Consiglio Nazionale delle Ricerche
IMAMOTER
Istituto per le Macchine Agricole e Movimento Terra

Report No. 3080*2*NH*T6020ELITE*1*2008
OECD Approval No. 2/2 481 on 16th June 2009

TEST IN ACCORDANCE WITH THE OECD STANDARD CODE FOR THE OFFICIAL TESTING OF AGRICULTURAL AND FORESTRY TRACTOR PERFORMANCE

Make:	**NEW HOLLAND**
Trade Name:	**T6020 ELITE**
Type:	**4 WD, 40 km/h, 16+16 speeds, semi-powershift transmission**



Manufactured by:	CNH Europe Holding S.A. 13, Rue Aldringen L-1118 Luxembourg Luxembourg
Date and location of the tests:	2008 TORINO (Italy)

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FOREWORD

This vehicle is equipped with an electronically-controlled **Engine Power Management** (EPM) system that monitors and boosts power output in certain circumstances as engine load increases.
This is achieved by electronically changing the characteristics of the engine power-speed curve.

The **EPM** function (boosted power level) becomes active in these two following operation conditions:

a) in PTO operations when
- Engine speed is above 1300 rpm
- Tractor forward speed is above 0.5 kmh^{-1}
- PTO driveline torque is above 150 Nm

With the tractor moving and the engine speed above 1300 rpm engaging the PTO will put the EPM into standby mode. As the torque and load on the PTO reaches or exceed the above levels, the EPM will be active and a warning light will illuminate

b) in road transport application when
- 13th gear or above is selected
- Auto Transport Mode (function that permits automatic gear changing) is selected
- engine speed is between 1800 and 2200 rpm

EPM does not allow operate boosted mode with tractor stationary.
For test purpose an over ride system has been provide by the manufacturer of the tractor to enable PTO operation mode whilst the tractor is stationary.
For this reason the results of the test in chapter *3.1.A Optional power take-off test (with power boost)* can be achieved ONLY when PTO operation conditions are satisfied.

NOTE

The information opposite each item has been validated by the testing station as follows

C data declared and checked by the testing station

D data declared by the manufacturer

C	Tractor manufacturer's name and address:	CNH Europe Holding S.A. 13, Rue Aldringen L-1118 Luxembourg Luxembourg
D	Location of tractor assembly:	Basildon – United Kingdom St. Valentin - Austria
D	Submitted for test by:	the Manufacturer
C	Selected for test by:	manufacturer with the agreement of IMAMOTER
D	Place of running-in:	Modena - Italy
D	Duration of running-in:	appr. 50 hours
C	Location of test:	IMAMOTER – Torino, Italy

1 SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1 Denomination

C	Make of the tractor:	NEW HOLLAND
C	Model (trade name):	T6020 ELITE
C	Type:	4WD

1.1.2 Numbers

D	1st serial N° or prototype:	Z7BD01001
C	Serial N°:	Z7BD02151

1.1.3 Other specification (if applicable)

D	Model(s) for other countries:	Not applicable
C	Transmission type or gears x ranges:	16+16 speeds, semi powershift
C	Speed version:	40 km/h
D	- Manufacturer identification or technical type number :	BDGC7B

1.2 Engine

C	Make:	CNH
C	Model:	445TA/EGJ
C	Type:	4 stroke supercharged, intercooler Diesel direct injection type
C	Serial N°:	444077

1.2.1 Cylinders

C	Number and disposition:	4, vertical, in line
D	Bore and stroke:	104x132 mm
D	Capacity:	4485 cm^3
D	Compression ratio:	16.5:1
D	Arrangement of valves:	overhead, 4 valves for cylinder
D	Cylinder liners (wet or dry):	none, monobloc construction

1.2.2 Supercharging

C	Make, model and type:	HOLSET, HX27W, Exhaust driven
D	Pressure:	0.137 MPa

1.2.3 Fuel system

C	Fuel feed system:	gear pump
C	Make model and type of fuel filter(s)	plastic strainer in tank, 1 glass glow sediment and water separation pre-filter, and 2 disposable canister filter (FLEETGUARD, 2830359 and 4897897drawings, spin on cartridge)
D	Capacity of fuel tank:	176 dm^3, placed under the tractor platform, on the left side
C	Make model and type of injection pump:	BOSCH, CR-CP3, radial plunger high pressure pump
C	Serial N°:	not available
	Manufacturer's production setting of injection pump	
C	Flow rate (rated engine speed and full load):	89.17 mm^3/stroke at rated speed and full load corresponding 23.54 dm^3/h without power boost 102.80 mm^3/stroke at rated speed and full load corresponding 27.14 dm^3/h with power boost
D	Timing:	electronically controlled
D	Make, model and type of injectors:	BOSCH, CRIN2 (DLA137PV3198), electronic common rail injection,
D	Injection pressure:	160 MPa
C	Make, model and type of carburettor:	not applicable

1.2.4 Governor

C	Make model and type:	BOSCH, EDC16, electronic common rail type
C	Governed range of engine speed from-to:	900÷2354 rev/min
C	Rated engine speed:	2200 rev/min

1.2.5 Air cleaner

	Pre-cleaner	
C	Make model and type:	none
C	Location of air intake:	none
	Main cleaner	
C	Make, model and type:	CNH, 3 stage dry paper element with 2

		replaceable cartridge, inner (82028149 drawing) and outer (82028148 drawing)
	C Location of air intake (in case of no pre-cleaner):	on front of the radiator under the bonnet cowling inside the pre-cleaner, on front of the radiator under the bonnet cowling
	C Maintenance indicator:	warning lamp on the dashboard
1.2.6	Lubrication system	
	D Type of feed pump:	forced feed from concentric rotor pump
	C Type of filter(s):	mesh strainer in sump on suction line and full flow disposable canister on pressure line
	C Number of filters:	1
1.2.7	Cooling system	
	C Type of coolant:	50% water and 50% antifreeze
	D Type of pump:	centrifugal blade pump with visco-fan belt driven by engine shaft
	Specification of fan or blower	
	C Number of fan blades:	5
	C Fan diameter:	510 mm
	D Coolant capacity:	23 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 model and type:	ISKRA, 11131464, positive engagement, solenoid operated
	D Starter motor power rating:	4.2 kW
	C Cold starting aid:	PHILIPS & TEMRO grid heater
	C Safety device:	starting inoperable unless shuttle lever in neutral, clutch pedal depressed and operator seat presence switch is activated
1.2.9	Electrical system	
	C Voltage:	12 V, negative earth
	Generator:	alternator
	C Make model and type:	ISKRA, AAK 5592, belt driven
	D Power:	1.6 kW
	Battery of accumulators	
	C Number:	1, lead acid type
	D Rating:	12 V, capacity 132 Ah, cranking 960 A
1.2.10	Exhaust system	
	C Make model and type:	COR.TUBI, 1.15.1 02AL, vertical stack pipe with integrated silencer
	C Location:	on the right hand side of engine, with the vertical exhaust pipe on right of the bonnet cowling

I.3 Transmission

I.3.1 Clutch (travel alone)

D	Make model and type:	CNH, own drawing model, wet multi-plate disc
D	Number of plates:	9
D	Diameter of plates:	160 mm
C	Method of operation:	electro hydraulic operated by pedal

I.3.2 Gear box

D Make model and type: CNH make, own drawing model, mechanical

Description: 16+16 speeds (40 km/h) mechanical transmission with semi powershift. 16 forward and reverse speeds in 2 ranges (Low and High) shiftable with 1 lever. 8 gears for range with switch for up/down power-shifting. Forward/reverse shuttle lever on steering column. Optional creeper switch acted, 33+32 speeds, not fitted on tested tractor

		Forward	Reverse
C	Number of gears	8	8
C	Number of ranges	2	2
C	Total of arrangements	16	16

D Available options:

17+16 speeds, (40 km/h max speed at reduced engine speed in highest speed) mechanical transmission with semi powershift. 17 forward gears and 16 reverse gears in 2 ranges (Low and High) shiftable with 1 lever. 8 gears for range (+1 in forward High range) with switch for up/down power-shifting. Forward/reverse shuttle lever on steering column. Optional creeper switch acted, 33+32 speeds.

