ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA

REPORT ON TEST IN ACCORDANCE WITH OECD STANDARD CODE FOR THE OFFICIAL TESTING OF AGRICULTURAL AND FORESTRY TRACTOR PERFORMANCE (CODE 2)

SAME EXPLORER 85 SPECIAL

20 forward and 20 reverse speeds
40 km/h
four-wheel drive agricultural tractor



LAMBORGHINI 774-85 N

20 forward and 20 reverse speeds
40 km/h
four-wheel drive agricultural tractor



Manufactured by:
SAME DEUTZ-FAHR ITALIA S.p.A

Viale F. Cassani 15
24047 Treviglio BG
Italy

OECD approval No.:	2/2 361
Date of approval:	4 October 2006
Period of test:	May 2006

Table of contents

1. SPECIFICATIONS OF TRACTOR 1

2. TEST CONDITIONS 13

3. TEST RESULTS 16

3.1 Main power take-off performance 16

3.2 Hydraulic power and lifting force 21

3.3 Compulsory drawbar power and fuel consumption (unballasted tractor) 23

3.3.2 Optional drawbar power (ballasted tractor) 25

4. OPTIONAL TEST RESULTS

4.4 Turning area and turning circle 26

4.5 Location of centre of gravity 26

4.6 Braking performance 26

4.7 Measurement of external noise level 28

5. REPAIRS 28

6. REMARKS 28

Notes

1) The information opposite each item has been validated by the Testing Station. An item marked C indicates to the test report user that the information declared by the manufacturer has been checked; an item marked D indicates that the manufacturer's declaration has been endorsed.

2) The Same Explorer 85 Special (4WD) and Lamborghini 774-85 N (4WD) tractors are technically identical in all main respects except with regard to model designation and colour.
Both the above mentioned tractors can be fitted with two different frame-type protective structures, respectively the T 45 and the T 62 B models and consequently, different rear mudguards and rear lights position.
All tests were carried out on the Same Explorer 85 Special (4WD) with the T 45 frame model.

C	- Tractor manufacturer's name and address:	SAME DEUTZ-FAHR ITALIA S.p.A.; V.le F. Cassani 15, 24047 Treviglio BG, Italy;
D	- Location of tractor assembly:	Treviglio BG, Italy;
D	- Submitted for test by:	the manufacturer;
C	- Selected for test by:	the manufacturer with the agreement of ISMA;
D	- Place of running-in:	Treviglio BG, Italy;
D	- Duration of running-in:	50 hours;
C	- Location of test:	ISMA, Via Milano 43, Treviglio BG, Italy.

1. SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1 Denomination

C	- Make:	SAME;
C	- Model:	EXPLORER 85 SPECIAL;
C	- Type:	four-wheel drive, unit construction.

1.1.2 Numbers

D	- First serial number:	EXP85SVT20000;
C	- Serial number:	EXP85SVT20000.

1.1.3 Other specification

D	- Model for other countries:	SAME EXPLORER 80 SPECIAL and LAMBORGHINI 774-80 N;
C	- Speed version:	40 km/h.

1.2 Engine

C	- Make/Model/Type:	SAME DEUTZ-FAHR ITALIA / 1000.4 W1 / water cooled 4-stroke diesel, direct injection, naturally aspirated;
C	- Serial number:	36079.

1.2.1 Cylinders

C	- Number and disposition:	4 vertical in line;
D	- Bore x stroke:	105 x 115.5 mm;
D	- Capacity:	4000 cm^3;
D	- Compression ratio:	17:1;
D	- Arrangement of valves:	overhead valves, 2 per cylinder;
D	- Cylinder liners:	wet liners.

1.2.2 Supercharging

C	- Make/Model/Type:	none.

1.2.3 Fuel system

C	- Fuel feed system:	AC corone fuel feed pump;
C	- Make/Model/Type of fuel filter:	FIAMM / FNA 255/00 / replaceable paper element filter;
D	- Capacity of fuel tank:	61 dm^3;
C	- Make/Model/Type of injection pump:	BOSCH / PFR 1 K-90A 555 / immersed, one per cylinder in line;
C	- Serial number:	without serial number;
	- Manufacturer's production setting of injection pump:	
C	. Flow rate:	62 ± 2 mm^3/stroke at rated speed and full load corresponding 18.5 dm^3/h;
D	. Timing:	13° before TDC;
D	- Make/Model/Type of injectors:	BOSCH / DLLA 155 S 1323 / multihole injection nozzles;
D	- Injection pressure:	18 ± 1 MPa.

1.2.4 Governor

C	- Make/Model/Type:	SAME DEUTZ-FAHR ITALIA / SAME 06516510 / mechanical;
C	- Governed range of engine speed:	from 650 to 2743 min^{-1};
C	- Rated engine speed:	2500 min^{-1}.

1.2.5 Air cleaner

	- Pre-cleaner:	
C	- Make/Model/Type:	DONALDSON / P01-6330 / cyclone;
C	- Location of air intake:	front of engine, above the bonnet;
	- Main cleaner	
C	- Make/Model/Type:	DONALDSON / FLG08-0524 / dry paper element filter with two replaceable cartridge elements:
C	- Maintenance indicator:	none.

1.2.6 Lubrication system

D	- Type of feed pump:	forced feed from gear pump;
C	- Type of filter:	FIAMM FT 4803 IN;
C	- Number of filters:	1.

1.2.7 Cooling system

C	- Type of coolant:	water cooling;
D	- Type of pump:	impeller pump;
	- Specification of fan	
C	- Number of fan blades:	10;
C	- Fan diameter:	480 mm;
D	- Coolant capacity:	11 dm^3;
C	- Type of temperature control:	electrical control;
D	- Superpressure system:	60 kPa.

1.2.8 Starting system

C	- Make/Model/Type:	BOSCH / 12V / JF12V / electromagnetic engagement;
D	- Starter motor power rating:	3 kW;
C	- Cold starting aid:	not fitted;
C	- Safety device:	gear lever shifted in neutral position; and pto disengaged at engine shut off.

1.2.9 Electrical system

C	- Voltage:	12 V;
	- Generator	
C	- Make/Model/Type:	ISKRA / 14V 65A / alternator;
D	- Power:	910 W;
	- Battery:	
C	- Number:	1 lead acid;
D	- Rating:	120 Ah at 20 hours.

1.2.10 Exhaust system

C	- Make/Model/Type:	SAME DEUTZ-FAHR ITALIA / DGM-SA 1130 / one reflection absorption chamber;
C	- Location:	on the left hand side of engine, vertical position above side bonnet.

1.3 Transmission

1.3.1 Clutch (utilized only for travelling of tractor)

D	- Make/Model/Type:	AP AUTOMOTIVE PRODUCTS ITALY / MCFK04011A / single disk dry clutch;
D	- Number of plates:	1;
D	- Diameter of plates:	305 mm;
C	- Method of operation:	hydraulic operated by pedal.

