ISTITUTO SPERIMENTALE PER
LA MECCANIZZAZIONE AGRICOLA
SEZIONE DI TREVIGLIO

Test in accordance with the OECD Restricted Code for the official testing of agricultural tractors.

Agricultural Tractor

GOLDONI
EURO 42 AW (4WD)
Articulated

Type denomination
ZB4

OECD No. **1348/1**
Restricted Code



Agricultural Tractor

JOHN DEERE
EURO 42 AW (4WD)
Articulated

Type denomination
FH0042

OECD No. **1348/2**
Restricted Code



Submitted for test by: GOLDONI S.p.A
Via Canale, 3
Migliarina di Carpi (MO) ITALY

Date of OECD approval: 22.01.1992
Period of test: November 1991

ISMA - SOP Treviglio - Via Milano 43 - TREVIGLIO (BG) - ITALY

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The tractors GOLDONI EURO 42 AW and JOHN DEERE EURO 42 AW are technically identical in all main respects except colour and denominations

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- Specification of tractor ..... page 3
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- Power lift and hydraulic power test ..... page 21
- Drawbar performance ..... page 23

All stated dimensions and tests refer to tyre size 9.5R20 (8 ply) at front and 9.5R20 (8 ply) at rear, as well as to track widths 880 mm at front and 880 mm at rear.

- Tractor manufacturer

. Name: GOLDONI S.p.A.;
. Address: Via Canale 3 - Migliarina di Carpi (MO) - ITALY;
- Location of tractor assembly: Migliarina di Carpi (MO) - ITALY;
- Submitted for test by: the manufacturer;
- Selected by: the manufacturer with the agreement of ISMA;
- Place of running in: Migliarina di Carpi (MO) - ITALY;
- Duration of running in: 50 hours.
- Location of test: I.S.M.A. - Via Milano 43 - Treviglio (BG) - ITALY

1 - SPECIFICATION OF TRACTOR

TRACTOR

- Make: GOLDONI respectively JOHN DEERE;
- Model: EURO 42 AW "4WD";
- Type denomination; ZB4 respectively FH0042
- Type: Wheeled tractor, unit construction, all wheels drive tractor;
- Number of driving wheels: four wheels drive, articulated frame steering;
- Serial number: 410388;
- First serial number: 410388.

ENGINE

- Make: LOMBARDINI;
- Model: LDW 1503 CHD;
- Type: water cooled 4-stroke diesel engine, indirect injection, naturally aspirated;
- Serial number: 3159077.

Cylinders

- Number/disposition: 3, vertical, in-line;
- Bore/stroke: 88 x 85 mm;
- Capacity: 1551 cm^3;
- Compression ratio: 22/1;
- Arrangement of valves: overhead;
- Cylinder liners: without liners.

Supercharging : none.

Fuel system

- Fuel feed system: AC corone fuel feed pump;
- Make, model and type of fuel filter: FIAMM 276.2175.046 filter replaceable paper cartridge;
- Capacity of fuel tank: 21 dm^3;
- Make, model and type of injection pump: LOMBARDINI 104.6590.249, immersed pump, one per cylinder, without serial number, in line injection pump;
  (Optionally: LOMBARDINI 104.6590.195, LOMBARDINI 104.6590.186/8).
- Manufacturer's production setting of injection pump:
  .flow rate: 34 +/-2 mm^3 /stroke at rated speed and full load corresponding 9.20 dm^3/h;
  .timing: 12 +/- 2° before TDC;
- Make, model and type of injectors: BOSCH DNO SD 293, multihole injecton nozzles;
- Injection pressure: 13 +/- 2 MPa.
  (Optionally: CONDIESEL LCC 670 250 5C).

Governor

- Make: LOMBARDINI;
- Model: 104.7362.234;
- Type: mechanical;
- Governor range of engine speed: from 800 to 3154 rev/min.;
- Rated engine speed: 3000 rev/min.

Air cleaner

- Main filter
  . make: VIRGIS;
  . model: 8" FC 08 - 12524 - 00;
  . type: dry paper element filter;
  . location: rear of engine ;
- Maintenance indicator: with the warning lamp on the dashboard.
  (Optionally: FBN FA 7.02055 oil bath air filter)

Lubrication system

- Type of feed pump: forced feed from gear pump;
- Total oil capacity including filter: 4.5 dm^3;
- Oil change period: 200 hrs;
- Type of filter: LOMBARDINI 2175.116 cartridge filter;
- Number: 1;
- Filter change period: 250 hrs;
- Oil specifications: see page 16.