17+16 speeds (50 km/h) mechanical transmission with semi powershift. 17 forward gears and 16 reverse gears in 2 ranges (Low and High) shiftable with 1 lever. 8 gears for range (+1 in forward High range) with switch for up/down power-shifting. Forward/reverse shuttle lever on steering column. Optional creeper switch acted, 33+32 speeds.

1.3.3 Rear axle and final drives

D	Make model and type:	CNH, own drawing, crown wheel pinion with differential and inboard epicyclical reduction gear final drive
	Differential lock:	
D	Type:	multi-plate wet discs
C	Method of engagement:	electro-hydraulic actuation in response to signal from switch on right-hand control panel or auto differential lock actuation
C	Method of disengagement:	via panel switch or in response to signal from brakes on application, or auto differential lock disengagement

1.3.4 Front axle and final drives

D	Make model and type:	CNH, own drawing, crown wheel and pinion with differential and outboard epicyclical reduction gear final drive
	Drive engagement	
D	Type:	dog clutch
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:	multi-plate wet discs
C	Method of engagement:	electro-hydraulic actuation in response to signal from switch on right-hand control panel or auto differential lock actuation
C	Method of disengagement:	via panel switch or in response to signal from brakes on application, or auto differential lock disengagement

I.3.5 Total ratios and travelling speeds

	Speed No. [1]	Gear	Range	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed [2] at rated engine speed of 2200 min^{-1} (rev/min) km/h
	Forward				
C	1	1	Low	300.124	2.266
C	2	2	Low	244.663	2.780
C	3	3	Low	200.928	3.385
C	4	4	Low	163.797	4.152
C	5	5	Low	127.757	5.323
C	6	6	Low	104.148	6.530
C	7	7	Low	85.531	7.951
C	9	1	High	76.750	8.861
C	8	8	Low	69.725	9.754
C	10	2	High	62.567	10.870
C	11	3	High	51.383	13.236
C	12	4	High	41.887	16.236
C	13	5	High	32.671	20.816
C	14	6	High	26.633	25.536
C	15	7	High	21.872	31.094
C	16	8	High	17.831	38.141
	Reverse				
C	1	1	Low	303.673	2.240
C	2	2	Low	247.556	2.747
C	3	3	Low	203.304	3.345
C	4	4	Low	165.734	4.104
C	5	5	Low	129.267	5.261
C	6	6	Low	105.379	6.454
C	7	7	Low	86.542	7.859
C	9	1	High	77.657	8.758
C	8	8	Low	70.550	9.640
C	10	2	High	63.307	10.743
C	11	3	High	51.990	13.081
C	12	4	High	42.383	16.046
C	13	5	High	33.057	20.573
C	14	6	High	26.948	25.237
C	15	7	High	22.131	30.730
C	16	8	High	18.041	37.697

[1] *As displayed on dashboard*

[2] *Calculated with a tyre dynamic radius index of 820 mm (ISO 4251-1:2005)*

C Number of revolution of front wheels for one revolution of rear-wheels: 1.353

1.4 Power take-off

1.4.1 Main power take-off

C	Type:	fully independent
C	Method of engagement:	engaged/disengaged by pulling/pushing a switch on the right-hand control panel, driven by electro-hydraulic operated multi-plate clutch
C	Number of shafts:	1
C	Method of changing power take-off shaft ends and speeds:	removing circlip, swapping shaft and replace circlip

1.4.1.1 Power take-off proportional to engine speed

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

C	Location:	at the rear of the tractor, in the median plane
C	Diameter of power take-off shaft end:	35 mm
C	Number of splines:	6, in conformity with ISO 500-1:2005, ISO 500-2:2004 and ISO 500-3:2004
C	Height above ground:	850 mm
C	Distance from the median plane of the tractor:	0 mm
C	Distance behind rear-wheel axis:	555 mm
C	PTO speed at rated engine speed:	603 rev/min
C	Engine speed at standard power take-off speed:	1970 rev/min
C	Ratio of rotation speeds (engine speed/p.t.o. speed):	3.648
D	Power restriction:	none
D	Maximum torque transmissible:	engine torque
C	Direction of rotation (viewed from behind tractor):	clockwise

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

C	Location:	at the rear of the tractor, in the median plane
C	Diameter of power take-off shaft end:	35 mm
C	Number of splines:	21, in conformity with ISO 500-1:2005, ISO 500-2:2004 and ISO 500-3:2004
C	Height above ground:	850 mm
C	Distance from the median plane of the tractor:	0 mm
C	Distance behind rear-wheel axis:	555 mm
C	PTO speed at rated engine speed:	1038 rev/min
C	Engine speed at standard power take-off speed:	2120 rev/min
C	Ratio of rotation speeds (engine speed/p.t.o. speed):	2.119
D	Power restriction:	none
D	Maximum torque transmissible:	engine torque
C	Direction of rotation (viewed from behind tractor):	clockwise

