ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

REPORT ON TEST IN ACCORDANCE WITH OECD STANDARD CODE FOR THE OFFICIAL TESTING OF AGRICULTURAL AND FORESTRY TRACTOR PERFORMANCE (CODE 1)



SAME S10N754AVT

trade name: **SAME GOLDEN 75 COMPATTO**

45 forward and 45 reverse speeds
40 km/h
four-wheel drive agricultural tractor

Manufactured by: SAME DEUTZ-FAHR GROUP S.p.A.
V.le F. Cassani 15
24047 Treviglio BG
Italy

OECD approval No.: 1/1855
Date of approval: 11 October 1999
Period of test: June - July 1999

ISMA Via Milano 43 24047 Treviglio BG Italy
Tel/Fax: (0363) 49603

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All stated dimensions and tests refer to tyre size 240/70R16 at front and 380/70R20 at rear, as well as to track widths 1010 mm at front and 890 mm at rear.

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

1. SPECIFICATION OF TRACTOR

1.1 Identification

- Make: SAME;
- Model: S10N754AVT with 45 forward and 45 reverse speeds 40 km/h version;
- Trade name: GOLDEN 75 COMPATTO;
- Type: four-wheel drive, unit construction;
- Number of driving wheels: 4;
- Serial number: 1167;
- First serial number: 1001.

1.2 Engine

- Make: SAME DEUTZ-FAHR Group;
- Model: 1000.4 A3;
- Type: air cooled 4-stroke diesel, direct injector naturally aspirated
- Serial number: 57341.

1.2.1 *Cylinders*

- Number and disposition: 4 vertical in line;
- Bore x stroke: 105 x 115.5 mm;
- Capacity: 4000 cm^3;
- Compression ratio: 17:1;
- Arrangement of valves: overhead;
- Cylinder liners: without liners.

1.2.2 *Supercharging*

none.

1.2.3 *Fuel system*

- Fuel feed system:	AC corone fuel feed pump;
- Make, model and type of fuel filter:	FIAMM FNA 166/20;
- Total capacity of fuel tanks:	58 dm^3 (26+32 dm^3);
- Make, model and type of injection pump:	BOSCH PFR 1 K-90A 543, immersed, one per cylinder in line;
- Serial number:	without serial number;
- Manufacturer's production setting of injection pump:	
. Flow rate:	54 $\pm$ 2 mm^3/stroke at rated speed and full load corresponding 15.2 dm^3/h;
. Timing:	16° before TDC;
- Make, model and type of injectors:	BOSCH DLLA 150 S 1323 multihole injection nozzles;
- Injection pressure:	18 $\pm$ 1 MPa.

1.2.4 *Governor*

- Make:	SAME DEUTZ-FAHR Group;
- Model:	007.0992.4;
- Type:	electronic;
- Governed range of engine speed:	from 650 to 2530 rev/min;
- Rated engine speed:	2350 rev/min.

1.2.5 *Air cleaner*

- Pre-cleaner:	(optional, fitted on tested tractor)
. Make:	DONALDSON;
. Model:	P01-6330;
. Type:	cyclone;
. Location:	above the bonnet;
- Main filter	
. Make:	DONALDSON;
. Model:	FLG 08-0553;
. Type:	dry paper element filter with replaceable cartridge;
. Location of air intake :	front of engine, above bonnet;
- Maintenance indicator	with warning lamp on the dashboard.

1.2.6 *Lubrication system*

- Type of feed pump:	forced feed from gear pump;
- Type of filter:	FIAMM FT 4945 IN;
- Number of filters:	1.

1.2.7 *Cooling system*

- Type of coolant:	air cooling with axial blower;
- Specification of fan:	propeller fan driven by engine shaft;
- Number of fan blades:	13;
- Fan diameter:	250 mm;
- Type of temperature control:	none.

1.2.8 *Starting system*

- Make:	ISKRA;
- Model:	AZ 1349 12 V;
- Type:	electromagnetic engagement;
- Starter motor power rating:	2.7 kW;
- Cold starting aid:	thermostarter;
- Safety device:	electrical lockout on clutch and PTO controls;

1.2.9 *Electrical equipment*

- Voltage:	14 V;
- Generator	
. Make:	ISKRA;
. Model:	AAK 5115 14 V 85 A;
. Type:	alternator;
. Power:	85 A;
- Battery:	1 lead acid;
. capacity:	100 Ah at 20 hours rating.

1.2.10 *Exhaust system*

- Make:	SAME DEUTZ-FAHR Group;
- Model:	DGM SA 3516;
- Type:	one reflection absorption chamber;
- Location:	on the left hand side of engine, horizontal position under side bonnet;
- Height of outlet above ground:	300 mm.

1.3 Transmission

1.3.1 *Clutch (utilized only for travelling of tractor)*

- Make:	SAME DEUTZ-FAHR Group;
- Model:	705.23;
- Type:	single disk dry clutch;
- Number of plates:	1;
- Plates diameter:	310 mm;
- Control system:	hydraulic operated by pedal.

1.3.2 *Gear box*

- Make: SAME DEUTZ-FAHR Group;
- Model: 705.31;
- Type: mechanical synchromesh speed change gear; 5 speeds with 3 ranges of speed (S/N/F), one electrohydraulic reduction gears (low/medium/high), and one reverse group.

	Forward	Reverse
Number of gears	5	5
Number of ranges	3	3
Number of reduction gears	3	3
Total of arrangements	45	45

- Available options: 5 speeds forward with 3 ranges (S/N/F) and 2 reduction gears (low/high), 5 speeds reverse with 3 ranges (S/N/F).

	Forward	Reverse
Number of gears	5	5
Number of ranges	3	3
Number of reduction gears	2	-
Total of arrangements	30	15

- Available options: 5 speeds forward with 2 ranges (N/F) and 2 reduction gears (low/high), 5 speeds reverse with 2 ranges (N/F).

	Forward	Reverse
Number of gears	5	5
Number of ranges	2	2
Number of reduction gears	2	-
Total of arrangements	20	10

1.3.3 *Rear axle and final drives*

- Make: SAME DEUTZ FAHR Group;
- Model: 705.44;
- Type: bevel gear differential and epyciclic final drive.
- Differential lock
  . Make: SAME DEUTZ FAHR Group;
  . Model: 705.47;
  . Type: electrohydraulic;
  . Control system: engaged or disengaged by button.

1.3.4 *Front axle and final drives*

- Make: SAME DEUTZ FAHR Group;
- Model: 705.43;
- Type: original SAME DEUTZ-FAHR system with central shaft bevel gear drive, differential and epicyclic final drives.

- Differential lock
  - Make: SAME DEUTZ FAHR Group;
  - Model: 705.46;
  - Type: electrohydraulic;
  - Control system: engaged or disengaged by button.

1.3.5 *Total ratios and travelling speeds*

Gear	Group	Number of engine revolutions for one revolution of the driving wheels			Nominal travelling speed at rated engine speed of 2350 rev/min (*) km/h		
		Low	Medium	High	Low	Medium	High
FORWARD							
1	Slow	2952.67	2460.57	2004.41	0.15	0.18	0.23
2	Slow	2067.08	1722.62	1421.20	0.22	0.26	0.32
3	Slow	1442.63	1202.17	991.87	0.31	0.38	0.46
4	Slow	1032.36	860.27	709.79	0.44	0.53	0.64
5	Slow	679.20	566.00	466.96	0.67	0.80	0.97
1	Normal	467.54	389.60	321.43	0.97	1.16	1.41
2	Normal	327.30	272.79	225.00	1.38	1.66	2.01
3	Normal	228.41	190.39	157.02	1.98	2.37	2.88
4	Normal	163.46	136.25	112.36	2.76	3.32	4.02
5	Normal	107.54	89.62	73.94	4.20	5.04	6.11
1	Fast	84.96	70.83	58.41	5.32	6.38	7.74
2	Fast	59.45	49.59	40.87	7.60	9.11	11.06
3	Fast	41.53	34.61	28.54	10.88	13.06	15.83
4	Fast	29.68	24.75	20.39	15.22	18.26	22.16
5	Fast	19.54	16.28	13.44	23.12	27.75	33.63

(*) *Calculated with a tyre dynamic radius index of 510 mm. (ISO 4251/1-1992)*

- Number of revolutions of front wheels for one revolution of rear wheels: 1.4998.