1.3.2 Gear box

D - Make/Model/Type: SAME DEUTZ-FAHR ITALIA / E85.31 / mechanical synchromesh;

- Description: 5 speeds forward with 4 ranges (C/S/N/F) and one reverser.

		Forward	Reverse
C	Number of gears	5	5
C	Number of ranges	4	4
C	Total of arrangements	20	20

D - Available option: 12 forward and 12 reverse,
24 forward and 12 reverse,
16 forward and 16 reverse.

1.3.3 Rear axle and final drives

D - Make/Model/Type: SAME DEUTZ-FAHR ITALIA / E85.44 / bevel gear differential and epyciclic final drives.

- Differential lock

D - Type: mechanical;

C - Method of engagement: pedal operated;

C - Method of disengagement: pedal operated.

1.3.4 Front axle and final drives

D - Make/Model/Type: SAME DEUTZ-FAHR ITALIA / E85.43 / central shaft bevel gear drive, differential and epicyclic final drives.

- Differential lock

D . Type: mechanical;

C . Method of engagement: pedal operated;

C . Method of disengagement: pedal operated.

1.3.5 Total ratios and travelling speeds

	Gear	Range	Number of engine revolutions for one revolution of the driving wheels		Nominal travelling speed at rated engine speed of 2500 min^{-1} (*) km/h	
			FORWARD	REVERSE	FORWARD	REVERSE
C	1	Creeper	1749,45	1679,84	0,41	0,43
C	2	Creeper	1180,88	1133,89	0,61	0,64
C	3	Creeper	887,59	852,27	0,82	0,85
C	4	Creeper	672,86	646,08	1,08	1,12
C	5	Creeper	506,94	486,77	1,43	1,49
C	1	Slow	622,03	597,27	1,17	1,22
C	2	Slow	419,87	403,16	1,73	1,80
C	3	Slow	315,58	303,03	2,30	2,39
C	4	Slow	239,24	229,72	3,03	3,16
C	5	Slow	180,24	173,07	4,03	4,19
C	1	Normal	195,30	187,53	3,72	3,87
C	2	Normal	131,83	126,58	5,50	5,73
C	3	Normal	99,08	95,14	7,32	7,63
C	4	Normal	75,11	72,19	9,66	10,05
C	5	Normal	56,59	54,34	12,82	13,35
C	1	Fast	64,50	61,94	11,25	11,72
C	2	Fast	43,54	41,81	16,67	17,36
C	3	Fast	32,72	31,42	22,18	23,10
C	4	Fast	24,81	23,82	29,25	30,47
C	5	Fast	18,69	17,94	38,83	40,45

(*)*Calculated with a tyre dynamic radius index of 770 mm. (in conformity with ISO 4251-1:1998)*

- Number of revolutions of front wheels for one revolution of rear wheels: 1.3071.

1.4 Power take-off

1.4.1 Main power take-off

C	- Type:	independent, at rear of tractor;
C	- Method of engagement:	engaged or disengaged by hand lever, driven by wet clutch independent of travel clutch;
C	- Number of shafts:	1;
C	- Method of changing power take-off shaft ends and speeds:	not changeable, speed shiftable by external hand lever.

1.4.1.1 Power take-off proportional to engine speed

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

C	- Location:	at rear of tractor;
C	- Diameter of power take-off shaft ends:	35 mm;
C	- Number of splines:	6, in conformity with ISO 500:1991, type 1;
C	- Height above ground:	770 mm;
C	- Distance from the median plane of the tractor:	0 mm;
C	- Distance behind rear axle:	405 mm;
C	- PTO speed at rated engine speed:	614 min^{-1};
C	- Engine speed at standard power take-off speed:	2198 min^{-1};
C	- Ratio of rotation speeds (engine speed/p.t.o. speed):	4.071;
D	- Power restriction:	not specified;
D	- Maximum torque transmissible:	not specified;
C	- Direction of rotation (viewed from behind tractor):	clockwise.

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

C	- Location:	at rear of tractor;
C	- Diameter of power take-off shaft ends:	35 mm;
C	- Number of splines:	6, in conformity with ISO 500:1991, type 1;
C	- Height above ground:	770 mm;
C	- Distance from the median plane of the tractor:	0 mm;
C	- Distance behind rear axle:	405 mm;
C	- PTO speed at rated engine speed:	1020 min^{-1};

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

C	- Engine speed at standard power take-off speed:	2450 min^{-1};
C	- Ratio of rotation speeds (engine speed/p.t.o. speed):	2.450;
D	- Power restriction:	not specified;
D	- Maximum torque transmissible:	not specified;
C	- Direction of rotation (viewed from behind tractor):	clockwise.

1.4.1.2 Power take-off proportional to ground speed: not available.

1.4.2 Optional power take-off: none.

1.5 Hydraulic power lift

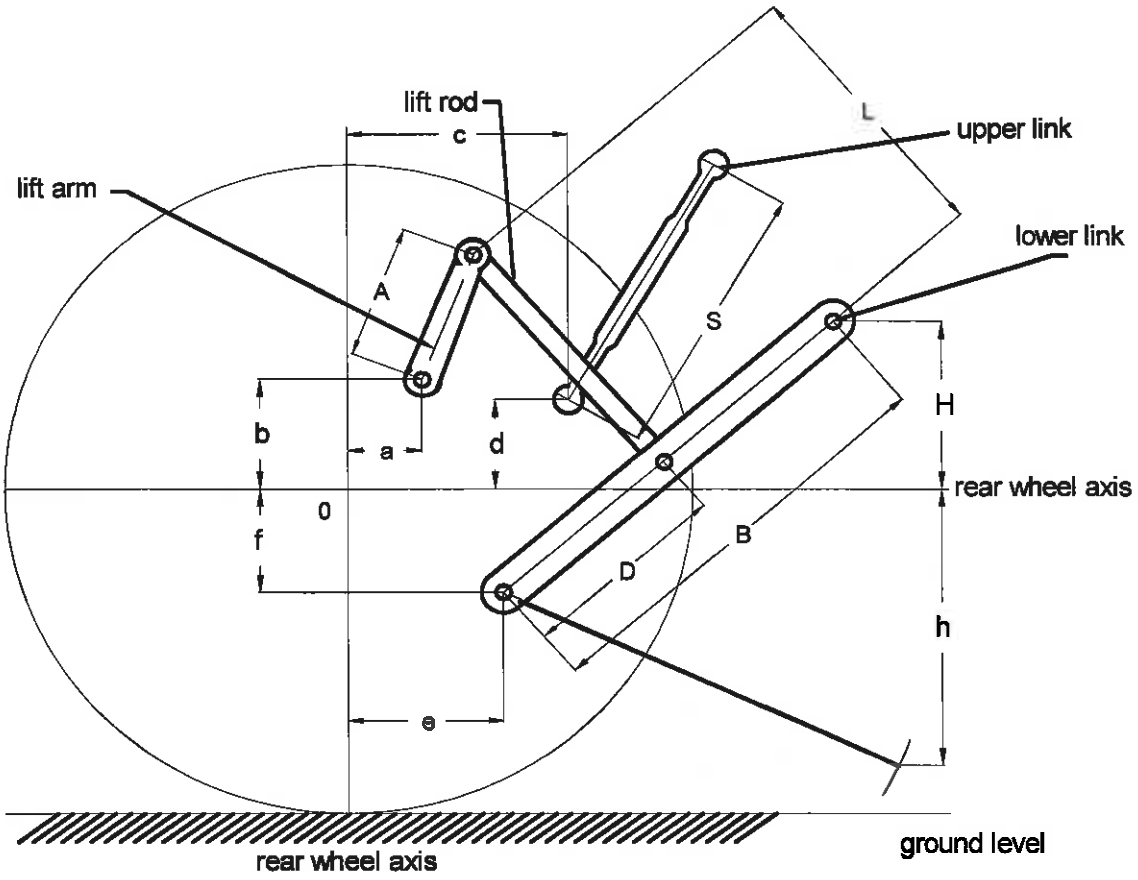
C	- Make/Model/Type:	SAME DEUTZ-FAHR ITALIA / - / open centre system, load sensing;
C	- Type and number of cylinders:	1 internal single acting;
C	- Type of linkage lock for transport:	not available;
D	- Relief valve pressure setting:	19.0 ± 0.5 MPa;
D	- Opening pressure of cylinder safety valve:	21.0 ± 0.5 MPa;
D	- Lift pump type:	hydraulic rotary pump, driven by engine shaft;
D	- Transmission between pump and engine:	mechanical;
C	- Type and number of filters:	1, replaceable paper cartridge;
C	- Site of oil reservoir:	gear box;
C	- Type, number and location of tapping points:	4, double acting, at rear of tractor;
D	- Maximum volume of oil available to external cylinders:	15 dm^3.