Cooling system

- Type and detail: water cooling with impeller pump;
- Specification of fan: propeller fan driven by engine shaft;
- Number of fan blades: 8;
- Fan diameter: 340 mm;
- Type of temperature control: thermostat

Starting system

- Make: BOSCH;
- Model: JF (R) 12 V;
- Type: electromagnetic engagement;
- Starter motor power rating: 2.2 kW;
- Safety device: depressed pedal of clutch as safety device;
- Starting system for low temperatures: none.

Electrical equipment

- Voltage: 12 V;
- Generator:
.make: BOSCH;
.model: 55 A;
.type: alternator:
.power: 660 W;
- Battery: 1 lead acid;
.capacity: 90 Ah at 20 hours rating.

Exhaust system

- Make: LOMBARDINI;
- Model: 5460.291; (DGM pending)
- Type: at chamber reflection absorption;
- Location: on the left hand side of the engine, lateral discharged;
- Height of outlet above ground: 500 mm.

TRANSMISSION

Clutch: utilized for travelling of tractor and PTO engaged

- Make: PITTERI e VIOLINI;
- Model: F 215;
- Type: single disk dry clutch;
- Number of plates: 1;
- Plates diameter: 215 mm;
- Control system: mechanical operated by pedal.

Gear box

- Make: GOLDONI;
- Model: 0025718;
- Type: mechanical speed change gear ;
- Arrangement: three speeds forward, with two ranges of speeds, and one reverse group;
- Number of speeds : 6 forward and 3 reverse;
- Available options: none

Rear axle and final drives

- Make: own make;
- Model: 0025719;
- Type: bevel gear differential and epicyclic final drive;

Differential lock

- Make: own make;
- Model: 0025720;
- Type: self disengaged;
- Control system: pedal operated with hydraulic transmission.

Front axle and final drives

- Make: own make;
- Model: 0025721;
- Type: bevel gear differential and epicyclic final drive,

Differential lock

- Make: own make;
- Model: 0025722;
- Type: self disengaged;
- Control system: pedal operated with hydraulic transmission

Transmission lubrication

- Front axle, final drives, gear box (in common).
. total capacity including filter: 13.5 dm^3;
. change period: 800 hrs;
. filter change period: clean only;
- Rear axle, final drives, power lift and hydraulic system (in common);
. total capacity: 8.5 dm^3;
. change period: 800 hrs;
. filter change period: clean only.
- Recommended oil: see page 16.

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 3000 rev/min (*) km/h
FORWARD			
1	S	330.17	1.52
2	S	158.08	3.18
3	S	95.98	5.24
1	F	65.06	7.74
2	F	31.15	16.16
3	F	18.91	26.61
REVERSE			
1		230.59	2.18
2		110.41	4.56
3		67.03	7.51

(*) Calculated with a tyre dynamic radius index of 445 mm. (ISO 4251/1 -1984)- Number of rev. of front wheels for one rev. of rear wheels: 1.0.

POWER TAKE-OFF

Power take-off proportional to engine speed

- Type: not independent, at rear of tractor, in tractor's median plane, engaged or disengaged by hand lever at the left hand side of the seat.
  Driven by travel clutch; ISO Standard 500-1979.
- Number of shafts: 1;
- Method of changing power take-off shaft ends and speeds: none.

540 rev/min

- Dimension ISO Standard 500-1979 type 1 (35 mm - 6 splines);
- PTO speed at rated engine speed: 638 rev/min;
- Engine speed at standard power take-off speed: 2540 rev/min;
- Ratio of rotation speeds (engine speed/pto speed): 4.70;
- Power restriction and maximum torque: 36.70 kw, 57.0 daNm.

	P.T.O	
- Height above ground	485	mm
- Distance from the median plane of the tractor	0	mm
- Distance behind rear axle or forward from frontaxle	335	mm
- Direction of rotation (viewed facing driving end)	clockwise	

Power take-off proportional to ground speed

- location at rear of tractor, in tractor's median plane, engaged or disengaged by hand level at the left hand side of the seat.
- Number of shafts: 1;
- Travelling distance for one revolution of power take-off shaft: 176 mm;
- Number of power take-off shaft revolutions for one revolution of driving wheels: 15.13;
- Direction of rotation with forward gear engaged (viewed facing driving end): clockwise.