1.4.1.2 Power take-off proportional to ground speed

Optional, not fitted on tested tractor

I.4.2 Optional power take-off

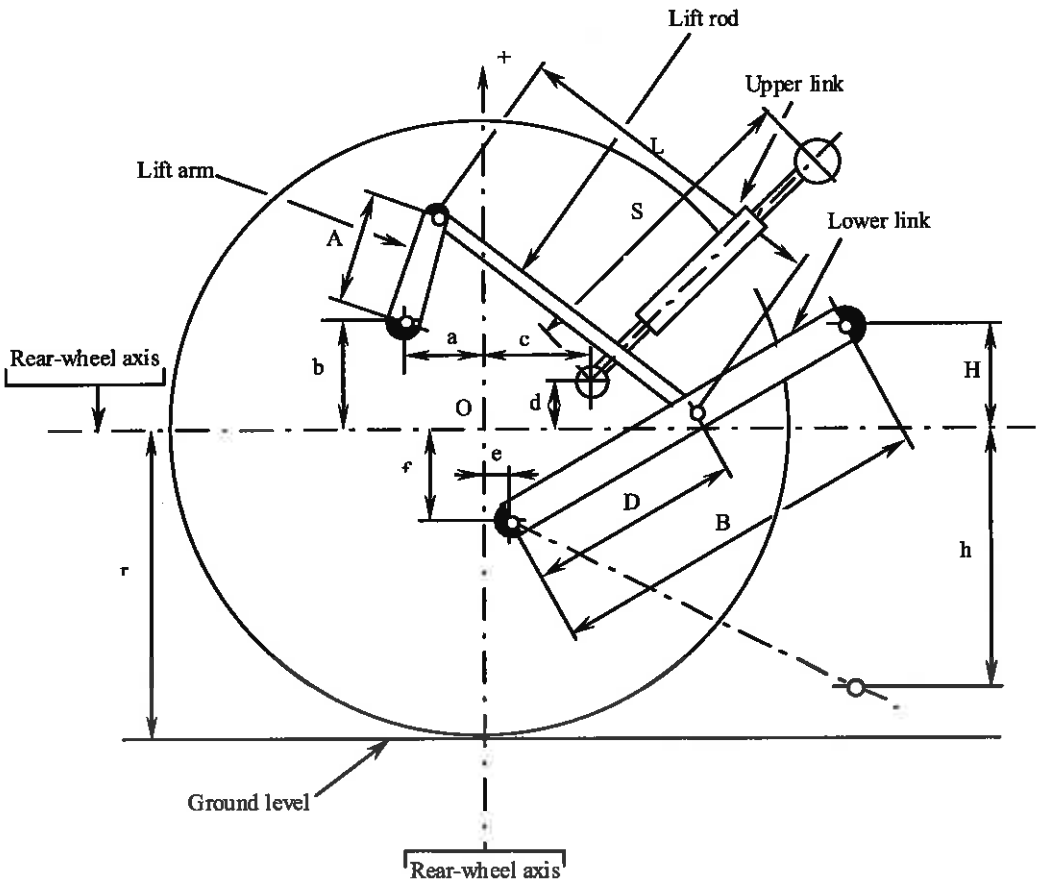
Optional, not fitted on tested tractor

I.5 Hydraulic power lift

C	Make, model and type:	CNH, own drawing, draft and position control and float function; electronically controlled
C	Type of hydraulic system:	closed centre system
C	Type and number of cylinders (single or double-acting):	2 single acting Ø 80 mm external
C	Type of linkage lock for transport:	hydraulic
D	Relief valve pressure setting (tolerance):	21.0±1 MPa
D	Opening pressure of cylinder safety valve (if fitted):	22±0.5 MPa
D	Lift pump type:	load sensing variable displacement pump driven by the engine shaft
D	Transmission between pump and engine:	mechanical
C	Type and number of filters:	2, replaceable canister filters
C	Site of oil reservoir:	in common with transmission and rear axle
C	Type, number and location of tapping points:	4 control valves, double acting, 4 couple of couplers at rear of tractor
D	Maximum volume of oil available to external cylinders:	38 dm^3

I.6 Three point linkage

C	Category:	2nd, in conformity with categories 2 ISO 730-1:1994+Cor.1:1995
C	Category adapter:	3rd



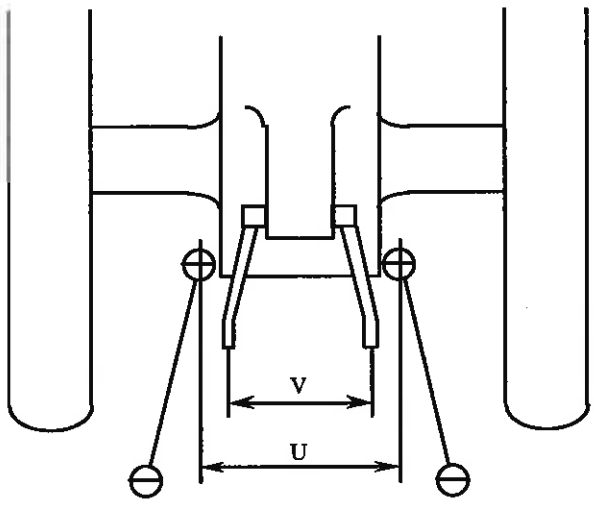


Figure 1. Lift test- Rear linkage geometry

Table 1.1. Dimension of rear linkage geometry when connected to the standard frame

			Dimension or range	Settings used in test		
				OECD[1]		SAE[2]
				Main	Additional	
			mm	mm	mm	
C	Length of lift arms:	(A)	310	310	310	310
C	Length of lower links:	(B)	950	950	950	950
	Distance of lift arm pivot point from rear wheel axis:					
C	- horizontally (rearward)	(a)	138	138	138	138
C	- vertically	(b)	370	370	370	370
C	Horizontal distance between the 2 lower link points:	(u)	460	460	460	460
C	Horizontal distance between the 2 lift arm end points:	(v)	550	550	550	550
C	Length of upper link:	(S)	600→857	712	735	729
	Distance of upper link pivot point from rear wheel axis:					
C	- horizontally (rearward)	(c)	395-430	430	395	395
C	- vertically	(d)	200-250	200	250	250
	Distance of lower link pivot point from rear wheel axis:					
C	- horizontally	(e)	168	168	168	168
C	- vertically	(f)	235	235	235	235
C	Distance of lower link pivot points to lift rod pivot points on lower links:	(D)	505-585	505	585	585
C	Length of lift rods:	(L)	690→915	828	878	878/749
	Height of lower hitch points (corresponding to travel of the lift without power) relative to the rear wheel axis[3]:					
C	- in low position	(h)	-265→-825	-620	-620	-620/-366
C	- in high position	(H)	285→-127	65	5	5/221
C	Height above ground of lower hitch points when locked in transport position		Any height within lift range			

[1] *Main and additional settings are in accordance with OECD Code and manufacturer specifications*

[2] *SAE settings is in accordance with SAE Standard and manufacturer specifications*
SAE setting tests' results is not covered by OECD approval

[3] *Assuming r=820 mm tyre dynamic radius index of 600/65R38 (equivalent to 18.4R38) tyres on rear axle (ISO 4251-1:2005)*

1.7 Swinging drawbar

C	Type:	clevis
	Height above ground	
C	Maximum:	615 mm
C	Minimum:	540 mm
C	Type of adjustment:	overturning the drawbar to position the fork uppermost or underneath
C	Distance of hitch point from rear-wheel axis, horizontally:	805-905-955 mm
	Distance of hitch point from power take-off shaft end:	
C	Vertically:	172-272
C	Horizontally:	250- 350-400 mm
	Lateral adjustment (centre of clevis):	
C	Right hand:	150 mm
C	Left hand:	150 mm
C	Distance of pivot point from rear-wheel axis, horizontally:	243 mm
C	Diameter drawbar pinhole:	29 mm
D	Maximum vertical permissible load:	20.4 kN – 13.3 kN – 11.4 kN on uppermost position depending on longitudinal adjustment 13.1 kN – 12.3 kN – 10.5 kN on underneath position depending on longitudinal adjustment

1.8 Trailer hitch

Optional, not fitted

1.9 Holed drawbar

Optional, not fitted

1.10 Steering

D	Make model and type:	DANFOSS make, OSPC 160 OR model, hydrostatic type with independent circuit
	Method of operation	
D	Pump(s):	BOSCH, hydraulic gear pump
D	Ram(s):	2 steering cylinders, one for each steering stub, acting directly on front axle
D	Working pressure:	17.0±0.5 MPa

.11 Brakes

.11.1 Service brake

D	Make model and type:	CNH make, oil bath disc, total 2 discs, 1 per side at rear axle, independently acting on the rear axle, additionally automatic 4WD engagement.
C	Method of operation:	hydraulically actuated with 2 pedals
C	Trailer braking take-off (hydraulic or air brake):	hydraulic brake system and air brake system

.11.2 Parking brake

C	Type:	4 oil immersed discs acting on bevel pinion shaft
C	Method of operation:	mechanical cable linked by means of hand lever

.12 Wheels

Number

C	Front:	2, driving and steering
C	Rear:	2, driving
C	Wheelbase:	2412 mm

Track width adjustment:

		Minimum mm	Maximum mm	Adjustment method
D	Front	1325	2285	Changing the position of the rims with respect to the disc
D	Rear	1524	2438	Changing the position of the rims in respect to the disc

.13 Protective structure

C	Make model and type:	CNH, SLTV 12, cab
C	Manufacture's name and address:	CNH Europe Holding S.A. 13, Rue Aldringen L-1118 Luxemburg

Protective device

C	Cab, frame, rollguard or other:	four posts
C	Tiltable or not tiltable:	not tiltable

OECD Approval

C	Approval number:	4/0 741/2
C	Date of approval:	16th January 2008
C	Nos. of minor modification certificates, if any:	4

1.14 Seat

1.14.1 Driver's seat

C	Make model and type:	GRAMMER, MSG 95G/741, air suspended type
C	Seat and steering wheel reversible:	no
C	Type of suspension:	parallelogram linkage
C	Type of damping:	hydraulic
	Range of adjustment:	
C	Longitudinally:	210 mm
C	Vertically:	80 mm
C	Safety belt:	yes
	Type:	pelvic

