CRA
CONSIGLIO PER LA RICERCA E LA SPERIMENTAZIONE IN AGRICOLTURA

ISMA
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 75 SPECIAL

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



LAMBORGHINI 674-75 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.:	2/2 367
Date of approval:	10 April 2007
Period of test:	February 2007

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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 75 Special (4WD) and Lamborghini 674-75 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 58 and the T 42 models and consequently, different rear mudguards and rear lights position.
All tests were carried out on the Same Explorer 75 Special (4WD) with the T 58 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 CRA-ISMA;
D	- Place of running-in:	Treviglio BG, Italy;
D	- Duration of running-in:	50 hours;
C	- Location of test:	CRA-ISMA, Via Milano 43, Treviglio BG, Italy.

1. SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1 Denomination

C	- Make:	SAME;
C	- Model:	EXPLORER 75 SPECIAL;
C	- Type:	four-wheel drive, unit construction.

1.1.2 Numbers

D	- First serial number:	EXP75SVT25001;
C	- Serial number:	EXP75SVT25002.

1.1.3 Other specification

D	- Model for other countries:	SAME EXPLORER 70 SPECIAL and LAMBORGHINI 674-70 N;
C	- Speed version:	40 km/h.

1.2 Engine

C	- Make/Model/Type:	SAME DEUTZ-FAHR ITALIA / 1000.4 W / water cooled 4-stroke diesel, direct injection, naturally aspirated;
C	- Serial number:	37193.

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:	52 ± 2 mm^3/stroke at rated speed and full load corresponding 14.7 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 2520 min^{-1};
C	- Rated engine speed:	2350 min^{-1}.

1.2.5 Air cleaner

	- Pre-cleaner	
C	- Make/Model/Type:	DONALDSON / P02-0227 / cyclone;
C	- Location of air intake:	front of engine, above the bonnet;
	- Main cleaner	
C	- Make/Model/Type:	DONALDSON / FKG06-5416 / 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:	6;
C	- Fan diameter:	400 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 / E88.22.8 / 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 / E82.44 / 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 / E82.43 / 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 2350 min^{-1} (*) km/h	
			FORWARD	REVERSE	FORWARD	REVERSE
C	1	Creeper	1618.80	1554.39	0.36	0.37
C	2	Creeper	1092.69	1049.21	0.54	0.56
C	3	Creeper	821.30	788.62	0.72	0.74
C	4	Creeper	622.61	597.83	0.94	0.98
C	5	Creeper	469.08	450.42	1.25	1.30
C	1	Slow	575.57	552.67	1.02	1.06
C	2	Slow	388.51	373.05	1.51	1.57
C	3	Slow	292.02	280.40	2.01	2.10
C	4	Slow	221.37	212.56	2.66	2.77
C	5	Slow	166.78	160.14	3.53	3.67
C	1	Normal	180.72	173.53	3.26	3.39
C	2	Normal	121.98	117.13	4.82	5.02
C	3	Normal	91.68	88.04	6.42	6.68
C	4	Normal	69.50	66.74	8.47	8.82
C	5	Normal	52.37	50.28	11.25	11.71
C	1	Fast	59.69	57.31	9.86	10.27
C	2	Fast	40.29	38.68	14.61	15.22
C	3	Fast	30.28	29.07	19.44	20.25
C	4	Fast	22.95	22.04	25.65	26.72
C	5	Fast	17.29	16.60	34.00	35.47

(*)*Calculated with a tyre dynamic radius index of 665 mm (in conformity with ISO 4251-1:1998).*

- Number of revolutions of front wheels for one revolution of rear wheels: 1,3234.

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:	665 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:	609 min^{-1};
C	- Engine speed at standard power take-off speed:	2083 min^{-1};
C	- Ratio of rotation speeds (engine speed/p.t.o. speed):	3.857;
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:	665 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:	1028 min^{-1};

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

C	- Engine speed at standard power take-off speed:	2286 min^{-1};
C	- Ratio of rotation speeds (engine speed/p.t.o. speed):	2.2857;
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

