MINISTERO DELL'AGRICOLTURA E DELLE FORESTE
Direzione Generale Produzione Agricola

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO
Via Milano, 43 - 24047 TREVIGLIO (BG) ITALY
tel. 0363/49603

O.E.C.D. n.1008
restricted code

Test in accordance with O.E.C.D. Restricted Standard Code for the official testing of agricultural tractors

Report on test of: SAME LASER 90 VDT "4WD"



Submitted for test by: Same Trattori S.p.A.
V.le Cassani 15
24047 TREVIGLIO (BG)

Date of approval O.E.C.D.: 16/05/1986

Period of test: november 1985

I.S.M.A. - TREVIGLIO
Via Milano, 43

TEST n.021

MINISTERO DELL'AGRICOLTURA E DELLE FORESTE
Direzione Generale Produzione Agricola

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO
Via Milano, 43 - 24047 TREVIGLIO (BG) ITALY
tel. 0363/49603

O.E.C.D. n.1008
restricted code

Test in accordance with O.E.C.D. Restricted Standard Code for the official testing of agricultural tractors

Report on test of: SAME LASER 90 VDT "4WD"



Submitted for test by: Same Trattori S.p.A.
V.le Cassani 15
24047 TREVIGLIO (BG)

Date of approval O.E.C.D.: 16/05/1986

Period of test: november 1985

I.S.M.A. - TREVIGLIO
Via Milano, 43

TEST n.021

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

SAME LASER 90 VDT "4WD" TEST N.021

TABLE OF CONTENTS

- Specification of tractor ..... pag. 2
- Power take-off performance ..... " 16
- Power lift and hydraulic power test ..... " 20
- Drawbar performance ..... " 21

All stated dimension and tests referred to tyre size 16.9/24 (8plr) at front and 18.4/34 (8plr) at rear, as well as to track whiths 1830 mm at front and 1830 mm at rear.

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

- Tractor manufacturer's: SAME TRATTORI S.p.A. TREVIGLIO (BG)
- Submitted for test by: the manufacturer
- Selected by: the manufacturer with the agreement of ISMA
- Place of running in: TREVIGLIO
- Duration of running in: 50 hours

I - SPECIFICATIONS OF TRACTOR

TRACTOR

- Make: SAME;
- Model : LASER 90 V DT,"4WD";
- Type: Wheeled tractor, unit constr., all wheels drive tractor;
- Serial no.: 1469;
- First serial no.:1001;

ENGINE

- Make: SAME;
- Model: 1054 PT;
- Type : Air cooled 4 stroke Diesel engine direct injection, turbo surcharged;
- Serial n.: 3310;

Cylinders

- Number/disposition: 4 vertical in line;
- Bore/stroke: 105/120 mm;
- Capacity: 4154 cc;
- Compression ratio: 17/1;
- Arrangement of valves: Overhead;
- Cylinder liners: without liners;

Supercharging

- Make: K.K.K.;
- Model: K26 2964 GA 10/11;
- Type: turbocharger;
- Supercharging pressure 0.75 bar;

Fuel system

- Fuel feed system: Ac corone fuel feed pump;
- Make, type and model of fuel filter: CAV V 70052994;
- Capacity of fuel tank: 130 l;
- Make, type and model of injection pump: BOSCH PFR 4K 80 A 419/2 in line injection pump;
- Serial number of injection pump: whitout number;
- Manufacturer's production setting of injection pump:
  . flow rate 70 ±2 mm3/stroke at rated speed and full load;
  . timing 24 ± 30° before TDC;
- Make, type and model of injectors:BOSCH DLLA 160 S 255 multihole injection nozzles;
- Injection pressure: 219 bar;

Governor

- Make: SAME;
- Type: mechanical variable speed;
- Model: 041.1616.0;
- Governor range of engine speed from 700 to 2480 rev/min;
- Rated engine speed : 2270 rev/min;

Air Cleaner

- Main filter
  . Make: FIAMM;
  . Type: Dry paper element filter;
  . Model: FAR 329;
  . Location : front of engine;
- Maintenance indicator : with the warning lamp on the dashboard;

Lubrication system

- Type : forced feed from gear pump;
- Total oil capacity including filter: 10.2 l;
- Oil change period : 125 hrs;
- Type of filter : FIAMM FT 4813 IN;
- Number: 1;
- Filter change period: 300 hrs;
- Oil specifications (see pag.15)

Cooling system

- Type and detail: air cooling with axial blower;
- No. of fan blade : 6;
- Diameter : 274 mm;

- Type of temperature control: none.