1.14.2 Optional driver's seat(s)

Make	Model	Type of suspension	Type of damping	Range of adjustment	
				Longitudinal	Vertical
				mm	mm
GRAMMER	MSG 85/731	Mechanical	Hydraulic	210	80
GRAMMER	MSG 44/520	Mechanical	Hydraulic	210	80
GRAMMER	MSG 93/731[1]	Air	Hydraulic	210	60
GRAMMER	MSG 95GL/741[1]	Air	Hydraulic	210	80
[1] *Included in EC Type Approval and previously named MSG95A/741*					

1.14.3 Passenger seat

C	Location:	on the left side of the driver's seat
C	Capacity (number):	1

1.15 Lighting

		Height above ground of centre	Size (lxh)	Distance from outside edge of lights to median plane of tractor
		mm	mm	mm
C	Headlights	1345	145x145	290
C	Front direction light	1995	80x90	955
C	Front position light	1915	80x75	995
C	Front lower working light	1452	145x215	290
C	Front middle working light	2380	135x85	980
C	Front higher working light	2815	150x75	600
C	Rear direction lights	1855	265x55	1115
C	Stop/rear position	1800	265x55	1115
C	Reflectors	800	105x45	645
C	Rear middle working light	2280	135x85	920
C	Rear higher working light	2745	135x85	515

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	4585	2450	2922	2985	2940

2.2 Ground clearance (unballasted tractor): 535 mm

Clearance-limiting part: drawbar clevis in underneath position

2.3 Tractor mass

	Unballasted	
	without driver	with driver
	kg	kg
Front	2000	2020
Rear	3145	3200
Total	5145	5220

2.4 Ballast

Not applicable

2.5 Track specifications

Not applicable

2.6 Tyres and track width specifications

	Front	Rear
Tyres:		
- dimensions (equivalent)	480/65R28 (14.9R28)	600/65R38 (18.4R38)
- ply rate	none	none
- load index	136	153
- type	radial	radial
- maximum load (tyre manufacturer's)	15.7 kN	25.8 kN
- maximum load (tractor manufacturer's)	15.7 kN	25.8 kN
- inflation pressure (tyre manufacturer's)	80 kPa	80 kPa
- dynamic radius index[1]	640 mm	820 mm
Chosen track width:	1765 mm	1735 mm
[1] *ISO 4251-1:2005*		

2.7 Fuel

Type: Diesel oil, in conformity with UNI EN 590 July 2004.

Density at 15 °C: 840 kg/m^3

2.8 Oils and lubricants

2.8.1 Capacity and change interval

	Capacity	Oil change	Filter change
	dm^3	h	h
Engine	10.0	600	600
Gear box, rear axle, final drive, hydraulic system and steering	62.0	1200 or annually	1200 or annually
Front axle	9.0	1200 or annually	None
Final drive (front)	1.5	1200 or annually	None
Brakes	0.5	Max. level	None

2.8.2 Specifications (SAE, API, CCMC, ACEA, Mil.L, ISO)

	Recommended	Used during test
Engine oil - Type: - Viscosity: - Classification:	15W-40 14.6 cSt at 100 °C (ASTM D 445) API CI-4/CH-4 ACEA E7/E5	As recommended
Transmission oils - Type: - Viscosity: - Classification	SAE 10W-30 9.95 cSt at 100 °C (ASTM D 445) API GL 4	As recommended
Hydraulic fluid - Type: - Viscosity: - Classification	SAE 10W-30 9.95 cSt at 100 °C (ASTM D 445) API GL 4	As recommended
Steering oil - Type: - Viscosity: - Classification:	SAE 10W-30 9.95 cSt at 100 °C (ASTM D 445) API GL 4	As recommended
Grease - Type: - Viscosity: - Classification:	Lithium based Not applicable NLGI 2	As recommended
Brake fluid - Type: - Viscosity: - Classification:	No equivalent Min 6 cSt at 100 °C (ASTM D 445) ISO 7308	As recommended

2.8.3 Grease

Number of lubrication points: 16

TEST RESULTS

.1 Main power take-off (without power boost)

Date and location of tests: 24th January 2008, I.M.A.MO.TER, TORINO, ITALY
Type of dynamometer: parasitic currents, BORGHI&SAVERI FA300-30SP

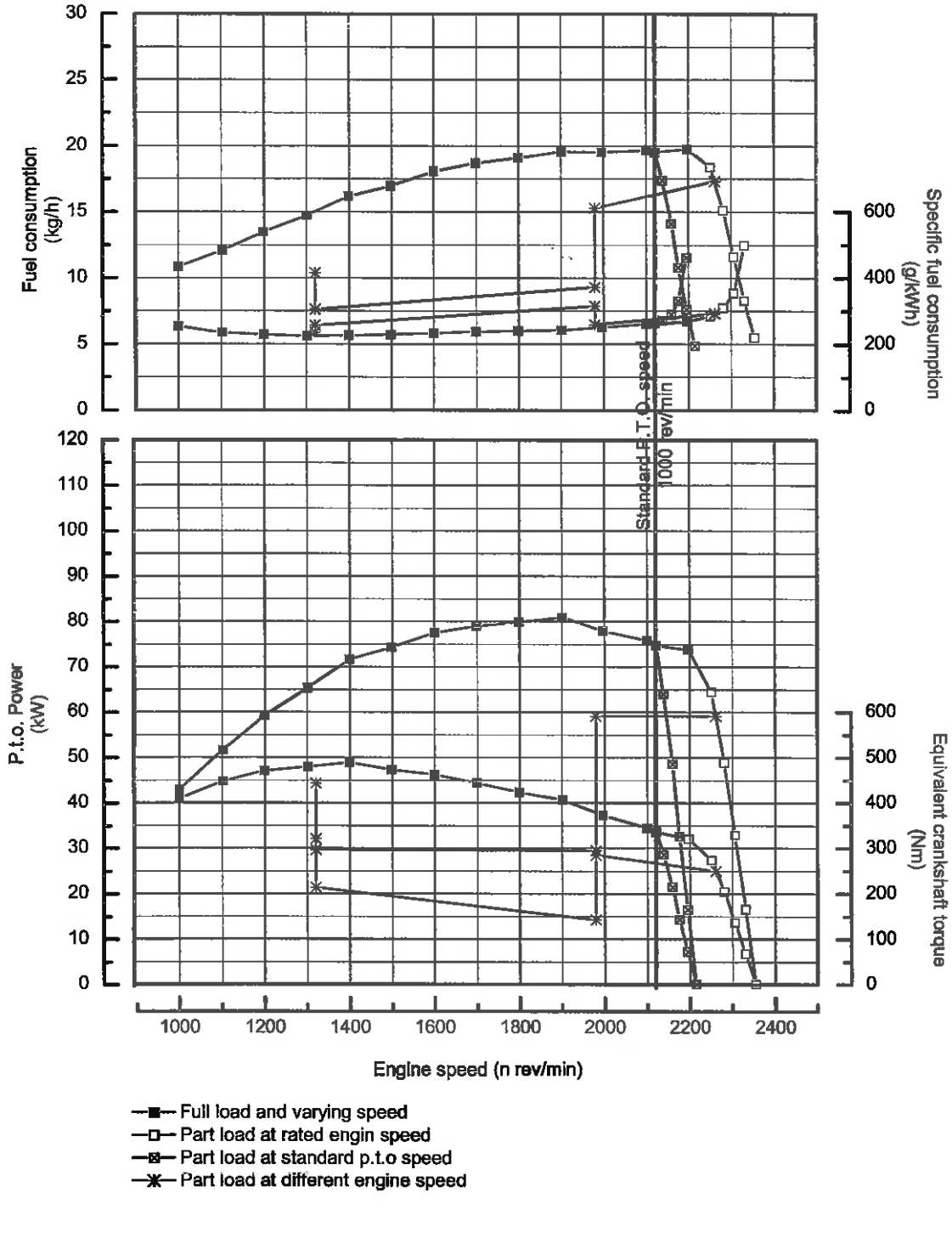
Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O.	Fan	Hourly		Specific	
kW	min^{-1} (rev/min)			kg/h	l/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER-ONE - HOUR TEST							
80.9	1901	897	1980	19.55	23.27	242	3.48
3.1.2 POWER AT RATED ENGINE SPEED							
73.8	2197	1037	1920	19.77	23.54	268	3.14
3.1.3 POWER AT STANDARD PTO SPEED [1000 ± 25 min^{-1}]							
74.7	2121	1001	1980	19.54	23.26	261	3.21
3.1.4 PART LOADS							
3.1.4.1 The torque corresponding to maximum power at rated engine speed							
73.8	2197	1037	1920	19.77	23.54	268	3.14
3.1.4.2 85% of torque obtained in 3.1.4.1							
64.4	2250	1062	2160	18.38	21.88	285	2.94
3.1.4.3 75% of torque defined in 3.1.4.2							
48.9	2280	1076	1980	15.12	18.00	309	2.72
3.1.4.4 50% of torque defined in 3.1.4.2							
32.9	2305	1088	1680	11.61	13.82	353	2.38
3.1.4.5 25% of torque defined in 3.1.4.2							
16.6	2331	1100	1380	8.26	9.83	498	1.69
3.1.4.6 Unloaded							
-	2354	1111	1380	5.50	6.55	-	-
3.1.5 PART LOADS AT STANDARD PTO SPEED [1000 ± 25 min^{-1})]							
3.1.5.1 the torque corresponding to maximum power							
74.7	2121	1001	1980	19.54	23.26	261	3.21
3.1.5.2 85% of torque obtained in 3.1.5.1							
64.0	2138	1009	2100	17.38	20.69	271	3.09
3.1.5.3 75% of torque defined in 3.1.5.2							
48.6	2159	1019	1800	14.10	16.79	290	2.89
3.1.5.4 50% of torque defined in 3.1.5.2							
32.6	2176	1027	1620	10.80	12.86	331	2.53
3.1.5.5 25% of torque defined in 3.1.5.2							
16.5	2195	1036	1260	7.63	9.08	463	1.82
3.1.5.6 Unloaded							
-	2214	1045	1320	4.82	5.74	-	-

