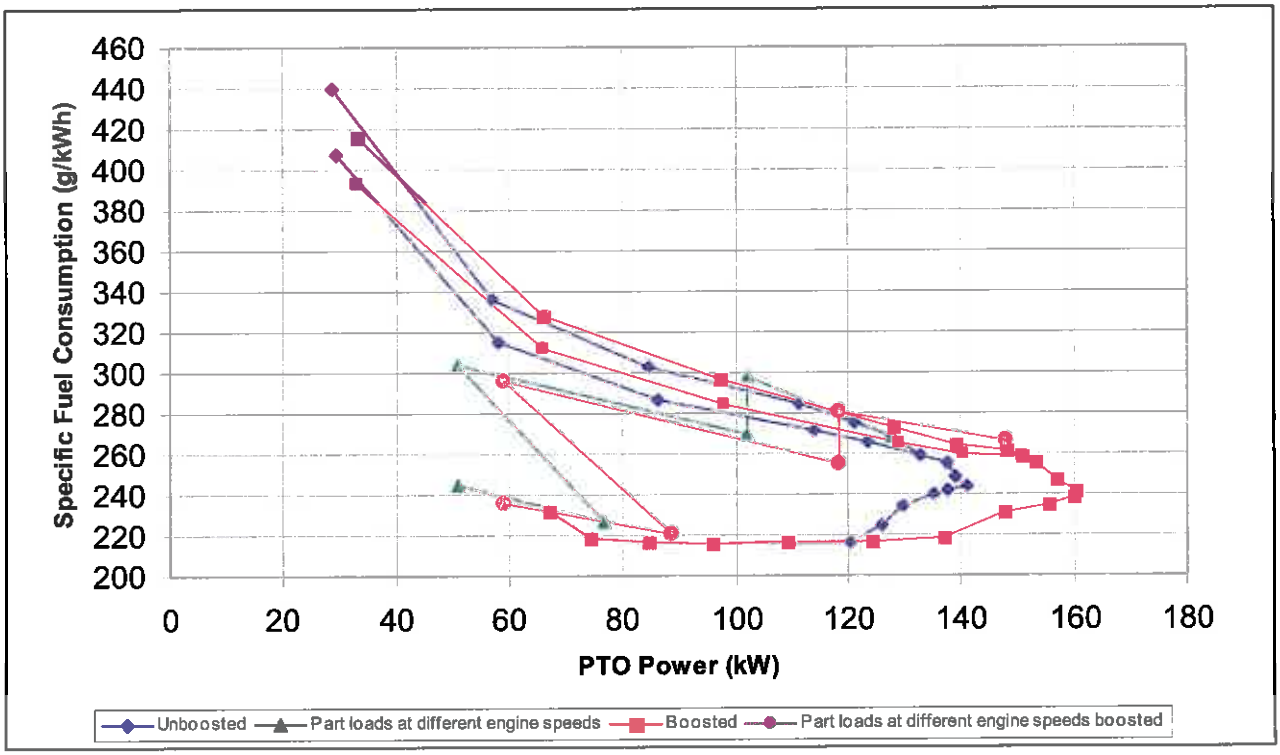


Power take-off curves





Power take-off curves



3.2 Hydraulic power and lifting force

Date of tests: 24 and 25 July 2007

3.2.1 Hydraulic power test

3.2.1.1 Hydraulic fluid data