Starting system

- Safety device: Preventing engine start in gear;
- Make: BOSCH;
- Model: electromagnetic engagement;
- Type: JF 12 V;
- Power: 3 kW for start motor rating;
- Starting system for low temperatures: thermostarter(opt.);

Electrical equipement

- Voltage: 12 V;
- Generator
  . Make: BOSCH;
  . Type: alternator K1 14V 55 A 20;
  . Power: 45 A, 770 W;
- Battery : 1 lead acid;
  . Capacity: 110 Ah at 20 hours;

Exhaust system
- Make: SAME;
- Type: 4 chambers reflection absorption;
- Model: 273.5630.3;
- Location: on the left hand side of engine cowling
  in vertical position;
- Height of outlet above ground: 2760 mm;

TRANSMISSION

Clutch: utilized only for travelling of tractor
- Make: SAME;
- Type : single disc dry clutch;
- Model: 273.23;
- Disc diameter: 348 mm;
- Control system: hydraulicelly operated by pedal
  self readjusting;

Gear box
- Make: SAME;
- Type: mechanical synoromesh speed change gear with
  4 speeds forward, with 3 ranges speed 1
  miniriductor group and 1 reverse group;
- Model: 273.31;
- No. speeds: 24 forward and 12 reverse;
- Available options: 12 forward and 3 reverse or 20
  forward and 12 reverse;

Rear axle and final drives

- Make: SAME;
- Type: bevel gear differential and epicyclic final drive;
- Model: 273.44;
- Differential lock: yes
- Type: mechanical;
- Model: SAME;
- Control system: engaged or disengaged with pedal;

Front axle and final drive

- Make: SAME;
- Type: 273.43;
- Model: original SAME system with central shaft bevel gear drive, differential and epicyclic final drive;
- Differential lock: yes;
  . Model: SAME;
  . Type: mechanical;
  . Method of engagement: with pedal;
  . Metod of disengagement: with pedal;

Transmission lubrication

- Oil capacity
  .. Gear box, rear axle, final drive,: in common, total capacity filter including 76 l;
  . Change period: 1200 hrs;
  . Power lift: 20 l;
  . Oil change period: 1200 hrs;
  . Filter change period: when the filter clogging warning lamp is lighted;
  . Front axle and final drive: total capacity 13 l;
  . Changing: 1000 hrs;
- Recommended oil: see pag.15

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

SAME LASER 90 VDT "4WD" TEST N.021 6

Total ratios and speeds

Group	Number of engine revolutions for one revolution of the driving wheels	Nominal traveling speed at a rated engine speed of 2270 rev/min
FORWARD		
1L MR	527.008	1.250
1L	449.048	1.466
2L MR	373.751	1.763
2L	318.461	2.069
3L MR	287.927	2.288
3L	245.334	2.689
4L MR	230.236	2.862
4L	196.178	3.358
1N MR	175.779	3.751
1N	149.682	4.402
2N MR	124.584	5.289
2N	106.153	6.207
3N MR	95.977	6.865
3N	81.778	8.057
4N MR	76.746	8.585
4N	65.392	10.076
1V MR	58.556	11.253
1V	49.895	13.206
2V MR	41.528	15.867
2V	35.384	18.622
3V MR	31.993	20.596
2V	27.260	24.171
4V MR	25.581	25.758
4V	21.796	30.231
REVERSE		
1L RM	448.933	1.467
2L RM	318.379	2.069
3L RM	245.270	2.686
4L RM	196.126	3.359
1N RM	149.643	4.403
2N RM	106.127	6.208
3N RM	81.767	8.060
4N RM	65.376	10.078
1V RM	49.882	13.210
2V RM	35.577	18.626
3V RM	27.262	24.179
4V RM	21.791	30.238

- Tyre size 18.4/34 inflaction pressure: 1.3 bar
- Tyre radius index: 770 mm(E.T.R.T.O. norm)

SAME LASER 90 VDT "4WD" TEST N.021 7

POWER TAKE-OFF

Main power take-off

- Type: independent at rear of tractor, in tractor's median plane, engaged or disengaged through hand lever. Driven by multiplate wet clutch independent of trav clutch; ISO standard 500-1979;

Power take-off proportional to engine speed

540 rev/min

It is possible,through 6 screws, to mount: one take-off shaft end at 6 or at 21 splines. Changing speeds through external hand lever;