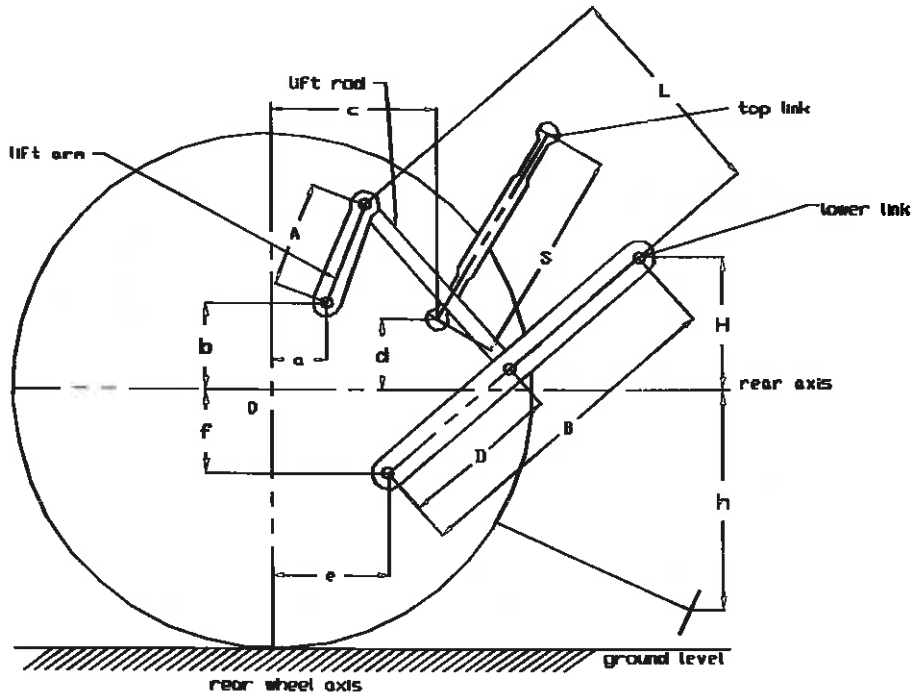
POWER LIFT

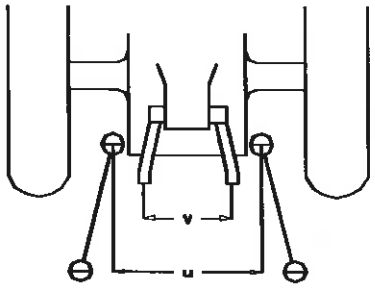
- Make: GOLDONI;
- Model: 0025710;
- Type: hydraulicl system;
- Type of hydraulic system: open centre system;
- Type and number of cylinders: 2 external single acting;
- Type of lock for transport: none
- Relief valve pressure setting: 14.0 +/- 0.5 MPa;
- Opening pressure of anti-shock valve: none;
- Lift pump type: hydraulic rotary pump, driven by engine shaft,
- pump make HYDROIRMA AP2/8.5D-218 (opt. BOSCH 0510425011);
- Trasmission between pump and engine: mechanical;
- Type and number of filters: one, metal filter;
- Change interval: clean only;
- Oil capacity: 8.5 dm^3;
- Site of oil reservoir: rear axle and final drive;
- Position, type and No. of additional oil plugs: 1 ways distributor at rear of tractor;
- Maximum volume of oil available to external cylinders: 4.0 dm^3;

- Recommended oil: see page 16.

Three-point linkage

- Category: 1 N in conformity with ISO 730/1 - 1977;
- Category adapter: none .


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

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

	Dimension or range (mm)	Settings used in test (mm)
Length of lift arms	(A) 231	231
Length of lower links	(B) 543	543
Distance of lift arm pivot point from rear wheel axis (behind) :horizontally	(a) 80	80
:vertically	(b) 285	285
Horizontal distance between the 2 lower link points	(u) 335	335
Horizontal distance between the 2 lift arm end points	(v) 301	301
Length of upper link	(S) from 400 to 540	520
Distance of upper link pivot point from rear wheel axis :horizontally	(c) 230-236-224	224
:vertically	(d) 232-197-267	267
Distance of lower link pivot point from rear wheel axis :horizontally	(e) 197	197
:vertically	(f) 109	109
Distance of lower link pivot point to lift rod pivot points on lower links	(D) 310	310
Length of lift rods	(L) 450	450
Height of lower hitch points relative to the rear wheel axis		
- in Low position	(h) 205	205
- in High position	(H) 235	235
- Height above ground of lower hitch points when locked in transport position (*)		680

(*) *Assuming the dynamic radius index = 445 mm (ISO 4251/1- 1984)*

SWINGING DRAWBAR: none.

HOLED DRAWBAR: none.