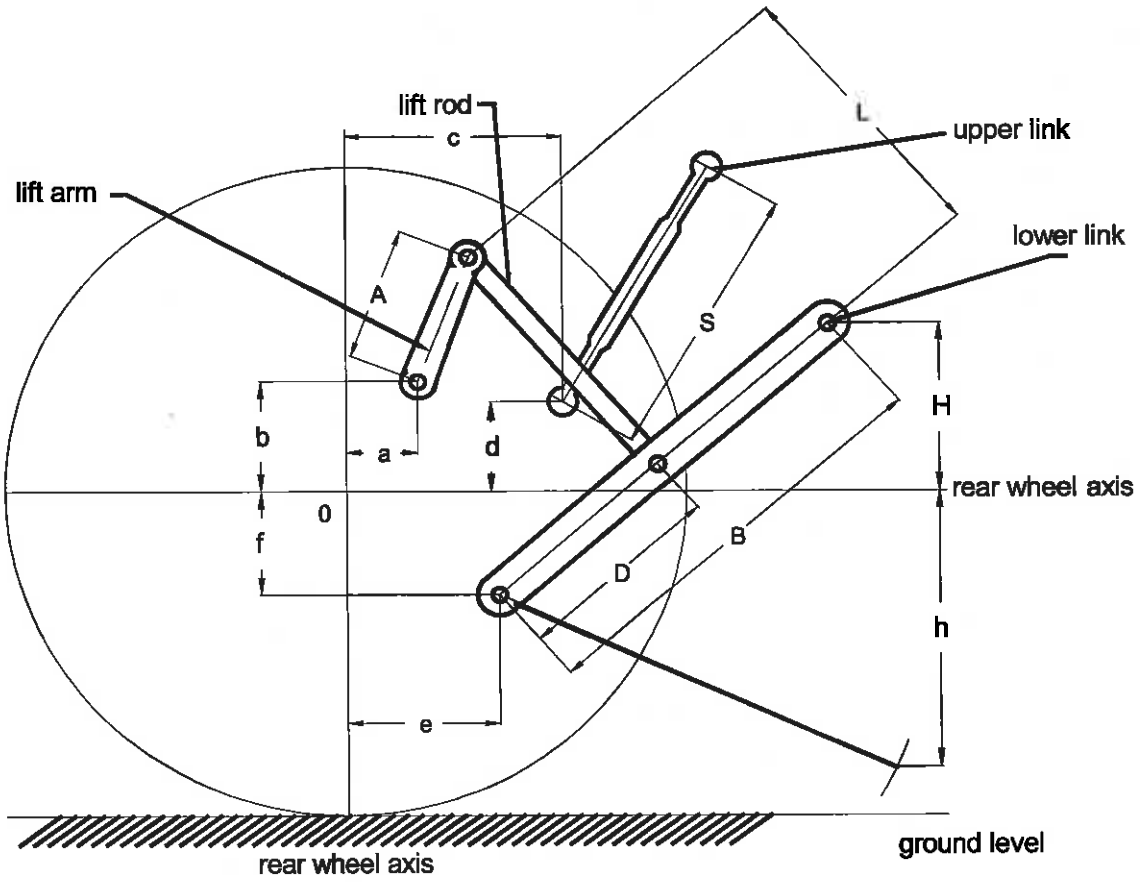
C	- Make/Model/Type:	SAME DEUTZ-FAHR ITALIA / - / open centre system, load sensing;
C	- Type and number of cylinders:	2 external single acting;
C	- Type of linkage lock for transport:	not available;
D	- Relief valve pressure setting:	19.0 ± 0.5 MPa;
D	- Opening pressure of cylinder safety valve:	21.0 ± 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:	2, double acting, at rear of tractor;
D	- Maximum volume of oil available to external cylinders:	15 dm^3.

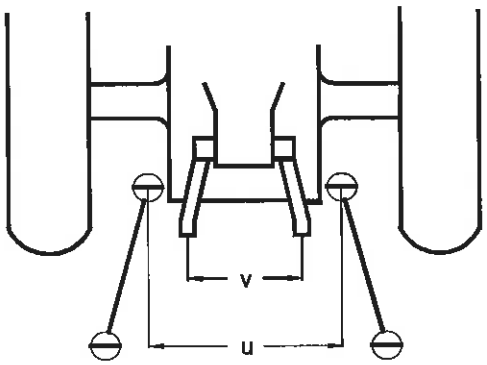
1.6 Three-point linkage

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

			Dimensions or range		Settings used in the test
			mm		mm
C	Length of lift arms:	(A)	320		320
C	Length of lower links:	(B)	730		730
	Distance of lift arm pivot point from rear wheel axis (behind):				
C	- horizontally	(a)	122		122
C	- vertically	(b)	337		337
C	Horizontal distance between the 2 lower link points:	(u)	440		440
C	Horizontal distance between the 2 lift arm end points:	(v)	490		490
C	Length of upper link:	(S)	from 540 to 700		658
	Distance of upper link pivot point from rear wheel axis:				
C	- horizontally	(c)	319		319
C	- vertically	(d)	225-285		225
	Distance of lower link pivot point from rear wheel axis:				
C	- horizontally	(e)	215		215
C	- vertically	(f)	180		180
C	Distance of lower link pivot points to lift rod pivot points on lower links:	(D)	370		370
C	Length of lift rods:	(L)	from 640 to 740		691
	Height of lower hitch points relative to the rear wheel axis:				
C	Length of lift rods:	(L)	640	740	690
C	Linkage distance of lift rods:	(D)	370		
C	Lowest position:	(h)	351	574	465
C	Highest position:	(H)	291	125	207
C	Height above ground of lower hitch points when locked in transport position(*)		956	790	872

(*) *Assuming the dynamic radius index = 665 mm (in conformity with ISO 4251-1:1998).*

1.7 Swinging drawbar not fitted, optional.

1.8 Trailer hitch

C	- Type:	SAME DGM-GA 1163 C;
C	- Hole diameter:	28 mm;
C	- Height above ground:	centre of clevis adjustable in 3 steps to 637, 517, 397 mm.
C	- Distance of hitch point from rear wheel axis - Horizontally:	505 mm;
C	- Distance of hitch point from power take-off shaft end - Vertically:	below 28, 148, 268 mm; above, none;
C	- Horizontally:	100 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.:	94 mm;
D	- Max.:	956 mm;
D	- Horizontal distance behind power take-off shaft end:	540 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: 2245 mm.