- Location:at rear of tractor;
- Diameter of power take-off shaft end: 34.9 mm;
- Number of splines: 6 in conformity with "ISO Standard 500 - 1979";
- Height above ground with tyre size 18.4/34: 775 mm;
- Distance from the median plane of the tractor 0 mm;
- Distance behind rear axle: 490 mm;
- PTO speed: 626 rev/min at rated engine speed;
- Engine speed: 1957 rev/min at standard power take-off speed 540 rpm;
- Ratio of rotation speeds (engine speed/p.t.o. speed): 3.625;
- Max power and torque trasmissible:120 kW and 101 daNm;
- Direction of rotation (viewed facing driving end): clockwise;

1000 rev/min

- Location: at rear of tractor;
- Diameter of power take-off shaft end: 34.9 mm;
- Number of splines: 21 in conformity with "ISO Standard 500 - 1979";
- Height above ground with tyre size 18.4/34: 775 mm;
- Distance from the median plane of the tractor 0 mm;
- Distance behind rear axle: 490 mm;
- PTO speed at rated engine speed: 1068 rev/min
- Engine speed 2125 rev/min at standard power take-off speed: 1000 rpm;
- Ratio of rotation speeds (engine speed/p.t.o. speed): 2.125;
- Direction of rotation (viewed facing driving end): clockwise;