TRAILER HITCH

- Type: GOLDONI DGM-GA 628 cat. b
- Hole diameter: 28.5 mm;
- Height above ground: 320 min. 585 max. mm;
- Distance of hitch point from rear wheel axis, horizontally: 418 mm;
- Distance of hitch point from power take-off shaft end;
  .vertically : 165 mm below, 239 mm above;
  .horizontally : 46 mm;
- Maximum vertical permissible load: 4.9 kN.

STEERING

- Specification: mechanical with hydraulic servosteering type, working on centre pivot of the tractor by means of: steering wheels worm gear box, connecting rod and hydraulic cylinder;
- Make: DANFOSS;
- Model: 0025723;
- Type: hydrostatic OSPC 80 LS with valve OLSA 40;
- Working pressure: 9 MPa;
- Oil capacity: 8.5 dm^3;
- Oil change period: 800 hrs;
- Filter change period: clean only;
- Recommended oil: see page 16.

BRAKES

Service brake

- Make: GOLDONI;
- Model: 0024963 (right brake), 0024964 (left brake);
- Type: drum brake dia = 270 mm lining material;
- Method of operation: hydraulically actuated with one pedal;
- Trailer braking take-off: none.

Parking brake

- Type: fully independent of service brake, ;
- Method of operation: mechanical by hand lever.

Steering brake : none.

STEERING WHEELS:none. (articulated)

DRIVING WHEELS

- Number: four;
- Location: two at front and two at rear, permanent engaged
- Track width: 880 min.1150 max., mm;
- Adjustment: changin the position of the rims with respect to the disc.

WHEELBASE: 1215 mm.

PROTECTIVE STRUCTURE

Specifications

- OECD approval number: (pending)
- date of approval:
- location and country of test of protective structure: IMA Bologna ITALY
- the reference mass and wheelbase used for calculating impact energies and crushing forces were: kg mm;
- Make: GOLDONI;
- Model: K 09;
- Type: roll-bar;
- Manufacturer's name: GOLDONI;
  . address: Via Canale 3 MIGLIARINA di CARPI (MO) - ITALY;
- Protective device: roll-bar tiltable.

DRIVER'S SEAT

- Make: GOLDONI
- Model: EURO 0025711 (opt. Y 01 0023270 EEC om. e2 034);
- Type: upholstered seat with back rest;
- Type of suspension: adjustable spring;
- Type of damping: shock absorber;
- Range of adjustment, longitudinal 76 mm, vertical 76 mm.

PASSENGER'S SEAT: none

LIGHTING

Lighting system in accordance with E.E.C. 78/933

	Height above ground of centre with tyre (*) (mm)	Size (mm)	Distance from out side edge of tractor to centre at 880 mm trak width mm
Headligths	816	168*120	145
Front park. lights	747	84*84	341
Front finger post	782	84*84	341
Rear park. lights	889	168*61	326
Rear finger post	889	168*61	408
Stop	889	168*61	326
Reflectors	823	90*83	360

(*) *Tyre size: 9.5R20 front - 9.5R20 rear.*

TEST CONDITIONS

Overall dimensions with tyres 9.5R20 front and 9.5R20 rear

	Length (mm)	Width (mm) min	Width (mm) max	Height (mm) at top of protec. struc.
Without ballast	2924	1110	1395	2134
With ballast	2924	1110	1395	2134

- Ground clearance (unballasted tractor): 325 mm;
- Clearance-limiting part: front axle.

Tractor mass (with tanks full, with roll-bar, water in tyres none)

	Units	Front	Rear	Total
Without driver				
Without ballast	kg	750	480	1230
With ballast	kg	800	530	1330
With driver				
Without ballast	kg	765	540	1305
With ballast	kg	815	590	1405

Ballast

	no. of weights	total weight (kg)	water (kg)
front	1 + 1	50	-
rear	1 + 1	50	-
additional	-	-	-

Tyres and track width specifications

- Tyres		front	rear
. dimensions		9.5R20	9.5R20
. ply rating		8	8
. type		radial	radial
. maximum load (tyre manufacturer's)	daN	956	956
. maximum load (tractor manufact.)	daN	1177	1177
. inflation pressure (tyre manufact.)	kPa	280	280
. dynamic radius index	mm	445	445
- Chosen track width	mm	880	880
- Tyres on request		7.50R18	7.50R18
		11.50/80-15.3	11.50/80-15.3
		7.50R20	7.50R20
		260.80R20	260.80R20
		250.80'R18	250.80R18
		9.00R16XS	9.00R16XS

Oils, lubrication and fuel - Capacity and change interval

	capacity dm^3	oil change h	filter change h
Engine	5.2	250	250
Gear box	13.5	800	clean only
Front axle	"	"	"
Final drives (front)	"	"	"
Rear axle and final drives	8.5	800	clean only
Hydraulic system	"	"	"
Other (steering, etc.)	"	"	"

Fuel and lubricants reccomended and used in tests all in accordance with API and DIN NORM.