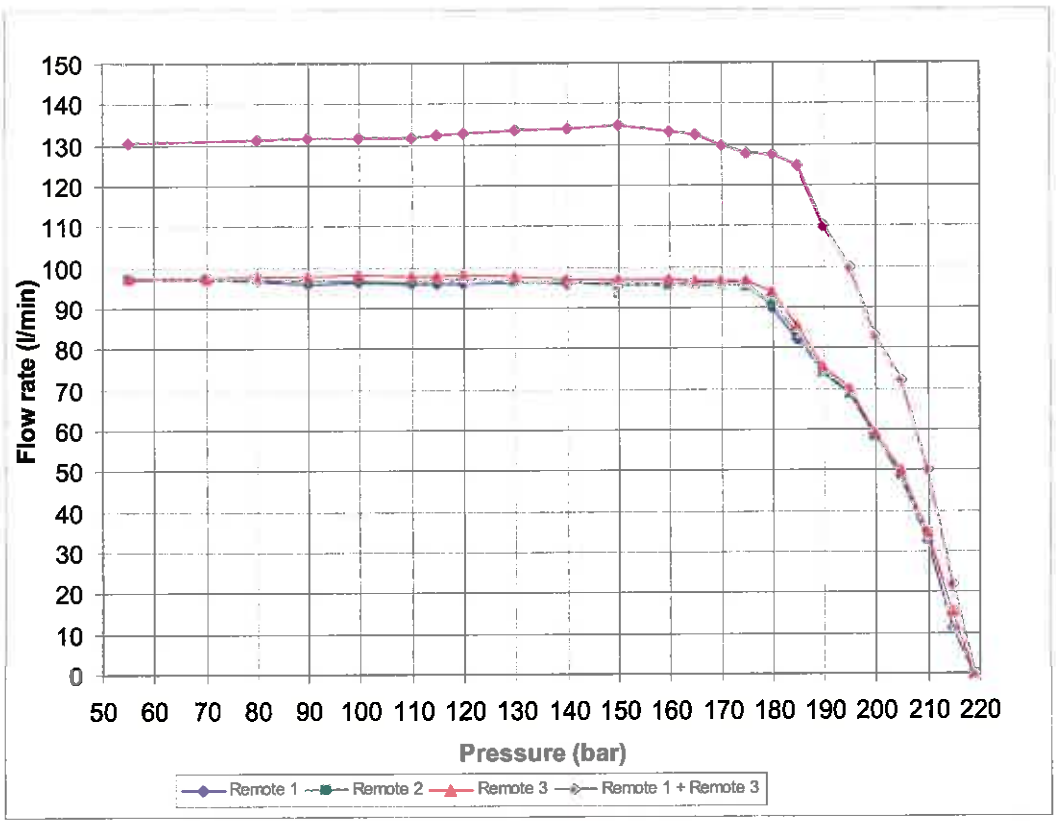
Hydraulic fluid type:	SAE 1010/30
Viscosity index (ISO 3448:1992):	9 cSt at 100°C
Viscosity at 65°C:	36.5 mm^2/s

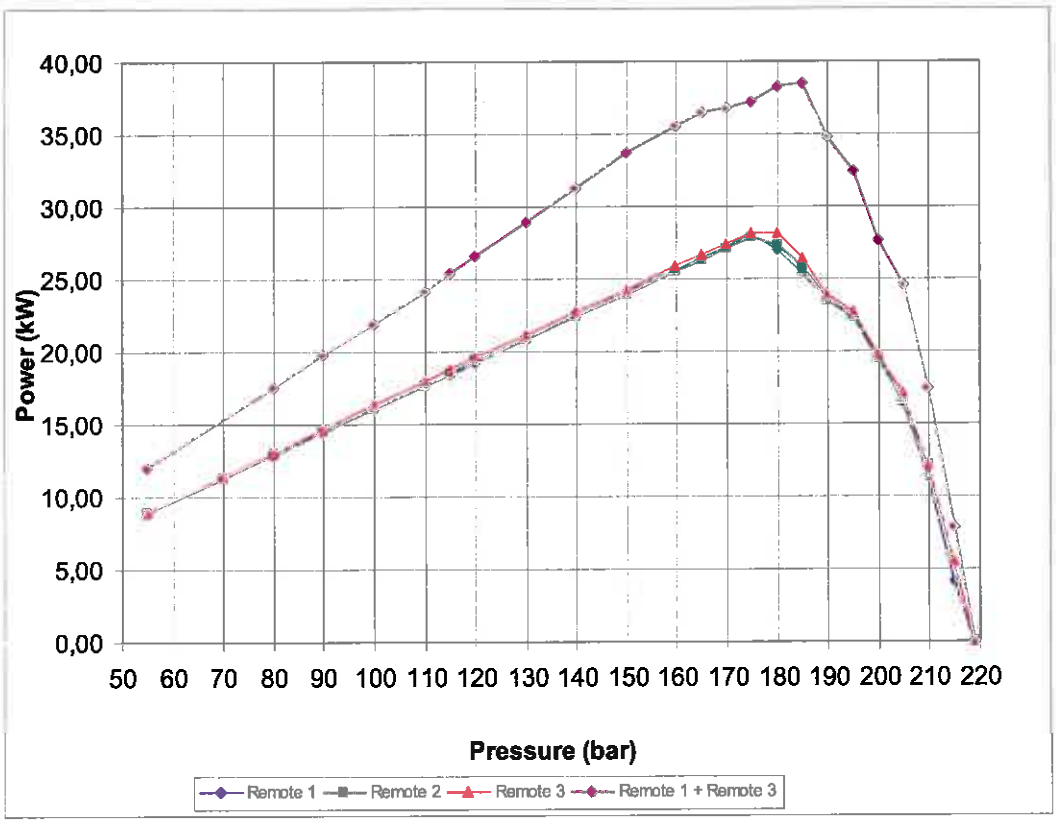
3.2.1.2 Compulsory Reporting (Test Results):