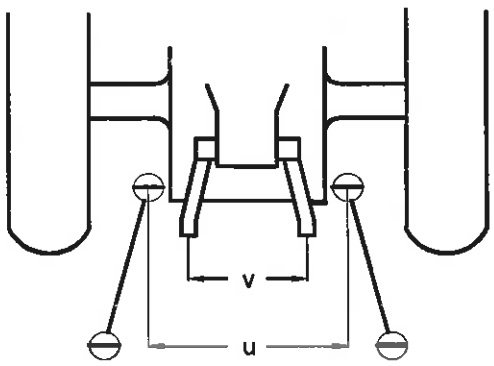
1.6 Three-point linkage

C - Category: 2, in conformity with category 2 of ISO 730-1:1994 + corrigendum 1:1995;

C - Category adapter: none.

Linkage geometry





Dimensions of linkage geometry when connected to the standard frame

			Dimension or range		Settings used in test
			mm		mm
C	Length of lift arms:	(A)	285		285
C	Length of lower links:	(B)	850		850
	Distance of lift arm pivot point from rear wheel axis (behind):				
C	- horizontally	(a)	95		95
C	- vertically	(b)	400		400
C	Horizontal distance between the 2 lower link points:	(u)	510		510
C	Horizontal distance between the 2 lift arm end points:	(v)	580		580
C	Length of upper link:	(S)	from 570 to 700		660
	Distance of upper link pivot point from rear wheel axis:				
C	- horizontally	(c)	347		347
C	- vertically	(d)	225-290-355		290
	Distance of lower link pivot point from rear wheel axis:				
C	- horizontally	(e)	145		145
C	- vertically	(f)	180		180
C	Distance of lower link pivot points to lift rod pivot points on lower links:	(D)	420		420
C	Length of lift rods:	(L)	from 695 to 870		777
	Height of lower hitch points relative to the rear wheel axis:				
C	Length of lift rods:	(L)	695	870	777
C	Linkage distance of lift rods:	(D)	420		
C	Lowest position:	(h)	366	797	570
C	Highest position:	(H)	303	-81	133
C	Height above ground of lower hitch points when locked in transport position(*)		689	1073	903

(*) Assuming the dynamic radius index = 770 mm (in conformity with ISO 4251-1:1998)

1.7 Swinging drawbar

C	- Type:	adjustable in height and length;
	- Height above ground	
C	- Maximum:	615 mm;
C	- Minimum:	515 mm ;
C	- Type of adjustment:	
C	- Distance of hitch point from rear-wheel axis, horizontally:	770, 820 mm;
	- Distance of hitch point from power take-off shaft end	
C	- Vertically:	155, 255 mm;
C	- Horizontally:	365, 415 mm;
	- Lateral adjustment (centre of clevis)	
C	- Right/left hand side:	50, 100 mm;
C	- Distance of pivot point from rear-wheel axis, horizontally:	115 mm;
C	- Diameter of drawbar pinhole:	33 mm;
D	- Max. vertical permissible load:	10.8 kN.

1.8 Trailer hitch

C	- Type:	adjustable in height;
C	- Hole diameter:	28 mm;
C	- Height above ground:	centre of clevis adjustable in 4 steps to 705, 600, 540, 470 mm;
C	- Distance of hitch point from rear wheel axis	
	- Horizontally:	495 mm;
	- Distance of hitch point from power take-off shaft end	
C	- Vertically:	below 65, 170, 230, 300 mm; above, none;
C	- Horizontally:	90 mm;
D	- Maximum vertical permissible load:	15 kN.

1.9	**Holed drawbar**	(optional, not fitted on tested tractor)
D	- Number of holes:	9;
D	- Distance between holes:	100 mm;
D	- Hole diameter:	33 mm;
D	- Thickness x width of the drawbar:	30 x 80 mm;
	- Height above ground,	
D	- Min.:	- 27 mm;
D	- Max.:	1073 mm;
D	- Horizontal distance behind power take-off shaft end:	565 mm.

1.10 Steering

D	- Make/Model/Type:	DANFOSS / OSPC 80 OR / hydrostatic steering, acting on front wheels.
	- Method of operation	
D	- Pump:	hydraulic gear pump;
D	- Rams:	2 simple acting directly on front axle;
D	- Working pressure:	15 MPa.

1.11 Brakes

1.11.1 Service brake

D	- Make/Model/Type:	SAME DEUTZ-FAHR ITALIA / E85.54 / oil-immersed disc, total 4 discs (one for wheel), mounted on front and rear differential half shafts before the final drive, disc 290 mm diameter;
C	- Method of operation:	hydraulically actuated with 2 pedals;
C	- Trailer braking take-off:	not available.

1.11.2 Parking brake

D	- Type:	fully independent of service brake, 3 oil bath disc mounted on the pinion shaft in the gear box;
C	- Method of operation:	mechanical by hand lever.

1.12 Wheels

- Number

C - Front: 2, steering and driving;
C - Rear: 2, driving;
C - Wheelbase: 2297 mm.

-Track width adjustment:

	Minimum	Maximum	Adjustment method
	mm	mm	
D Front	1500	2000	changing the position of the rims with respect to the disc
D Rear	1500	2000	

1.13 Protective structure

C - Make/Model/Type: SAME DEUTZ-FAHR ITALIA / T 45 / frame;
C - Manufacturer's name and address: SAME DEUTZ-FAHR ITALIA S.p.A., Viale F. Cassani 15, 24047 Treviglio BG, Italy.