Fuel
- Type: AGIP DIESEL, DIN 51601
  (in accordance with the national standard)
- Specific gravity at 15 C: 0.835 g/cm.

Engine oil
- Type: AGIP DIESEL SIGMA SAE 30 W / 40;
- Viscosity: 12.50 cSt;
- Classification: API SE-CD.

Transmission oil	front axle and final drive and gear box	rear axle, final drive
-Type	AGIP ROTRA MP 80 W/90	AGIP OSO 68
-Viscosity	15.0 cSt	8.6 cSt
-Viscosity index	105	105
-Classification	API GL5	DIN 51524

Hydraulic fluid
- Type: AGIP OSO 68;
- Viscosity: 8.6 cSt;
- Classification: DIN 51524 .

Steering oil
- Type: AGIP OSO 68;
- Viscosity: 8.6 cSt;
- Classification: DIN 515224 .

Grease
- Type: ESSO GP GREASE;
- Number of lubrication points: 8.

II - TEST RESULTS

COMPULSORY TESTS RESULTS

(1) **MAIN POWER TAKE-OFF PERFORMANCE**

- Date and location of test: 20.11.1991 - I.S.M.A - TREVIGLIO (BG) ITALY
- Type of dynamometer: ZÖELLNER 350 AC

Power	Speed		Fuel consumption			Specific Energy
	Engine	P.T.O.	Hourly		Specific	
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
MAXIMUM POWER - 2 HOUR TEST						
24.1	3000	638	9.20	7.68	319	2.62
POWER AT RATED ENGINE SPEED						
24.1	3000	638	9.20	7.68	319	2.62
STANDARD POWER TAKE-OFF SPEED (540 +/- 10 rev/min)						
21.8	2536	540	7.99	6.67	306	2.73
PART LOADS						
i) The torque corresponding to maximum power at rated engine speed						
24.1	3000	638	9.20	7.68	319	2.62
ii) 85% of torque obtained in i)						
20.9	3068	653	7.48	6.25	299	2.80
iii) 75% of torque defined in ii)						
15.8	3097	659	6.18	5.16	326	2.56
iv) 50% of torque defined in ii)						
10.6	3124	665	5.03	4.20	395	2.11
v) 25% of torque defined in ii)						
5.3	3138	668	3.64	3.04	572	1.46
vi) unloaded						
0	3154	671	2.72	2.27	-	-

PART LOADS AT STANDARD POWER TAKE-OFF SPEED (540 rev/min)

Power	Speed		Fuel consumption			
	Engine	P.T.O.	Hourly		Specific	Energy
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
i) The torque corresponding to maximum power available						
21.8	2536	540	7.99	6.67	306	2.73
ii) 85% of torque obtained at maximum power						
18.9	2587	550	6.20	5.18	274	3.04
iii) 75% of torque defined in ii)						
14.4	2640	562	4.97	4.15	288	2.90
iv) 50% of torque defined in ii)						
9.8	2679	570	4.04	3.37	345	2.42
v) 25% of torque defined in ii)						
4.9	2701	575	3.05	2.55	520	1.60
iv) unloaded						
0	2713	577	2.19	1.83	-	-

STANDARD SPECIFIC FUEL CONSUMPTION: 299/395/274/345 g/kWh

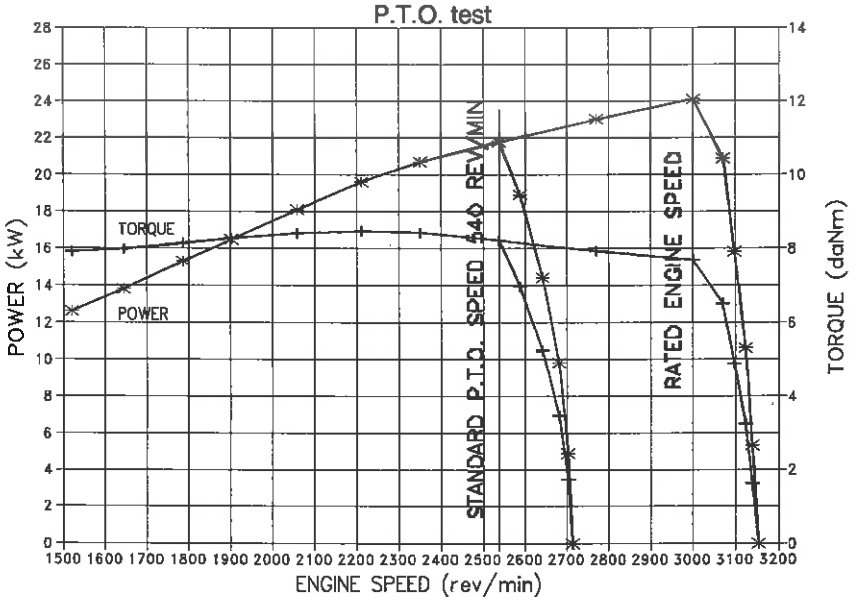
- No load maximum engine speed: 3154 rev/min
- Torque (1) at maximum power at rated engine speed: 7.67 daNm
- Maximum torque (1) (engine speed: 2211 rev/min) 8.47 daNm