1.3.5 *Total ratios and travelling speeds* (continued)

Gear	Group	Number of engine revolutions for one revolution of the driving wheels			Nominal travelling speed at rated engine speed of 2350 rev/min (*) km/h		
		Low	Medium	High	Low	Medium	High
REVERSE							
1	Slow	3112.01	2593.36	2112.58	0.15	0.17	0.21
2	Slow	2593.36	1815.58	1497.90	0.21	0.25	0.30
3	Slow	1520.48	1267.05	1045.40	0.30	0.36	0.43
4	Slow	1088.07	906.69	748.10	0.42	0.50	0.60
5	Slow	715.85	596.55	492.16	0.63	0.76	0.92
1	Normal	492.77	410.62	338.77	0.92	1.10	1.33
2	Normal	344.97	287.51	237.14	1.31	1.57	1.91
3	Normal	240.74	200.67	165.49	1.88	2.25	2.73
4	Normal	172.28	143.60	118.42	2.62	3.15	3.82
5	Normal	113.34	94.46	77.93	3.99	4.78	5.80
1	Fast	89.54	74.65	61.56	5.05	6.05	7.34
2	Fast	62.66	52.26	43.07	7.21	8.64	10.49
3	Fast	43.77	36.48	30.08	10.32	12.39	15.02
4	Fast	31.28	26.08	21.49	14.45	17.32	21.03
5	Fast	20.60	17.16	14.16	21.94	26.33	31.91

(*) *Calculated with a tyre dynamic radius index of 510 mm. (ISO 4251/1-1992)*

- Number of revolutions of front wheels for one revolution of rear wheels: 1.4998.

1.4 Power take-off

1.4.1 *Main power take-off*

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

1.4.1.1 Power take-off proportional to engine speed

Power take-off at 540 (rev/min)

- Location:	at rear of tractor;
- Diameter of power take-off shaft ends:	35 mm;
- Number of splines:	6, in conformity with ISO 500:1991, type 1;
- Height above ground:	550 mm;
- Distance from the median plane of the tractor:	0 mm;
- Distance behind rear axle:	440 mm;
- PTO speed at rated engine speed:	611 rev/min;
- Engine speed at standard power take-off speed:	2077 rev/min;
- Ratio of rotation speeds (engine speed/p.t.o. speed):	3.8462;
- Power restriction:	none;
- Maximum torque transmissible:	none;
- Direction of rotation (viewed from behind tractor):	clockwise.

Power take-off at 750 (rev/min)

- Location:	at rear of tractor;
- Diameter of power take-off shaft ends:	35 mm;
- Number of splines:	6, in conformity with ISO 500:1991, type 1;
- Height above ground:	550 mm;
- Distance from the median plane of the tractor:	0 mm;
- Distance behind rear axle:	440 mm;
- PTO speed at rated engine speed:	766 rev/min;
- Engine speed at standard power take-off speed:	2300 rev/min;
- Ratio of rotation speeds (engine speed/p.t.o. speed):	3.0667;
- Power restriction:	none;
- Maximum torque transmissible:	none;
- Direction of rotation (viewed from behind tractor):	clockwise.

Power take-off at 1000 (rev/min)

- Location:	at rear of tractor;
- Diameter of power take-off shaft ends:	35 mm;
- Number of splines:	6, in conformity with ISO 500:1991, type 1;
- Height above ground:	550 mm;
- Distance from the median plane of the tractor:	0 mm;
- Distance behind rear axle:	440 mm;
- PTO speed at rated engine speed:	1022 rev/min;
- Engine speed at standard power take-off speed:	2300 rev/min;
- Ratio of rotation speeds (engine speed/p.t.o. speed):	2.3;
- Power restriction:	none;
- Maximum torque transmissible:	none;
- 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)

- Type:	independent, not adjustable to 540-1000 rev/min location at rear of tractor, in tractor's median plane, below the main PTO, engaged or disengaged by hand lever at the left hand side of the seat;
- Number and type of shafts:	1, ISO 500:1991, type 1 (35 mm dia, 6 splines);
- Method of changing power take-off shaft ends:	none;
- Travelling distance for one revolution of power take-off shaft:	0.28 m;
- Number of power take-off shaft revolutions for one revolution of rear driving wheels:	14.74;
- Direction of rotation with forward gear engaged (viewed from behind tractor):	clockwise.

1.4.2 *Secondary power take-off proportional to engine speed*
(optional, fitted on tested tractor)

- Type:	independent at front of tractor;
- Method of engagement:	engaged or disengaged by push button, driven by multiplate wet clutch independent of travel clutch;
- Number of shafts:	1;
- Method of changing power take-off shaft ends:	not changeable;
- Method of changing speeds:	none;
- Location:	at front of tractor;
- Diameter of power take-off shaft ends:	35 mm;
- Number of splines:	6, in conformity with ISO 500:1991, type 1;
- Height above ground:	530 mm;
- Distance from the median plane of the tractor:	0 mm;
- Distance forward front axle:	630 mm;
- PTO speed at rated engine speed:	979 rev/min;
- Engine speed at standard power take-off speed:	2400 rev/min;
- Ratio of rotation speeds (engine speed/p.t.o. speed):	2.4;
- Power restriction:	none;
- Maximum torque transmissible:	none;
- Direction of rotation (viewed facing driving end):	anticlockwise.

1.5 Hydraulic power lift

1.5.1 *Rear power lift*

- Make:	SAME DEUTZ-FAHR Group;
- Model:	705.39;
- Type:	load sensing;
- Type of hydraulic system:	open centre system;
- Number and type of cylinders:	1 internal single-acting;
- Type of lock for transport:	hydraulic;
- Relief valves pressure setting:	18.0 ± 0.5 Mpa;
- Opening pressure of anti-shock valve:	21.0 ± 0.5 MPa;
- Lift pump	
. Make:	BOSCH;
. Type:	hydraulic rotary pump, driven by engine shaft;
- Transmission between pump and engine:	mechanical;
- Number and type of filters:	1, replaceable paper cartridge;
- Oil capacity:	41 dm^3;

1.5.1 *Rear power lift* (continued)

- Site of oil reservoir:	gear box;
- Number, type and location of tapping points:	7, double acting, at rear of tractor;
- Maximum volume of oil available to external cylinders:	15 dm^3;

1.5.2 *Front power lift* (optional, fitted on tested tractor)

- Make:	SAME DEUTZ-FAHR Group;
- Model:	705.59;
- Type of hydraulic system:	open centre system;
- Type and number of cilinders:	2 at single acting;
- Type of lock for transport:	none;
- Relief valve pressure setting:	18.0 ± 0.5 Mpa;
- Opening pressure of anti-shock valve:	21.0 Mpa;
- Lift pump type:	hydraulic rotary pump, driven by engine shaft, pump make BOSCH;
- Trasmission between pump and engine:	mechanical;
- Number and type of filters:	1, replaceable paper cartridge;
- Oil capacity:	41 dm^3;
- Site of oil reservoir:	gear box;
- Number, type and location of tapping points:	none;
- Maximum volume of oil available to external cylinders:	none;
oil available to external cylinders:	none.