- Protective device

C - Cab/frame/rollguard/other: frame;
C - Tiltable/not tiltable: not tiltable.

- OECD approval

C	Model	T 45	T 62 B
C	Approval number	CSD 0914/24	CSS 0367/40
C	Date of approval	21 November 1986	8 March 1996
C	No. of minor modification certificate	IIA 774 MI 2006	IIA 776 MI 2006

1.14 Seat

1.14.1 Driver's seat

C - Make/Model/Type: KAB / P2 XL2 / upholstered seat with back rest;
C - Seat and steering wheel reversible: no;
C - Type of suspension: adjustable spring;
C - Type of damping: shock absorber;
- Range of adjustment

C - Longitudinally 150 mm;
C - Vertically not adjustable;
C - Safety belt: yes;
Type : manually adjusting lap belt only.

1.14.2 Optional driver's seats

D	- Make/Model/Type:	KAB / P2 XH2 / upholstered seat with back rest.
D	- Seat and steering wheel reversible:	no;
D	- Type of suspension:	adjustable spring;
D	- Type of damping:	shock absorber;
	- Range of adjustment	
D	- Longitudinally	150 mm;
D	- Vertically	60 mm;
D	- Safety belt:	yes;
	Type :	manually adjusting lap belt only.

1.14.3 Passenger's seat: none.

1.15 Lighting

		Height above ground of centre	Size	Distance from out side edge of lights to median plane of tractor
		mm	mm	mm
C	Headlights	1355	140 x 85	195
C	Side lights	1635	90 x 45	830
C	Rear lights	1590	180 x 35	830
C	Reflectors	1535	100 x 53	770
		820	∅ 80	445

2. TEST CONDITIONS

2.1 Overall dimensions

	Length	Width		Height at top of	
		minimum	maximum	protective structure	exhaust pipe
	mm	mm	mm	mm	mm
Ballasted	4410	1960	2460	2440	2700
Unballasted	4080	1960	2460	2440	2700

2.2 Ground clearance: 500 mm (unballasted tractor);
Clearance-limiting part: gear box.

2.3 Tractor mass (with full fuel tank, frame).

	Ballasted		Unballasted	
	Without driver	With driver	Without driver	With driver
	kg	kg	kg	kg
Front	1630	1655	1390	1415
Rear	1935	1985	1810	1860
Total	3565	3640	3200	3275

2.4 Ballast

	Weights		Water
	Number	Total mass	
		kg	kg
Front	5	165	-
Rear wheels	2 + 2	200	-

2.5 Track specifications

Not applicable.

2.6 Tyres and track width specifications

	Front	Rear
Tyres		
- make	CONTINENTAL	CONTINENTAL
- model	CONTRACT AC85	CONTRACT AC85
- dimensions	16.9R24	18.4R34
- ply rating	-	-
- load index/speed index	137 A8	147 A8
- type	radial	radial
- maximum load (tyre manufacturer's)	20.79 kN	30.16 kN
- maximum load (tractor manufacturer's)	22.60 kN	33.83 kN
- inflation pressure (tyre manufacturer's)	160 kPa	160 kPa
- dynamic radius index	620 mm	770 mm
Chosen track width	1735 mm	1700 mm

2.7 Fuel

- Type: AGIP DIESEL, DIN 51601;
(in accordance with the national standard)
- Density at 15 °C: 0.839 g/cm^3.

2.8 Oils and lubricants

2.8.1 Capacity and change interval

	Capacity	Oil change	Filter change
	dm^3	h	h
Engine	9.2	150	300
Gear box with rear axle and final drives, hydraulic system, steering	45	1200	2400(*)
Front axle/final drives	6/3	1200	-
Brakes	max level	1200	2400

(*) Or when the warning lamp is lighted

2.8.2 Specifications

	Recommended	Used during test
Engine oil		
Type	AKROS TURBO	AKROS TURBO
Viscosity	12.5 cSt	12.5 cSt
Classification	API CE MIL	API CE MIL
Transmission oil used in gear box, front/rear axle, final drives and steering		
Type	AKROS MULTI FCT	AKROS MULTI FCT
Viscosity	11.5 cSt	11.5 cSt
Classification	API GL 4	API GL 4
Hydraulic fluid		
Type	AKROS MULTI FCT	AKROS MULTI FCT
Viscosity	11.5 cSt	11.5 cSt
Classification	API GL 4	API GL 4
Braking oil		
Type	AKROS MATIC	AKROS MATIC
Viscosity	6.7 cSt	6.7 cSt
Classification	API GL 4	API GL 4

2.8.3 Grease

- Type: AKROS GREASE T2;
- Number of lubrication points: 18.

3. TESTS RESULTS

3.1 Main power take-off

- Date and location of tests: 2 May 2006, ISMA, Treviglio BG, Italy;
- Type of dynamometer bench: eddy-current, ZÖLLNER B500.

