ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA

SEZIONE DI TREVIGLIO

Report on test in accordance with the OECD Standard Code for the Official Testing of Agricultural Tractor Performance



LAMBORGHINI 554-50 VDT "4WD" — OECD No. 1497/2 Full Code
SAME ARGON 50 VDT "4WD" — OECD No. 1497/3 Full Code
HÜRLIMANN 305 VDT "4WD" — OECD No. 1497/1 Full Code

Four-wheel drive agricultural tractors

Manufactured by:	S+L+H S.p.A V.le F. Cassani 15 24047 Treviglio BG Italy
Date of OECD approval:	6 December 1993
Period of test:	July - September 1993

ISMA Via Milano 43 24047 Treviglio BG Italy
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ADDITIONAL TEST

Main power take-off performance (540 rev/min) 29

The Lamborghini 554-50 VDT (4WD), Same Argon 50 VDT (4WD), and Hürlimann 305 VDT (4WD) tractors are technically identical in all main respects except with regard to model designation, colour and side bonnets design. All tests were carried out on the Lamborghini 554-50 VDT (4WD).

All stated dimensions and tests refer to tyre size 11.2 R 20 111 (A8) at front and 14.9 R 28 128 (A8) at rear, as well as to track widths 1360 mmat front and 1300 mm at rear.

Tractor manufacturer

- Name:	S+L+H S.p.A.;
- Address:	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.

SPECIFICATION OF TRACTOR

TRACTOR

- Make:	Lamborghini;
- Model:	554-50 VDT;
- Type:	wheeled tractor, unit construction, all wheels drive tractor;
- Number of driving wheels:	4;
- Serial number:	1015;
- First serial number:	1001.

ENGINE

- Make:	S+L+H;
- Model:	1000.3 A3;
- Type:	air cooled 4-stroke diesel engine, direct injection, naturally aspirated;
- Serial number:	1035.

Cylinders

- Number and disposition:	3, vertical, in-line;
- Bore x stroke:	105 x 115.5 mm;
- Capacity:	3000 cm^3;
- Compression ratio:	17:1;
- Arrangement of valves:	overhead;
- Cylinder liners:	withouth liners.

Supercharging: none.

Fuel system

- Fuel feed system: AC corone fuel feed pump;
- Make, model and type of fuel filter: FIAMM FNA 166/20;
- Capacity of fuel tank: 57 dm^3;
- Make, model and type of injection pump: BOSCH PFR 1K 90A 517, immersed pump, one per cylinder, without serial number, in line injection pump;
- Manufacturer's production setting of injection pump:
  . flow rate: 49 ± 2 mm^3/stroke at rated speed and full load corresponding 10.50 dm^3/h;
  . timing: 16 ± 0.5° before TDC;
- Make, model and type of injectors: BOSCH DLLA 150 S 925 multihole injection nozzles;
- Injection pressure: 18 ± 1 MPa.

Governor

- Make: S+L+H;
- Model: 085.1650.4;
- Type: mechanical;
- Governor range of engine speed: from 650 to 2529 rev/min;
- Rated engine speed: 2350 rev/min.

Air cleaner

- Main filter
  . make: DONALDSON;
  . model: FKG 06-5402;
  . type: dry paper element filter;
  . location: front of engine;
  . air intake location: below bonnet;
- Maintenance indicator: with the warning lamp on the dashboard.

Lubrication system

- Type of feed pump: forced feed from gear pump;
- Type of filter: FIAMM FT 48 03 IN;
- Oil specifications: see page 20.

Cooling system

- Type and detail:	air cooling with axial blower;
- Specification of fan:	propeller fan driven by engine shaft;
- Number of fan blades:	13;
- Fan diameter:	220 mm;
- Type of temperature control:	none.

Starting system

- Make:	BOSCH;
- Model:	JF 12 V;
- Type:	electromagnetic engagement;
- Starter motor power rating:	2.4 kW;
- Safety device:	electrical lockout on clutch and PTO controls;
- Starting system for low temperatures:	none.

Electrical equipment

- Voltage:	12 V;
- Generator	
. make:	BOSCH;
. model:	K1 14V 55A 23;
. type:	alternator:
. power:	14 V, 55 A 770 W;
- Battery:	1 lead acid;
. capacity:	100 Ah at 20 hours rating.

Exhaust system

- Make:	S+L+H;
- Model:	DGM SA 1130;
- Type:	one reflection absorption chamber;
- Location:	external, on the left hand side of engine, vertical position;
- Height of outlet above ground:	2370 mm.

TRANSMISSION

Clutch (utilized only for travelling of tractor)

- Make:	S+L+H;
- Model:	590.23;
- Type:	single disk dry clutch;
- Number of plates:	1;
- Plates diameter:	250 mm;
- Control system:	mechanical operated by pedal.

Gear box

- Make:	own make;
- Model:	590.31;
- Type:	mechanical syncromesh speed change gear;
- Arrangement:	four speeds forward, with three ranges of speeds, and one reverse group;
- Number of speeds:	12 forward and 12 reverse;
- Available options:	four speeds forward, with three ranges of speeds, minireductor and one reverse group
- number of speeds:	24 forward and 12 reverse; or: four speeds forward, with two ranges of speeds, minireductor and one reverse group
- number of speeds:	16 forward and 8 reverse;

Rear axle and final drives

- Make:	own make;
- Model:	590.44;
- Type:	bevel gear differential and epicyclic final drive.

Rear differential lock

- Make:	own make;
- Model:	590.47;
- Type:	mechanical;
- Control system:	engaged or disengaged by pedal.

Front axle and final drives

- Make:	own make;
- Model:	590.43;
- Type:	original S+L+H system with central shaft, bevel gear drive, differential and epicyclic final drives.

Front differential lock

- Make: own make;
- Model: 590.46;
- Type: mechanical;
- Control system: engaged or disengaged by pedal.

Total ratios and 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	
		Forward	Reverse	Forward	Reverse
1	S	1941.11	2045.87	0.29	0.28
2	S	1224.15	1290.22	0.46	0.44
3	S	772.27	813.95	0.73	0.70
4	S	487.69	514.01	1.16	1.10
1	N	307.30	323.88	1.85	1.75
2	N	193.70	204.15	2.93	2.78
3	N	122.32	128.93	4.64	4.40
4	N	77.11	81.27	7.35	6.98
1	F	55.77	58.78	10.17	9.65
2	F	35.11	37.01	16.15	15.32
3	F	22.03	23.22	25.74	24.42
4	F	14.00	14.76	40.50	38.43

S =Slow; N =Normal; F =Fast.
(*) Calculated with a tyre dynamic radius index of 640 mm (ISO 4251/1-1984).
Number of revolutions of front wheels for one revolution of rear wheels: 1.3872

POWER TAKE-OFF

Power take-off proportional to engine speed

- Type: independent, at rear of tractor, in tractor's median plane, engaged or disengaged by hand lever, driven by single disk dry clutch independent of travel clutch; ISO 500-1979;
- Number of shafts: 1;
- Method of changing power take-off shaft ends: none;
- Method of changing speed: by hand lever.

1) 540 rev/min

- Category (ISO 500-1979):	1 (35 mm, 6 splines);
- PTO speed at rated engine speed:	621 rev/min;
- Engine speed at standard PTO speed:	2044 rev/min;
- Ratio of rotation speeds (engine speed/PTO speed):	3.7853;
- Power restriction and maximum torque:	power and torque of the engine.

2) 750 rev/min (optional, fitted on tested tractor)

- Category (ISO 500-1979):	2 (35 mm, 6 splines);
- PTO speed at rated engine speed:	752 rev/min;
- Engine speed at standard PTO speed:	2344 rev/min;
- Ratio of rotation speeds (engine speed/PTO speed):	3.125.
- Power restriction and maximum torque:	power and torque of the engine.