1.6 Three-point linkage

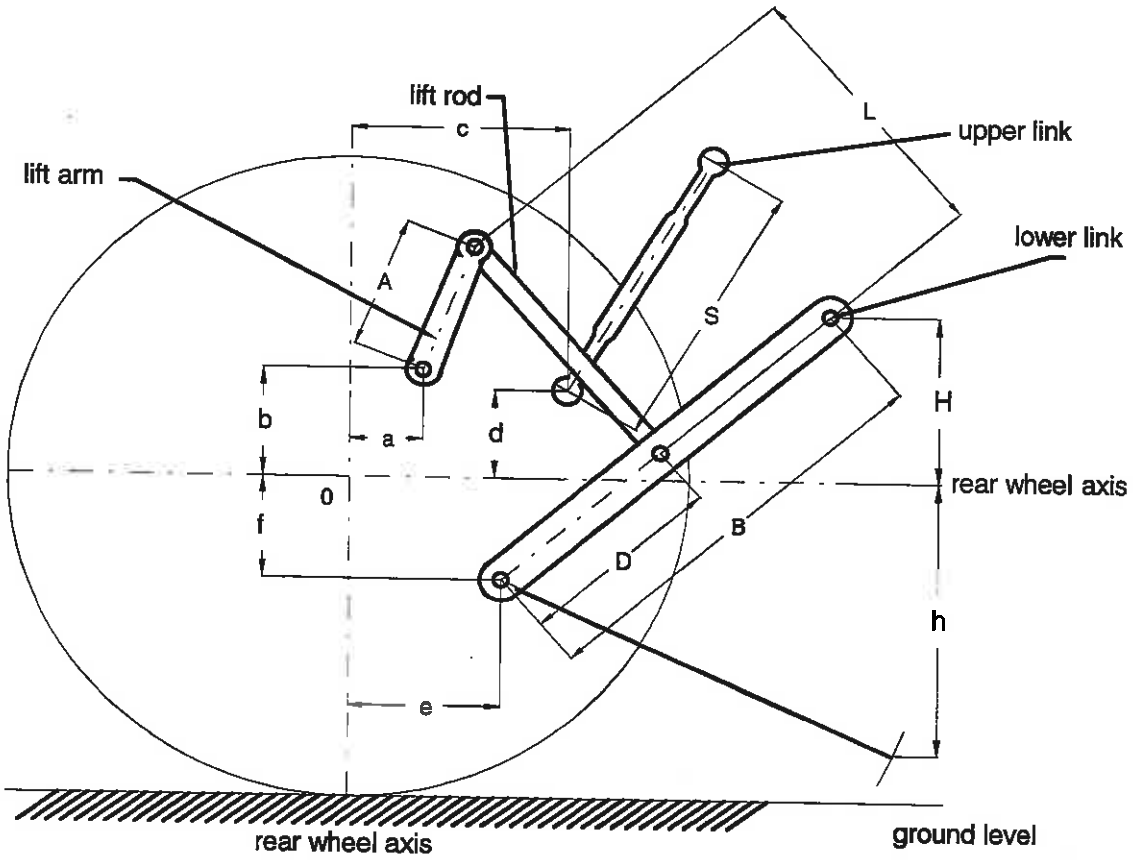
1.6.1 *Rear three point linkage*

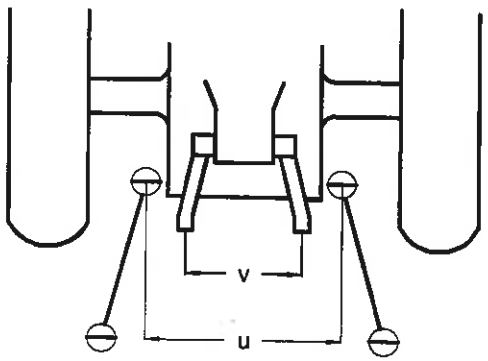
- Category (ISO 730-1:1994 + technical corrigendum):	2;
- Category adapter:	none.

1.6.2 *Front three point linkage*

- Category (ISO 730-1:1994 + technical corrigendum):	2
- Category adapter:	none

Rear linkage geometry



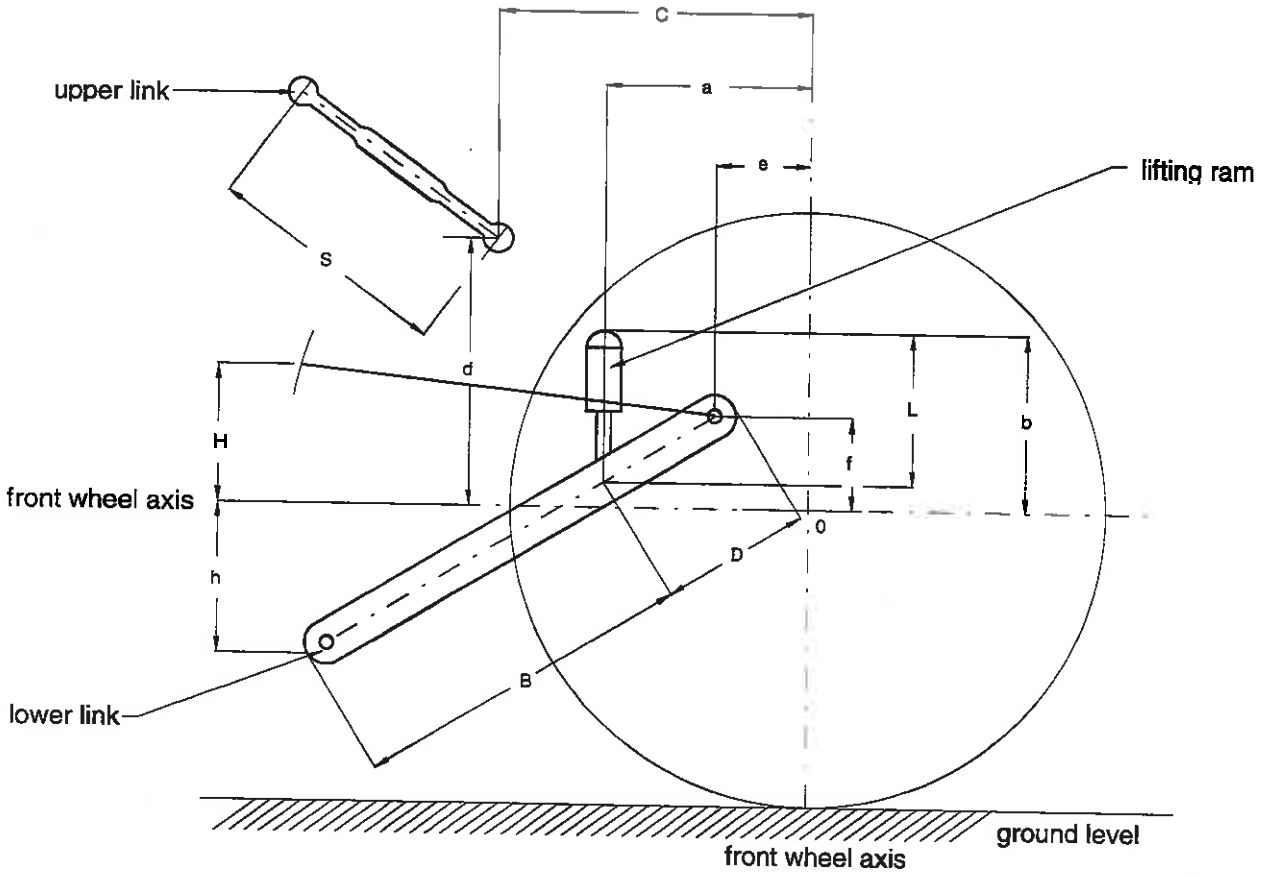


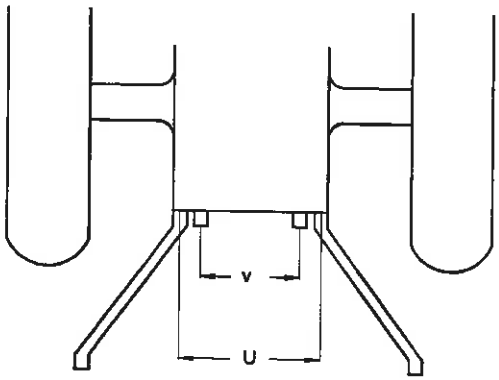
Dimensions of rear linkage geometry when connected to the standard frame