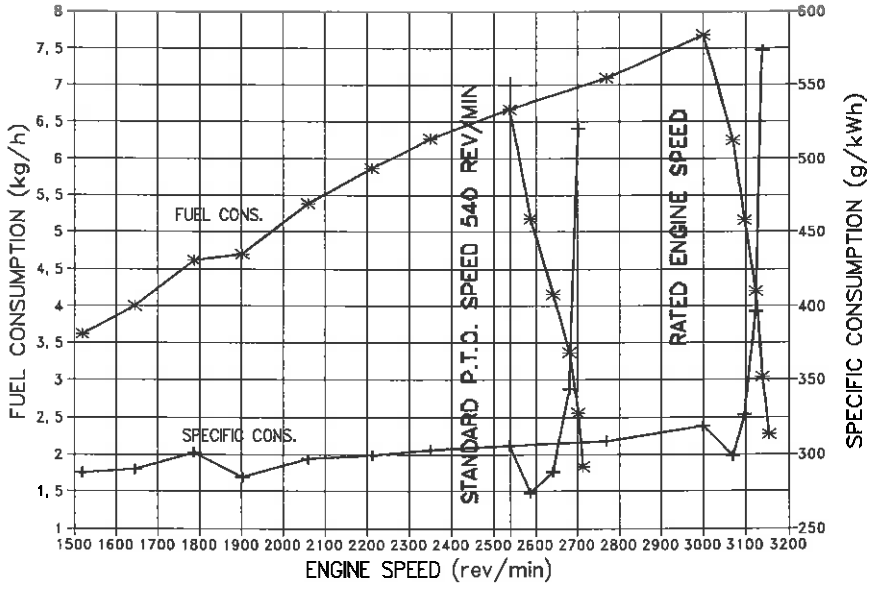
- Mean atmospheric conditions:
  - Temperature ..... 20 °C
  - Pressure ..... 99.0 kPa
  - Relat. humidity ..... 73 %

- Maximum temperatures:
  - Coolant ..... -- °C
  - Engine oil ..... 125 °C
  - Fuel ..... 36 °C
  - Engine air intake ..... 22 °C