3) 1000 rev/min

- Category (ISO 500-1979):	2 (35 mm, 6 splines);
- PTO speed at rated engine speed:	1022 rev/min;
- Engine speed at standard PTO speed:	2300 rev/min;
- Ratio of rotation speeds (engine speed/PTO speed):	2.300.
- Power restriction and maximum torque:	power and torque of the engine.

Height above ground:	640	mm
Distance from the median plane of the tractor:	0	mm
Distance behind rear axle or forward from front axle:	440	mm
Direction of rotation (viewed facing driving end):	clockwise	

Power take-off proportional to ground speed

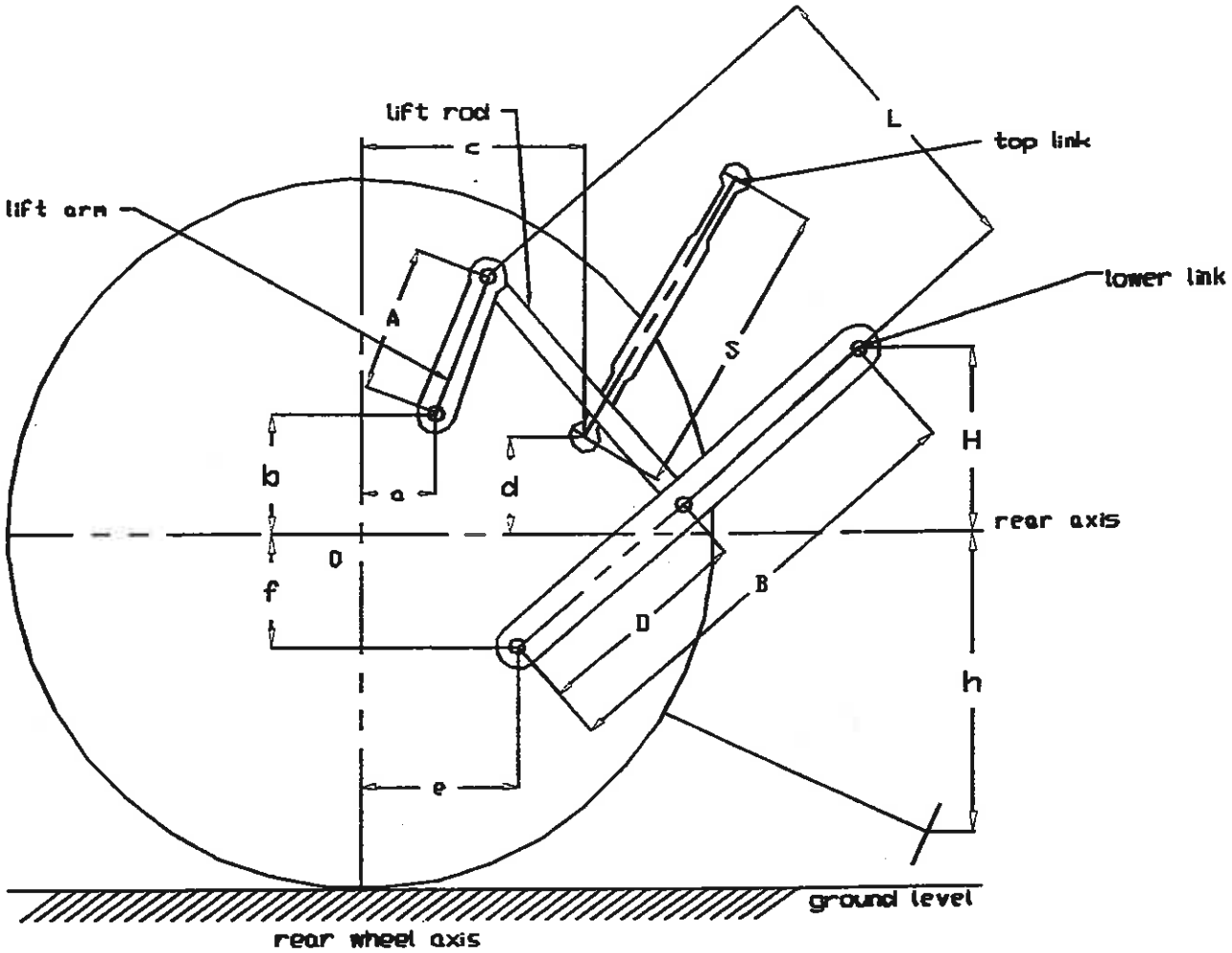
- Speed of shaft:	540 rev/min;
- Travelling distance for one revolution of power take-off shaft:	0.27 m;
- Number of power take-off shaft revolutions for one revolution of rear driving wheels:	14.79.

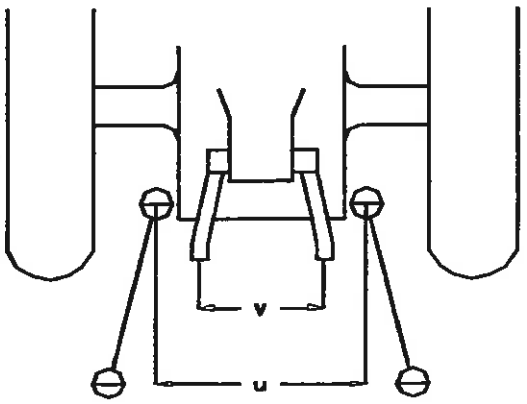
POWER LIFT

- Make:	S+L+H;
- Model:	590.39;
- Type:	load sensing;
- Type of hydraulic system:	open centre system;
- Type and number of cylinders:	1 internal single acting;
- Type of lock for transport:	mechanical, with screwed tie rods that lock the lower links;
- Relief valve pressure setting:	18.0 ± 0.5 MPa;
- Opening pressure of anti-shock valve:	21.0 ± 0.5 MPa;
- Lift pump	
. make:	BOSCH A 510 241 101;
. type:	hydraulic rotary pump, driven by engine shaft;
- Transmission between pump and engine:	mechanical;
- Type and number of filters:	1, replaceable paper cartridge;
- Oil capacity:	41 dm^3;
- Site of oil reservoir:	gear box;
- Position, type and no. of additional oil plugs:	4 ways distributor at rear of tractor;
- Maximum volume of oil available to external cylinders:	10 dm^3.
- Recommended oil:	see page 20.

Three-point linkage

- Category (ISO 730/1-1990):	1;
- Category adapter (ISO 730/1-1990):	to category 2.


lift rod
c
L
top link
lift arm
lower link
A
S
H
b
a
d
rear axis
D
f
B
D
h
e
ground level
rear wheel axis


v
u

POWER LIFT (continued)

Dimensions of linkage geometry (when connected to the standard frame)

		Dimension or range mm	Settings used in test mm
Length of lift arms	(A)	250	250
Length of lower links	(B)	710	710
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)	340	340
Horizontal distance between the 2 lift arm end points	(v)	450	450
Length of upper link	(S)	from 471 to 740	515
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 point to lift rod pivot points on lower links	(D)	400	400
Length of lift rods	(L)	from 505 to 655	610
Height of lower hitch points relative to the rear wheel axis			
- in Low position	(h)	from 223 to 534	440
- in High position	(H)	from 116 to 355	205
Height above ground of lower hitch points when locked in transport position (*)			845

(*) Assuming the dynamic radius index = 640 mm (ISO 4251/1-1984)

SWINGING DRAWBAR

Optional, not fitted on tested tractor

- Type:	9.58931.35.0;
- Height above ground (tyre size: 14.9R28):	380 mm;
- Type of adjustment:	reversible;
- Distance of hitch point from rear wheel axis	
. horizontally:	846 mm;
- Distance of hitch point from power take-off shaft end	
. vertically:	240 mm below;
. horizontally:	410 mm behind;
- Lateral adjustment (centre of clevis)	
. right hand:	250 mm;
. left hand:	250 mm;
- Distance of pivot point from rear wheel axis	
. horizontally:	60 mm forward;
- Diameter of drawbar pin hole:	33 mm;
- Maximum vertical permissible load:	not specified.