-Track width adjustment:

	Minimum	Maximum	Adjustment method
	mm	mm	
D Front	1500	1800	changing the position of the rims with respect to the disc
D Rear	1500	1910	

1.13 Protective structure

C - Make/Model/Type: SAME DEUTZ-FAHR ITALIA / T 58 / 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 58	T 42
C	Approval number	CSD 1281/16	CSD 0826/12
C	Date of approval	20/06/1990	19/09/1986
C	No. of minor modification certificate	IIA 775 MI 2006	IIA 773 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	1180	140 x 85	195
C	Side lights	1395	90 x 45	770
C	Rear lights	1350	180 x 35	770
C	Reflectors	945	∅ 80	718

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	4230	1930	2330	2355	2430
Unballasted	3900	1930	2330	2355	2430

2.2 Ground clearance: 400 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	1475	1500	1230	1255
Rear	1660	1710	1545	1595
Total	3135	3210	2775	2850

2.4 Ballast

	Weights		Water
	Number	Total mass	
		kg	kg
Front	4	160	-
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 AC90C	CONTRACT AC85
- dimensions	11.2R24	14.9R30
- ply rating	-	-
- load index/speed index	114 A8	135 A8
- type	radial	radial
- maximum load (tyre manufacturer's)	24.72 kN	38.85 kN
- maximum load (tractor manufacturer's)	21.58 kN	32.37 kN
- inflation pressure (tyre manufacturer's)	160 kPa	160 kPa
- dynamic radius index	515 mm	665 mm
Chosen track width	1710 mm	1500 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: 8 February 2007, CRA-ISMA, Treviglio BG, Italy;
- Type of dynamometer bench: eddy-current, ZÖLLNER B500.

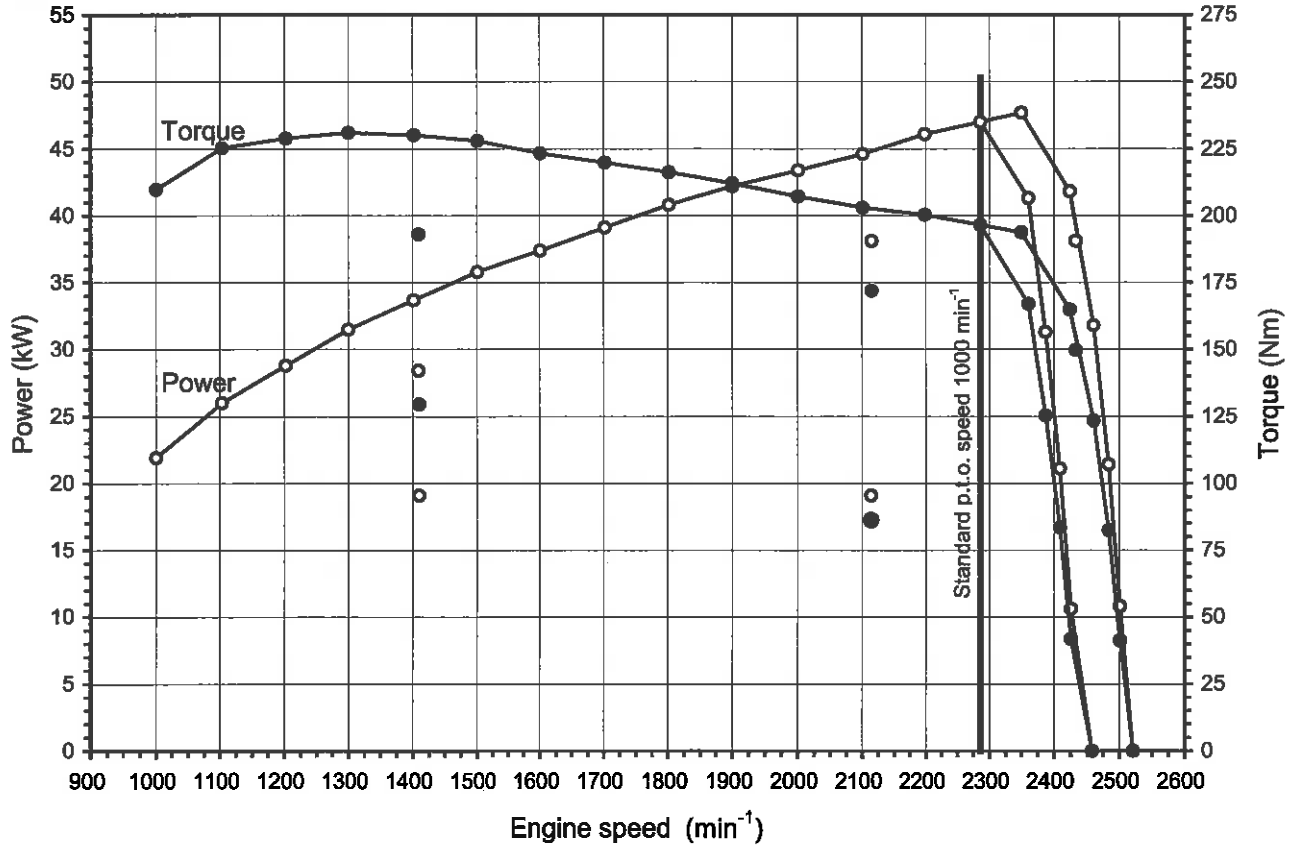
Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O.	Fan	Hourly		Specific	
kW	min^{-1}			kg/h	l/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER - ONE-HOUR TEST							
47.7	2350	1028	3196	12.30	14.66	258	3.25
3.1.2 POWER AT RATED ENGINE SPEED							
47.7	2350	1028	3196	12.30	14.66	258	3.25
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000 ± 25 min^{-1})							
47.0	2286	1000	3110	12.15	14.48	259	3.25
3.1.4 PART LOADS 3.1.4.1 The torque corresponding to maximum power at rated engine speed							
47.7	2350	1028	3196	12.30	14.66	258	3.25
3.1.4.2 85% of torque obtained in 3.1.4.1							
41.8	2424	1061	3297	11.17	13.31	267	3.14
3.1.4.3 75% of torque defined in 3.1.4.2							
31.8	2460	1076	3346	9.05	10.79	285	2.95
3.1.4.4 50% of torque defined in 3.1.4.2							
21.4	2484	1086	3378	7.01	8.36	328	2.56
3.1.4.5 25% of torque defined in 3.1.4.2							
10.8	2501	1094	3402	5.20	6.20	481	1.74
3.1.4.6 unloaded							
0	2521	1103	3429	3.72	4.43	-	-