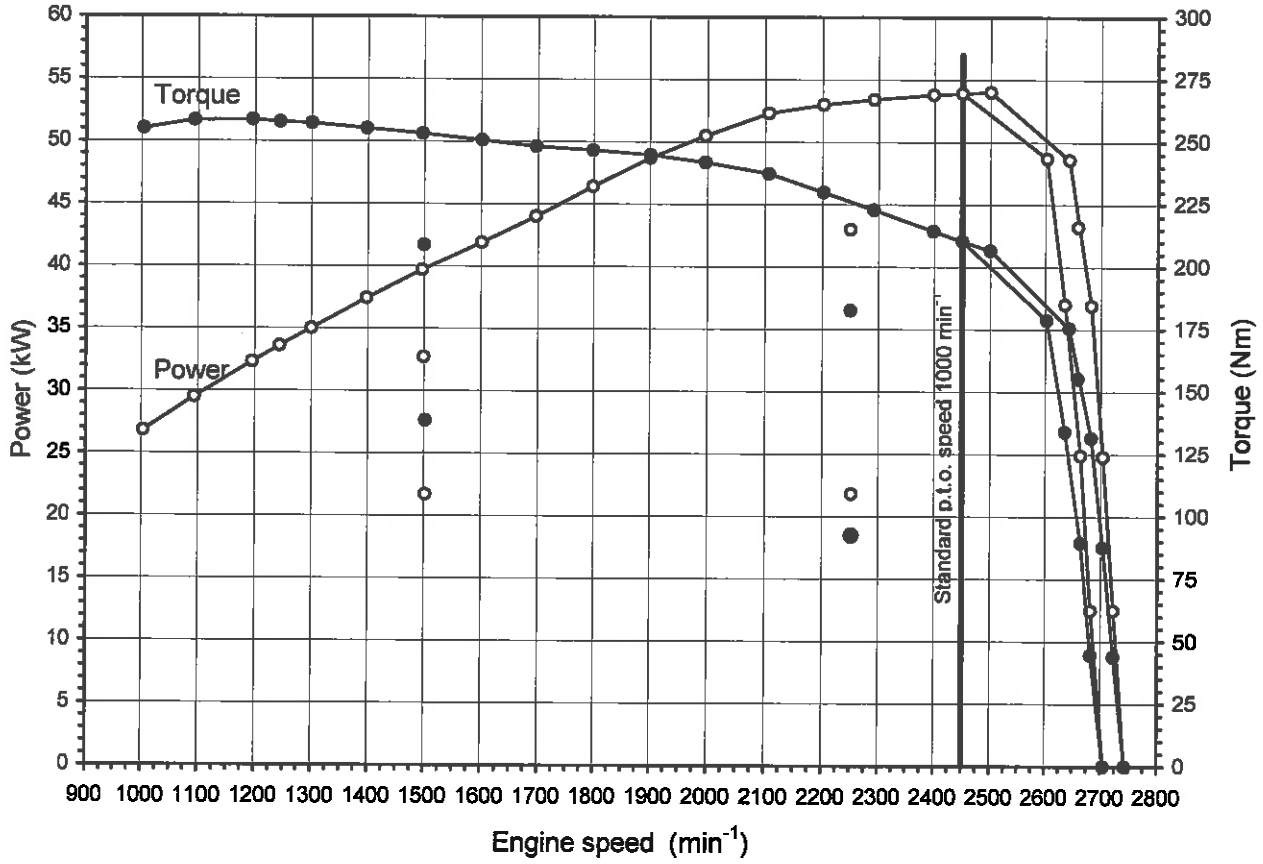
Power	Speed			Fuel consumption			Specific
	Engine	P.T.O.	Fan	Hourly		Specific	energy
kW	min^{-1}			kg/h	l/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER - TWO-HOUR TEST							
54.0	2500	1020	3400	15.54	18.52	288	2.92
3.1.2 POWER AT RATED ENGINE SPEED							
54.0	2500	1020	3400	15.54	18.52	288	2.92
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000 ± 25 min^{-1})							
53.9	2450	1000	3331	15.45	18.41	287	2.93
3.1.4 PART LOADS 3.1.4.1 The torque corresponding to maximum power at rated engine speed							
54.0	2500	1020	3400	15.54	18.52	288	2.92
3.1.4.2 85% of torque obtained in 3.1.4.1							
48.6	2643	1079	3595	13.94	16.62	287	2.92
3.1.4.3 75% of torque defined in 3.1.4.2							
36.9	2683	1095	3649	11.90	14.18	322	2.60
3.1.4.4 50% of torque defined in 3.1.4.2							
24.8	2704	1104	3677	9.00	10.73	363	2.31
3.1.4.5 25% of torque defined in 3.1.4.2							
12.5	2722	1111	3702	7.56	9.01	605	1.39
3.1.4.6 unloaded							
0	2743	1120	3731	4.57	5.45	-	-

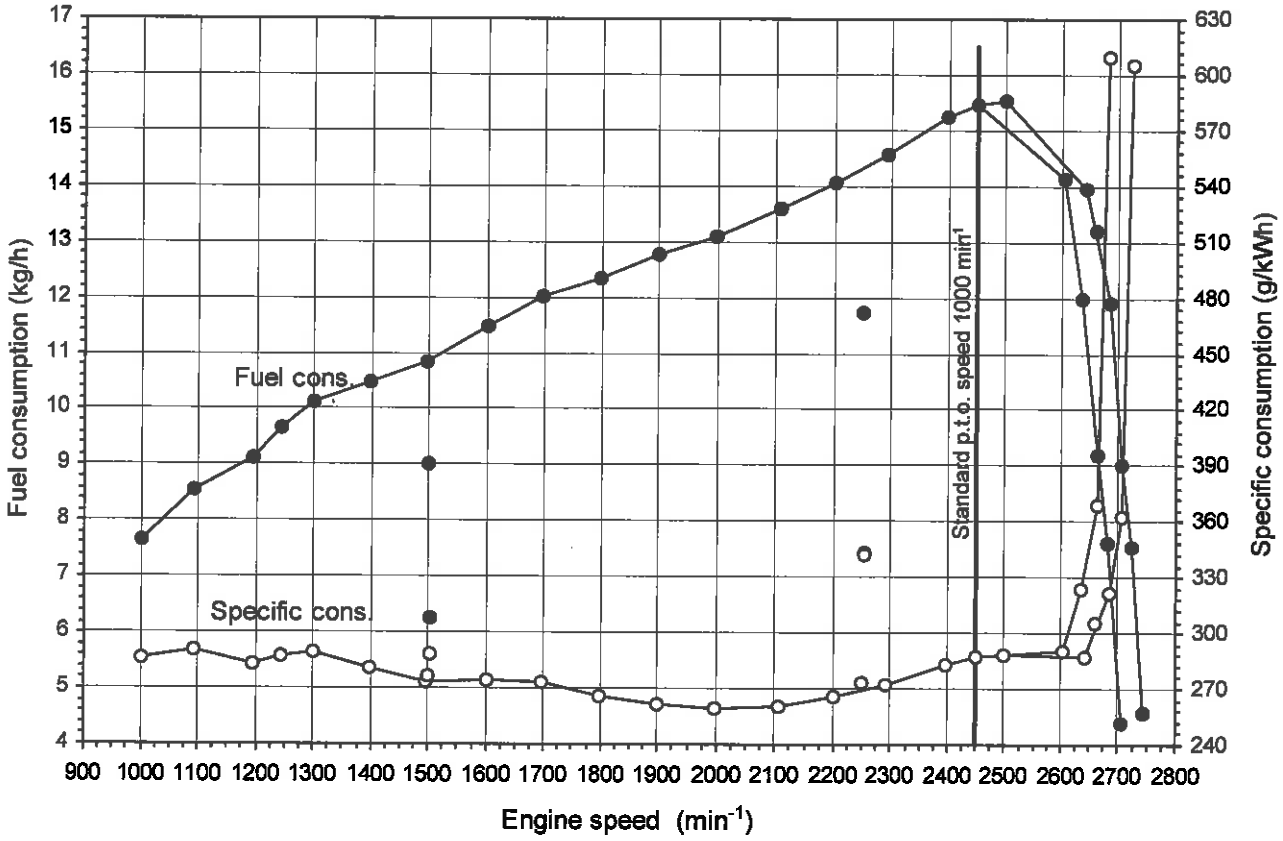
Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O.	Fan	Hourly		Specific	
kW	min^{-1}			kg/h	l/h	g/kWh	kWh/l
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (1000 ± 25 min^{-1}) 3.1.5.1 The torque corresponding to maximum power available							
53.9	2450	1000	3331	15.45	18.41	287	2.93
3.1.5.2 85% of torque obtained in 3.1.5.1							
48.7	2602	1062	3539	14.14	16.85	290	2.89
3.1.5.3 75% of torque defined in 3.1.5.2							
37.0	2636	1076	3584	12.00	14.30	324	2.59
3.1.5.4 50% of torque defined in 3.1.5.2							
24.9	2664	1087	3623	9.18	10.94	369	2.28
3.1.5.5 25% of torque defined in 3.1.5.2							
12.5	2682	1095	3648	7.63	9.09	610	1.38
3.1.5.6 unloaded							
0	2705	1104	3679	4.38	5.22	-	-