HOLED DRAWBAR

- Number of holes:	9;
- Distance between holes:	55 mm;
- Hole diameter:	22 mm;
- Thickness x width of the drawbar:	30 x 80 mm;
- Height above ground, (tyre size: 16.9R30)	
. min:	120 mm;
. max:	860 mm;
- Horizontal distance behind power take-off shaft end:	570 mm;
- Diameter of the pinhole:	28 mm.

TRAILER HITCH

- Type:	SAME DGM-GA 1189/C;
- Hole diameter:	28 mm;
- Height above ground	
. min:	270 mm;
. max:	850 mm;
- Distance of hitch point from rear wheel axis	
. horizontally:	500 mm;
- Distance of hitch point from power take-off shaft end	
. vertically:	220 mm below, 205 mm above;
. horizontally:	115 mm;
- Maximum vertical permissible load:	14.7 kN.

STEERING

- Specification:	hydrostatic steering with BOSCH hydraulic gear pump, one double acting ram acting directly on front axle.
- Make:	DANFOSS;
- Model:	ORBITROL OSPC 80 OR;
- Type:	hydrostatic;
- Working pressure:	15 MPa;
- Recommended oil:	see page 20.

BRAKES

Service brake

- Make:	S+L+H;
- Model:	590.84;
- 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 lining material;
- Method of operation:	hydraulically actuated with 2 pedals;
- Trailer braking take-off:	none.

Parking brake

- Type:	fully independent of service brake, 2 oil bath disc mounted on the pinion shaft in the gear box, FRENDO HDT 303 lining material;
- Method of operation:	mechanical by hand lever.

Steering brake

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

STEERING WHEELS

- Number:	2;
- Location:	at front;
- Track widths	
. min:	1340 mm:
. max:	1540 mm;
- Adjustment:	changing the position of the rims with respect to the disc.

DRIVING WHEELS

- Number:	4;
- Location:	two at front and two at rear;
- Rear track widths	
. min:	1300 mm;
. max:	1400 mm;
- Adjustment:	changing the position of the rims with respect to the disc.

WHEELBASE: 1926 mm.

PROTECTIVE STRUCTURE

Specifications

- OECD approval Nos.:	CSD 1379/6 for the LAMBORGHINI 554-50 VDT (4WD) tractor, CSD 1379/9 for the SAME ARGON 50 VDT (4WD) tractor, CSD 1379/3 for the HÜRLIMANN 305 VDT (4WD) tractor;
- Date of approval:	26 May 1993;
- Location and country of test of protective structure:	Istituto di Ingegneria Agraria, Università degli Studi di Milano, Italy;
- Reference mass and wheelbase used for calculating impact energies and crushing forces:	2300 kg and 1926 mm;
- Make:	S+L+H;
- Model:	T 64;
- Type:	frame;
- Manufacturer's name:	S+L+H S.p.A.
. address:	V.le F. Cassani 15, 24047 Treviglio BG, Italy;
- Protective device:	frame.

Materials used in the construction and dimensions

DRIVER'S SEAT

- Make:	KAB;
- Model:	XH2;
- Type:	upholstered seat with back rest;
- Type of suspension:	adjustable spring;
- Type of damping:	shock absorber;
- Range of adjustment	
. longitudinal:	150 mm;
. vertical:	60 mm.

PASSENGER'S SEAT : none.

LIGHTING

Lighting system in accordance with EEC 78/933
(all data referred to all models unless otherwise indicated)

	Height above ground of centre with tyre mm	Size mm	Distance from outside edge of tractor to centre at 1300 mm track width mm
Headligths	1070 1020 (1)	140 x 85	800
Front parking lights	1380	110 x 35	400
Front direction indicators	1380	110 x 35	365
Rear parking lights	1410	50 x 60	270
Rear direction indicators	1410	50 x 60	220
Brake lights	1410	50 x 60	320
Reflectors	980	dia 80	260

(1) *Same Argon 50 VDT and Hürlimann 305 VDT .*

TEST CONDITIONS

OVERALL DIMENSIONS

	Length mm	Width min mm	Width max mm	Height at top of exaust sil. mm	Height at top of protect. struct. mm
Unballasted	3506	1605	1820	2370	2270
Ballasted	3696	1605	2370	2370	2270

- Ground clearance: 330 mm;
- Clearance-limiting part: front axle.

TRACTOR MASS (with full fuel tanks, frame and no water in tyres)

	Front kg	Rear kg	Total kg
Without driver			
Unballasted	990	1150	2140
Ballasted	1140	1340	2480
With driver			
Unballasted	1015	1200	2215
Ballasted	1165	1390	2555

BALLAST

	Weights no.	Total weight kg	Water kg
Front	4	140	-
Rear	2 +2	200	-
Additional	-	-	-

TYRES AND TRACK WIDTH SPECIFICATIONS

		Front	Rear
- Tyres			
. dimensions		11.2R20	14.9R28
. ply rating		111 A8	128 A8
. type		radial	radial
. maximum load (tyre manufacturer's)	daN	1069	1765
. maximum load (tractor manufact.'s)	daN	588	1324
. inflation pressure (tyre manufact.'s)	kPa	160	160
. dynamic radius index	mm	465	640
- Chosen track width	mm	1360	1300
- Other tyres available		9.5R20 8.3R24	13.6R28 12.4R32

OILS AND LUBRICATION

Capacity and change interval

	Capacity dm^3	Oil change h	Filter change h
Engine	7.7	150	300
Gear box	41.0	1200	2400 (*)
Front axle	6.0	1200	-
Final drives (front)	3.0	1200	-
Rear axle and final drives	in common with gear box		
Hydraulic system	in common with gear box		
Other (steering, etc.)	in common with gear box		

(*) *Or when the warning lamp is lighted*

FUEL AND LUBRICANTS RECCOMENDED AND USED IN TESTS

Fuel
- Type: AGIP DIESEL, DIN 51601; (in accordance with the national standard)
- Specific gravity at 15 °C: 0.838 g/cm^3.

Engine oil
- Type: AKROS MOTOR OIL 30 W;
- Viscosity: 12.50 cSt;
- Classification: API CE, MIL-L-2104 E.

Transmission (front and rear axle, final drives and gear box), hydraulic system and steering oil
- Type: AKROS MULTI;
- Viscosity: 11.50 cSt;
- Viscosity index: 95;
- Classification: API GL 4.

Grease
- Type: GREASE 30;
- Number of lubrication points: 9.