	Pressure	Reservoir oil temperature °C (65 °C target)		Engine speed	Flow rate	Power
	[MPa]	[min]	[max]	[rev/min]	[l/min]	[kW]
Rated Engine Speed *(Manufacturers Specification)*				2200		
3.2.1.2.1 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: No	21.9	61	68	2348		
3.2.1.2.2 Flow rate corresponding to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting and corresponding hydraulic power measured at one coupler	19.7 *19.7	65 65		2322 2320	70.0 100.0	23.0 32.8
3.2.1.2.3 Maximum available hydraulic power with flow through a single coupler pair, and corresponding flow and available coupler outlet pressure	17.5	61		2315	96.8	28.2
3.2.1.2.4 Maximum available hydraulic power with coupler pairs operating simultaneously (flow through two or more coupler pairs if required), and corresponding flow and available coupler outlet pressure	18.5	68		2310	125.0	38.5

From 2 couplers*
Maximum flow from 1 pair of couplers: 98.5 l/min (Remote 3)
Maximum flow from 2 pair of couplers: 134.8 l/min (Remote 1 + 3)

Curve


Flow rate (l/min)
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
Pressure (bar)
Remote 1
Remote 2
Remote 3
Remote 1 + Remote 3

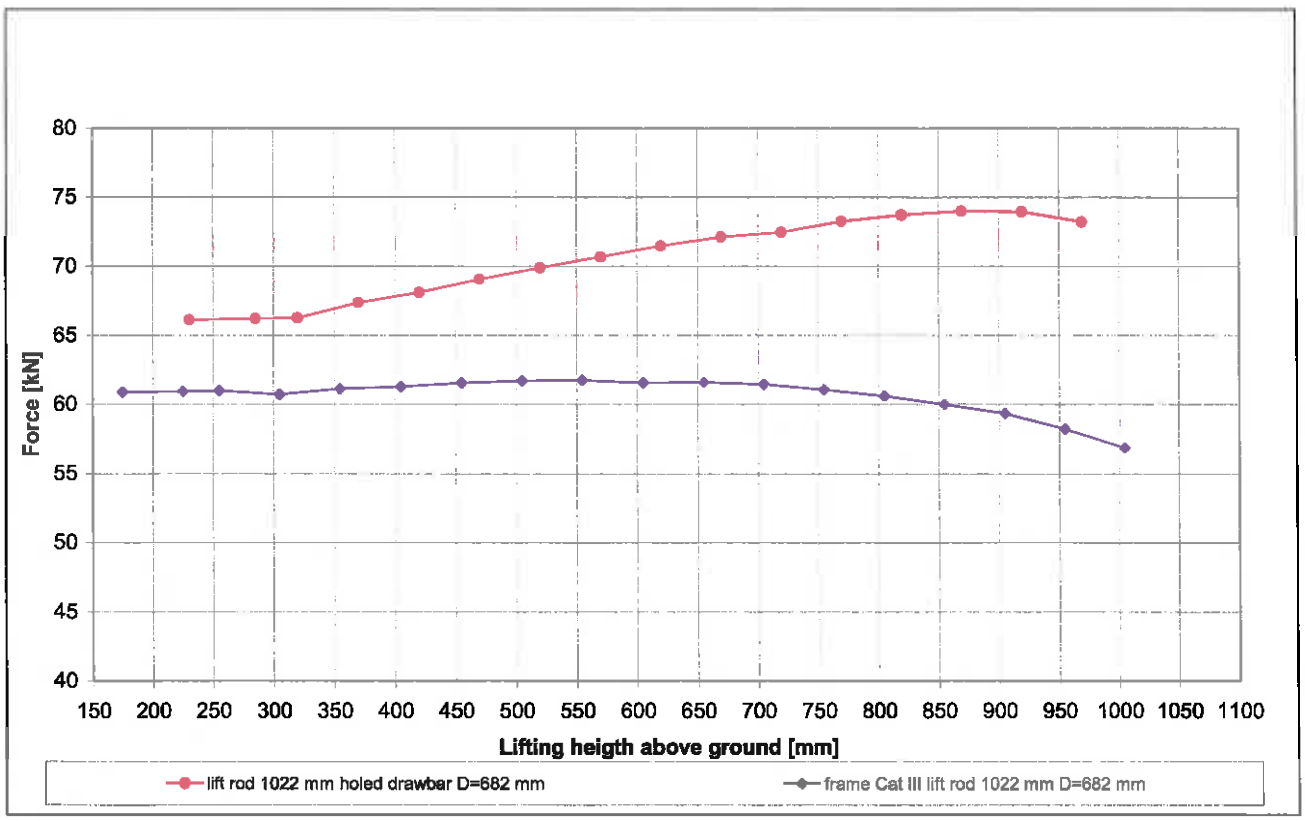

Power (kW)
40,00
35,00
30,00
25,00
20,00
15,00
10,00
5,00
0,00
50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
Pressure (bar)
Remote 1
Remote 2
Remote 3
Remote 1 + Remote 3

3.2.2 Compulsory Power lift test

Linkage settings for test - see Table 1.1

	at the hitch point		on the frame	
Height of lower hitch points above ground in down position	230	mm	175	mm
Vertical movement	740	mm	830	mm
Maximum corrected force exerted through full range	66.2	kN	56.8	kN
Corresponding pressure of hydraulic fluid	19.7	MPa	19.7	MPa
Moment about rear-wheel axis	81.0	kNm	104.2	kNm
Maximum tilt angle of mast from vertical	-	degrees	7	degrees