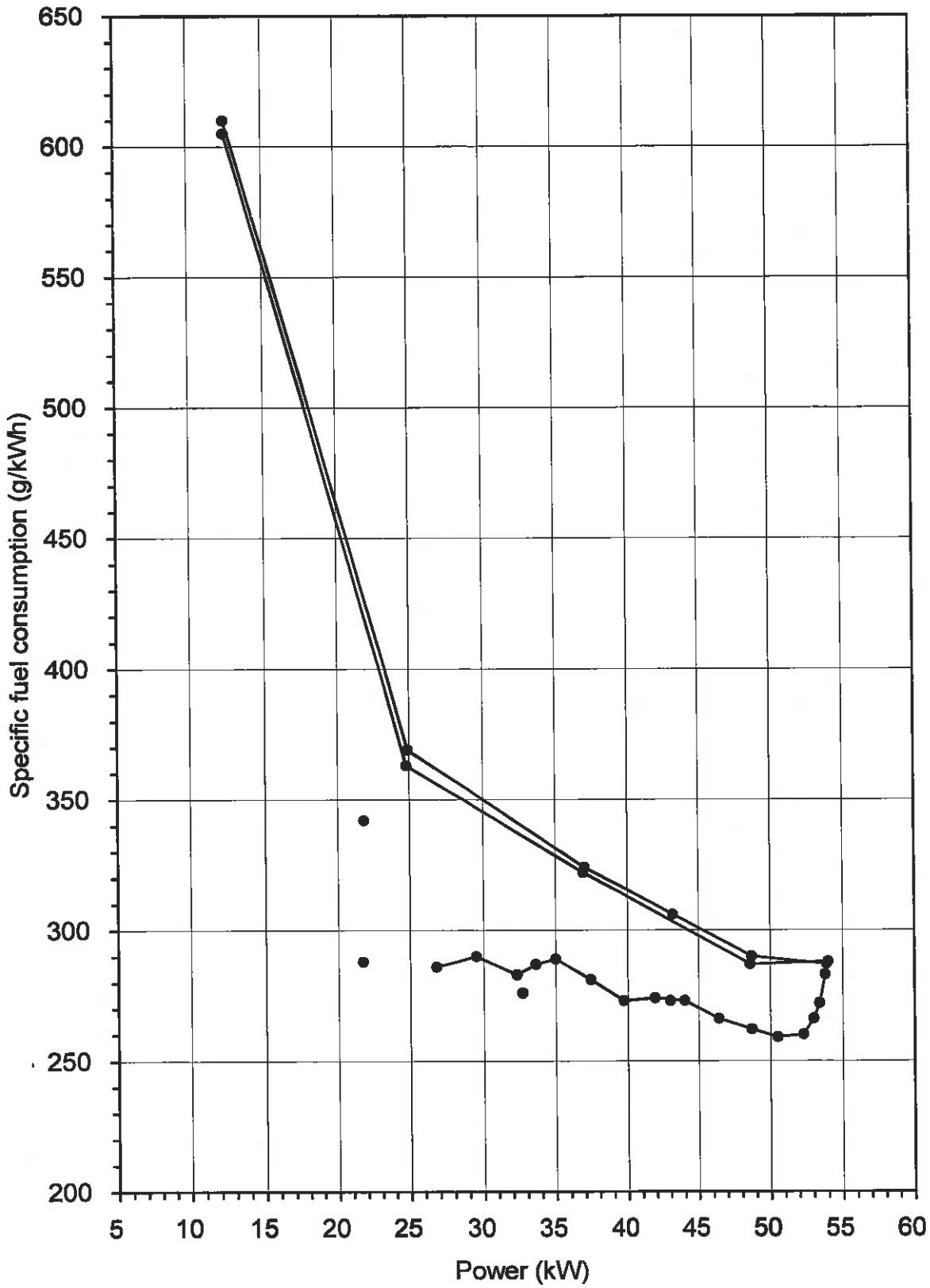
Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O.	Fan	Hourly		Specific	
kW	min^{-1}			kg/h	l/h	g/kWh	kWh/l
3.1.6 PART LOADS AT DIFFERENT ENGINE SPEED 3.1.6.1 maximum power at rated engine speed							
54.0	2500	1020	3400	15.54	18.52	288	2.92
3.1.6.2 80 % of power obtained in 3.1.6.1 at max. speed setting							
43.2	2659	1085	3616	13.22	15.76	306	2.74
3.1.6.3 80 % of power obtained in 3.1.6.1 with governor control set to 90 % of rated engine speed							
43.0	2250	918	3060	11.72	13.97	273	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							
21.8	2252	919	3063	7.45	8.88	342	2.45
3.1.6.5 60 % of power obtained in 3.1.6.1 with governor control set to 60 % of rated engine speed							
32.7	1499	612	2039	9.02	10.75	276	3.04
3.1.6.6 40 % of power obtained in 3.1.6.1 with governor control set to 60 % of rated engine speed							
21.7	1502	613	2043	6.24	7.44	288	2.92

- No load maximum engine speed: 2743 min^{-1};
- Equivalent flywheel torque at rated engine speed: 206.5 Nm;
- Equivalent flywheel torque at 2-hour test: 206.5 Nm;
- Maximum equivalent flywheel torque: 258.4 Nm at 1196 min^{-1} of the engine.

Mean atmospheric conditions:	
Temperature	23 °C
Pressure	100.7 kPa
Relative humidity	65 %
Maximum temperatures:	
Coolant	86 °C
Engine oil	111 °C
Fuel	28 °C
Engine air intake	25 °C


Torque
Power
Power (kW)
Torque (Nm)
Standard p.t.o. speed 1000 min-1
Engine speed (min-1)


Fuel cons.
Specific cons.
Fuel consumption (kg/h)
Specific consumption (g/kWh)
Standard p.t.o. speed 1000 min-1
Engine speed (min-1)


650
600
550
500
450
400
350
300
250
200
Specific fuel consumption (g/kWh)
5
10
15
20
25
30
35
40
45
50
55
60
Power (kW)

3.2 Hydraulic power and lifting force

- Date of tests: 24 May 2006

3.2.1 *Hydraulic power test*

3.2.1.1 Hydraulic fluid data

- Hydraulic fluid type: AKROS MULTI FCT;
- Viscosity index (ISO 3448 + Corr. 1:1993): 160;
- Viscosity at 65°C: 29 mm^2/s.