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
3.1.6 PART LOADS AT DIFFERENT ENGINE SPEEDS							
3.1.6.1 Maximum power at rated engine speed							
73.8	2197	1037	1920	19.77	23.54	268	3.14
3.1.6.2 80% of power obtained in 3.1.6.1 at max speed setting							
59.1	2261	1067	2040	17.31	20.61	293	2.87
3.1.6.3 80% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
59.1	1979	934	1740	15.28	18.19	259	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							
29.5	1979	934	1320	9.30	11.07	315	2.67
3.1.6.5 60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
44.3	1320	623	1260	10.39	12.37	235	3.58
3.1.6.6 40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
29.6	1320	623	900	7.61	9.06	257	3.26

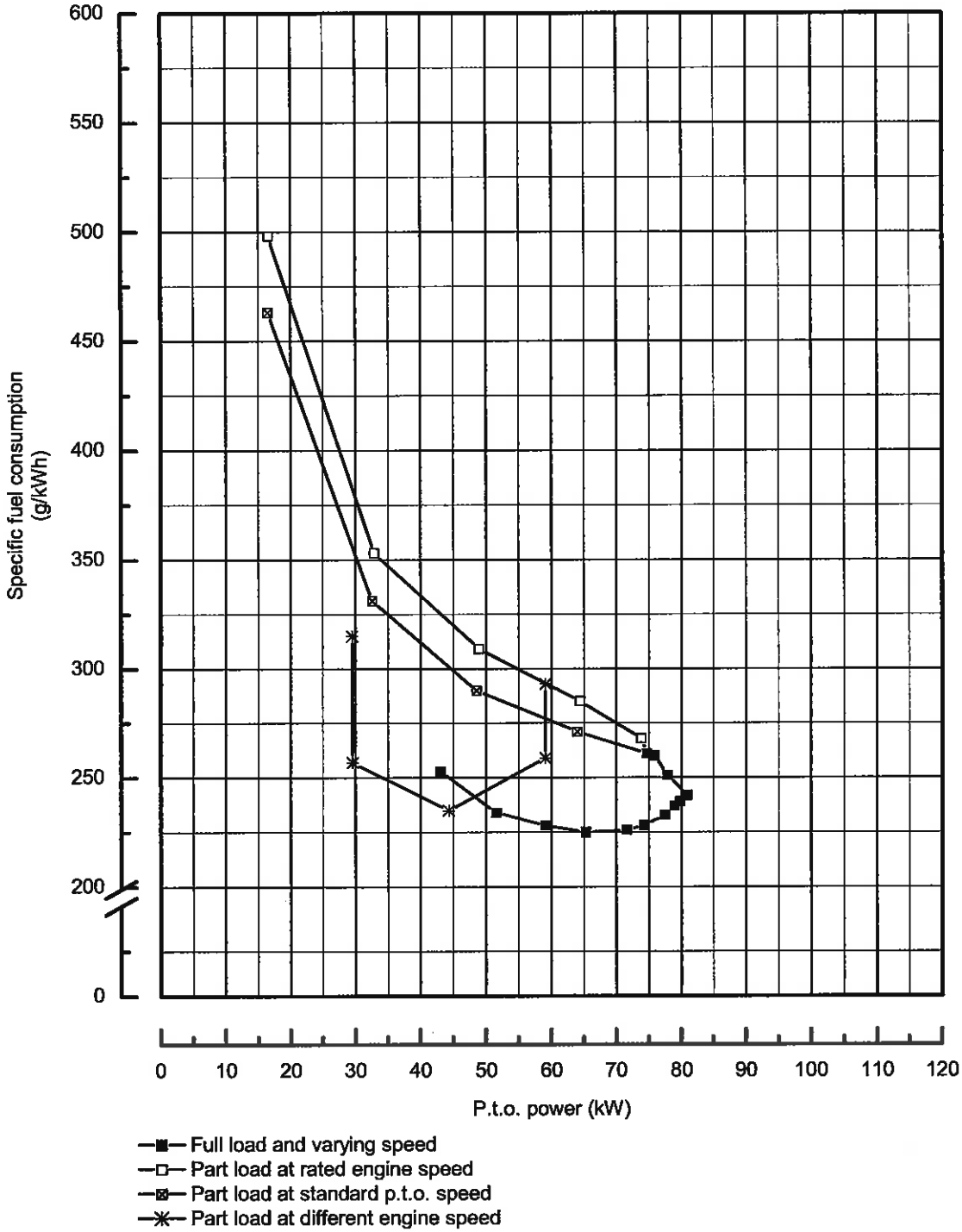
- No load maximum engine speed: 2354 min^{-1} (rev/min)
- Torque (equivalent crankshaft) at maximum power
  - At rated engine speed 320.9 Nm
  - At 1-hour test 406.3 Nm
- Maximum torque (equivalent crankshaft): 488.9 Nm
  (engine speed: 1399 min^{-1} (rev/min))

Mean atmospheric conditions:	
Temperature	18.0 °C
Pressure	100.2 kPa
Relative humidity	30%
Maximum temperatures:	
Coolant	88.3 °C
Engine oil	114.4 °C
Fuel	47.8 °C
Engine air intake	25.8 °C

Graph 1. Power take-off test (without power boost)



Graph 2. Power take-off test (without power boost)