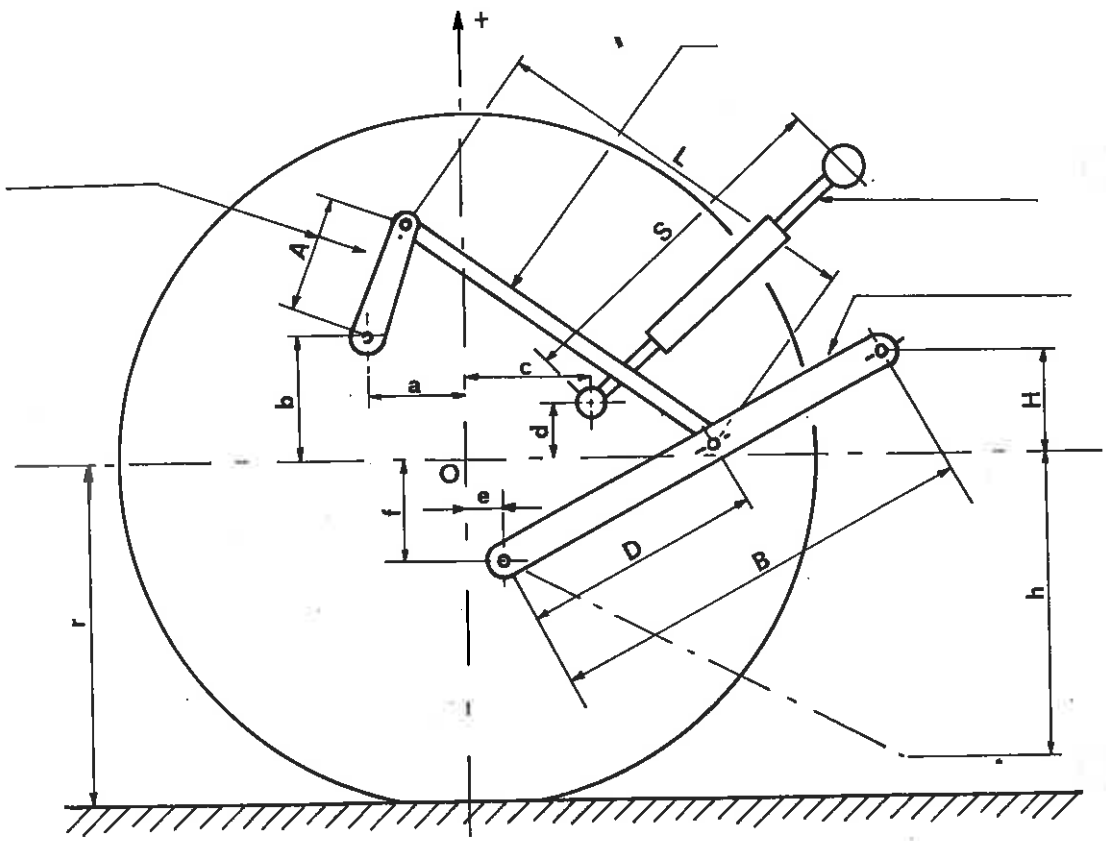
POWER LIFT

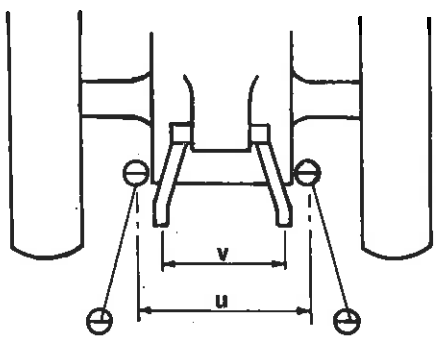
- Make: SAME;
- Type: LOAD SENSING;
- Type and number of cylinders: 1 at simple effect;
- Type of locking for the transport: mechanical, with screwed tie rods that lock the lower links;
- Exercise valve pressure: 180 bar;
- Opening pressure anti-shock valve: 210 bar;
- Lift pump type: hydraulic rotary pump,driven from engine shaft;
- Transmission between pump and engine: mechanical
- Type and number of filters: 1, replaceable paper cartridge;
- Changing: when the filter clogging warning lamp is lighted;
- Oil capacity: 20 l;
- Site of oil reservoir: power lift box;
- Position and No.of additional oil plugs: 6 at 2 ways distributor at rear of tractor;
- Maximum volume of oil available to external cylinders: 15 l;
- Recommended oil (see pag.16)

Three-point linkage

- Category: 2 in conformity with ISO 730/I;

SAME LASER 90 VDT "4WD" TEST N.021 9





ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

SAME LASER 90 VDT "4WD" TEST N.021 10

Specify the settings for the lifting test

Rear tyres (size 18.4/34) 8 pr		(r)	770 mm
Front tyre (size 16.9/24) 8 pr		(r')	620 mm
Length of lift arms		(A)	300 mm
Length of lower links		(B)	860 mm
Distance of lift arm	:horizontally	(a)	140 mm
pivot point from rear	:vertically	(b	450 mm
wheel centre line			
Horizontally distance between the 2 lower link points		(u)	645 mm
Horizontally distance between the 2 lift arm end points		(v)	550 mm
Length of upper link		(S)	from 580 to 700 mm
Distance of upper link horizontally		(c)	420 mm
pivot point from rear vertically		(d)	390 mm
wheel centre line			
Distance of lower link horizontally		(e)	175 mm
pivot point from rear vertically		(f)	190 mm
wheel centre			
Distance of lower link pivot points to lift rod pivot points on lower link		(D)	410-450 mm
Length of lift rods		(L)	from 730 to 860 mm
Height of lower hitch points:			
- in Low position		(h)	570 mm
- in High position relative to the rear wheel centre line, situated 770 mm above the ground level		(H)	130 mm

SWINGING DRAWBAR

- Type: SAME 97320;
- Height above ground (tyre size:18.4/34) max 515 mm
  min 440 mm
- Type of adjustment: reversible;
- Distance of hitch point from rear axle axis, horizontally: 820 mm;
- Distance of hitch point fron power take-off shaft end
  . vertically: 252 - 327 mm below;
  . horizontally: 330 mm forward;
- Lateral adjustment (centre of clevis):
  (right hand) 270 mm;
  (left hand) 270 mm;
- Distance of pivot point from rear axle axis, horizontally: 25 mm forward;
- Diameter drawbar pin hole: 33 mm;

TRAILER HITCH

- Type: SAME;
- Height above ground: 550 - 720 mm;
- Distance of hitch point from rear axle axis, horizontally: 670 mm;
- Distance of hitch point from power take-off shaft end:
  . vertically: behind 200 - 30 mm;
  . horizontally: 180 mm;
- Maximun vertical permissible load: 1500 kg;

HOLED DRAWBAR

- Number of holes: 7;
- Distance between holes: 100 mm;
- Hole diameter: 28.5 mm;
- Thickness/width of the drawbar: 30 - 80 mm;
- Height above ground , minimum 250 mm;
  maximum 1010 mm;
- Horizontal distance to power take-off shaft end (rear) 650 mm;
- Diameter of the pinhole: 28 mm.

STEERING

- Specifications: hydrostatic steering whit BOSCH hydraulic gear pump HY/ZFS 11/11 L 201.

- Make: ZAHNRADFABRIK FRIEDRYCHSHAFEN AG;
- Model: 8494;
- Type: SERVOSTAT;
- Working pressure: 120 bar;
- Oil capacity: 2 l;
- Oil change period: 1200 hrs;
- Filter change period: when the filter clogging warning lamp is lighted;
- Recommended oil (see pag.15)

BRAKE

Service brake

- Make: SAME;
- Model: 273.54;
- Type: oil bath disc, total 4 discs, mounted before front and rear differential half schafts.Front disc dia=224 mm ; rear disc dia=302 mm FRENDO HDT 303 lining material;
- Method of operation: hydaulically acting with 2 pedals
- Service brake optional : the tractor have only the breking on the rear differential half shafts;
- Trailer bracking take-off: none.