		Dimension or range mm	Settings used in test mm
Length of lift arms	(A)	380	380
Length of lower links	(B)	746	746
Distance of lift arm pivot point from rear wheel axis (behind)			
- horizontally	(a)	177	177
- vertically	(b)	315	315
Horizontal distance between the 2 lower link points	(u)	435	435
Horizontal distance between the 2 lift arm end points	(v)	330	330
Length of upper link	(S)	from 475 to 680	544
Distance of upper link pivot point from rear wheel axis			
- horizontally	(c)	407-397-407	397
- vertically	(d)	260-295-335	295
Distance of lower link pivot point from rear wheel axis			
- horizontally	(e)	183	183
- vertically	(f)	154	154
Distance of lower link pivot points to lift rod pivot points on lower links	(D)	600	600
Length of lift rods	(L)	from 505 to 645	637
Height of lower hitch points relative to the rear wheel axis:			
Length of lift rods	(L)	505	645	637
Linkage distance of lift rods	(D)	600	600	600
Lowest position	(h)	179	381	370
Highest position	(H)	431	309	317
Height above ground of lower hitch points when locked in transport position (*)				827

(*) *Assuming the dynamic radius index = 510 mm (ISO 4251-1:1992)*

Front linkage geometry





Dimensions of front linkage geometry when connected to the standard frame

		Dimension or range mm	Settings used in test mm
Length of lower links	(B)	670	670
Distance of cilinders pivot point from front wheel axis (forward)			
- horizontally	(a)	630	630
- vertically	(b)	485	485
Horizontal distance between the 2 lower link points	(u)	280	280
Horizontal distance between the 2 lift arm end points	(v)	310	310
Length of upper link	(S)	from 470 to 680	478
Distance of upper link pivot point from front wheel axis			
- horizontally	(c)	630 - 675	630
- vertically	(d)	540 - 480	540
Distance of upper link pivot point from front wheel axis			
- horizontally	(e)	433	433
- vertically	(f)	40	40
Distance of lower link pivot points to cylinders pivot points on lower links	(D)	235	235
Length of cylinders			
- in low position	(L)	360	360
- in high position	(L)	560	560
Height of lower hitch points relative to the front wheel axis			
- in low position	(h)		220
- in high position	(H)		355
Height above ground of lower hitch points (*)			705

(*) Assuming the dynamic radius index = 350 mm (ISO 4251-1:1992)

1.7 Swinging drawbar (not available)

1.8 Trailer hitch

- Type:	DGM-GA 4200 C 6t V1,5;
- Hole diameter:	28 mm;
- Height above ground	
. Min.:	250 mm;
. Max.:	670 mm;
- Distance of hitch point from rear wheel axis	
. Horizontally:	600 mm;
- Distance of hitch point from power take-off shaft end	
. Vertically:	270 mm below, 140 mm above;
. Horizontally:	160 mm;
- Maximum vertical permissible load:	14.7 kN.

1.9 Holed drawbar (optional, not fitted on tested tractor)

- Number of holes:	7;
- Distance between holes:	100 mm;
- Hole diameter:	28.5 mm;
- Thickness x width of the drawbar:	30 x 80 mm;
- Height above ground,	
. Min.:	155 mm;
. Max.:	985 mm;
- Horizontal distance behind power take-off shaft end:	470 mm;
- Diameter of the pinhole:	28 mm.

1.10 Steering

- Specification:	hydrostatic steering with BOSCH hydraulic gear pump, 2 simple acting ram directly on front axle.
- Make:	DANFOSS;
- Model:	ORBITROLL OSPC 80 R;
- Type:	hydrostatic;
- Working pressure:	15 MPa;

1.11 Brakes

1.11.1 *Service brake*

- Make: SAME DEUTZ-FAHR Group;
- Model: 705.54;
- Type: oil bath disc, total 4 discs, 2 at front (1 per wheel) and 2 at rear (1 per wheel), all mounted before the final drive;
  - . Front disc diameter: 178 mm;
  - . Rear disc diameter: 224 mm;
  - . Material: FRENDO HDT 303 SINTERIX 2 lining material;
- Method of operation: hydraulically actuated with 2 pedals;
- Trailer braking take-off: none.

1.11.2 *Parking brake*

- Type: fully independent of service brake, 2 oil bath disc mounted on the pinion shaft in the gear box;
- Method of operation: mechanical by hand lever.

1.11.3 *Steering brake*

- Method of operation: divided pedal of service brake, for normal use locked together.

1.12 Wheels

- Number
  - . Front: 2, steering and driving;
  - . Rear: 2, driving;
- Wheelbase: 2056 mm.

-Track width adjustment:

	Minimum mm	Maximum mm	Adjustment method
Front	1010	1265	changing the position of the rims with respect to the disc
Rear	890	1290	

1.13 Protective strutture

- Make:	SAME DEUTZ-FAHR GROUP;
- Model:	C 40;
- Type:	cab, not tiltable;
- Manufacturer's name and address:	SAME DEUTZ-FAHR GROUP S.p.A., Viale F. Cassani 15, 24047 Treviglio BG, Italy.
- OECD approval number:	7/S/0 125;
- Date of approval:	19 March 1998;
- Modification certificate:	none.

1.14 Seat

1.14.1 *Driver's seat*

- Make:	GRAMMER;
- Model:	MSG 83/8;
- Type:	upholstered seat with back rest;
- Seat and steering wheel reversible:	no;
- Type of suspension:	adjustable spring;
- Type of damping:	shock absorber;
- Range of adjustment:	150 mm longitudinally and 60 mm vertically;
- Safety belt:	no.

1.14.2 *Optional driver's seats*

- Make:	KAB;
- Models:	P1/XH 2;
- Type:	upholstered seat with back rest
- Seat and steering wheel reversible:	no;
- Type of suspension:	adjustable spring;
- Type of damping:	shock absorber;
- Range of adjustment:	150 mm longitudinally and 60 mm vertically;
- Safety belt:	no.

1.14.2 *Optional driver's seats* (continued)

- Make: GRAMMER;
- Models: MSG 93/8;
- Type: upholstered seat with back rest
- Seat and steering wheel reversible: no;
- Type of suspension: pneumatic, with automatic weight adjustment;
- Type of damping: shock absorber;
- Range of adjustment: 150 mm longitudinally and 60 mm vertically;
- Safety belt: no.

- Make: GRAMMER;
- Models: DS 83H/8;
- Type: upholstered seat with back rest
- Seat and steering wheel reversible: no;
- Type of suspension: adjustable spring;
- Type of damping: shock absorber;
- Range of adjustment: 150 mm longitudinally and 60 mm vertically;
- Safety belt: no.

1.14.3 *Passenger's seat* none.

1.15 Lighting

Lighting system in accordance with EEC 78/933

	Height above ground of centre mm	Size mm	Distance from out side edge of lights to median plane of tractor mm
Headlights	990	160 x 100	185
Front parking lights	1220	110 x 35	495
Front direction indicator	1220	110 x 35	535
Rear parking lights	1080	50 x 60	430
Rear direction indicator	1080	50 x 60	480
Brake lights	1080	50 x 60	380
Reflectors	650	⌀ 80	490

2. TEST CONDITIONS

2.1 Overall dimensions

	Length		Width		Height at top of protective structure
	with front power lift	without front power lift	minimum	maximum	
	mm	mm	mm	mm	mm
Unballasted	4166	3561	1290	1640	2110
Ballasted	4266	3801	1290	1640	2110

2.2 Ground clearance:

230 mm below front axle (unballasted tractor).