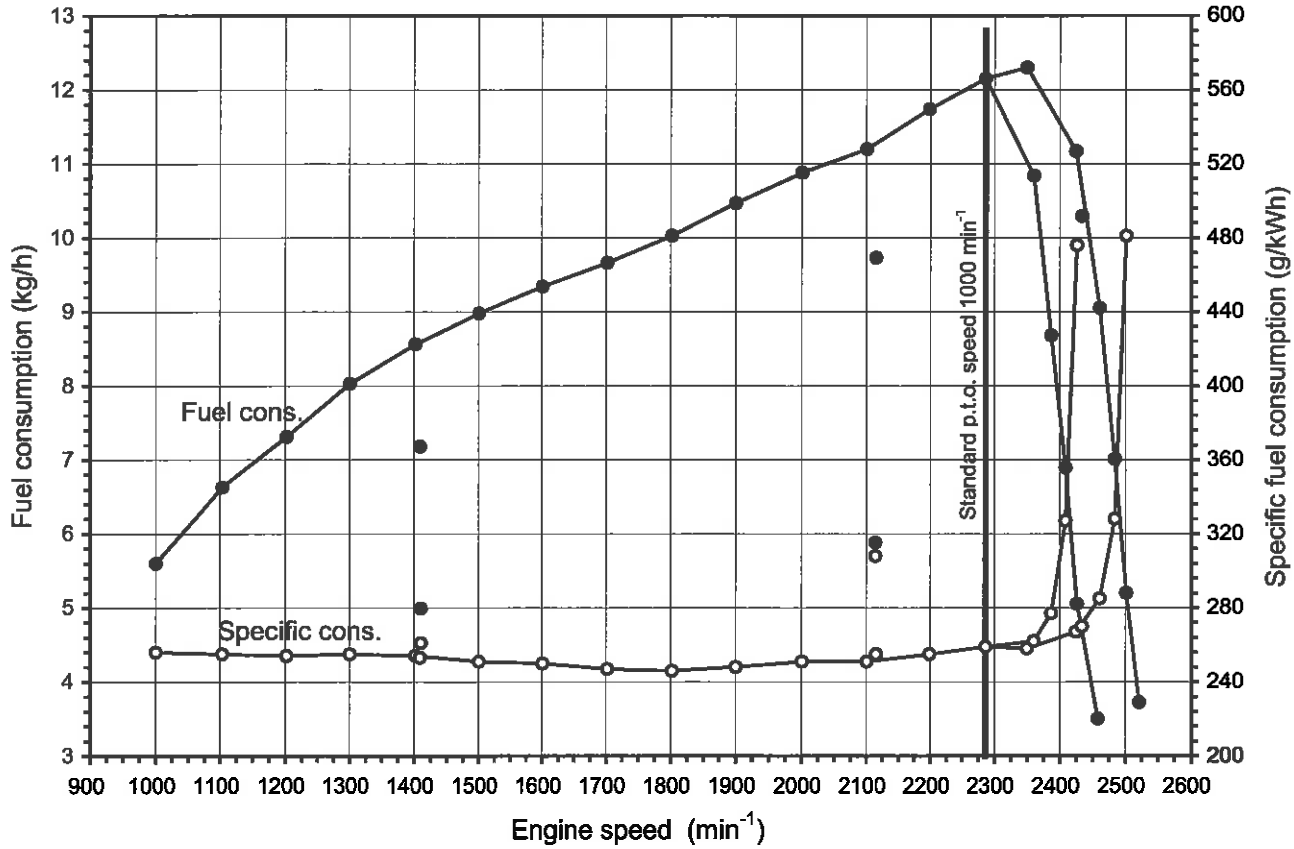
Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O.	Fan	Hourly		Specific	
kW	min^{-1}			kg/h	l/h	g/kWh	kWh/l
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (1000 ± 25 min^{-1}) 3.1.5.1 The torque corresponding to maximum power available							
47.0	2286	1000	3110	12.15	14.48	259	3.25
3.1.5.2 85% of torque obtained in 3.1.5.1							
41.3	2361	1033	3211	10.84	12.92	262	3.20
3.1.5.3 75% of torque defined in 3.1.5.2							
31.3	2387	1044	3246	8.68	10.35	277	3.02
3.1.5.4 50% of torque defined in 3.1.5.2							
21.1	2409	1054	3276	6.89	8.21	327	2.57
3.1.5.5 25% of torque defined in 3.1.5.2							
10.6	2426	1061	3299	5.05	6.02	476	1.76
3.1.5.6 unloaded							
0	2458	1075	3342	3.50	4.17	-	-