Parking brake

- Type: fully indipendent by service brake, 3 oil bath discs mounted on the pinion shaft in the gear box ISOBOND SINTERIX lining material;
- Method of operation: mechanically by hand lever

Steering brake : divided pedal of service brake for normal use locked together;

STEERING WHEELS

- Number: 2;
- Location: at front;
- Tyres: radial;
  . Size: 16.9/24;
  . Ply rating: 8;
  . Maximum permissible load on each tyre: 1480.8 daN;
  . Corresponding inflation pressure: 1.7 bar;
- Track widths: 1700 - 1830 - 1900 mm;
- Regulation: changing the position of the rims in respect of the disc;

DRIVING WHEELS

- Number: 4;
- Location: 2 at front and 2 at rear;
- Tyres:
  . Size: 18.4/34;
  . Ply rating: 8
  . Type of casing: radial;
  . Maximum permissible load on each tyre: 1976 daN;
  . Corresponding inflation pressure: 1.3 bar;
- Track widths: 1530-1630-1730-1830-1930-2030-2130 mm;
- Regulation: changing the position of the rims in respect of the disc;

WHEELBASE: 2450 mm;

PROTECTIVE STRUCTURE

Specifications

- OECD approval number: CSD 0758/14;
- Trade name: SAME C 29;
- Manufacturer's name: SAME;
- Protective device: cab;

Materials used in the construction and dimensions

See OECD Test Report on Protective Stuctures.

DRIVER'S SEAT

- Make: GRAMMER;
- Type of suspension: DS 85 H;
- Type of damping: shock absorber;
- Range of adjustment, longitudinal 150 mm;
  vertical 60 mm;

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

SAME LASER 90 VDT "4WD" TEST N.021

LIGHTING

Lighting system in accordance with CEE 78/933

	Height above ground of centre with tyre mm	Size mm	Distance from out side edge of trac tor to centre at 1500 mm track width mm
Headligths	1055	110*110	890
Front park.lights	1915	110*35	270
Front finger post	1950	110*35	270
Rear park.lights	1715	110*70	330
Rear finger post	1695	70*110	235
Stop	1695	70*110	435
Reflectors	1660	110*35	330

Tyre size: 16.9/24 front - 18.4/34 rear.

TEST CONDITIONS

- Overall dimensions with tyres:
- Front 16.9/24 - Rear 18.4/34

	Length (mm)	Width (mm) min	Width (mm) max	Height (mm) at top of exaust sil.	Height (mm) at top of protec.struc.
Without ballast	4140	2100	2560	2760	2710
With ballast	4540	2100	2560	2755	2705

Ground clearance

-Clearance-limiting part: 420 mm

Track setting

- Front: 1830 mm;
- Rear: 1830 mm;

Tractor mass (without driver but with thanks full with cab)

	Units	Front	Rear	Total
Without ballast	kg	1850	2450	4300
With ballast	kg	2170	2650	4820

Fuel and lubricants recommended and used in tests

Fuel
Type:
Specific gravity at 15 °C: 0842 Kg/l

Engine oil
- Type: AGIP F1 UNITRACTOR SAE 20 W/40;
- Viscosity: 16.2 cSt;

Transmission oils and rear, front axle and final drive oils;
- Type: AGIP ROTRA THT SAE 85 W/90;
- Viscosity: 17.7 cSt;
- Viscosity index: 95;

Power lift oil
- Type: AGIP F1 ROTRA THT SAE 85 W/90;
- Viscosity: 17.7 cSt;

Steering oil
- Type: AGIP F1 DEXTRON GM TYPE A SUFFIX A;
- Viscosity: 7.5 cSt;

Recommended grease: AGIP F1 GREASE 30;
- Number of lubrication points: 13;

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

II - TEST RESULTS

A. COMPULSORY TESTS RESULTS

1) MAIN POWER TAKE-OFF PERFORMANCE

- Date and location of test: 4 th NOV 1985 - I.S.M.A. TREVIGLIO (BG) ITALY
- Type of dynamometer: ZOELLNER B 500