TEST RESULTS

COMPULSORY TESTS RESULTS

1. MAIN POWER TAKE-OFF PERFORMANCE

- Date and location of test: 21 July 1993, ISMA, Treviglio BG, Italy

- Type of dynamometer: ZÖLLNER 350 AC

Power	Speed		Fuel consumption			Specific energy
	Engine	PTO	Hourly		Specific	
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
1.1 MAXIMUM POWER - 2 HOUR TEST						
35.0	2351	1022	10.50	8.80	251	3.33
1.2 POWER AT RATED ENGINE SPEED						
35.0	2351	1022	10.50	8.80	251	3.33
1.3 STANDARD POWER TAKE-OFF SPEED (1000 ± 25 rev/min)						
34.8	2300	1000	10.32	8.65	249	3.37
1.4 PART LOADS						
1.4.1 The torque corresponding to maximum power at rated engine speed						
35.0	2351	1022	10.50	8.80	251	3.33
1.4.2 85% of torque obtained in 1.4.1						
30.6	2431	1057	9.21	7.72	252	3.32
1.4.3 75% of torque defined in 1.4.2						
23.3	2465	1072	7.61	6.38	274	3.06
1.4.4 50% of torque defined in 1.4.2						
15.7	2482	1079	5.88	4.93	314	2.67
1.4.5 25% of torque defined in 1.4.2						
7.9	2508	1090	4.61	3.86	489	1.72
1.4.6 unloaded						
0	2529	1100	3.20	2.68	-	-

Power	Speed		Fuel consumption			Specific energy
	Engine	PTO	Hourly		Specific	
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (1000 rev/min)						
1.5.1 The torque corresponding to maximum power available						
34.8	2300	1000	10.32	8.65	249	3.37
1.5.2 85% of torque obtained in 1.5.1						
30.6	2379	1034	9.05	7.58	248	3.38
1.5.3 75% of torque defined in 1.5.2						
23.3	2416	1050	7.71	6.46	277	3.02
1.5.4 50% of torque defined in 1.5.2						
15.7	2435	1059	6.01	5.04	321	2.61
1.5.5 25% of torque defined in 1.5.2						
7.9	2467	1073	4.40	3.69	467	1.79
1.5.6 unloaded						
0	2478	1077	3.07	2.57	-	-

- No load maximum engine speed: 2529 rev/min;
- Torque (1) at maximum power at rated engine speed: 14.23 daNm;
- Maximum torque (1) (engine speed: 1305 rev/min) 16.76 daNm.

- Mean atmospheric conditions

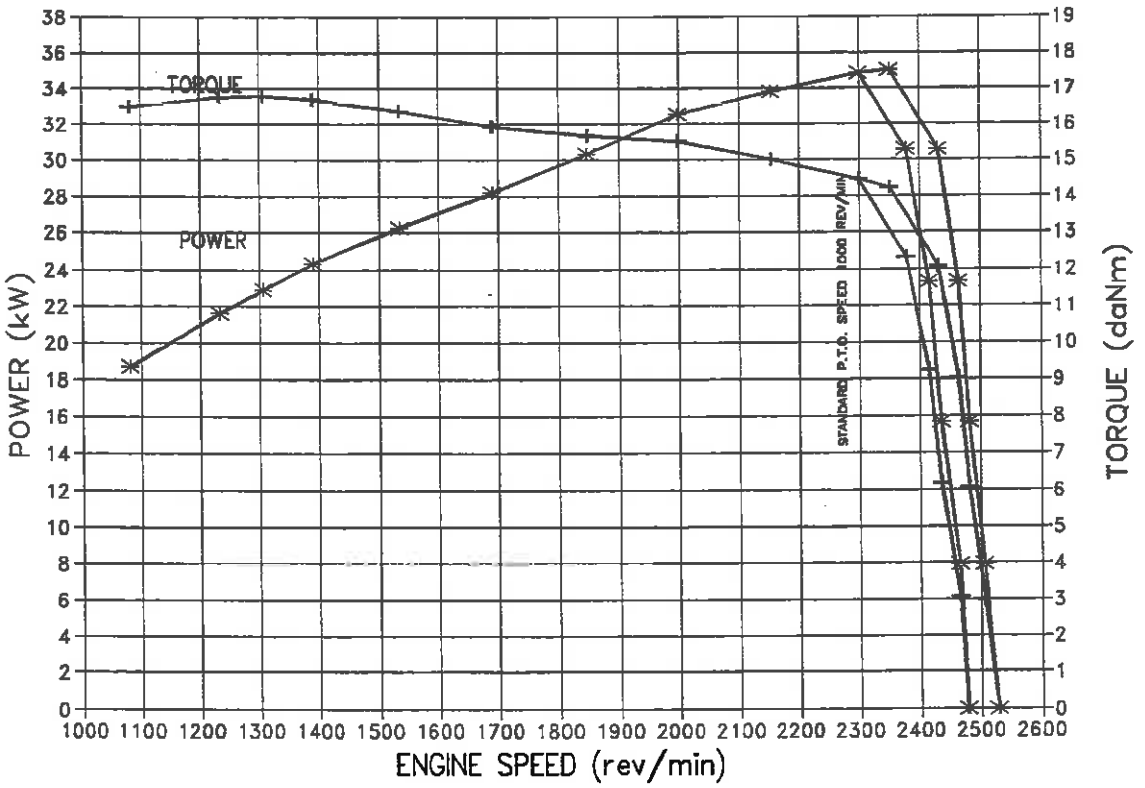
. temperature: 27 °C
. pressure: 98.7 kPa
. relative humidity: 76 %