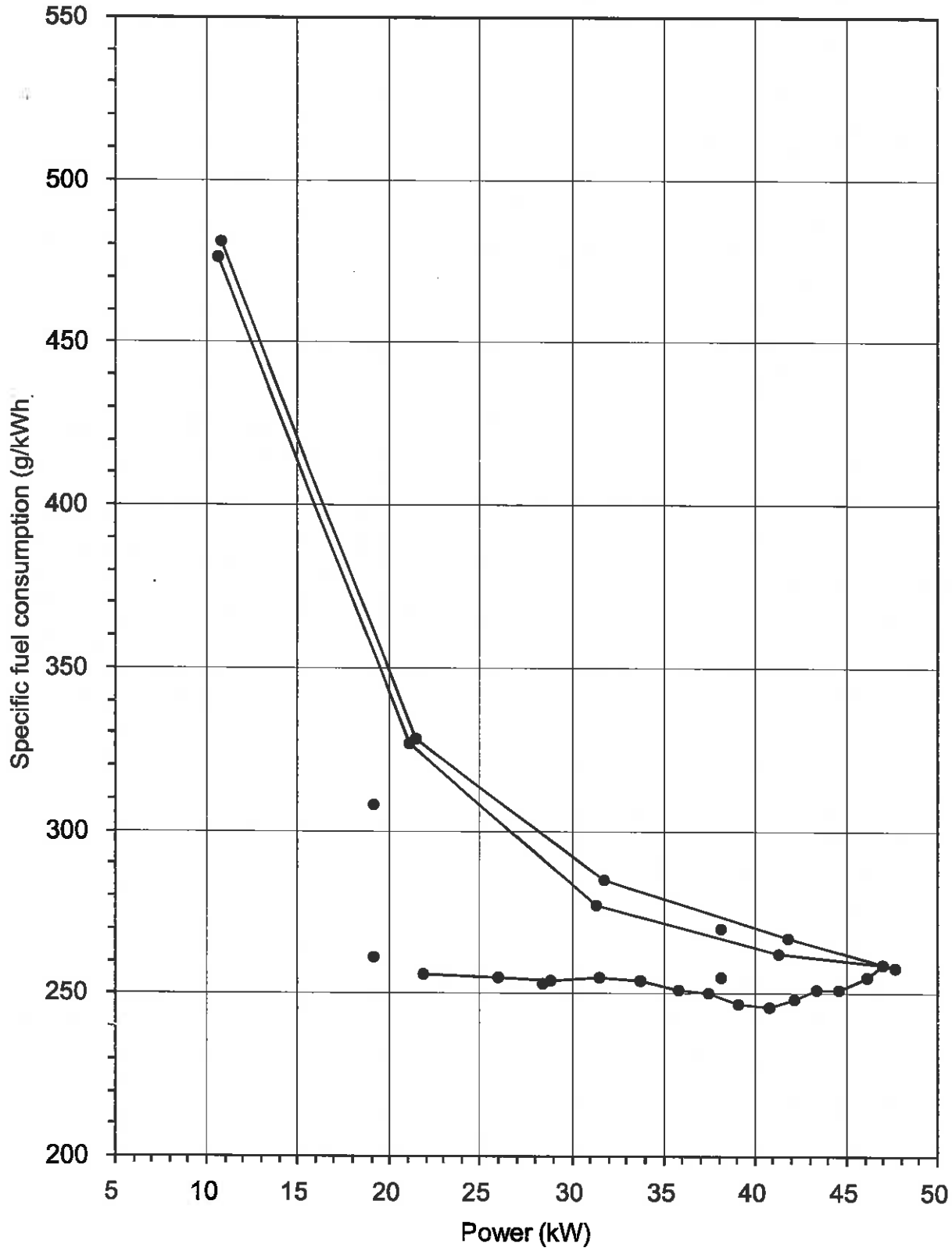
Power	Speed			Fuel consumption			Specific energy
	Engine	P.T.O.	Fan	Hourly		Specific	
kW	min^{-1}			kg/h	l/h	g/kWh	kWh/l
3.1.6 PART LOADS AT DIFFERENT ENGINE SPEED 3.1.6.1 maximum power at rated engine speed							
47.7	2350	1028	3196	12.30	14.66	258	3.25
3.1.6.2 80 % of power obtained in 3.1.6.1 at max. speed setting							
38.1	2433	1064	3309	10.29	12.26	270	3.11
3.1.6.3 80 % of power obtained in 3.1.6.1 with governor control set to 90 % of rated engine speed							
38.1	2115	925	2876	9.73	11.60	255	3.28
3.1.6.4 40 % of power obtained in 3.1.6.1 with governor control set to 90 % of rated engine speed							
19.1	2114	925	2875	5.88	7.01	308	2.72
3.1.6.5 60 % of power obtained in 3.1.6.1 with governor control set to 60 % of rated engine speed							
28.4	1409	616	1916	7.18	8.56	253	3.32
3.1.6.6 40 % of power obtained in 3.1.6.1 with governor control set to 60 % of rated engine speed							
19.1	1410	617	1918	4.99	5.95	261	3.21