Lifting heights relative to the horizontal plane including the lower link pivot points											
Mm	- 480	- 425	- 300	- 200	- 100	0	+ 100	+ 200	+ 250	+ 315	+ 350
Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting of the hydraulic lift system):											
at the hitch points in kN	-	66.2	67.6	68.9	70.4	71.8	73.0	73.8	73.8	73.2	-
Corresponding pressure: 19.7 MPa											
at the frame in kN	60.8	60.9	61.1	61.5	61.7	61.6	61.0	60.0	59.3	58.0	56.8
Corresponding pressure: 19.7 MPa											



3.3 Compulsory drawbar power and fuel consumption test (unballasted tractor)

Date of tests: 25 and 29 June 2007

Type of track: Concrete

	Height of drawbar above ground	Tyre inflation pressure	
		Front	Rear
	[mm]	[kPa]	[kPa]
unballasted 4WD	500	100.0	100.0
unballasted 4WD disengaged	610	100.0	100.0

Four-Wheel Drive engaged

Gear Number and range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels and/or tracks	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	[kW]	[kN]	[km/h]	[min^{-1}]	[min^{-1}]	[%]	[g/kWh]	[kWh/l]	[°C]	[°C]	[°C]	[°C]	[%]	[kPa]
3.3.1	MAXIMUM POWER IN TESTED GEARS/SPEED SETTINGS													
1	35.00	71.78	1.76	2317	1680	14.7	524.7	1.59	45	84	92	21	47	99.5
2	42.69	72.95	2.11	2307	1680	14.5	488.1	1.71	44	83	94	20	47	99.5
3	50.96	73.20	2.51	2295	2040	14.8	461.9	1.80	45	82	93	21	47	99.5
4	59.75	72.43	2.97	2283	1800	14.8	426.3	1.95	47	83	92	24	46	99.5
5	72.73	73.56	3.56	2268	1800	14.8	403.0	2.07	47	83	92	24	46	99.6
6	87.52	73.67	4.28	2247	2220	14.6	393.4	2.12	47	81	96	20	45	99.6
7	99.02	73.20	4.87	2190	2220	13.1	345.0	2.42	47	82	95	20	45	99.6
8	107.74	73.56	5.27	1962	1800	13.0	321.6	2.59	46	82	98	20	46	99.6
9	113.38	63.25	6.45	1900	1800	8.8	304.5	2.74	47	83	99	20	46	99.5
10	114.61	51.65	7.99	1908	1740	6.5	301.5	2.76	49	82	100	20	46	99.5
11	114.02	42.40	9.68	1902	2280	5.5	303.4	2.75	48	82	103	20	46	99.5
12	113.21	34.65	11.76	1902	2220	4.5	305.9	2.72	48	82	102	20	47	99.5