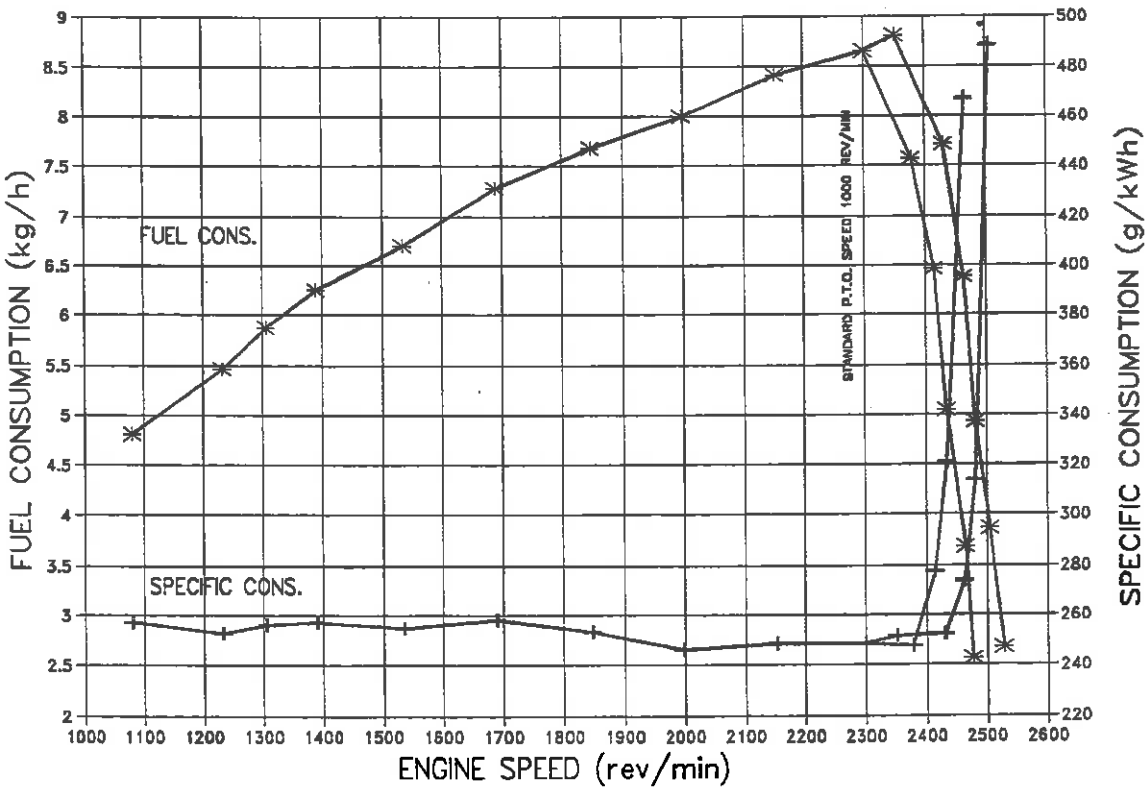
- Maximum temperatures

. coolant: - °C
. engine oil: 150°C
. fuel: 39 °C
. engine air intake: 32 °C

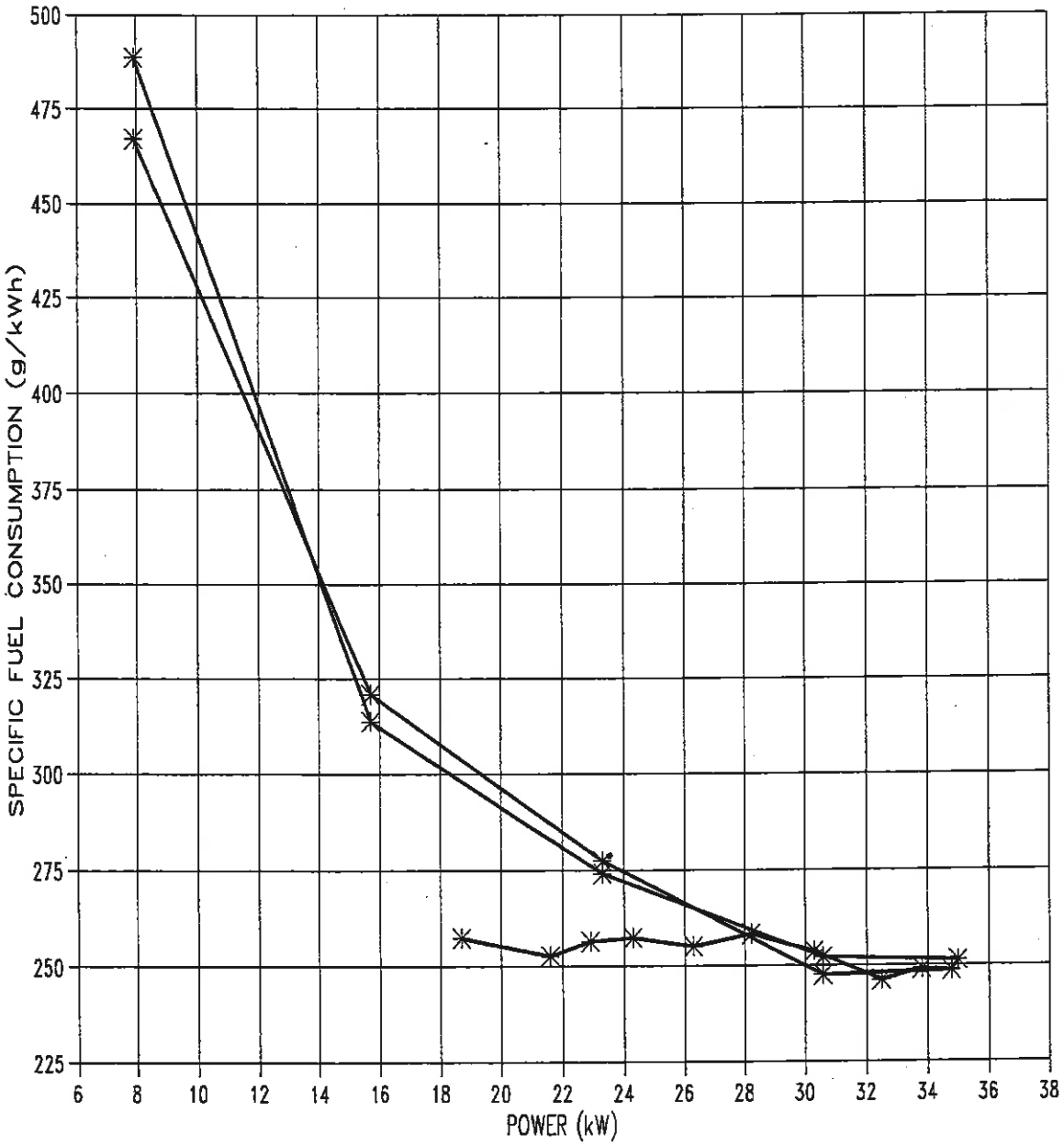
(1) *The torque is the equivalent crankshaft torque.*

PTO test


TORQUE
POWER
STANDARD P.T.O. SPEED 1000 REV/MIN
POWER (kW)
TORQUE (daNm)
ENGINE SPEED (rev/min)


FUEL CONS.
SPECIFIC CONS.
STANDARD P.T.O. SPEED 1000 REV/MIN
FUEL CONSUMPTION (kg/h)
SPECIFIC CONSUMPTION (g/kWh)
ENGINE SPEED (rev/min)

PTO test


SPECIFIC FUEL CONSUMPTION (g/kWh)
500
475
450
425
400
375
350
325
300
275
250
225
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
POWER (kW)

2. HYDRAULIC POWER AND LIFTING FORCE

- Date and location of tests: 21 July 1993, ISMA, Treviglio BG, Italy

2.1 HYDRAULIC POWER TEST

- Sustained pressure with relief valve open: 17.5 MPa;
- Pump delivery rate at minimum pressure: 33.0 l/min;

	Hydraulic power kW	Flow rate l/min	Pressure MPa	Oil temp. °C
At 90% of the actual relief valve setting	7.31	27.4	16.0	63
Maximum	7.78	31.1	15.0	63

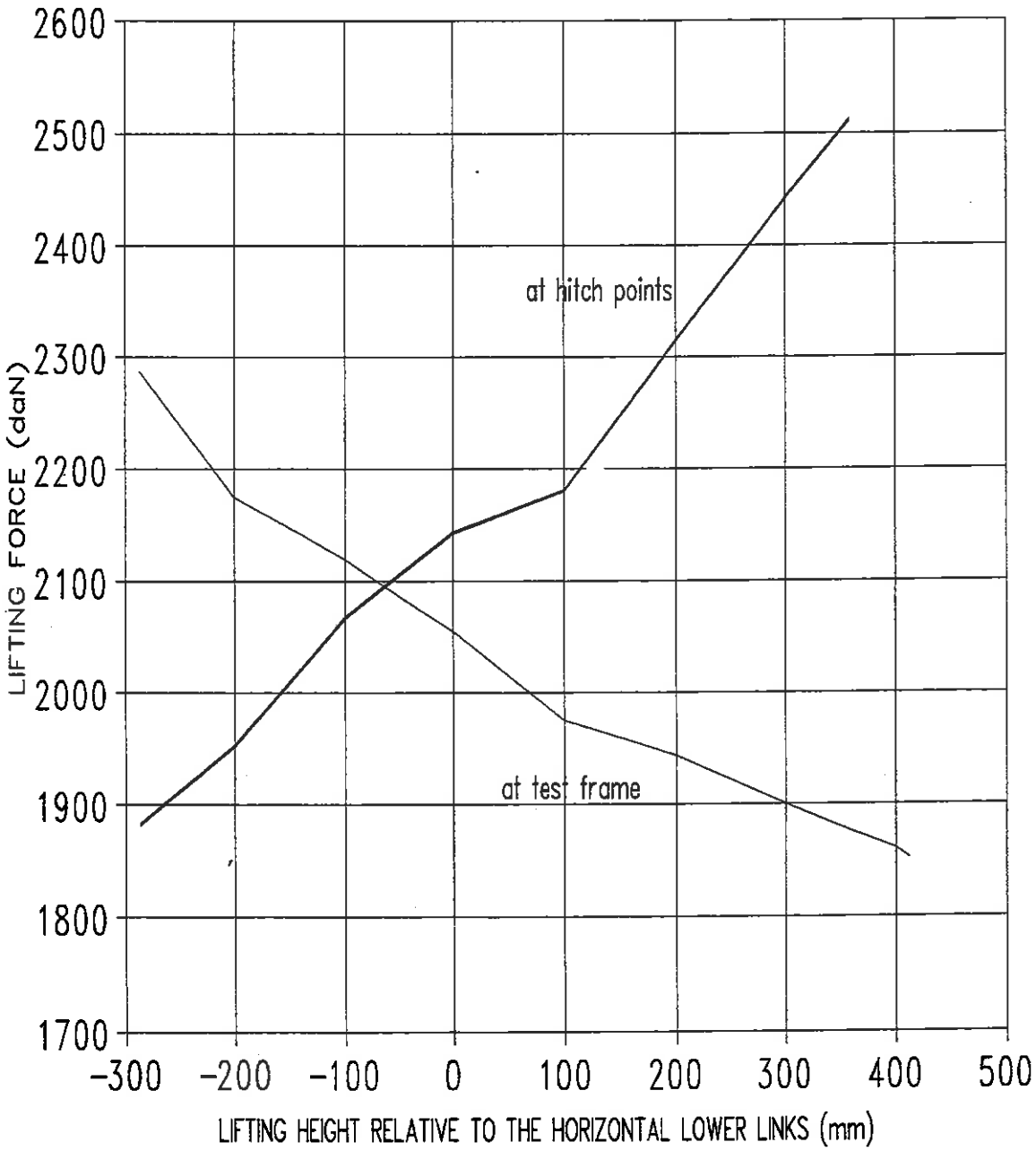
- Tapping point used for test: at rear of tractor;
- Hydraulic fluid: see page 20.