- No load maximum engine speed: 2521 min^{-1};
- Equivalent flywheel torque at rated engine speed: 193.8 Nm;
- Equivalent flywheel torque at 1-hour test: 193.8 Nm;
- Maximum equivalent flywheel torque: 231.1 Nm at 1300 min^{-1} of the engine.

Mean atmospheric conditions:	
Temperature	17 °C
Pressure	100.0 kPa
Relative humidity	64 %
Maximum temperatures:	
Coolant	85 °C
Engine oil	121 °C
Fuel	30 °C
Engine air intake	23 °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 fuel consumption (g/kWh)
Standard p.t.o. speed 1000 min-1
Engine speed (min-1)


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

3.2 Hydraulic power and lifting force

- Date of tests: 12 February 2007

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	18.5	62	67	2512		
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	16.6	63		2505	31.5	8.72
3.2.1.2.3 Maximum available flow and maximum power from one coupler pair	1.4 16.1	62 65		2512 2507	36.8 34.1	- 9.15
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	117
Vertical movement			
without lifting forces	mm	672	847
with lifting forces	mm	596	726
Maximum corrected force exerted through full range	kN	25.20	19.90
Corresponding pressure of hydraulic fluid	MPa	16.60	16.60
Moment about rear-wheel axis	kNm	23.81	30.94
Maximum tilt angle of mast from vertical	degrees	-	14

Lifting heights relative to the horizontal plane including the lower link pivot points (mm)											
	-368	-300	-285	-200	-100	0	+100	+200	+300	+311	+358
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 16.6 MPa											
	-	-	25.20	26.42	27.65	28.71	30.11	31.24	33.00	32.88	-
at the frame (kN), corrected to 16.6 MPa											
	19.90	20.29	-	21.08	21.45	21.77	22.09	21.94	21.72	-	21.41

3.3 Drawbar power and fuel consumption (unballasted tractor)

- Date of tests: 13, 14, 15 and 16 February 2007;
- Type of track: concrete.

	Height of drawbar above ground mm	Tyre inflation pressure	
		Front kPa	Rear kPa
Unballasted	400	160	160
Ballasted	398	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	8.3	26.33	1.14	2503	3404	15.0	600	1.40	25	81	101	12	66	100.2
2S	10.1	26.44	1.37	2499	3399	15.0	532	1.58	26	81	101	12	66	100.2
3S	13.0	25.76	1.82	2492	3389	15.0	469	1.79	26	82	103	13	66	100.2
4S	17.2	25.88	2.39	2480	3373	15.0	425	1.97	25	82	103	13	66	100.2
1N	20.5	25.27	2.92	2472	3362	15.0	390	2.15	24	82	103	13	66	100.1
5S	21.7	24.77	3.16	2468	3356	15.0	383	2.19	25	82	105	14	64	100.2
2N	28.3	23.40	4.35	2453	3336	*14.1	338	2.48	25	82	105	14	64	100.2
3N	34.8	21.80	5.75	2430	3305	*13.7	313	2.68	26	83	107	14	64	100.2
4N	40.6	17.60	8.30	2350	3196	2.6	305	2.75	26	83	108	14	64	100.1
1F	41.0	15.20	9.72	2350	3196	1.9	301	2.79	25	83	108	14	65	100.2
5N	40.9	13.25	11.12	2350	3196	1.5	303	2.77	27	84	108	13	65	100.2
2F	39.8	9.81	14.63	2351	3197	1.0	309	2.71	26	85	110	13	64	100.2
3F	39.6	7.29	19.58	2350	3196	0.5	312	2.69	26	84	111	13	64	100.2