3.2.1.2 Test results

	Pressure	Reservoir oil Temperature		Engine Speed	Flow rate	Power
		Min.	Max.			
	MPa	°C	°C	min^{-1}	l/min	kW
Rated engine speed				-		
3.2.1.2.1 Maximum pressure with relief valve open as measured at the coupler Pump stalled: No	18.0	61	63	2737		
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	16.2	61		2735	27.1	7.32
3.2.1.2.3 Maximum available flow and maximum power from one coupler pair	1.8 14.3	61 62		2739 2733	45.0 41.4	- 9.87
3.2.1.2.4 Maximum available flow and maximum power from coupler pairs operating simultaneously	Simultaneous operation not available					

3.2.2 *Power lift test*

Linkage setting for test - see paragraph 1.6

		At the hitch point	On the frame
Height of lower hitch point above ground in down position	mm	200	136
Vertical movement			
without lifting forces	mm	703	862
with lifting forces	mm	653	784
Maximum corrected force exerted through full range	kN	21.98	18.84
Corresponding pressure of hydraulic fluid	MPa	16.2	16.2
Moment about rear-wheel axis	kNm	21.76	30.14
Maximum tilt angle of mast from vertical	degrees	-	9

Lifting heights relative to the horizontal plane including the lower link pivot points (mm)											
	-464	-400	-300	-200	-100	0	+100	+200	+253	+300	+320
Lifting forces (the values of force measured shall be corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve setting of the hydraulic lift system):											
at the hitch points (kN), corrected to 16.2 MPa											
	-	21.98	24.79	26.53	27.68	28.22	28.90	30.04	28.77	-	-
at the frame (kN), corrected to 16.2 MPa											
	18.84	19.89	21.47	22.28	22.72	22.55	22.16	22.08	-	21.96	21.99

3.3 Drawbar power and fuel consumption (unballasted tractor)

- Date of tests: 4, 5, 8, and 9 May 2006;
- Type of track: concrete.

	Height of drawbar above ground mm	Tyre inflation pressure	
		Front kPa	Rear kPa
Unballasted	540	160	160
Ballasted	538	160	160

Gear and range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperatures			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 (unballasted tractor)														
5C	11.4	30.00	1.37	2698	3669	15.0	862	0.97	24	80	105	18	68	100.2
2S	13.9	30.50	1.64	2702	3675	15.3	670	1.25	24	81	105	18	68	100.2
3S	18.4	30.20	2.19	2694	3664	15.0	568	1.48	26	81	105	18	68	100.2
4S	24.2	30.30	2.88	2678	3642	14.8	505	1.66	26	81	105	18	68	100.2
1N	29.0	29.70	3.51	2670	3631	14.9	437	1.92	26	82	108	18	68	100.3
5S	30.9	29.27	3.80	2654	3609	14.4*	436	1.92	27	82	111	18	68	100.3
2N	40.6	28.73	5.09	2523	3431	12.0*	379	2.21	28	83	111	18	67	100.2
3N	44.5	22.27	7.19	2499	3399	5.6	351	2.39	28	83	110	18	68	100.2
4N	45.9	17.00	9.72	2499	3399	3.3	342	2.45	30	84	111	19	68	100.2
1F	46.0	14.51	11.42	2499	3399	2.4	340	2.47	29	83	110	19	67	100.2
5N	44.5	12.24	13.09	2499	3399	1.7	351	2.39	31	82	108	19	67	100.2
2F	44.1	9.25	17.19	2503	3404	0.8	354	2.37	30	81	108	20	67	100.3
3F	42.3	6.61	23.03	2499	3399	0.6	369	2.28	31	81	109	20	67	100.3

* Not possible to achieve steady condition at 15% slip

Gear and range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperatures			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. at maximum power at rated engine speed														
1F	46.0	14.51	11.42	2499	3399	2.4	340	2.47	29	83	110	19	67	100.2
3.3.2.1.1 75 % of pull corresponding to maximum power at rated engine speed														
1F	37.0	10.92	12.20	2658	3615	1.6	357	2.35	29	80	108	19	67	100.2
3.3.2.1.2 50 % of pull corresponding to maximum power at rated engine speed														
1F	25.3	7.26	12.55	2690	3658	0.7	438	1.92	30	81	108	19	67	100.2
3.3.2.1.3. Next higher gear at reduced engine speed. same pull and travelling speed as in 3.3.2.1.1														
5N	37.2	10.95	12.22	2328	3166	1.7	313	2.68	29	81	109	19	67	1002
3.3.2.1.4. Next higher gear at reduced engine speed. same pull and travelling speed as in 3.3.2.1.2														
5N	25.2	7.23	12.55	2361	3211	0.8	362	2.32	28	80	109	19	66	100.2
3.3.2.2 In selected gear nearest to 7.50 km/h at rated engine speed														
3N	44.5	22.27	7.19	2499	3399	5.6	351	2.39	28	83	110	18	68	100.2
3.3.2.2.1 75 % of pull corresponding to maximum power at rated engine speed														
3N	36.4	16.72	7.84	2662	3620	3.7	360	2.33	29	81	109	19	66	100.3
3.3.2.2.2 50 % of pull corresponding to maximum power at rated engine speed														
3N	24.8	11.17	8.00	2690	3658	1.8	444	1.89	28	82	110	19	66	100.3
3.3.2.2.3. Next higher gear at reduced engine speed. same pull and travelling speed as in 3.3.2.2.1														
4N	36.3	16.71	7.82	2007	2730	3.6	303	2.77	28	82	111	19	66	100.2
3.3.2.2.4. Next higher gear at reduced engine speed. same pull and travelling speed as in 3.3.2.2.2														
4N	24.7	11.17	7.97	2015	2740	1.8	358	2.35	29	82	111	18	66	100.2

Gear and range	Power	Drawbar pull	Speed	Engine speed	Fan speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperatures			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
3.3.3 OPTIONAL MAXIMUM POWER IN TESTED GEARS (ballasted tractor)														
1C	3.6	33.20	0.39	2725	3706	15.0	2022	0.41	29	82	110	18	66	100.4
2C	5.5	33.30	0.59	2718	3696	15.0	1465	0.57	29	82	110	18	66	100.4
3C	7.4	33.33	0.80	2715	3692	14.9	1111	0.76	29	82	109	19	66	100.4
4C	9.8	33.45	1.06	2713	3690	14.8	844	0.99	29	82	110	19	66	100.4
1S	10.4	33.86	1.11	2710	3686	15.0	826	1.02	28	82	110	19	66	100.4
5C	13.0	33.99	1.38	2708	3683	14.8	676	1.24	29	83	112	19	66	100.4
2S	14.8	32.07	1.66	2704	3677	14.0*	613	1.37	29	83	112	19	66	100.4
3S	19.3	31.48	2.21	2698	3669	13.8*	509	1.65	29	82	112	20	65	100.4
4S	23.3	27.69	3.03	2690	3658	11.2*	472	1.78	30	83	112	20	65	100.3
1N	27.1	26.77	3.65	2686	3653	12.4*	426	1.97	30	82	111	20	65	100.3
5S	29.4	26.38	4.01	2678	3642	10.9*	416	2.02	30	82	111	20	66	100.3
2N	37.6	24.52	5.53	2662	3620	9.9*	348	2.41	30	83	112	20	66	100.3
3N	46.4	23.00	7.26	2499	3399	5.1	336	2.50	29	82	112	21	65	100.4
4N	47.0	17.34	9.76	2501	3401	3.3	329	2.55	29	83	112	21	65	100.4
1F	47.5	14.94	11.46	2499	3399	2.6	328	2.56	29	82	111	21	66	100.4
5N	46.2	12.67	13.14	2499	3399	2.0	338	2.48	29	83	111	21	65	100.4
3.3.4 FIVE HOUR TESTS														
3.3.4.1 FIVE HOUR TEST at 75% of pull at maximum power														
3N	37.9	17.26	7.91	2662	3620	2.3	345	2.43	28	82	112	23	65	100.6
3.3.4.2 FIVE HOUR TEST at pull corresponding to 15% wheelslip. with additional ballast: 160 kg														
2N	39.3	24.45	5.79	2650	3604	5.1	347	2.41	29	82	111	23	66	100.6