2.2 POWER LIFT

		At hitch point	On the frame
Height of lower hitch point above ground in down position	mm	200	200
vertical movement	mm	645	698
Maximum corrected force exerted through full range	daN	1882	1852
Corresponding pressure of hydraulic fluid	MPa	18.0	18.0
Moment about rear axle	daNm	1681	2784
Maximum tilt angle of mast over range of lift	degrees	-	5

Lifting heights relative to the horizontal lower links (mm)									
-286	-200	-100	0	+100	+200	+300	+359	+400	+412
Lifting forces at hitch points (daN)									
1882	1953	2068	2144	2180	2315	2442	2511	-	-
Lifting forces at test frame (daN)									
2286	2174	2120	2056	1975	1943	1900	-	1862	1852

Performance of power lift



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3. DRAWBAR PERFORMANCE

- Date of test: 22 to 26 July 1993
- Type of track: concrete

3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)

- Height of drawbar above ground: 505 mm;
- Tyre inflation pressure: 160 kPa front, 160 kPa rear.

Gear and range	Power kW	Draw. pull daN	Speed km/h	Eng. speed rev/min	Slip of wheels %	Specific ener. kWh/l	Specific cons. g/kWh	Temperatures Fuel °C	Cool. °C	Eng. °C	Atm. conditions Temp. °C	Hum. %	Press. kPa
1 S	0.8	1079	0.27	2527	15	0.21	4074	37	-	96	22	60	99.8
2 S	1.8	1584	0.42	2524	15	0.46	1838	37	-	96	22	60	99.8
3 S	2.9	1574	0.67	2521	15	0.66	1263	37	-	98	22	59	99.9
4 S	4.6	1567	1.06	2512	15	0.92	915	38	-	100	21	60	99.8
1 N	7.8	1675	1.67	2504	15	1.40	598	38	-	112	21	59	99.7
2 N	12.5	1719	2.62	2485	15	1.68	498	39	-	112	22	57	99.8
3 N	19.5	1699	4.13	2466	15	2.27	369	40	-	113	23	57	99.8
4 N	29.0	1625	6.43	2420	15	2.98	281	40	-	114	23	56	99.8
1 F	28.6	1098	9.38	2353	7	2.81	298	41	-	116	23	52	99.7
2 F	24.9	572	15.66	2353	3	2.45	342	40	-	116	23	52	99.7

3.2 MAXIMUM POWER IN TESTED GEARS (ballasted tractor)

- Height of drawbar above ground: 505 mm;
- Tyre inflation pressure: 160 kPa front, 160 kPa rear.

Gear and range	Power kW	Draw. pull daN	Speed km/h	Eng. speed rev/min	Slip of wheels %	Specific ener. kWh/l	Specific cons. g/kWh	Temperatures Fuel °C	Cool. °C	Eng. °C	Atm. conditions Temp. °C	Hum. %	Press. kPa
1 S	1.2	1534	0.27	2525	15	0.29	2870	38	-	98	23	50	99.8
2 S	1.9	1650	0.42	2519	15	0.46	1819	38	-	98	23	50	99.9
3 S	3.3	1785	0.66	2514	15	0.66	1269	37	-	100	23	49	99.7
4 S	5.3	1822	1.05	2506	15	0.95	885	38	-	103	24	49	99.6
1 N	8.4	1827	1.66	2496	15	1.32	637	39	-	106	24	47	99.5
2 N	13.6	1883	2.60	2477	15	1.69	497	39	-	110	23	47	99.6
3 N	22.2	1950	4.10	2451	15	2.46	340	39	-	113	23	49	99.8
4 N	32.7	1844	6.39	2350	13	3.23	259	40	-	115	22	49	99.7
1 F	29.3	1112	9.48	2352	6	2.88	291	39	-	114	22	51	99.8

S= Slow; N= Normal; F= Fast.

DRAWBAR PERFORMANCE (continued)

3.3 FIVE HOUR TESTS

Gear and range	Power kW	Draw. pull daN	Speed km/h	Eng. speed rev/min	Slip of wheels %	Specific ener. cons. kWh/l*	g/kWh	Temperatures Fuel °C	Cool. °C	Eng. °C	Atm. conditions Temp. °C	Hum. %	Press. kPa
3.3.1) FIVE HOUR TEST at 75% of pull at maximum power													
4 N	27.5	1383	7.02	2422	7	2.81	299	38	-	111	25	53	100.0
3.3.2) FIVE HOUR TEST at pull corresponding to 15% wheelslip with additional ballast: 135 kg													
3 N	22.8	1942	4.22	2445	(*)	(*)	(*)	38	-	114	26	55	99.9

S= Slow; N= Normal; F= Fast.
(*) Having the test been carried out with additional ballast, these figures are irrelevant.

Oil consumption during ten hours duration of tests 3.3.1 and 3.3.2: 35 g/h.

4. TURNING AREA AND TURNING CIRCLE

	With brakes on four wheels Right hand m	Left hand m	Without brakes Right hand m	Left hand m
Radius of turning area	2.95	3.37	3.75	3.85
Radius of turning circle	2.85	3.27	3.65	3.75

5. LOCATION OF CENTRE OF GRAVITY

Height above ground	mm	758
Distance forward fom rear axle centre	mm	883
Distance from tractor's median plane	mm	0

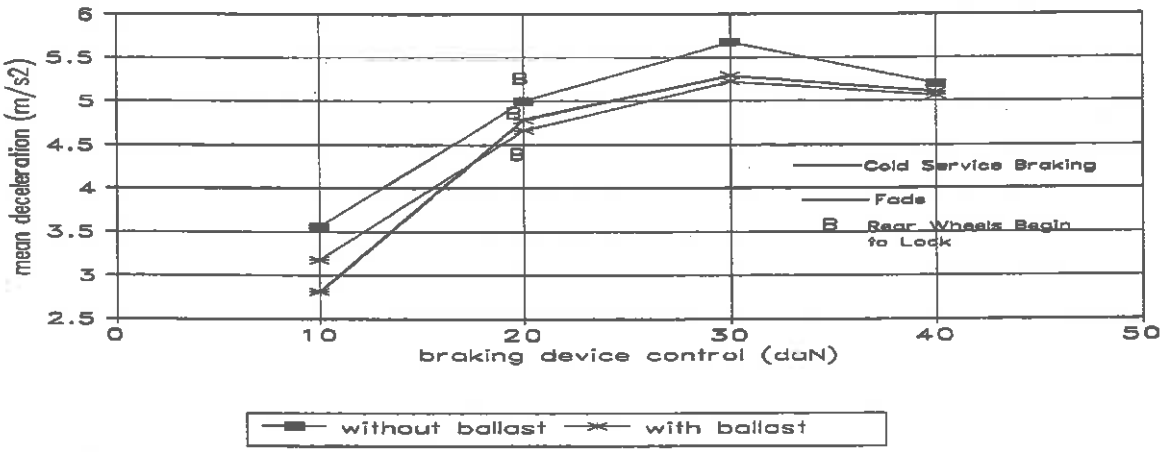
6. BRAKING PERFORMANCE

- Date of test: 27 July 1993
- Type of track: asphalt
- Type of decelerometer: PEISELER

Tractor mass (with driver)

	Front axle kg	Rear axle kg	Total kg
Unballasted	1015	1200	2215
Ballasted	1165	1390	2555

6.1 SERVICE BRAKES (all wheels braked)



- Speed before application of brakes (unballasted tractor): 43.8 km/h.
- Speed before application of brakes (ballasted tractor): 43.5 km/h.