2.3 Tractor mass (with full fuel tanks, cab and front power lift)

	Unballasted		Ballasted	
	Without driver	With driver	Without driver	With driver
	kg	kg	kg	kg
Front	1150	1175	1495	1520
Rear	1340	1390	1230	1280
Total	2490	2565	2725	2800

2.4 Ballast

	Weights		Water
	Number	Total mass	
		kg	kg
Front	1	235	-
Rear wheels	-	-	-

2.5 Tyres and track width specifications

	Front	Rear
Tyres		
make	GOOD YEAR	GOOD YEAR
model	DT 810 RADIAL	DT 810 RADIAL
dimensions	240/70R16	380/70R20
ply rating	-	-
load index/speed index	104 A8	122 A8
type	radial	radial
maximum load (tyre manufacturer's)	900 daN	1500 daN
inflation pressure (tyre manufact.'s)	240 kPa	160 kPa
dynamic radius index	350 mm	510 mm
Chosen track width	1010 mm	890 mm
Technically permissible axle load	1766 daN	2943 daN
Other tyres available	280/65R15.5	380/70R20

2.6 Fuel

- Type: AGIP DIESEL, DIN 51601; (in accordance with the national standard)
- Density at 15 °C: 0.836 g/m^3.

2.7 Oils and lubricants

2.7.1 *Capacity and change interval*

	Capacity dm^3	Oil change h	Filter change h
Engine	11	150	300
Gear box with rear axle and final drives, hydraulic system, steering	41	1200	2400(*)
Front PTO transmission	2.5	1200	-
Front axle/final drives	6/3	1200	-
Brakes	2.5	-	-

(*) Or when the warning lamp is lighted

2.7.2 *Specifications*

	Recommended	Using during test
Engine oil		
Type	AKROS TURBO	AKROS TURBO
Viscosity	12.5 cSt	12.5 cSt
Classification	API SE - CD	API SE - CD
Transmission oil used in Gear box, front PTO transmission, front / rear axle and final drives		
Type	AKROS MULTI	AKROS MULTI
Viscosity	11.5 cSt	11.5 cSt
Classification	API GL 4	API GL 4
Steering oil		
Type	AKROS MULTI	AKROS MULTI
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

2.7.3 *Grease*

- Type: AKROS GREASE T2;
- Number of lubrication points: 15.

3. COMPULSORY TESTS RESULTS

3.1 Main power take-off

- Date and location of test: 22 June1999, ISMA, Treviglio BG, Italy;
- Type of dynamometer: eddy-current, ZÖLLNER B350.

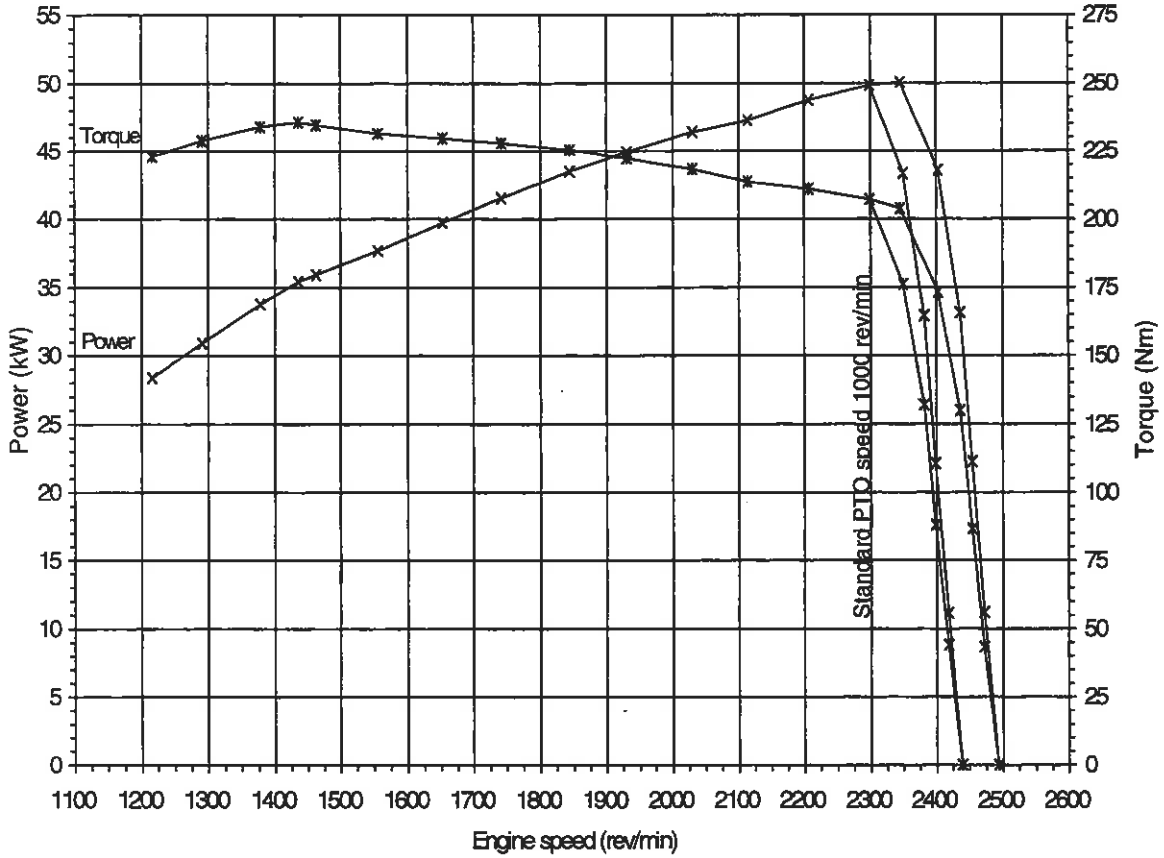
Power	Speed		Fuel consumption			Specific energy
	Engine	PTO	Hourly		Specific	
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
3.1.1 MAXIMUM POWER - TWO-HOUR TEST						
50.06	2346	1020	15.20	12.71	254	3.29
3.1.2 POWER AT RATED ENGINE SPEED						
50.06	2346	1020	15.20	12.71	254	3.29
3.1.3 STANDARD POWER TAKE-OFF SPEED (1000 ± 25 rev/min)						
49.85	2299	1000	15.11	12.63	253	3.30
3.1.4 PART LOADS 3.1.4.1 The torque corresponding to maximum power at rated engine speed						
50.06	2346	1020	15.20	12.71	254	3.29
3.1.4.2 85% of torque obtained in 3.1.4.1						
43.59	2403	1045	13.48	11.27	259	3.23
3.1.4.3 75% of torque defined in 3.1.4.2						
33.14	2436	1059	11.10	9.28	280	2.99
3.1.4.4 50% of torque defined in 3.1.4.2						
22.25	2454	1067	8.70	7.27	327	2.56
3.1.4.5 25% of torque defined in 3.1.4.2						
11.20	2472	1075	6.65	5.56	496	1.68
3.1.4.6 unloaded						
0	2493	1084	4.43	3.70	-	-