* 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 nearest to 7.5 km/h, at rated engine speed														
4N	40.6	17.60	8.30	2350	3196	2.6	305	2.75	26	83	108	14	64	100.1
3.3.2.1.1 75 % of pull corresponding to maximum power at rated engine speed														
4N	32.1	13.20	8.77	2440	3318	1.3	320	2.62	24	81	106	13	64	100.2
3.3.2.1.2 50 % of pull corresponding to maximum power at rated engine speed														
4N	21.8	8.79	8.94	2472	3362	0.2	371	2.26	25	82	104	13	64	100.2
3.3.2.1.3. Highest gear 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														
1F	32.1	13.22	8.75	2088	2840	1.2	278	3.02	25	82	104	13	63	100.2
3.3.2.1.4. Same gear selection as 3.3.2.1.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2														
1F	21.7	8.78	8.91	2110	2870	0.1	314	2.68	26	81	103	13	63	100.2
3.3.2.2 In selected gear setting nearest between 7 km/h and 10 km/h at rated engine speed														
1F	41.0	15.20	9.72	2350	3196	1.9	301	2.79	25	83	108	14	65	100.2
3.3.2.2.1 75 % of pull corresponding to maximum power at rated engine speed														
1F	32.3	11.38	10.22	2440	3318	0.8	319	2.63	26	81	106	13	63	100.1
3.3.2.2.2 50 % of pull corresponding to maximum power at rated engine speed														
1F	22.0	7.60	10.41	2468	3356	0.2	382	2.19	26	81	105	13	63	100.1
3.3.2.2.3. Highest gear 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														
5N	32.3	11.40	10.21	2145	2917	0.8	282	2.98	27	82	105	13	63	100.1
3.3.2.2.4. Same gear selection as 3.3.2.1.3 at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2														
5N	22.0	7.61	10.39	2168	2948	0.2	325	2.58	27	82	105	13	63	100.1

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	2.6	30.22	0.31	2513	3418	14.8	1696	0.49	26	81	105	14	63	100.0
2C	4.3	30.30	0.51	2511	3415	15.0	1061	0.79	26	81	105	14	63	100.0
3C	5.5	30.35	0.65	2507	3410	15.0	876	0.96	26	83	106	14	62	100.0
4C	7.3	30.48	0.86	2502	3403	15.0	716	1.17	25	82	106	14	62	100.0
1S	7.9	30.38	0.94	2500	3400	15.0	681	1.23	26	83	106	13	61	100.1
5C	9.8	30.67	1.15	2496	3395	15.0	578	1.45	26	83	108	13	61	100.0
2S	11.6	30.22	1.38	2492	3389	15.0	533	1.57	25	83	109	14	61	100.1
3S	14.7	28.89	1.83	2480	3373	15.0	497	1.69	25	83	109	14	61	100.1
4S	18.5	27.58	2.42	2472	3362	15.0	431	1.95	26	83	109	14	61	100.1
1N	21.4	26.03	2.96	2465	3352	*14.7	401	2.09	26	83	111	14	61	100.0
5S	23.0	25.61	3.23	2465	3352	*14.0	378	2.22	25	82	111	13	61	100.1
2N	30.8	24.68	4.49	2449	3331	*12.3	317	2.65	25	83	111	13	62	100.0
3N	40.0	23.44	6.15	2350	3196	5.5	309	2.72	25	82	110	14	62	100.0
4N	40.5	17.54	8.32	2349	3195	3.4	306	2.75	26	82	110	14	61	100.0
1F	40.1	14.83	9.75	2350	3196	2.9	308	2.72	26	82	111	14	61	100.1
5N	40.3	13.02	11.15	2350	3196	2.5	307	2.73	26	82	111	14	61	100.1
3.3.4 FIVE HOUR TESTS														
3.3.4.1 FIVE HOUR TEST at 75% of pull at maximum power														
4N	31.8	13.15	8.70	2448	3329	1.9	309	2.72	26	84	113	14	60	100.8
3.3.4.2 FIVE HOUR TEST at pull corresponding to 15% wheelslip. with additional ballast 80 kg														
2N	32.7	24.6	4.79	2449	3331	5.0	298	2.82	27	85	113	14	60	100.9

Oil consumption during ten hours duration of test 3.3.4.1 and 3.3.4.2: 39 g/h.