The tractor brakes were heated by towing of the tractor for 1 km.
No significant deviation of tractor from original course and no abnormal vibrations were observed.

6.2) PARKING BRAKE

Ballasted tractor on 18% slope

		Up	Down
Braking device control force	daN	10.8	10.8

7. MEASUREMENT OF EXTERNAL NOISE LEVEL

- Date of test: 30 July 1993
- Type of track: concrete
- Type of sound level meter: BRÜEL & KJÆR, model 2231

Tractor	Gear and group	Travelling speed before acceleration km/h	Sound level dB(A)
Lamborghini 554-50 VDT	4 F	32.7	81.6
Same Argon 50 VDT	4 F	32.7	80.0
Hürlimann 305 VDT	4 F	32.5	80.7

8. REPAIRS AND REMARKS: none.

ADDITIONAL TEST

9. MAIN POWER TAKE-OFF PERFORMANCE (540 rev/min)

- Date and location of test: 7 September 1993, ISMA, Treviglio BG, Italy

- Type of dynamometer: ZÖLLNER 350 AC

Power	Speed		Fuel consumption		Specific	
	Engine	PTO	Hourly		Specific	energy
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
9.1 MAXIMUM POWER - 2 HOUR TEST						
35.7	2356	622	10.30	8.63	242	3.47
9.2 POWER AT RATED ENGINE SPEED						
35.7	2356	622	10.30	8.63	242	3.47
9.3 STANDARD POWER TAKE-OFF SPEED (540 ± 10 rev/min)						
34.1	2044	540	9.82	8.23	241	3.47
9.4 PART LOADS						
9.4.1 The torque corresponding to maximum power at rated engine speed						
35.7	2356	622	10.30	8.63	242	3.47
9.4.2 85% of torque obtained in 1.4.1						
31.5	2436	644	9.42	7.89	250	3.35
9.4.3 75% of torque defined in 1.4.2						
24.2	2481	655	7.89	6.61	273	3.07
9.4.4 50% of torque defined in 1.4.2						
16.2	2499	660	5.92	4.96	306	2.74
9.4.5 25% of torque defined in 1.4.2						
8.1	2518	665	4.53	3.80	469	1.79
9.4.6 unloaded						
0	2545	672	2.96	2.48	-	-

9. MAIN POWER TAKE-OFF PERFORMANCE (540 rev/min) (continued)

Power	Speed		Fuel consumption		Specific	
	Engine	PTO	Hourly		Specific	energy
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
9.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (540 rev/min)						
9.5.1 The torque corresponding to maximum power available						
34.1	2044	540	9.82	8.23	241	3.47
9.5.2 85% of torque obtained in 1.5.1						
30.1	2109	557	8.44	7.07	235	3.57
9.5.3 75% of torque defined in 1.5.2						
23.1	2164	572	6.86	5.75	249	3.37
9.5.4 50% of torque defined in 1.5.2						
15.5	2190	579	5.30	4.44	286	2.93
9.5.5 25% of torque defined in 1.5.2						
7.9	2219	586	3.93	3.29	416	2.01
9.5.6 unloaded						
0	2237	591	2.01	1.92	-	-

- No load maximum engine speed: 2545 rev/min;
- Torque (1) at maximum power at rated engine speed: 14.49 daNm;
- Maximum torque (1) (engine speed: 1328 rev/min) 17.58 daNm.

- Mean atmospheric conditions

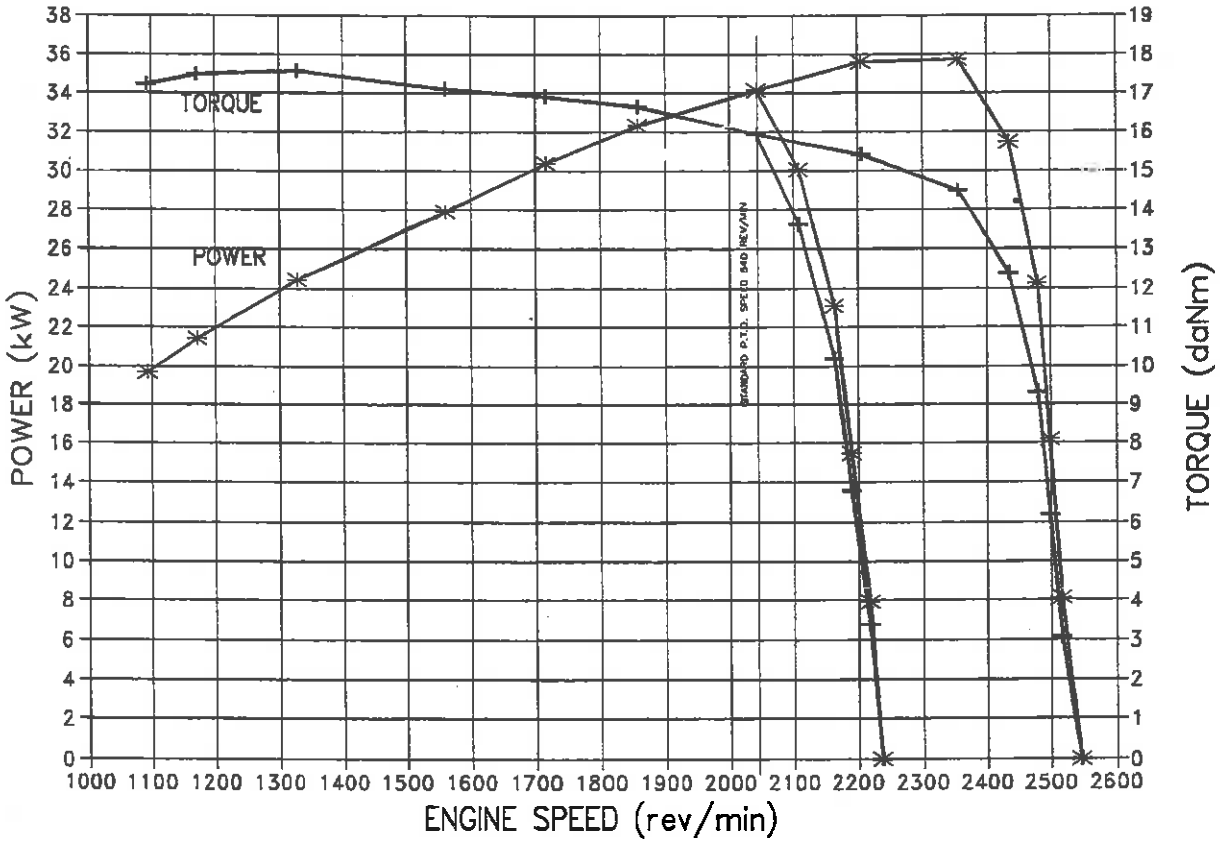
. temperature: 22 °C
. pressure: 99.8 kPa
. relative humidity: 66%