.1.A Optional power take-off test (with power boost)(see [1] next page)

Date and location of tests: 25th January 2008, I.M.A.MO.TER, TORINO, ITALY
Type of dynamometer: parasitic currents, BORGHI&SAVERI FA300-30SP

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.A. MAXIMUM POWER-ONE - HOUR TEST							
95.2	1899	896	2100	22.95	27.32	241	3.49
3.1.2.A POWER AT RATED ENGINE SPEED							
87.6	2197	1037	2160	22.80	27.14	260	3.23
3.1.3.A POWER AT STANDARD PTO SPEED [1000 ± 25 min^{-1}]							
91.3	2119	1000	2100	22.94	27.31	251	3.34
3.1.4.A PART LOADS							
3.1.4.1.A The torque corresponding to maximum power at rated engine speed							
87.6	2197	1037	2160	22.80	27.14	260	3.23
3.1.4.2.A 85% of torque obtained in 3.1.4.1							
75.8	2236	1055	2220	20.29	24.15	268	3.14
3.1.4.3.A 75% of torque defined in 3.1.4.2							
57.6	2263	1068	2160	16.96	20.19	294	2.85
3.1.4.4.A 50% of torque defined in 3.1.4.2							
39.0	2297	1084	1920	13.23	15.75	339	2.48
3.1.4.5.A 25% of torque defined in 3.1.4.2							
19.8	2325	1097	1440	8.88	10.57	449	1.87
3.1.4.6.A Unloaded							
-	2354	1111	1500	5.52	6.57	-	-
3.1.5.A PART LOADS AT STANDARD PTO SPEED [1000 ± 25 min^{-1})]							
3.1.5.1.A the torque corresponding to maximum power							
91.3	2119	1000	2100	22.94	27.31	251	3.34
3.1.5.2.A 85% of torque obtained in 3.1.5.1							
78.5	2142	1011	2160	20.28	24.14	259	3.25
3.1.5.3.A 75% of torque defined in 3.1.5.2							
59.5	2168	1023	2040	16.59	19.75	279	3.01
3.1.5.4.A 50% of torque defined in 3.1.5.2							
40.0	2193	1035	1740	12.48	14.86	312	2.69
3.1.5.5.A 25% of torque defined in 3.1.5.2							
20.2	2214	1045	1380	8.40	10.00	415	2.02
3.1.5.6.A Unloaded							
-	2236	1055	1260	4.90	5.83	-	-

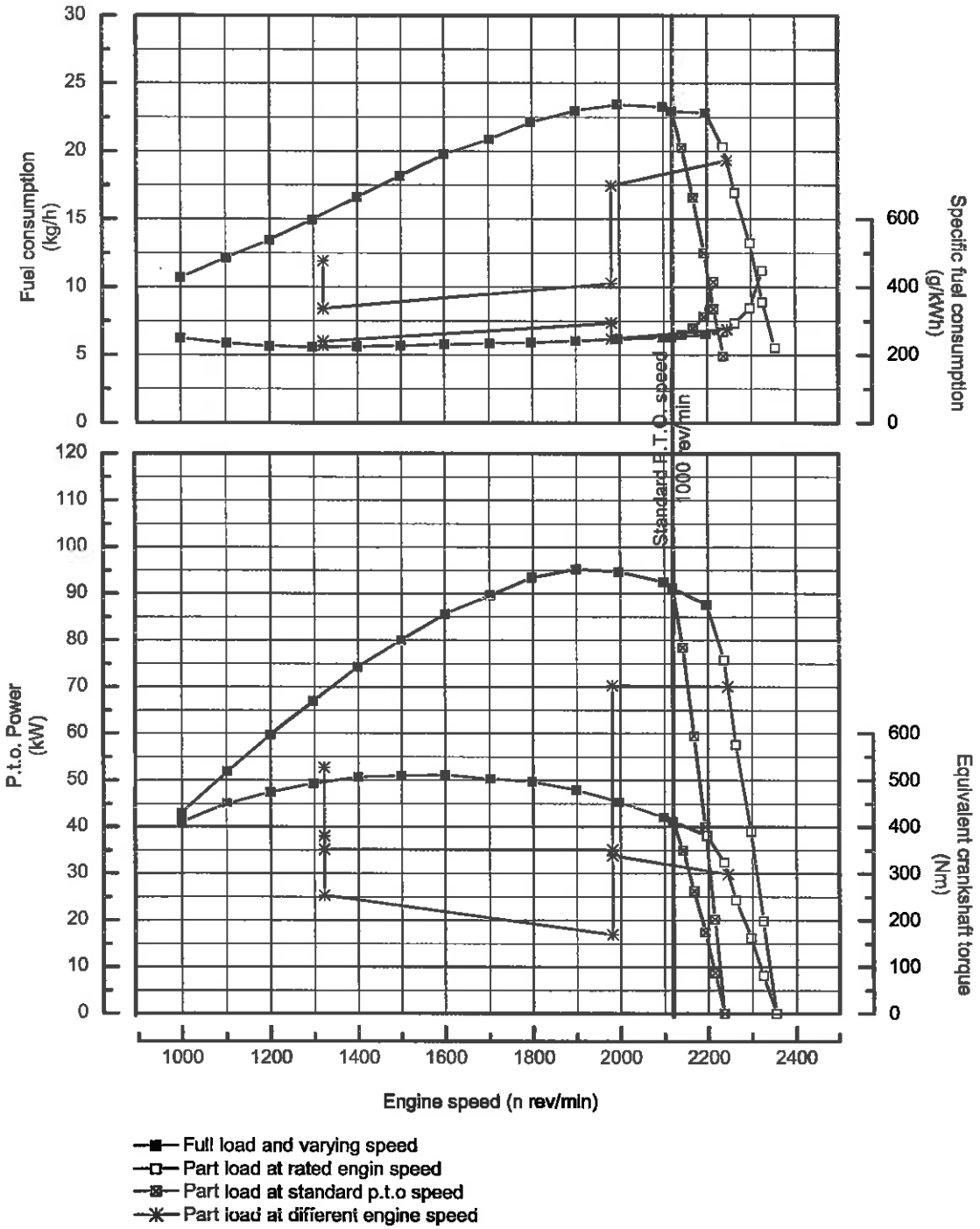
Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O.	Fan	Hourly		Specific	
kW	min^{-1} (rev/min)			kg/h	l/h	g/kWh	kWh/l
3.1.6.A	PART LOADS AT DIFFERENT ENGINE SPEEDS						
3.1.6.1.A	Maximum power at rated engine speed						
87.6	2197	1037	2160	22.80	27.14	260	3.23
3.1.6.2.A	80% of power obtained in 3.1.6.1 at max speed setting						
70.1	2244	1059	2220	19.30	22.98	275	3.05
3.1.6.3.A	80% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed						
70.3	1981	935	1980	17.44	20.76	248	3.39
3.1.6.4.A	40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed						
35.1	1981	935	1320	10.30	12.26	294	2.86
3.1.6.5.A	60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed						
52.7	1322	624	1380	11.94	14.21	227	3.71
3.1.5.6.A	40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed						
35.1	1322	624	900	8.40	10.00	239	3.51

- No load maximum engine speed: 2354 min^{-1} (rev/min)
- Torque (equivalent crankshaft) at maximum power
  - At rated engine speed 380.8 Nm
  - At 1-hour test 479.0 Nm
- Maximum torque (equivalent crankshaft): 511.1 Nm
  (engine speed: 1600 min^{-1} (rev/min))