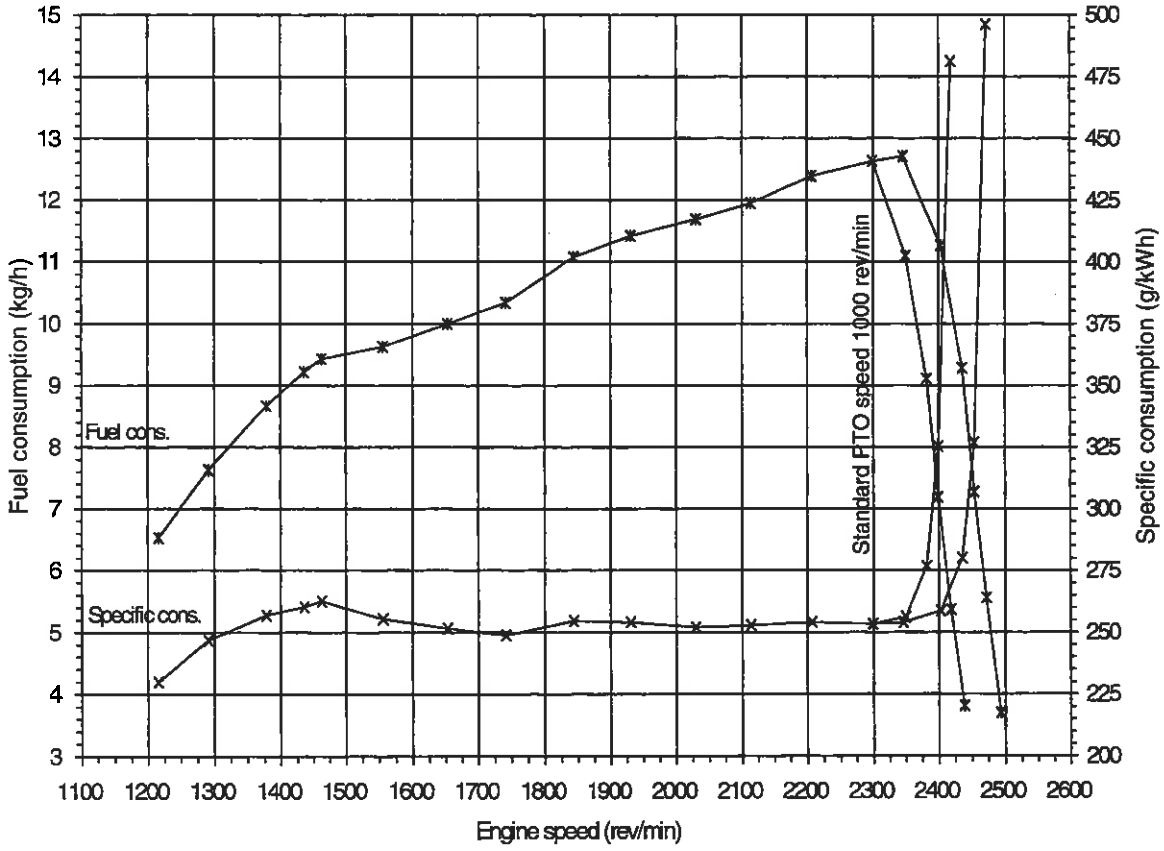
Power	Speed		Fuel consumption			Specific energy
	Engine	PTO	Hourly		Specific	
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
3.1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (1000 ± 25 rev/min)						
3.1.5.1 The torque corresponding to maximum power available						
49.85	2299	1000	15.11	12.63	253	3.30
3.1.5.2 85% of torque obtained in 3.1.5.1						
43.33	2350	1022	13.28	11.10	256	3.26
3.1.5.3 75% of torque defined in 3.1.5.2						
32.93	2382	1036	10.90	9.11	277	3.02
3.1.5.4 50% of torque defined in 3.1.5.2						
22.11	2399	1043	8.60	7.19	325	2.57
3.1.5.5 25% of torque defined in 3.1.5.2						
11.16	2419	1052	6.42	5.37	481	1.74
3.1.5.6 unloaded						
0	2439	1060	4.56	3.81	-	-

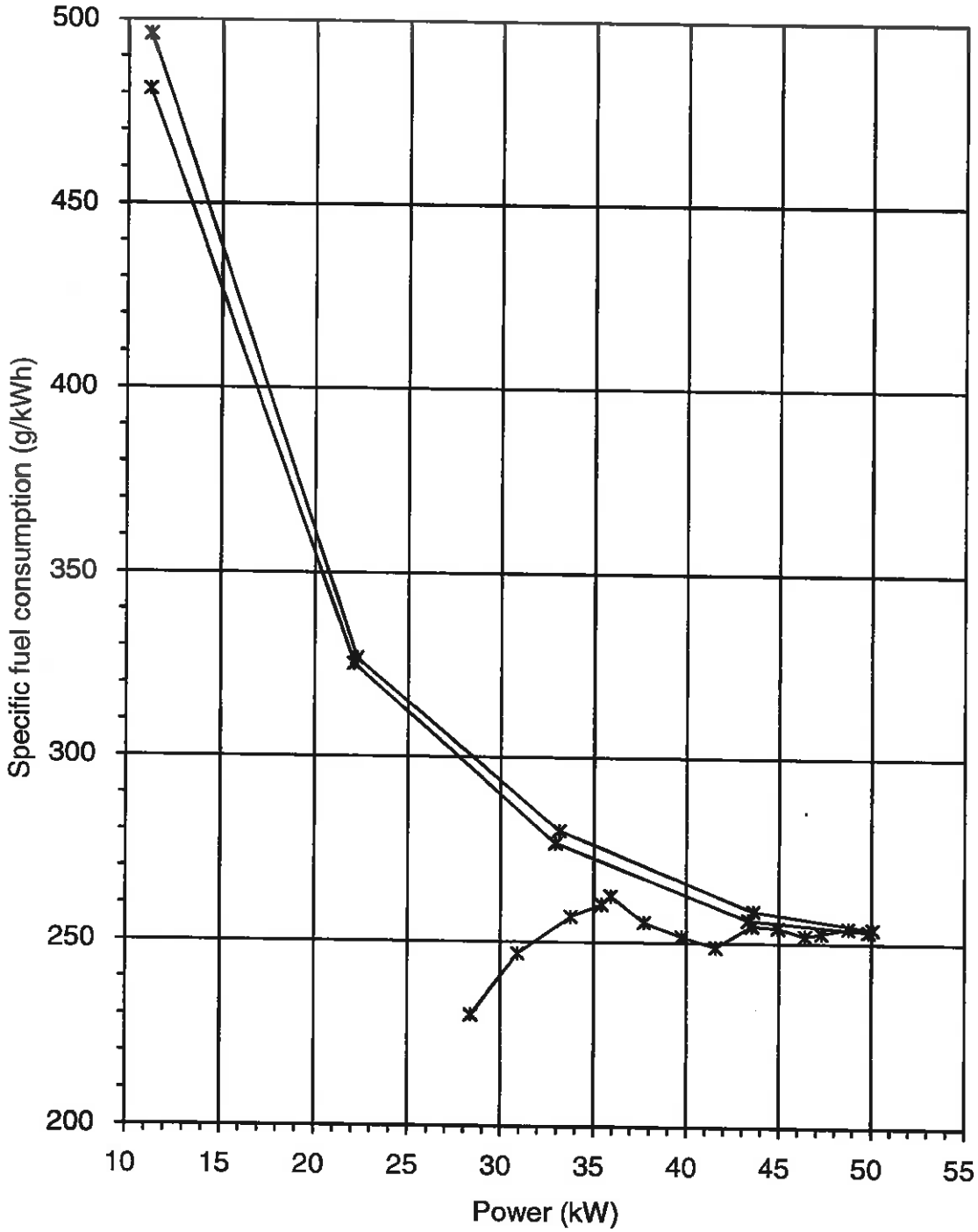
- No load maximum engine speed: 2493 rev/min;
- Equivalent flywheel torque at rated engine speed: 203.84 Nm;
- Equivalent flywheel torque at 2-hour test: 203.84 Nm;
- Maximum equivalent flywheel torque: 235.74 Nm at 1436 rev/min of the engine.