* Not possible to achieve steady condition at 15% slip

Oil consumption during ten hours duration of test 3.3.4.1 and 3.3.4.2: 33 g/h.

4. OPTIONAL TEST RESULTS

4.1 Turning area and turning circle

	Without brakes	
	Right-hand	Left-hand
	m	m
Radius of turning area	5.43	5.36
Radius of turning circle	5.20	5.13

4.2 Location of centre of gravity

Height above ground: 871 mm
Distance from the vertical plane containing the axis of the rear-wheels: 992 mm
Distance from the median longitudinal plane to the left of the tractor: 11 mm
Angle of suspension of the tractor: 20 °

4.3 Braking

Date of tests: 22 May 2006;

4.3.1 *Cold service braking device test*

	Speed before application of brakes	Braking device control force	Mean deceleration	Minimum stopping distance without locking the wheels
	km/h	kN	m/s^2	m
Ballasted tractor	43.8	0.05	0.91	81.3
	44.1	0.10	1.52	49.4
	44.1	0.15	2.14	35.1
	43.9	0.19	2.61	28.5
	44.1	0.24	3.20	23.4
	44.2	0.25	3.43	22.0
Unballasted tractor	43.7	0.05	0.90	81.9
	43.1	0.10	1.65	43.4
	43.8	0.15	2.28	32.5
	43.9	0.20	2.87	25.9
	44.0	0.23	3.42	21.8
	44.0	0.25	3.69	20.2

4.3.1 *Cold service braking device test* (continued)

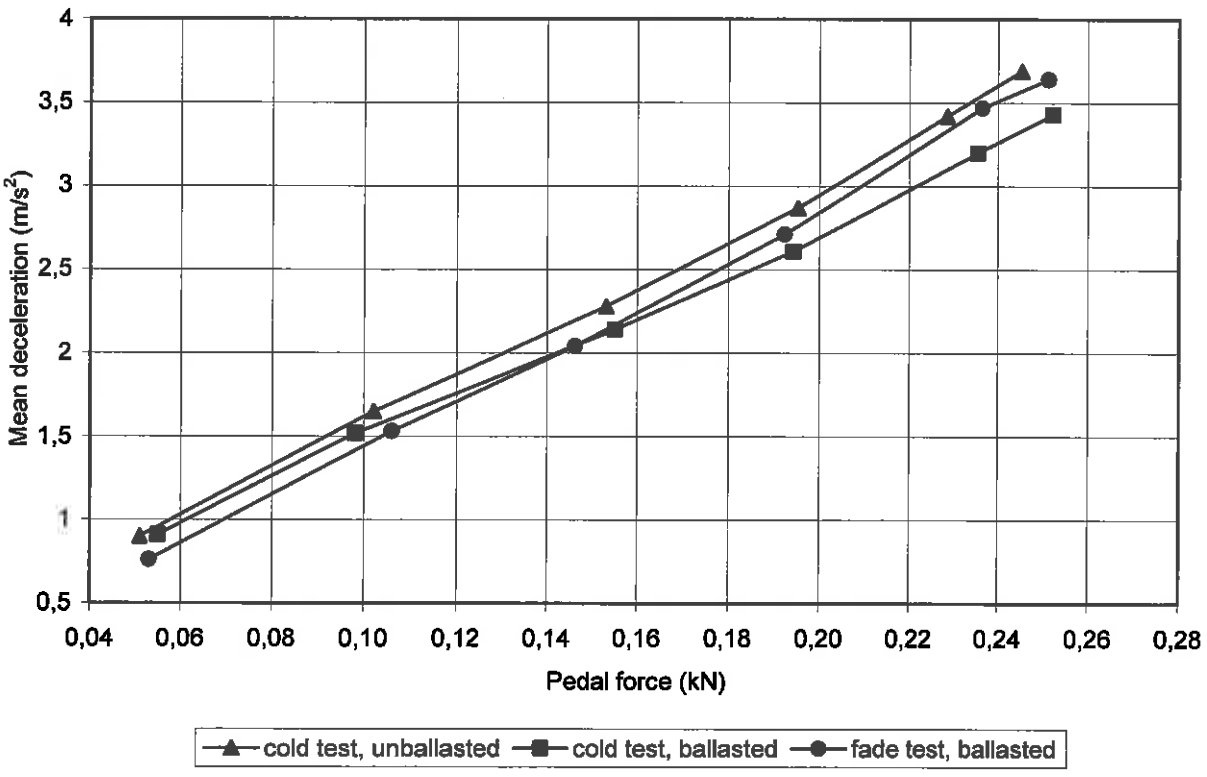
- Maximum deviation of tractor from its original course: none;
- Abnormal vibration: none;

4.3.2 *Fade test*

	Speed before application of brakes	Braking device control force	Mean deceleration	Minimum stopping distance without locking the wheels
	km/h	kN	m/s^2	m
Ballasted tractor	43.4	0.05	0.76	95.6
	43.9	0.11	1.53	48.6
	44.1	0.15	2.04	36.8
	44.1	0.19	2.71	27.7
	43.9	0.24	3.47	21.4
	44.1	0.25	3.64	20.6

- Maximum deviation of tractor from its original course: none;
- Abnormal vibration: none;
- Brake heating method: heated by towing of the tractor for 1 km.

Service brake test



4.3.3 *Parking brake device test*

	Ballasted tractor on 18% slope	
	Uphill	Downhill
	kN	kN
Braking device control force	0.12	0.12

4.4 Measurement of external noise level

- Date of test: 23 May 2006;
- Type of sound level meter: BRÜEL & KJÆR model 2231;
- Type of track: concrete.

Gear	Travelling speed before acceleration	Sound level
	km/h	dB(A)
5F	31.9	84.8

5. REPAIRS: none.

6. REMARKS: none.

TEST ENGINEER
(Dr. Carlo BISAGLIA)

HEAD OF ISMA
(Ing. Giovanni SANTORO)