Power	Speed		Fuel consumption			Specific
	Engine	P.T.O.	Hourly	Specific		Energy
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kW l/h
MAXIMUM POWER - 2 - HOUR TEST						
64.31	2270	1068	19.16	16.13	251	3.36
POWER AT RATED ENGINE SPEED						
64.31	2270	1068	19.16	16.13	251	3.36
STANDARD POWER TAKE-OFF SPEED (540+/-10 REV/MIN)						
62.52	2125	1000	18.29	15.40	246	3.42
PART LOADS						
i) torque corresponding to maximum power at rated engine speed						
64.31	2270	1068	19.16	16.13	251	3.36
ii) 85% of torque obtained in i)						
56.04	2327	1095	16.88	14.21	253	3.32
iii) 75% of torque defined in ii)						
42.75	2367	1114	13.91	11.71	274	3.07
iv) 50% of torque defined in ii)						
28.83	2394	1126	10.96	9.23	320	2.63
v) 25% of torque defined in ii)						
14.95	2428	1142	7.98	6.72	449	1.87
vi) unloaded						
0	2458	1156	5.29	4.46	-	-

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

SAME LASER 90 VDT "4WD" TEST N.021 17

PART LOADS AT STANDARD POWER TAKE-OFF SPEED

Power	Speed		Fuel consumption			Specific
	Engine	P.T.O.	Hourly		Specific	Energy
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kW h/l
i) The torque corresponding to maximum power available						
62.51	2125	1000	18.29	15.40	246	3.42
ii) 85% of torque obtained at maximum power						
54.84	2193	1032	16.03	13.50	246	3.42
iii) 75% of torque defined in ii)						
41.73	2225	1047	13.30	11.20	268	3.14
iv) 50% of torque defined in ii)						
28.40	2271	1069	10.45	8.80	310	2.72
v) 25% of torque defined in ii)						
14.37	2299	1082	7.33	6.17	429	1.96
vi) unload						
-	2333	1098	4.79	4.03	-	-

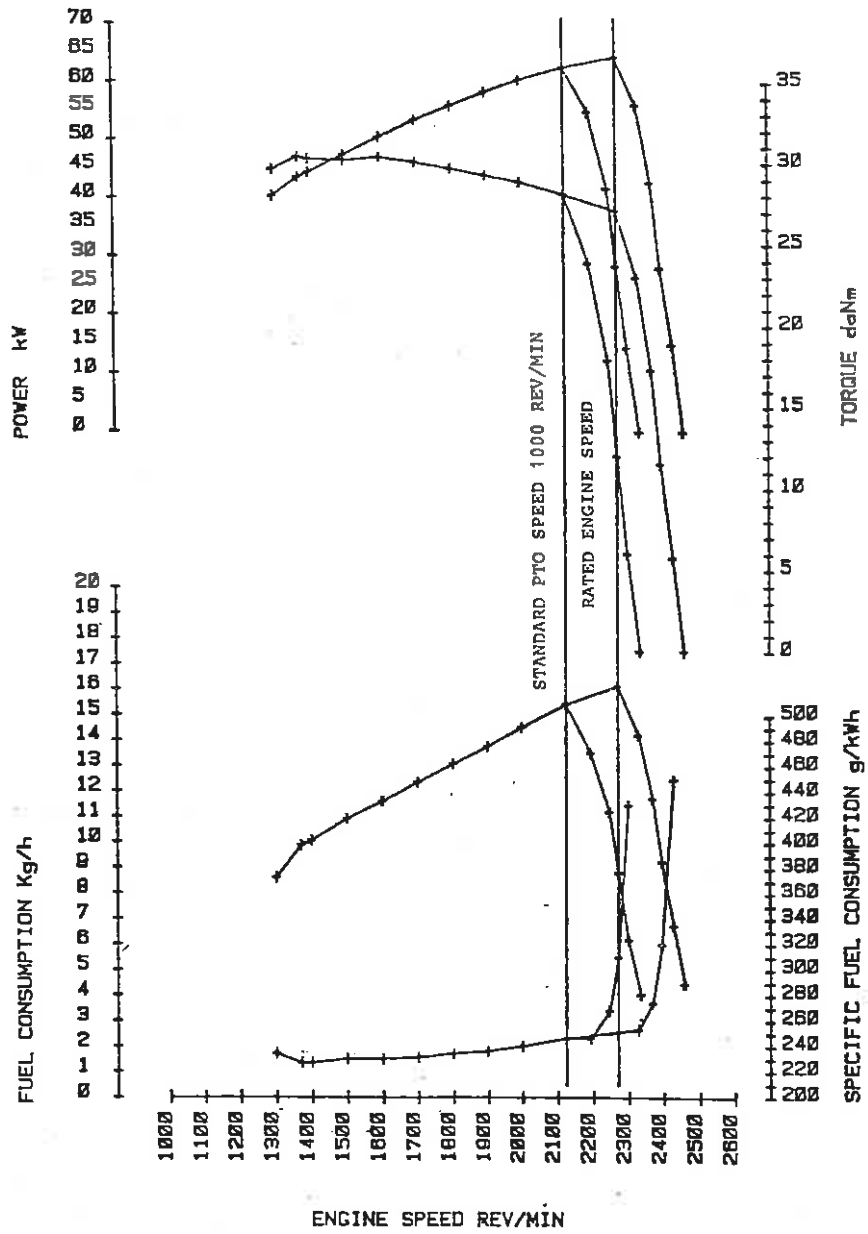
STANDARD SPECIFIC FUEL CONSUMPTION: 263/320/246/310 g/kWh