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Four-Wheel Drive engaged

Gear Number and range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels and/or tracks	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	[kW]	[kN]	[km/h]	[min^{-1}]	[min^{-1}]	[%]	[g/kWh]	[kWh/l]	[°C]	[°C]	[°C]	[°C]	[%]	[kPa]
3.3.2 3.3.2.1	FUEL CONSUMPTION in selected gear/speed setting nearest 7.5 km/h, at maximum power at rated engine speed													
9	105.00	48.90	7.73	2203	1860	5.6	332.0	2.52	40	81	95	19	47	100.0
3.3.2.1.1	75 % of pull corresponding to maximum power at rated engine speed													
9	82.64	36.85	8.07	2264	1860	4.0	369.1	2.26	39	82	95	20	47	100.0
3.3.2.1.2	50 % of pull corresponding to maximum power at rated engine speed													
9	56.57	24.71	8.24	2293	1860	3.2	425.1	1.96	38	82	94	20	47	100.0
3.3.2.1.3.	highest gear/speed setting at reduced engine speed able to achieve both 3.3.2.1.1 and 3..3.2.1.2 ; same pull and travelling speed as in 3.3.2.1.1													
10	84.67	37.16	8.20	1920	1680	4.4	330.4	2.52	43	80	94	19	46	100.1
3.3.2.1.4	same gear/speed selection as 3.3.2.1.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2													
10	56.90	24.65	8.31	1948	1680	3.2	363.0	2.30	42	80	97	19	46	100.1
3.3.2.2	in selected gear/speed setting nearest between 7 km/h and 10 km/h at rated engine speed													
10	103.0	39.71	9.34	2199	1800	5.0	339.6	2.45	44	82	95	19	46	100.0
3.3.2.2.1	75 % of pull corresponding to maximum power at rated engine speed													
10	80.59	29.80	9.74	2266	1800	3.8	363.4	2.29	44	82	95	19	45	100.0
3.3.2.2.2	50 % of pull corresponding to maximum power at rated engine speed													
10	54.87	19.85	9.95	2298	1800	3.1	414.2	2.01	45	83	96	20	45	100.0
3.3.2.2.3	highest gear/speed setting at reduced engine speed able to achieve both 3.3.2.2.1 and 3..3.2.2.2 ; same pull and travelling speed as in 3.3.2.2.1													
11	81.78	29.75	9.90	1912	1680	3.7	323.3	2.58	43	80	94	19	46	100.1
3.3.2.2.4	same gear/speed setting as 3.3.2.2.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.2.3													
11	55.48	19.77	10.11	1932	1680	2.9	373.0	2.23	42	80	93	19	46	100.1

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Four-Wheel Drive disengaged

Gear Number and range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels and/or tracks	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	[kW]	[kN]	[km/h]	[min^{-1}]	[min^{-1}]	[%]	[g/kWh]	[kWh/l]	[°C]	[°C]	[°C]	[°C]	[%]	[kPa]
3.3.1	MAXIMUM POWER IN TESTED GEARS/SPEED SETTINGS													
1	29.73	62.42	1.71	2325	1620	15.0	544.8	1.53	45	85	95	24	44	100.2
2	34.61	59.55	2.09	2317	1620	15.0	523.2	1.59	46	84	95	21	45	100.2
3	40.47	57.23	2.55	2310	1680	15.0	498.9	1.67	46	83	96	20	45	100.2
4	47.78	57.78	2.98	2300	2040	15.0	473.0	1.76	48	83	97	23	45	100.2
5	57.68	57.98	3.58	2285	2040	14.5	446.7	1.87	49	83	98	24	45	100.2
6	69.03	57.91	4.29	2271	1920	14.3	422.1	1.97	47	82	100	23	46	100.1
7	80.32	58.15	4.97	2261	2240	13.6	383.9	2.17	48	81	102	23	46	100.1
8	94.69	57.10	5.97	2247	1800	13.5	364.6	2.28	48	83	108	21	48	100.1
9	106.30	55.21	6.91	2113	2040	11.2	331.8	2.52	48	81	108	22	47	100.2
10	111.14	53.52	7.48	1895	2100	10.8	310.0	2.69	48	82	107	20	47	100.2
11	115.00	44.45	9.31	1895	2160	7.6	300.9	2.77	48	80	104	24	46	100.2
12	113.08	35.66	11.42	1898	1920	6.0	305.7	2.73	49	81	104	22	46	100.2