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

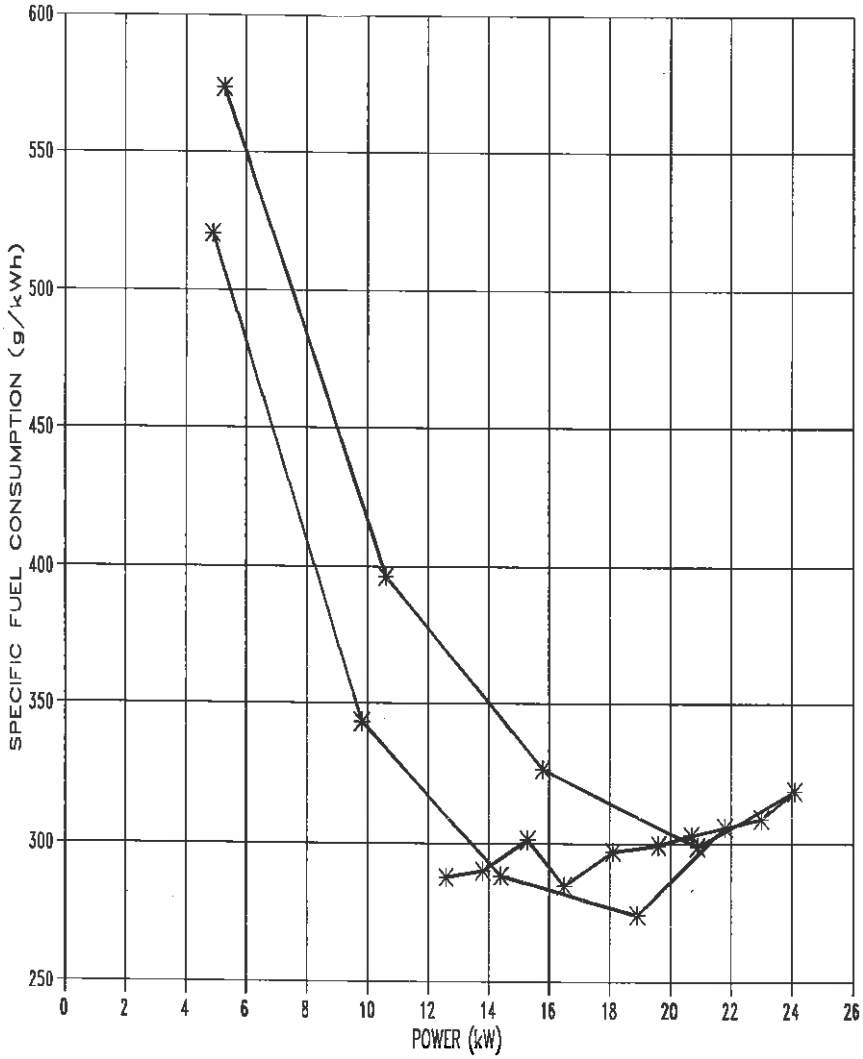
GOLDONI EURO 42 AW (4WD) Articulated





GOLDONI EURO 42 AW (4WD) Articulated

P.T.O. test



2) POWER LIFT AND HYDRAULIC POWER TEST

- Date and location of tests: 25.11.91 - ISMA Treviglio (BG)

2.1 POWER LIFT

		at hitch point	on the frame
Height of lower hitch point above ground in down position	mm	240	240
vertical movement	mm	440	416
Maximum corrected force exerted through full range	daN	1021	982
Corresponding pressure of hydraulic fluid	MPa	14.5	14.5
Moment about rear axle	daNm	756	1326
Maximum tilt angle of mast over range of lift	degrees	--	- 2

Lifting heights relative to the horizontal lower links							
mm	-96	0	100	200	300	320	344
Lifting forces at hitch points							
daN	1480	1319	1218	1139	1074	--	1021
Lifting forces at test frame							
daN	1514	1343	1198	1072	1031	982	--

2.2) HYDRAULIC POWER TEST

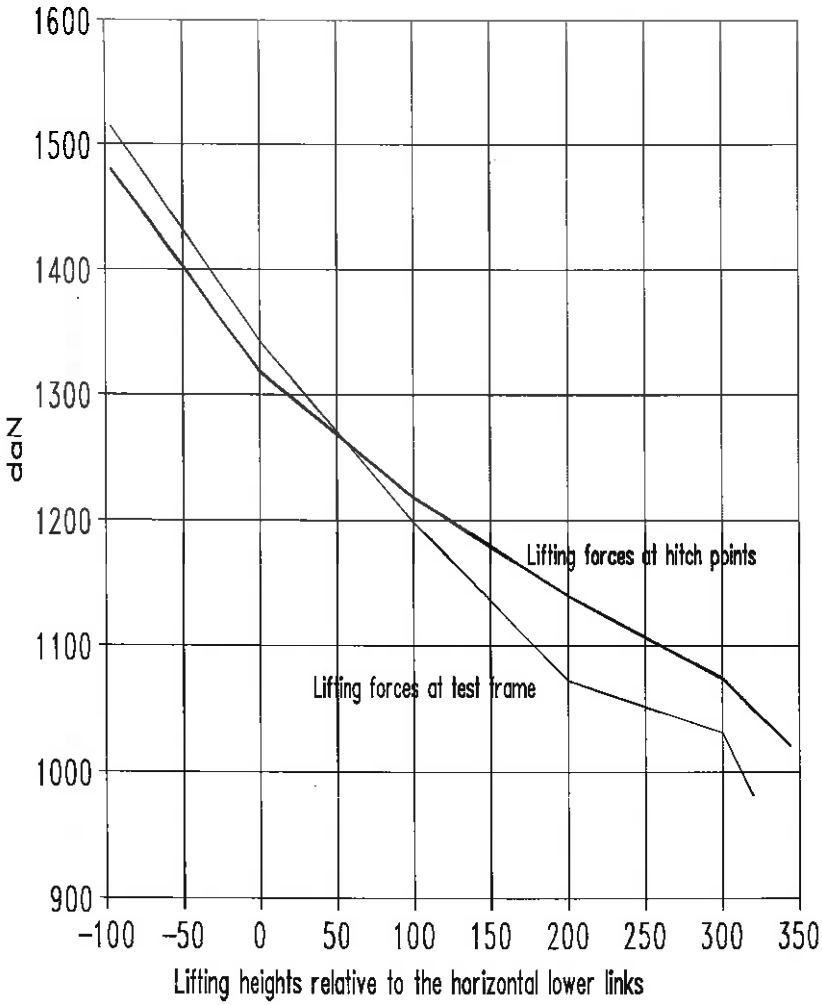
Sustained pressure with relief valve open: 14.5 MPa;
Pump delivery rate at minimum pressure: 17.1 l/min;