- No load maximum engine speed: 2458 rev/min
- Torque (1) at maximum power: 27.07 daNm
- Maximum torque (1) (engine speed: 1371 rev/min): 30.31 daNm
- Mean atmospheric conditions : Temperature 22°C
  Pressure 998 mmbar
  Relat.humidity 85%
- Maximum temperatures : Coolant 90°C
  Engine oil 131°C
  Fuel 35°C
  Engine air intake 28°C

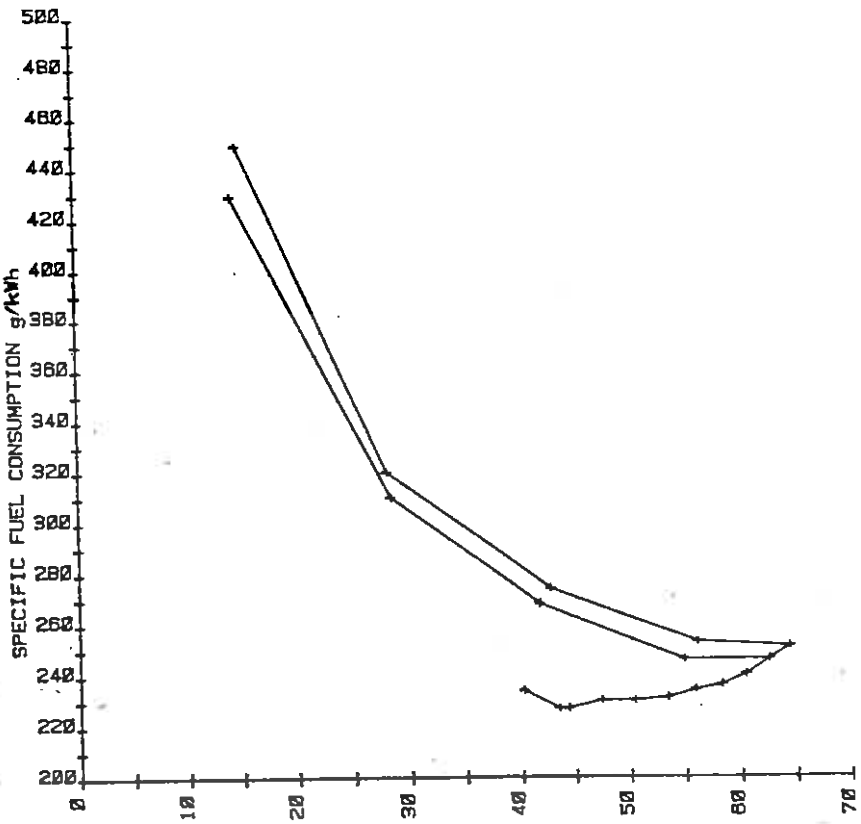
(1) The torque is the equivalent crankshaft torque.

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

SAME LASER 90 VDT "4WD" TEST N.021



p.t.o. PERFORMANCE



p.t.o. POWER kW

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

(2) POWER LIFT AND HYDRAULIC POWER TEST

- Date and location of tests: 7th nov 1985 - ISMA Treviglio (BG)

		at hitch point	on the frame
Height of lower hitch point above ground in down position	mm	200	200
Vertical movement	mm	700	650
Maximum corrected force exerted through full range	daN	3311	3365
Corresponding pressure of hydraulic fluid	bar	163	163
Moment about rear axle	daNm	--	5485
Maximum tilt angle of mast over range of lift	Degrees	--	9

Lifting heights relative to the horizontal lower links

mm	-380	-300	-200	-100	0	100	200	270	300	320
Lifting forces at hitch points										
daN	3311	3675	3929	4326	4635	4811	4900	--	4502	3443
Lifting forces at test frame										
daN	4767	4767	4785	4723	4629	4591	4502	3365		