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Four-Wheel Drive disengaged

Gear Number and range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels and/or tracks	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
	[kW]	[kN]	[km/h]	[min^{-1}]	[min^{-1}]	[%]	[g/kWh]	[kWh/l]	[°C]	[°C]	[°C]	[°C]	[%]	[kPa]
3.3.2 3.3.2.1	FUEL CONSUMPTION In selected gear/speed setting nearest 7.5 km/h, at maximum power at rated engine speed													
9	105.30	51.00	7.43	2206	1860	8.4	330.5	2.52	48	80	108	22	45	100.4
3.3.2.1.1	75 % of pull corresponding to maximum power at rated engine speed													
9	82.05	38.36	7.70	2226	1860	6.4	362.7	2.29	47	80	107	22	47	100.4
3.3.2.1.2	50 % of pull corresponding to maximum power at rated engine speed													
9	56.86	25.37	8.07	2295	1860	4.4	412.0	2.02	49	82	104	22	47	100.4
3.3.2.1.3.	highest gear/speed setting at reduced engine speed able to achieve both 3.3.2.1.1 and 3..3.2.1.2 ; same pull and travelling speed as in 3.3.2.1.1													
10	84.04	38.57	7.84	1897	1860	6.5	321.3	2.59	48	81	103	20	47	100.4
3.3.2.1.4	same gear/speed selection as 3.3.2.1.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2													
10	57.66	25.54	8.13	1922	1860	4.4	354.0	2.35	48	82	103	21	47	100.4
3.3.2.2	in selected gear/speed setting nearest between 7 km/h and 10 km/h at rated engine speed													
10	104.50	41.48	9.07	2206	2040	7.1	332.6	2.51	48	81	107	20	46	100.4
3.3.2.2.1	75 % of pull corresponding to maximum power at rated engine speed													
10	82.63	31.35	9.49	2266	2040	5.3	370.4	2.25	49	82	104	22	46	100.4
3.3.2.2.2	50 % of pull corresponding to maximum power at rated engine speed													
10	57.00	21.00	9.77	2295	2040	3.8	415.6	2.01	48	82	104	22	46	100.4
3.3.2.2.3	highest gear/speed setting at reduced engine speed able to achieve both 3.3.2.2.1 and 3..3.2.2.2 ; same pull and travelling speed as in 3.3.2.2.1													
11	83.26	31.26	9.59	1903	1860	5.3	330.3	2.52	49	79	98	21	46	100.4
3.3.2.2.4	same gear/speed setting as 3.3.2.2.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.2.3													
11	57.12	20.90	9.83	1927	1800	4.1	369.3	2.26	49	78	98	20	46	100.4

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4 OPTIONAL TEST RESULTS

- Optional P.T.O. test (boosted)
- Optional drawbar test (front axle disengaged)
- Optional drawbar consumption test (front axle disengaged)

5 REPAIRS

None

6 REMARK

Boosted Power Take – Off (P.T.O.) Operation
This vehicle is equipped with an electronically – controlled engine Power Management™ system that monitors and boosts engine power output in certain circumstances, as engine load increases. This is achieved by electronically changing the characteristics of the engine power – speed curve.

The engine Power Management function ("boosted" power level) becomes active in higher transmission gears (16th and above), for road transport applications. The system is also activated once power transfer through the rear P.T.O. exceeds a pre – set level (and forward speed exceeds 0.5 km/h), for mobile P.T.O. - driven implement applications.

An over – ride system is provided to enable P.T.O. operation at the "boosted" power level whilst the vehicle is stationary, for test purposes. The results of such a P.T.O. power output test are presented in this report.

The test results for this report were obtained from a test carried out on a New Holland T7050 identical to the CASE IH Puma 195 in all practical aspects relating to the test.

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For the report and tests:

Ing.
Hermann Schaufler

The director for research and innovation:

Hofrat Dipl.-Ing. Dr.
Johann Schrottmaier

Date of test report: 11.12.2007

7 ANNEX

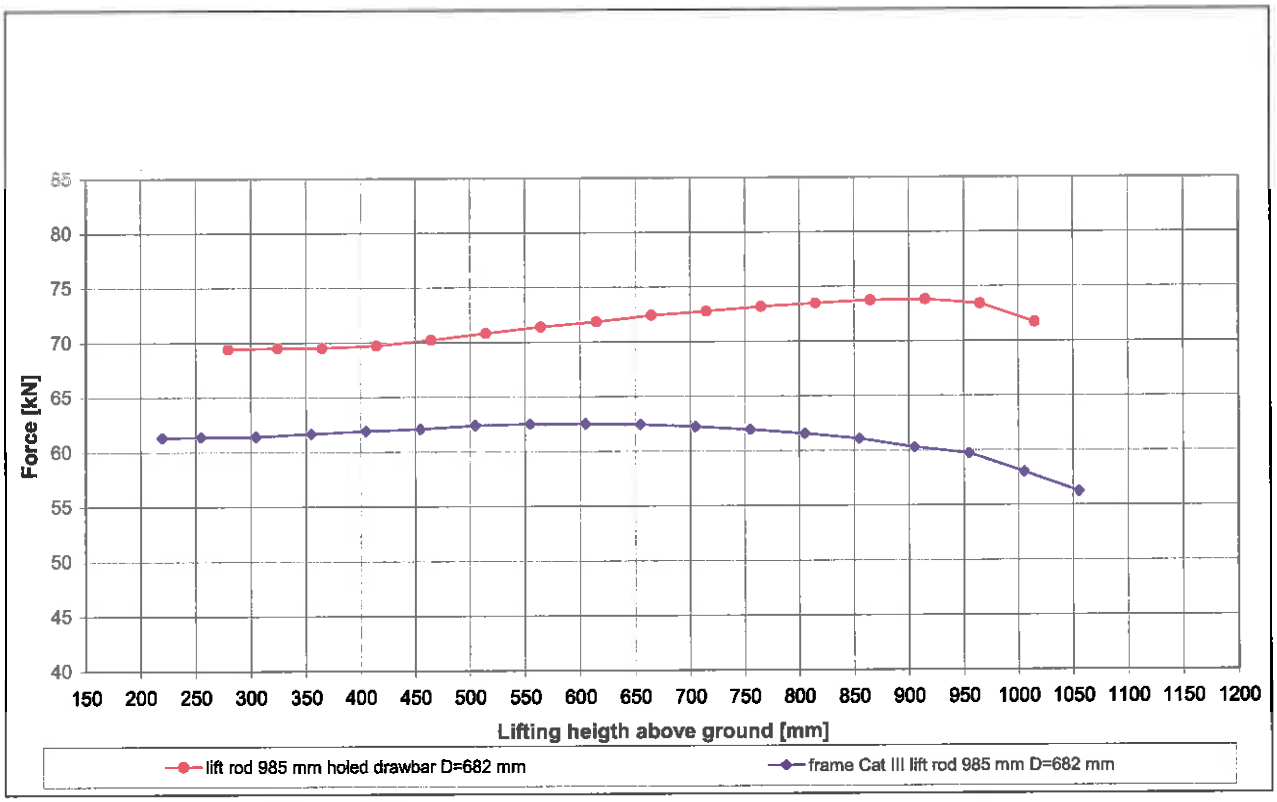
7.1 Power lift tests – (To Manufacturers lift rod setting)

"Not covered by the approval"

Linkage settings for test – see Table 1.1

	at the hitch point	on the frame
Height of lower hitch points above ground in down position	280 mm	220 mm
Vertical movement	735 mm	835 mm
Maximum corrected force exerted through full range	69.5 kN	56.3 kN
Corresponding pressure of hydraulic fluid	19.7 MPa	19.7 MPa
Moment about rear-wheel axis	85.1 kNm	103.3 kNm
Maximum tilt angle of mast from vertical	- degrees	8.5 degrees