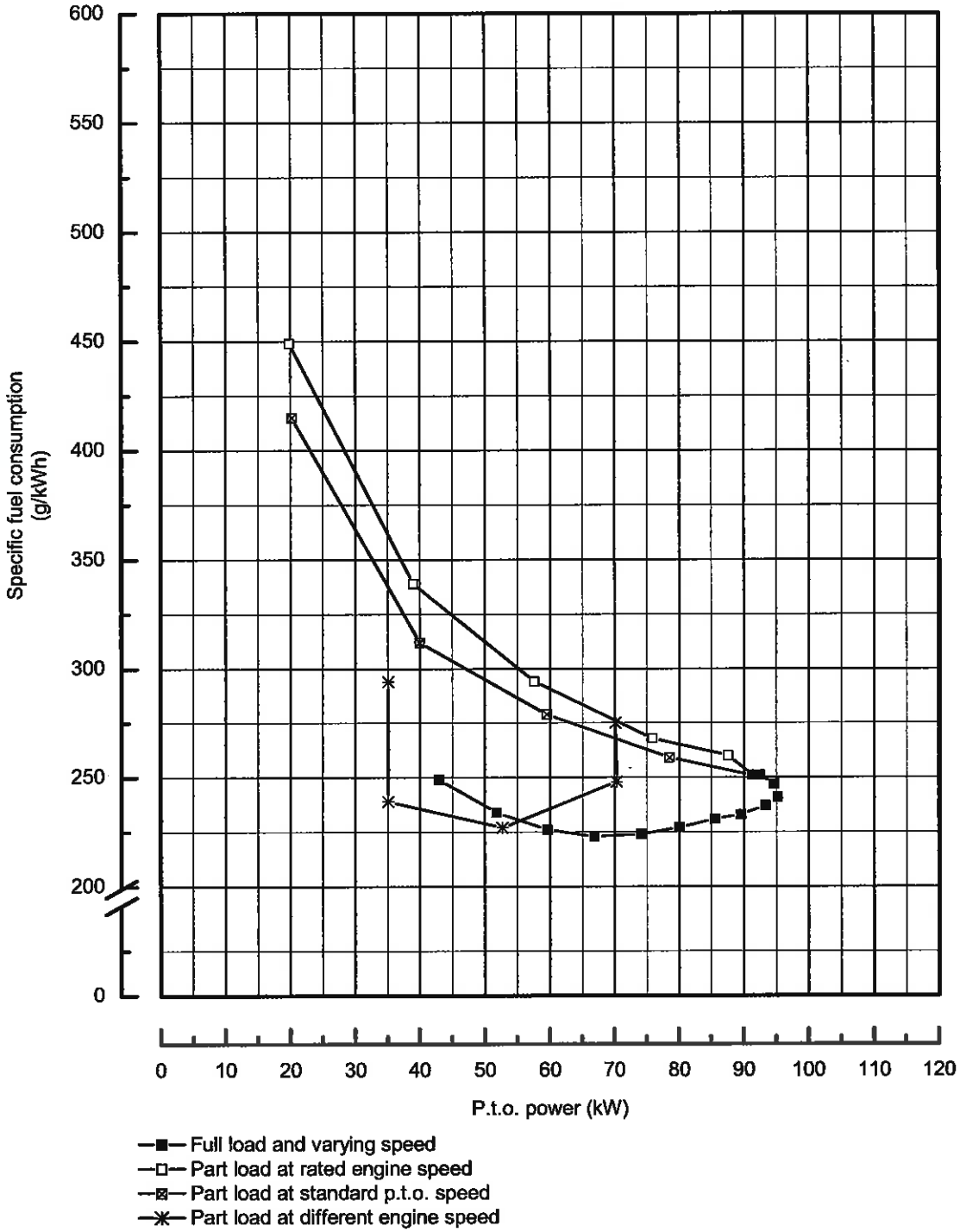
Mean atmospheric conditions:	
Temperature	18.5 °C
Pressure	100.4 kPa
Relative humidity	35%
Maximum temperatures:	
Coolant	88.3 °C
Engine oil	115.9 °C
Fuel	49.3°C
Engine air intake	26.6 °C

[1] In operation conditions of power take-off test the EPM system makes the engine operate in un-boosted mode.
For this test an over ride system has been provide by the manufacturer of the tractor to enable engine operate in boosted mode when tractor is stationary.
Results of this test can be achieved ONLY when EPM system makes the engine operate in PTO operation mode.
See Foreword on page 2 for more details on EPM operation modes.

raph 3. Power take-off test (with power boost)



Graph 4. Power take-off test (with power boost)



.2 Hydraulic power and lifting force

Date of tests: 19th February 2008

.2.1 Hydraulic Power Test

.2.1.1 Hydraulic fluid data

Hydraulic fluid data:
Viscosity index (ASTM D 2270): 147
Viscosity at 65°C (ASTM D 341): 25 mm^2/s

.2.1.2 Compulsory reporting

	Pressure[1]	Reservoir oil Temperature °C (65°C target)		Engine speed	Flow rate	Power
	MPa	Min.	Max.	min^{-1}	l/min	kW
Rated Engine Speed				2200		
3.2.1.2.1 A Pump delivery rate at minimum pressure through one coupler		60	70	2350	98.8	
3.2.1.2.1 B Pump delivery rate at minimum pressure through four couplers		60	70	2350	107.6	
3.2.1.2.2 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: Yes	20.7	60	70	2340		
3.2.1.2.3 A 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	18.6	60	70	2340	76.4	23.7
3.2.1.2.3 B Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power measured at four couplers	18.7	60	70	2340	94.6	29.5
3.2.1.2.4 Maximum available hydraulic power with flow through a single coupler pair, and corresponding flow and available coupler outlet pressure	17.5	60	70	2340	93.4	27.2
3.2.1.2.5 Maximum available hydraulic power with coupler pairs operating simultaneously (flow through four couplers), and corresponding flow and available coupler outlet pressure	19.0	60	70	2340	93.9	29.7

[1] *Pressure as measured at the outlet coupler (pressure near coupler where oil is exiting from tractor)*

3.2.1.3 Supplementary Reporting:

	Pressure[2]	Reservoir oil Temperature °C		Engine speed	Flow rate	Power
	MPa	min.	max.	min^{-1}	l/min	kW
3.2.1.3.1 Pump delivery rate at minimum pressure from one couple pair		62	67	2200	99.8	
3.2.1.3.2 Maximum available flow and maximum useable (*continuous*) power from one coupler	15.8	62	67	2200	92.7	24.5
3.2.1.3.3 Maximum available flow and maximum useable (*continuous*) power from four coupler pairs operating simultaneously	18.2	60	68	2200	89.9	27.3
3.2.1.3.4 Maximum differential pressure Category 1 Tractor						
3.2.1.3.5 Maximum differential pressure Category 2 or 3 Tractor	19.2	60	68	2200	50	
3.2.1.3.6 Peak Pressure						
3.2.1.3.7 Maximum sump return pressure with coupler	1.8	62	68	2200		
3.2.1.3.8 Maximum return pressure without coupler						

[2] *Differential pressure (pressure near coupler where oil is exiting from tractor – pressure near coupler where oil is re-entering the tractor)*

.2.2 Compulsory Power lift test

Linkage settings for test - see Table 1.1 and Figure 1.1 and 1.2

	at the hitch point	on the frame
Height of lower hitch points above ground in down position	200 mm	200 mm
Vertical movement: - With lifting force - Without lifting force	 652 mm 685 mm	 787 mm 846 mm
Maximum corrected force exerted through full range	39.8 kN	30.8 kN
Corresponding pressure of hydraulic fluid	18.6 MPa	18.6 MPa
Moment about rear-wheel axis	44.5 kNm	53.3 kNm
Maximum tilt angle of mast from the vertical[1]	none	9.2 degrees
[1] *Upper link adjustment to the length necessary to bring the mast of the frame vertical when the lower links are horizontal does not cause the mast to turn through a minimum of 10° from the vertical to the angle at which the frame is in the uppermost position*		

Lifting heights relative to the horizontal plane including the lower link pivot points								
mm	-445	-385	-285	-185	0	155	267	342
Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to a 90% of the actual relief valve pressure setting of the hydraulic lift system):								
at the hitch points kN	-	39.8	40.5	41.8	43.3	43.9	42.8	-
Corresponding pressure: 18.6 MPa								
at the frame kN	33.8	34.0	34.1	34.2	34.1	33.9	31.8	30.8
Corresponding pressure: 18.6 MPa								

3.2.3 Optional Power lift test

Tests have been performed in accordance with setting requested by manufacturer.