HYDRAULIC POWER TEST

Sustained pressure with relief valve open: 186 bar;
Pump delivery rate at min pressure: 69 l/min;

Hydraulic power	kW	flow rate l/min	pressure bar	oil temp. °C
At 90% of the actual reliev valve setting	17.46	62.5	167	65
Maximum	17.79	60.6	177	65

Tapping point used for test : at rear of tractor
Hydraulic fluid: see pag.15

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

(3) MAXIMUM POWER TRANSMISSION AND FUEL CONSUMPTION AT THE DRAWBAR
(UNBALLASTED TRACTOR)

- Date of tests: 17/12/1985
- Type of track: concrete
- Type and size of tyres front: 16.9/24 8 plr
  rear : 18.4/34 8 plr

Height drawbar above ground : 710 mm
Tyre inflation pressure : front 1.3 bar
rear 1.3 bar

1) MAXIMUM DRAWBAR IN TESTED GEARS

Gear	Power	Draw. pull	Speed	Eng. spd	Slip of wheel	Specific ener.cons.	fuel	Temperatures cool.	eng.	temp.	hum.	Atm. cond. pres
n.	kW	daN	km/h	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	% mmbar
1 L MR	13.38	4267	1.13	2416	15	1.45	579	14	35	55	1	90 995
1 L	15.31	4179	1.32	2400	15	1.57	528	14	35	60	1	90 995
2 L MR	18.29	4169	1.58	2394	15	1.76	479	15	36	65	1	92 995
2 L	21.98	4169	1.90	2390	15	1.90	443	15	36	65	2	92 995
3 L MR	23.15	4169	2.00	2380	15	1.93	437	15	37	67	2	92 995
3 L	26.68	4179	2.30	2376	15	2.03	416	20	39	68	2	91 995
4 L MR	28.80	4100	2.53	2365	15	2.12	397	17	39	68	2	90 995
4 L	33.58	4100	2.95	2360	15	2.27	371	13	35	79	0	90 [illegible]5
1 N MR	36.73	4022	3.29	2340	15	2.36	358	13	23	81	0	88 995
1 N	40.67	3728	3.93	2329	13	2.36	358	15	25	86	1	88 995
2 N MR	44.87	3361	4.81	2292	10	2.42	347	15	29	90	0	90 995
2 N	51.15	3139	5.87	2271	6.5	2.63	321	16	31	96	1	90 995
3 N MR	52.43	2845	6.64	2277	4.5	2.69	313	13	29	97	2	90 995
3 N	52.71	2403	7.90	2273	4	2.72	309	10	28	80	4	90 995
4 N MR	53.46	2275	8.46	2273	3.7	2.76	305	10	24	85	4	90 995
4 N	51.83	1913	9.76	2275	3.3	2.67	316	10	27	86	4	90 995

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

SAME LASER 90 VDT "4WD" TEST N.021 22

Gear	Power	Draw. pull	Speed	Eng. spd.	Slip of wheel	Specific ener.cons.	fuel	Temperatures cool.eng.		temp.	hum.	Atm. cond. pres
	kW	daN	km/h	rev/min	%	KWh/l	g/kWh	°C	°C	°C	%	mmbar
TRANSMISSION AND FUEL CONSUMPTIOM CHARACTERISTICS												
i) - Selected gear												
4 N MR	53.46	2275	8.46	2273	3.7	2.76	305	12	30	68	4	85 989
ii) - 75% Of pull at maximum power												
4 N MR	42.17	1707	8.90	2345	3.0	2.57	307	12	35	68	5	85 989
iii) - 50% of pull at maximum power												
4 N MR	30.00	1138	9.50	2379	2.0	2.20	381	13	35	69	5	75 989
iv) - Highest gear giving the same pull as in ii) ,reduced engine speed												
4 N	42.17	1707	8.90	2001	3.0	2.70	308	13	38	70	6	75 989
v) - Highest gear givin the same pull as in iii), reduced engine speed												
4 N	30.00	1138	9.50	2086	2.0	2.34	359	13	37	70	6	70 989

I.S.M.A.

ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA

SEZIONE DI TREVIGLIO

SAME LASER 90 VDT "4WD" TEST N.021 23

REMARKS: no remarks

TEST ENGINEER
(Ing.Giovanni Santoro)

THE DIRECTOR OF TESTING STATION
(Prof.Giuseppe Colzani)

HEAD OF ISMA - ROMA
(Prof.Alfio Cammilli)