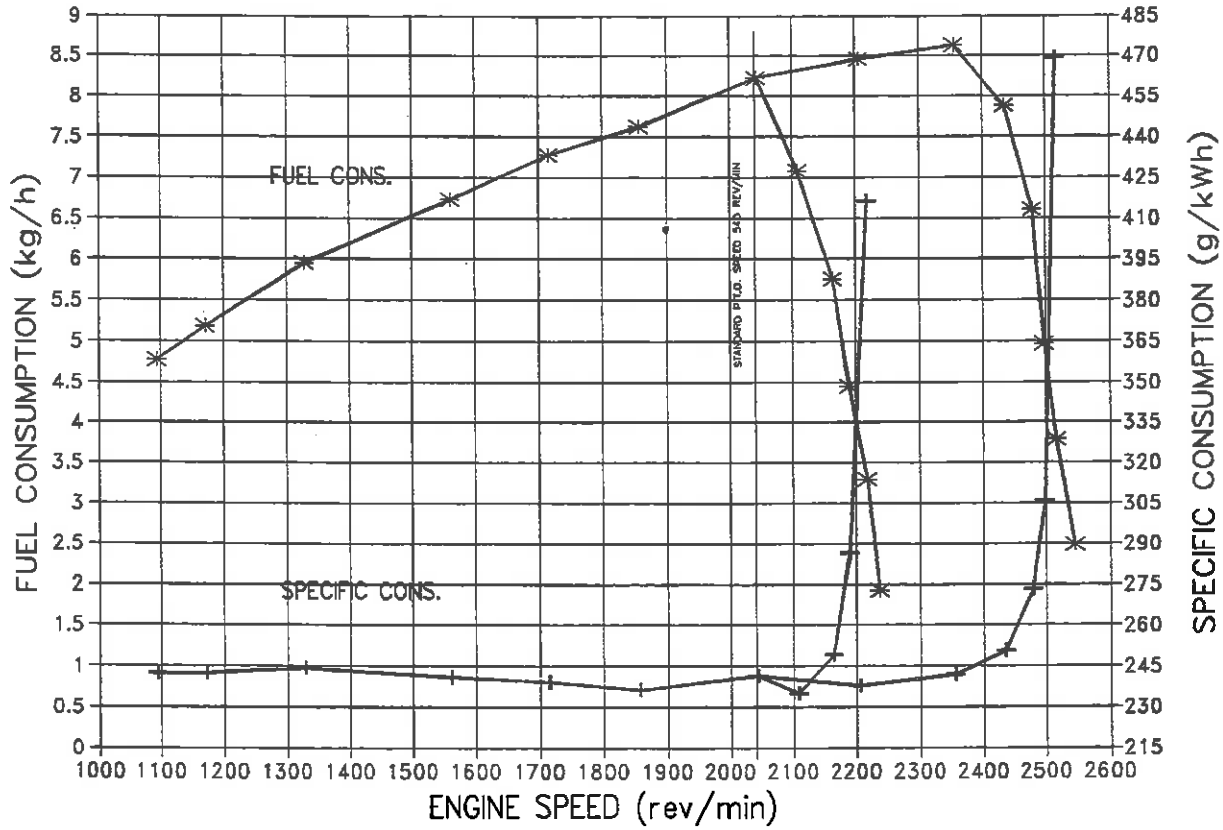
- Maximum temperatures

. coolant: - °C
. engine oil: 139°C
. fuel: 36 °C
. engine air intake: 28 °C

(1) *The torque is the equivalent crankshaft torque.*

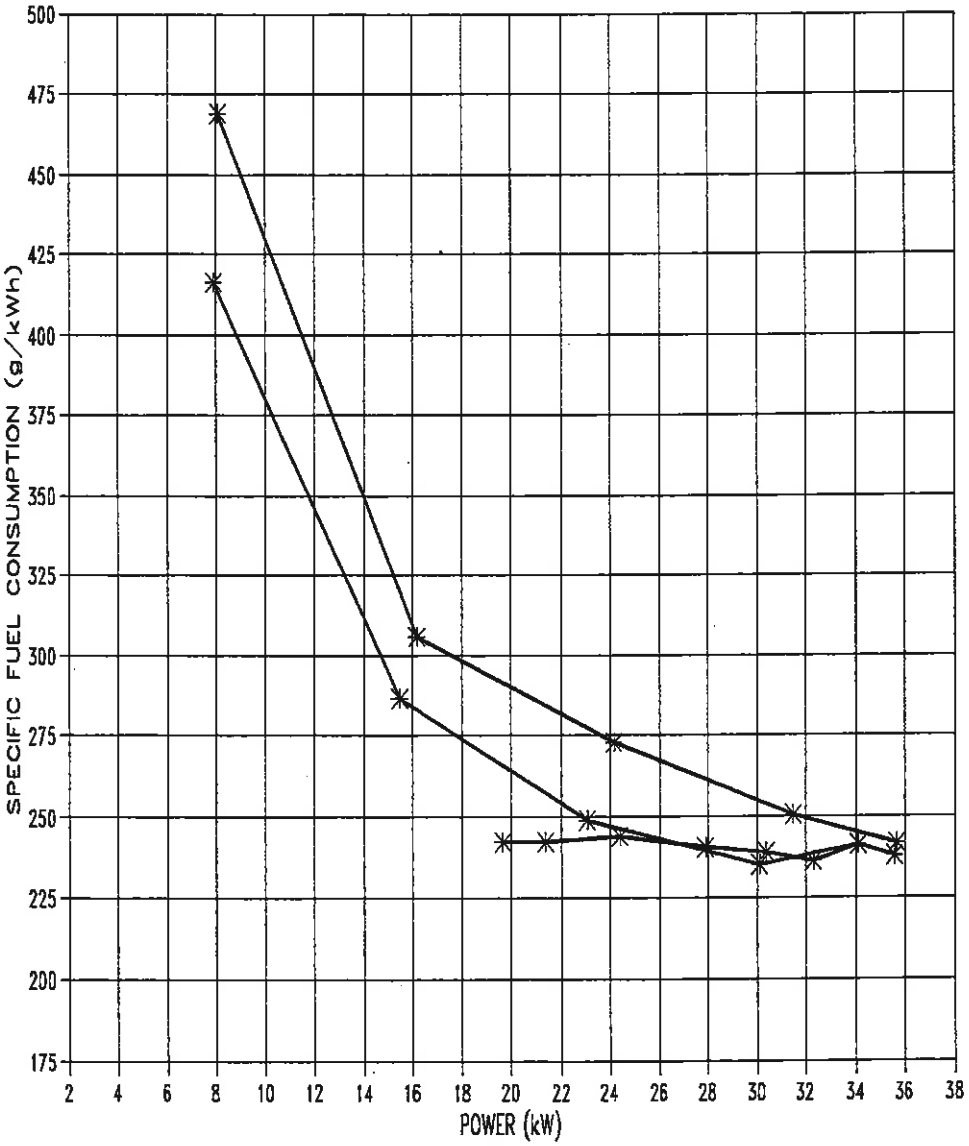
PTO test


TORQUE
POWER
STANDARD P.T.O. SPEED 540 REV/MIN
POWER (kW)
TORQUE (daNm)
ENGINE SPEED (rev/min)


FUEL CONS.
SPECIFIC CONS.
STANDARD P.T.O. SPEED 540 REV/MIN
FUEL CONSUMPTION (kg/h)
SPECIFIC CONSUMPTION (g/kWh)
ENGINE SPEED (rev/min)

ISTITUTO SPERIMENTALE PER
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SEZIONE DI TREVIGLIO

PTO test



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