Linkage settings for test - see *"Additional"* column in Table 1.1 and Figure 1.1 and 1.2

	at the hitch point	on the frame
Height of lower hitch points above ground in down position	200 mm	200 mm
Vertical movement - With power travel of the lift - Without power travel of the lift	 604 mm 625 mm	 688 mm 720 mm
Maximum corrected force exerted through full range	42.9 kN	30.1 kN
Corresponding pressure of hydraulic fluid	18.6 MPa	18.6 MPa
Moment about rear-wheel axis	48.0 kNm	52.0 kNm
Maximum tilt angle of mast from the vertical	none	4.5 degrees

Lifting heights relative to the horizontal plane including the lower link pivot points									
mm	-424	-385	-285	-185	0	75	165	219	264
Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to a 90% of the actual relief valve pressure setting of the hydraulic lift system):									
at the hitch points kN	-	43.6	44.8	46.1	46.6	46.5	46.1	42.9	-
Corresponding pressure:18.6 MPa									
at the frame kN	41.0	40.0	40.5	40.5	39.6	38.8	37.4	-	30.1
Corresponding pressure: 18.6 MPa									

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

In operation conditions of drawbar power test EPM system makes the engine operate in un-boosted mode.
See Foreword on page 2 for more details on EPM operation modes.

Date of tests: 13th and 14th March 2008
Type of track: asphalt

Height of drawbar above ground	Tyre inflation pressure	
	Front	Rear
570 mm	80 kPa	80 kPa

Speed No.[1]	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	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
3.1 MAXIMUM POWER IN TESTED GEARS/SPEED SETTINGS														
1	28.8	50.05	2.07	2293	1958	14.75	443	1.90	25.8	87.6	104.6	18.9	48.8	98.3
2	35.5	50.72	2.52	2283	2109	15.53	401	2.09	27.8	87.9	107.2	24.3	40.7	98.3
3	43.3	50.79	3.07	2265	2335	15.15	392	2.14	27.7	87.8	109.3	22.0	30.4	98.3
4	51.4	49.90	3.71	2224	2342	15.19	376	2.24	30.7	87.7	108.6	23.4	27.2	98.3
5	59.4	43.76	4.89	2160	2551	9.25	331	2.53	34.2	88.1	108.4	23.0	27.6	98.3
6	64.7	39.07	5.96	2067	2402	5.67	303	2.77	35.4	86.5	108.1	23.1	26.9	98.3
7	67.3	35.54	6.82	1896	1971	3.73	289	2.90	41.3	86.3	106.7	20.1	23.6	98.3
9	68.9	32.32	7.67	1900	2297	3.25	284	2.96	41.4	86.0	107.9	20.2	37.4	98.3
8	66.9	28.24	8.53	1900	2313	2.62	289	2.91	42.4	86.8	107.4	22.3	31.2	98.3
10	68.8	26.06	9.50	1897	2295	2.31	286	2.93	42.4	86.1	108.0	23.9	34.0	98.3
11	65.9	20.38	11.64	1901	2321	1.64	297	2.83	43.7	85.7	108.1	23.7	33.2	98.3
12	64.6	16.14	14.42	1899	2275	1.16	304	2.77	44.4	85.8	107.7	20.7	32.4	98.3

As displayed on dashboard

Speed No.[1]	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	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 FUEL CONSUMPTION														
3.3.2.1 In selected gear/speed setting nearest 7.5 km/h, at maximum power at rated engine speed														
7	58.7	26.41	8.00	2199	2078	2.46	334	2.52	35.8	87.5	100.2	24.9	31.5	97.6
3.3.2.1.1 75% of pull corresponding to maximum power at rated engine speed														
7	45.7	19.79	8.32	2257	2127	1.64	383	2.19	39.4	87.9	104.0	22.9	29.9	97.6
3.3.2.1.2 50% of pull corresponding to maximum power at rated engine speed														
7	30.9	13.22	8.42	2290	1993	0.91	443	1.90	40.1	87.8	105.8	22.6	27.8	97.6
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														
9	45.7	19.78	8.32	2022	1765	1.68	335	2.51	40.8	86.7	105.2	25.8	34.2	97.6
3.3.2.1.4 Same gear/speed selection as 3.3.2.1.3 at reduced speed; same pull and travelling speed as in 3.3.2.1.2														
9	30.9	13.21	8.42	2035	1647	0.85	385	2.18	40.4	86.6	104.4	25.4	28.7	97.6
3.3.2.2 In selected gear/speed setting nearest between 7 and 10 km/h at rated engine speed														
8	57.6	20.91	9.92	2201	2216	1.77	341	2.46	34.3	87.5	105.1	22.0	30.8	97.6
3.3.2.2.1 75% of pull corresponding to maximum power at rated engine speed														
8	44.7	15.69	10.25	2258	2214	1.18	391	2.15	33.1	87.8	107.4	25.0	30.2	97.6
3.3.2.2.2 50% of pull corresponding to maximum power at rated engine speed														
8	30.4	10.47	10.46	2283	1931	0.43	477	1.76	35.0	88.1	107.7	24.7	30.1	97.6
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														
10	44.9	15.76	10.25	2014	1823	1.16	330	2.55	23.6	88.3	104.4	23.4	29.7	97.6
3.3.2.2.4 Same gear/speed setting as 3.3.2.2.3 at reduced speed; same pull and travelling speed as in 3.3.2.2.2														
10	30.1	10.46	10.35	2035	1635	0.51	394	2.13	20.0	86.7	104.3	25.0	26.6	97.6

[1] *As displayed on dashboard*

4 REPAIRS

None

5 REMARKS

Tests results of this report have been obtained from tests carried out on a prototype identical to the tractor NEW HOLLAND T6020 ELITE in all practical aspects relating to the tests.

It has been checked that the series production conforms to the tested tractor.

ANNEX

Other tests results not covered by OECD approval

.1 **Test in accordance with SAE J 283, Nov. 1999: Test procedure for measuring hydraulic lift capacity on agricultural tractors equipped with three-point hitch**

.1.1 Test conditions

Tests have been performed in accordance with Section 4 of SAE J283: Static lift force test. Setting of the three-point hitch is specified in *"SAE"* column the table 1.1 and more details on linkage geometry are in figure 1.1 and 1.2.

ifting heights relative to the horizontal plane including the lower link pivot points												
ift rods length 878 mm	-385	-335	-235	-130	-82	0	65	165	214	-	-	-
ift rods length 749 mm	-	-	-	-130	-82	0	65	165	-	270	370	420
ifting forces corrected to correspond to a hydraulic pressure equivalent to a 90% of the minimum relief alve setting of the hydraulic lift system												
N	53.9	51.6	49.0	47.7	47.1	45.8	44.7	42.7	41.4	-	-	-
N	-	-	-	48.1	47.6	47.4	47.2	46.1	-	44.5	41.9	40.0
orresponding pressure: 18.6 MPa												

his report has been approved by the O.E.C.D. Co-ordinating Centre (CEMAGREF. France) as being in ccordance with the O.E.C.D. Standard Code for the official testing of agricultural and forestry tractor erformance.

The Head of the Section
E. CAVALLO

The Director
G.L. ZAROTTI

orino, 27th March 2009