- Mean atmospheric conditions
  . Temperature: 26°C
  . Pressure: 102.6 kPa
  . Relative humidity: 67 %

- Maximum temperatures
  . Coolant: 88°C
  . Engine oil: 129°C
  . Fuel: 29°C
  . Engine air intake: 26°C


Torque
Power
Power (kW)
Torque (Nm)
Standard PTO speed 1000 rev/min
Engine speed (rev/min)


Fuel cons.
Specific cons.
Fuel consumption (kg/h)
Specific consumption (g/kWh)
Standard PTO speed 1000 rev/min
Engine speed (rev/min)


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

3.2 Hydraulic power and lifting force

- Date of tests: 23 June 1999.

3.2.1 *Hydraulic power test*

- Sustained pressure with relief valve open: 18.0 MPa;
- Pump delivery rate at minimum pressure: 33.9 l/min;

	Flow rate l/min	Pressure MPa	Power kW
At 90% of the actual relief valve setting	32.8	16.2	8.86
Maximum	32.8	16.2	8.86

- Tapping point used for test: at rear of tractor;
- Temperature of hydraulic fluid if different from 65 ± 5°C: - °C;
- Opening pressure of the unloading valve: - MPa;
- Closing pressure of the unloading valve: - Mpa.

(*) Opening and closing pressures of the unloading valve could not be measured

3.2.2 *Rear power lift test*

		At hitch point	On the frame
Height of lower hitch point above ground in down position	mm	140	140
Vertical movement			
without lifting forces	mm	687	897
with lifting forces	mm	681	891
Maximum corrected force exerted through full range	kN	16.73	10.37
Corresponding pressure of hydraulic fluid	MPa	16.2	16.2
Moment about rear axle	kNm	15.54	15.96
Maximum tilt angle of mast from vertical	degrees	-	19

Lifting heights relative to the horizontal lower links (mm)											
-227	-216	-100	0	100	+200	+300	+400	+465	+500	+600	+664
Lifting forces at hitch points (kN), corrected to 16.2 MPa											
-	16.73	17.11	17.92	18.16	18.20	18.56	19.58	20.69	-	-	-
Lifting forces at test frame (kN), corrected to 16.2 MPa											
15.90	-	15.54	15.17	14.70	13.90	13.00	12.18	-	11.43	10.75	10.37

3.2.3 *Front power lift test*

		At hitch point	On the frame
Height of lower hitch point above ground in down position	mm	130	130
Vertical movement			
without lifting forces	mm	575	607
with lifting forces	mm	549	571
Maximum corrected force exerted through full range	kN	13.38	11.07
Corresponding pressure of hydraulic fluid	MPa	16.2	16.2
Moment about rear axle	kNm	14.83	19.02
Maximum tilt angle of mast from vertical	degrees	-	4

Lifting heights relative to the horizontal lower links											
mm	-260	-239	-200	-100	0	+100	+200	+289	+332	-	-
Lifting forces at hitch points, corrected to 16.2 MPa											
kN	13.38	-	14.20	14.13	14.36	14.85	15.08	15.15	-	-	-
Lifting forces at test frame, corrected to 16.2 MPa											
kN	-	12.59	14.27	13.68	13.10	12.46	11.59	-	11.07	-	-

3.3 Drawbar performance

- Date of tests: 24, 25, 28 and 29 June 1999;
- Type of track: concrete.

	Height of drawbar above ground mm	Tyre inflation pressure	
		Front kPa	Rear kPa
Unballasted	304	240	160
Ballasted	308	240	160

Gear and range	Power kW	Drawbar pull kN	Speed km/h	Engine speed rev/min	Slip of wheels %	Specific fuel consumption g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure kPa
3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)													
2NM	8.62	20.43	1.52	2466	15.1	710	1.18	31	77	112	25	52	108.6
3NL	10.21	20.32	1.81	2463	15.0	629	1.33	31	77	113	25	52	108.7
2NH	10.31	20.40	1.82	2461	15.0	638	1.31	32	78	115	26	51	108.6
3NM	12.40	20.77	2.15	2459	15.0	551	1.52	31	77	116	25	52	108.6
4NL	13.86	20.12	2.48	2454	15.4	529	1.58	31	79	118	25	51	108.7
3NH	14.90	20.64	2.60	2452	15.1	503	1.66	32	78	118	25	52	108.7
4NM	16.13	19.49	2.98	2449	15.1	482	1.73	32	79	121	26	51	108.8
4NH	21.02	21.03	3.60	2438	15.0	434	1.93	32	80	122	26	50	108.9
5NL	21.59	20.62	3.77	2445	15.0	384	2.18	31	81	119	26	49	108.8
5NM	25.10	20.17	4.48	2429	14.9	387	2.16	32	81	123	26	50	108.9
1FL	26.26	20.03	4.72	2429	15.0	369	2.26	32	83	125	27	49	108.8
5NH	30.45	20.50	5.35	2403	15.0	371	2.25	33	84	125	26	50	108
1FM	31.63	20.34	5.60	2415	15.3	336	2.49	31	84	128	27	51	108.8
2FL	36.78	19.92	6.65	2390	15.0	315	2.65	31	85	129	28	50	108.9
1FH	35.61	19.00	6.75	2392	15.0	325	2.57	32	83	130	27	50	108.9
2FM	40.69	18.20	8.05	2351	12.6	310	2.70	31	84	132	27	49	109.0
3FL	42.41	15.18	10.06	2349	8.5	298	2.81	33	85	134	28	49	108.8
2FH	44.23	15.58	10.22	2351	8.0	284	2.94	33	86	137	28	48	109.1
3FM	45.60	13.24	12.40	2351	5.9	276	3.03	32	87	138	27	49	108.9
4FL	45.40	11.17	14.63	2351	4.1	277	3.01	32	87	140	28	48	108.9
3FH	45.40	10.67	15.32	2351	3.7	277	3.02	32	88	141	28	48	109.0