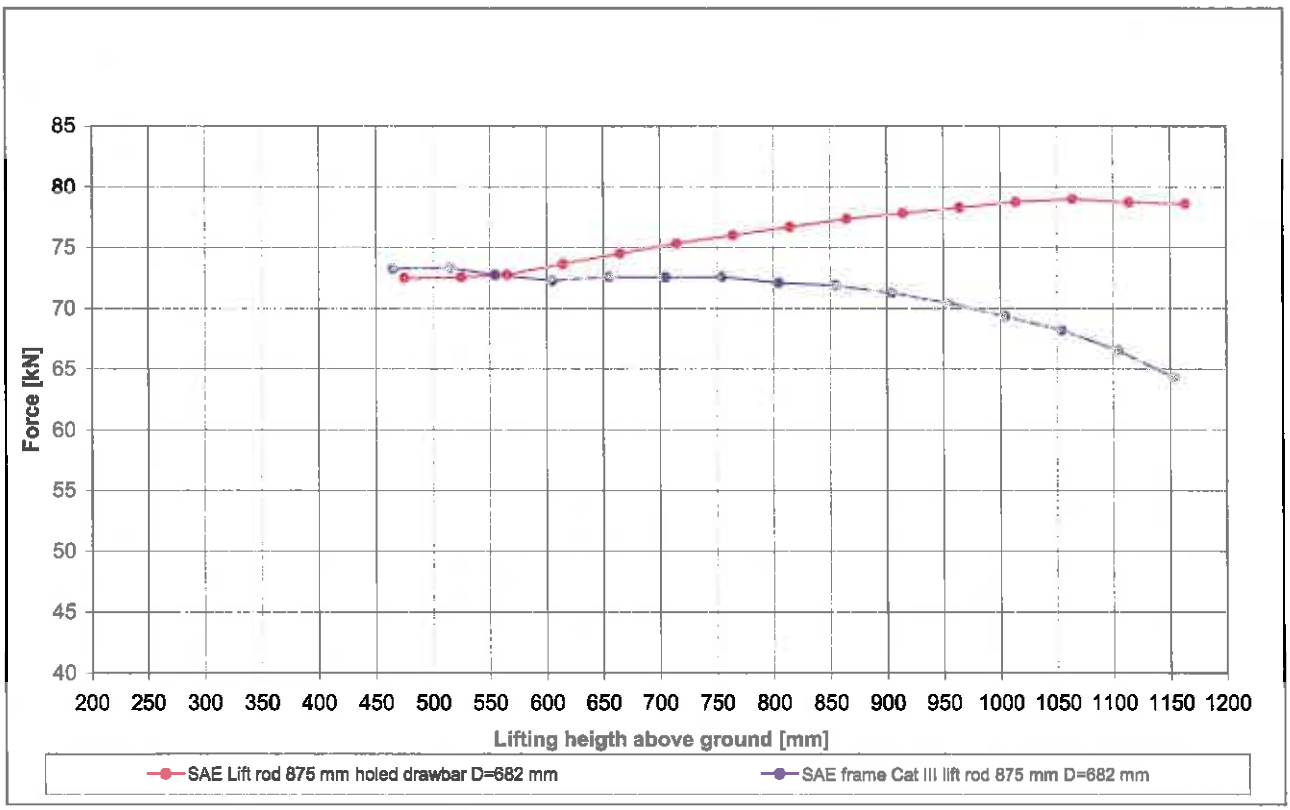
Lifting heights relative to the horizontal plane including the lower link pivot points											
Mm	- 435	- 375	- 250	- 150	- 75	0	+ 100	+ 200	+ 300	+ 360	+ 400
Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to 90 % of the actual relief valve pressure setting of the hydraulic lift system):											
at the hitch points in kN	-	69.5	69.8	70.7	71.6	72.2	73.0	73.7	73.7	71.7	-
Corresponding pressure: 19.7 MPa											
at the frame in kN	61.3	61.4	61.9	62.3	62.5	62.4	61.9	61.0	59.7	58.0	56.3
Corresponding pressure: 19.7 MPa											



7.2 Power lift tests – (To SAE J283)

Linkage settings for test – see Table 1.1

Lifting heights relative to the horizontal plane including the lower link pivot points											
mm	- 180	- 100	- 50	0	+ 100	+ 200	+ 300	+ 350	+ 400	+ 450	+ 500
SAE J283											
kN (hitch points)	72.5	74.6	74.6	74.4	75.9	77.2	78.2	78.6	79.0	78.7	78.6
kN (frame)	73.3	72.7	72.3	72.6	72.6	71.9	70.4	69.3	68.2	66.5	64.3
Corresponding pressure: 19.7 MPa											



7.3 Test results (OECD Code 5)

"Not covered by the approval"

Make and type of sound level meter: Bruel and Kjaer Pulse

Type of test track: Concrete

Date of tests: 11 June 2007

Four wheel drive engaged Windows closed

Gear	Test Condition	Measured traveling speed	Sound level
		[km/h]	[dB(A)]
8	Light Load	7.1	70

Four wheel drive engaged Windows open

Gear	Test Condition	Measured traveling speed	Sound level
		[km/h]	[dB(A)]
8	Light Load	7.1	84

Four wheel drive dis-engaged Windows closed

Gear	Test Condition	Measured traveling speed	Sound level
		[km/h]	[dB(A)]
8	Light Load	7.2	70

Four wheel drive dis-engaged Windows open

Gear	Test Condition	Measured traveling speed	Sound level
		[km/h]	[dB(A)]
8	Light Load	7.2	84