* Not possible to achieve steady condition at 15% slip

4. OPTIONAL TEST RESULTS

4.1 Turning area and turning circle

	Without brakes	
	Right-hand	Left-hand
	m	m
Radius of turning area	5.48	5.46
Radius of turning circle	5.33	5.31

4.2 Location of centre of gravity

Height above ground: 714 mm
Distance from the vertical plane containing the axis of the rear-wheels: 1004 mm
Distance from the median longitudinal plane to the left of the tractor: 7 mm
Angle of suspension of the tractor: 20 °

4.3 Braking

Date of tests: 19 February 2007;

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	36.6	0.05	0.82	63.0
	36.7	0.11	1.60	32.5
	36.3	0.16	2.29	22.2
	36.8	0.21	3.22	16.2
	36.8	0.25	3.51	14.9
	36.7	0.27	3.66	14.2
Unballasted tractor	36.8	0.05	1.00	52.2
	36.9	0.11	1.98	26.5
	36.7	0.16	2.89	18.0
	36.9	0.20	3.55	14.8
	36.7	0.21	3.85	13.5
	36.8	0.24	4.09	12.8

4.3.1 *Cold service braking device test* (continued)

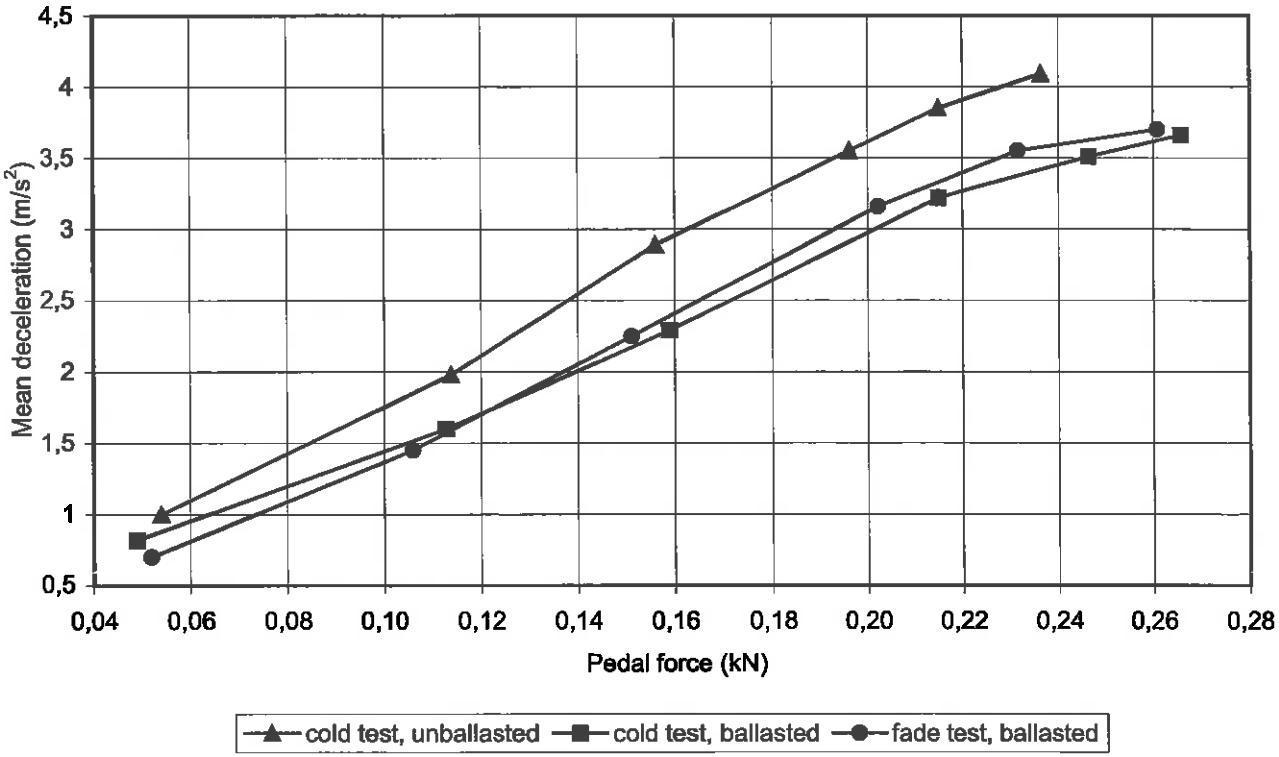
- Maximum deviation of tractor from its original course: none;
- Abnormal vibration: none;

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	36.3	0.05	0.70	72.6
	36.4	0.11	1.45	35.3
	36.6	0.15	2.25	23.0
	36.7	0.20	3.16	16.4
	36.8	0.23	3.55	14.7
	36.8	0.26	3.70	14.1

- Maximum deviation of tractor from its original course: none;
- Abnormal vibration: none;
- Brake heating method: heated by towing 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	0.11	0.11

4.4 Measurement of external noise level

- Date of test: 19 February 2007;
- 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	27.5	86.1

5. REPAIRS: none.

6. REMARKS: none.

TEST ENGINEER
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HEAD OF ISMA
(Ing. Giovanni SANTORO)