Gear and range	Power kW	Drawbar pull kN	Speed km/h	Engine speed rev/min	Slip of wheels %	Specific fuel consumption g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure kPa
3.3.2 MAXIMUM POWER IN TESTED GEARS (ballasted tractor)													
1SL	0.68	16.33	0.15	2489	15.4	5882	0.14	33	66	110	20	66	101.2
1SM	0.75	14.94	0.18	2489	14.3	5333	0.16	34	66	110	20	66	101.2
2SL	1.29	22.08	0.21	2486	14.7	3333	0.25	34	67	111	21	65	101.2
1SH	1.20	19.60	0.22	2486	14.6	3608	0.23	36	68	112	21	66	101.2
2SM	1.44	19.96	0.26	2486	14.8	3021	0.28	34	69	111	22	64	101.2
3SL	1.69	21.73	0.28	2484	15.1	2669	0.31	36	70	112	21	64	101.2
2SH	1.78	22.06	0.29	2482	14.5	2629	0.32	32	70	109	23	63	101.2
3SM	2.11	22.32	0.34	2482	15.1	2227	0.38	34	70	111	21	63	101.2
4SL	2.54	23.45	0.39	2479	14.9	1941	0.43	34	72	112	21	62	101.1
3SH	2.78	25.00	0.40	2477	15.3	1824	0.46	32	72	110	22	62	101.1
4SM	3.01	23.55	0.46	2479	15.0	1621	0.52	32	74	110	22	61	101.2
4SH	3.95	25.43	0.56	2475	14.9	1347	0.62	33	74	111	22	61	101.2
5SL	3.71	23.03	0.58	2477	15.4	1375	0.61	31	74	111	23	60	101.1
5SM	5.21	26.82	0.70	2470	15.1	1100	0.76	33	75	112	23	62	101.0
1NL	5.81	24.63	0.85	2472	14.9	964	0.87	31	75	113	23	60	101.3
5SH	5.61	23.76	0.85	2463	14.9	1148	0.73	31	76	112	24	59	101.3
1NM	6.47	22.84	1.02	2470	15.0	879	0.95	31	75	113	24	59	101.4
2NL	8.70	25.89	1.21	2466	15.0	701	1.19	33	78	112	25	59	101.3
1NH	8.35	24.45	1.23	2466	15.0	728	1.15	32	78	114	23	58	101.4
2NM	9.68	24.05	1.45	2461	15.0	684	1.22	32	79	114	24	58	101.5
3NL	11.19	23.42	1.72	2459	15.4	608	1.38	31	80	114	24	58	101.4
2NH	11.78	24.10	1.76	2456	14.8	607	1.38	32	80	114	24	56	101.4
3NM	13.56	23.59	2.07	2454	15.2	541	1.54	32	81	115	24	57	101.3
4NL	16.07	24.02	2.41	2449	15.0	487	1.72	33	81	116	25	57	101.3
3NH	17.16	24.61	2.51	2447	14.9	474	1.76	32	81	117	25	57	101.2
4NM	18.46	23.01	2.89	2443	15.1	460	1.82	33	82	117	25	56	101.4
4NH	22.70	23.36	3.50	2433	15.4	417	2.00	33	82	119	24	56	101.5
5NL	22.40	22.09	3.65	2433	15.0	424	1.97	34	82	120	25	55	101.5
5NM	28.53	23.51	4.37	2417	15.1	364	2.30	34	84	121	25	55	101.6
1FL	30.28	23.60	4.62	2420	14.8	340	2.46	33	84	121	24	54	101.8
5NH	32.80	22.50	5.25	2392	15.0	353	2.37	35	85	126	25	54	101.5
1FM	36.38	23.82	5.50	2401	15.0	314	2.67	32	87	129	25	54	101.5
2FL	41.89	23.39	6.45	2351	14.2	301	2.78	33	85	132	25	52	101.6
1FH	41.27	22.35	6.65	2351	13.4	305	2.74	33	85	134	25	52	101.7
2FM	43.87	18.90	8.36	2353	7.8	286	2.92	33	86	135	23	52	101.7
3FL	44.77	15.65	10.30	2348	4.5	281	2.97	33	88	137	25	53	101.7
2FH	44.77	15.37	10.49	2348	4.2	281	2.97	33	88	137	25	52	101.8
3FM	45.30	12.84	12.70	2353	2.3	277	3.02	33	90	138	25	51	101.8
4FL	45.70	11.00	14.96	2348	0.9	275	3.04	32	90	138	26	51	101.8
3FH	46.20	10.60	15.69	2351	0.5	273	3.06	32	91	140	26	50	101.7

Gear and range	Power kW	Drawbar pull kN	Speed km/h	Engine speed rev/min	Slip of wheels %	Specific fuel consumption g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Coolant °C	Engine oil °C	Atmospheric conditions Temperature °C	Relative humidity %	Pressure kPa
3.3.3 FIVE HOUR TESTS													
3.3.3.1 FIVE HOUR TEST at 75% of pull at maximum power													
2FL	35.29	17.65	7.20	2400	8.0	324	2.58	30	85	131	25	65	103.0
3.3.3.2 FIVE HOUR TEST at pull corresponding to 15% wheel slip, without additional ballast													
1FM	36.47	23.54	5.58	2401	14.9	313	2.67	33	88	135	21	69	100.4

Oil consumption during ten hours duration of test 3.3.3.1 and 3.3.3.2: 110 g/h.

3.4 Turning area and turning circle (front wheel drive disengaged)

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning area	4.20	4.08	4.55	4.32
Radius of turning circle	3.48	3.31	3.75	3.66

3.5 Location of centre of gravity

	mm
Height above ground	677
Distance forward from rear axle centre	941
Distance from tractor's median plane to the left	6

3.6 Braking

- Date of tests: 08 July 1999.

3.6.1 *Cold service braking device test*

	Speed before application of brakes km/h	Braking device control force kN	Mean deceleration m/s^2
Ballasted tractor	35.7	1.0	3.29
		2.0	3.51
		3.0	4.12
		4.0	4.33
		5.0	4.68
		6.0	4.78
Unballasted tractor	35.7	1.0	3.30
		2.0	3.59
		3.0	4.08
		4.0	4.39
		5.0	4.64
		6.0	4.84

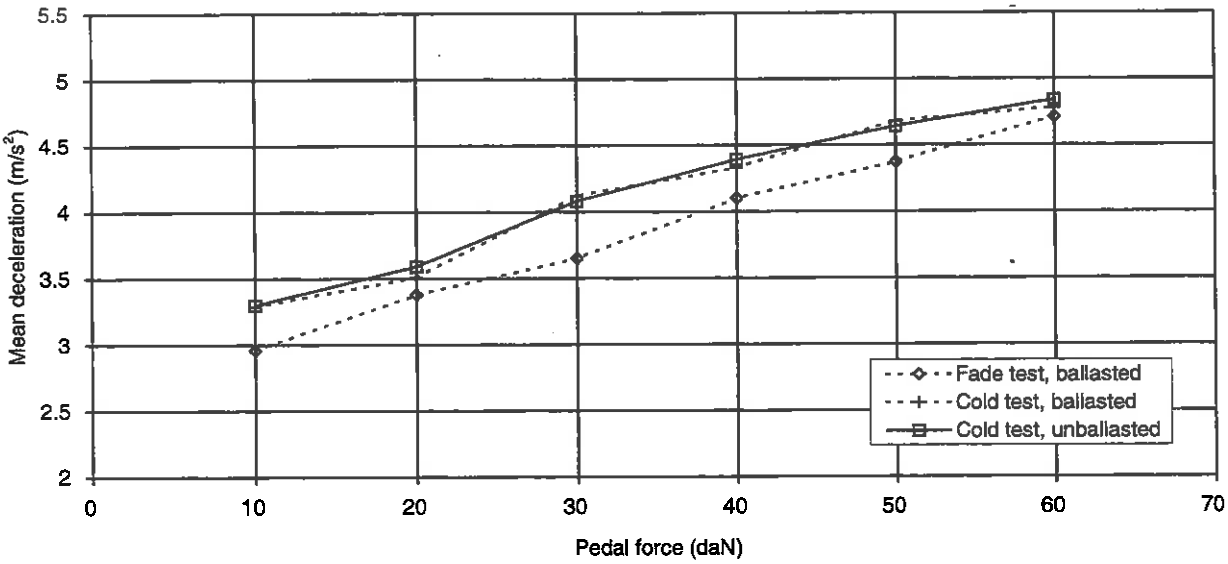
- Maximum deviation of tractor from its original course: none;
- Abnormal vibration: none;
- Brake heating method: heated by towing of the tractor for 1 km.

3.6.2 *Fade test*

	Speed before application of brakes km/h	Braking device control force kN	Mean deceleration m/s^2
Ballasted tractor	35.5	1.0	2.96
		2.0	3.38
		3.0	3.65
		4.0	4.10
		5.0	4.37
		6.0	4.71

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

3.6.1 *Cold service braking device test* (continued)
3.6.2 *Fade test* (continued)



3.6.3 *Parking brake*

	Ballasted tractor on 18% slope	
	up	down
	daN	daN
Braking device control force	10.8	11.8

3.7 Measurement of external noise level

- Date of test: 30 June 1999;
- Type of track: concrete;
- Type of sound level meter: BRÜEL & KJÆR model 2231.

Gear	Travelling speed before acceleration	Sound level
	km/h	dB(A)
5FH	26.7	85.1

3.8 Repairs: none.
3.9 Remarks: none.

TEST ENGINEER
(Dr. Carlo BISAGLIA)

DIRECTOR OF TESTING STATION
(Prof. Giuseppe COLZANI)

HEAD OF ISMA
(Ing. Giovanni SANTORO)