Hydraulic power	flow rate kW	l/min	pressure MPa	oil temp. °C
At 90% of the actual relief valve setting	2.08	9.6	13.0	63
Maximum	2.71	13.0	12.5	62

Tapping point used for test : at rear of tractor;
Hydraulic fluid: see page 16.

GOLDONI EURO 42 AW (4WD) ARTICULATED

PERFORMANCE OF POWER LIFT



3) DRAWBAR PERFORMANCE

- Date of test: 26.11.1991
- Type of track: concrete
- Type and size of tyres front: 9.5R20 - 8 ply; rear : 9.5R20 - 8 ply

Height of drawbar above ground: 450 mm
Tyre inflation pressure: unballasted .front: 280 kPa .rear: 280 kPa

Gear	Power	Draw. pull	Speed	Eng. speed	Slip of wheel	Specific ener. cons.		Temperatures fuel	col.	eng.	Atm. temp.	hum.	cond. press.
	kW	daN	km/h	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	kPa

3.1) MAXIMUM POWER IN TESTED GEARS (unballasted tractor)

1S	3.86	1031	1.35	3133	15	0.962	868	36	---	112	17	77	99.3
2S	7.25	929	2.81	3120	15	1.367	611	36	---	112	17	77	99.3
3S	10.93	857	4.59	3099	15	1.772	471	37	---	114	18	78	99.3
1F	16.94	912	6.69	3057	15	2.193	381	37	---	115	17	78	99.3
2F	18.66	423	15.90	3003	1	2.037	410	36	---	116	17	77	99.3

4) TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS

Gear	Power	Draw. pull	Speed	Eng. speed	Slip of wheel	Specific ener. cons.		Temperatures fuel	col.	eng.	Atm. temp.	hum.	cond. press.
	kW	daN	km/h	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	kPa

4.1) Selected gear at maximum power

2F	18.66	423	15.90	3003	1	2.037	410	36	---	116	17	77	99.3

4.1.1) 75% of pull at maximum power at rated speed

2F	14.21	314	16.31	3079	1	2.046	408	35	---	110	17	77	99.4

4.1.2) 50% of pull at maximum power at rated speed

2F	9.48	208	16.42	3101	1	1.567	533	34	---	107	16	78	99.4

4.1.3) next higher gear giving the same pull as in 4.1.1 reduction engine speed

IMPOSSIBLE TEST

4.1.4) next higher gear giving the same pull as in 4.1.2 reduction engine speed

IMPOSSIBLE TEST

Gear	Power	Draw. pull	Speed	Eng. speed	Slip of wheel	Specific ener. cons.		Temperatures fuel	col. eng.		Atm. temp.	hum.	cond. press.
	kW	daN	km/h	rev/min	%	kWh/l	g/kWh	°C	°C	°C	°C	%	kPa

4.2) Selected gear nearest to 7.5 km

1F	16.94	912	6.69	3057	15	2.193	381	37	---	115	17	78	99.3

4.2.1) 75% of pull at maximum power at rated speed

1F	14.44	682	7.63	3084	3	2.153	388	34	---	108	16	77	99.4

4.2.2) 50% of pull at maximum power at rated speed

1F	9.95	457	7.84	3106	1	1.713	487	35	---	108	15	77	99.4

4.2.3) next higher gear giving the same pull as in 4.2.1 reduction engine speed

2F	13.15	611	7.75	1505	1	2.440	342	36	---	107	15	76	99.4

4.2.4) next higher gear giving the same pull as in 4.2.2 reduction engine speed

2F	9.17	421	7.85	1523	1	1.823	458	36	---	104	15	77	99.3

REPAIRS AND REMARKS: none.

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TEST CARRIED OUT BY
(P.a. Giovanni LAMORATTA)

THE DIRECTOR OF TESTING STATION
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