COMITATO PER L'OMOLOGAZIONE
DELLE MACCHINE AGRICOLE.

O.E.C.D. No. 1052
RESTRICTED CODE

REPORT ON TEST IN ACCORDANCE WITH O.E.C.D. RESTRICTED STANDARD CODE FOR AGRICULTURAL TRACTORS

GOLDONI 1042 (4 WD)



Manufactured by: GOLDONI S.p.A.
Migliarina di Carpi - Modena - Italy

CENTRO DI OMOLOGAZIONE DELL'ISTITUTO DI MECCANICA AGRARIA
UNIVERSITA' DEGLI STUDI DI BOLOGNA

This bulletin is based on engineering tests in accordance with the O.E.C.D. RESTRICTED STANDARD CODE for the Official Testing of Agricultural Tractor Performance. It does not contain an evaluation of the tractor performance on practical work.

Duration of tests: September – October 1986
IMAUBo – Istituto di Meccanica agraria dell'Università degli Studi di Bologna – Via Filippo Re n° 4 – Bologna – Italy

This report has been approved by the O.E.C.D. Coordinating Centre (CEMAGREF, France) as being in accordance with the O.E.C.D. RESTRICTED STANDARD CODE

Date of Approval: 30th March 1987

O.E.C.D. No. 1052
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In this report all performance characteristics are given corresponding to the International System of Units.

The reference to the former used Technical System of Units is given by the following relations:

Forces	1 daN	10 N	= 1,02 kp	or 1 kp	= 0,981 daN	
Powers		1 kW	= 1,36 HPmetric	or 1 HPmetric	= 0,736 kW	
Pressures		1 bar	= 1,02 kp/cm^2	or 1 km/cm^2	= 0,981 bar	
		1000 mbar	= 750,1 mm Hg			

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Tractor manufacturer:	GOLDONI S.p.A. - Migliarina di Carpi - Modena - Italy
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement of Istituto di Meccanica agraria - Università degli Studi di Bologna
Place running-in:	GOLDONI S.p.A. workshop - Migliarina di Carpi
Duration of running-in:	Engine and tractor appr. 50 hours

SPECIFICATION OF TRACTOR

TRACTOR

Make:	GOLDONI S.p.A.
Trade name:	GOLDONI 1042
Model:	1042 (4 WD)
Type:	four wheels drive tractor, unit construction
Serial N°:	G 307993
1st serial N°:	G 307993

ENGINE

Make:	LOMBARDINI F.I.M. S.p.A.
Model:	LDA 625-3
Type:	4-stroke Diesel engine, naturally aspirated direct injection, air cooled
Serial N°:	2580787

Cylinders: 3, in line, bore 95 mm, stroke 88 mm, capacity 1871 cm^3, compression ratio 17.5/1, valves overhead, none cylinder liners, monobloc construction

Fuel system: forced with LOMBARDINI model 6585.030 pump; one wire-mesh filter on pump suction side and one filter with replaceable paper cartridges LOMBARDINI 823.3730.038;
3 single, BOSCH immersed injection pumps model PFR 1K70A.489 - serial n° 625.6590.059 (optionally OMAP OPFR 1K70.A 179, or CONDIESEL CPF 1R70 C0622);
injection timing 25° before TDC;
manufacturer's production setting 36 $\pm$ 3 mm^3/stroke (in total 9.72 $\pm$ 0.81 l/h) at rated engine speed and full load;
BOSCH multihole injection nozzles model DLLA 160 S (optionally OMAP OLL 160 S or CONDIESEL CDLL 160 S or FB BLL 160 S);
injection pressure: 21.0 $\pm$ 1.0 MPa;
capacity of fuel tank: 14.5 l

Governor: LOMBARDINI centrifugal variable speed governor model 5496.108; governed range of engine speed from 1000 to 3300 rev/min

Rated engine speed: 3000 rev/min

Air cleaner: METAL make;
oil bath air filter without prefilter, under engine cover;
oil change every 100 operating hours, no maintenance indicator;
oil capacity; 0.4 l;
air intake below bonnet

Lubrication system: LOMBARDINI
forced feed from gear pump;
sieve filter in suction and one paper cartridge replaceable filter LOMBARDINI model 904.3740.043;
total oil capacity including filter: 5 l;
oil change period: 100 hrs;
recommended filter change period: 400 hrs;
recommended oil: (see end of chapter "Test conditions")

Cooling system: air cooling with axial blower;
blower with 11 blades, 215 mm diameter

Starting system: safety device: operable only when clutch pedal is fully depressed;
BOSCH solenoid pre-engaged drive starting, model JF(R) 12 V, 2.5 kW (optionally MARELLI, model MT 71 G);
cold starting aid: none

Electrical system: 12 V, negative earth;
SAPRISA three phase alternator model 14 A (0.2 kW), (optionally DUCATI 14 A);
one lead acid battery, 92 Ah at 20 hrs rating

Exaust system: own make;
multichamber-expansion type silencer;
146 x 80 mm section, 300 mm long;
on the left hand side of bonnet, lateral discharged;
height of outlet abowe ground: 460 mm

TRANSMISSION

Clutch: (travel and power take-off)
PITTERI & VIOLINI make, model F 215.2, single-acting clutch with one dry plate;
plate diameter: 215 mm;
pedal operated

Gear box: own make model 1000, mechanical sliding gears;
6 forward speeds with high/low and reverse range selector two hand levers operated;
totally 6 forward and 3 reverse speeds selected by mean of 2

hand levers

Rear axle and final drives: own make mechanical type with crownwheel, pinion and differential;
bevel gear drive (ratio 1:4.778);
spur gear final drive (ratio 1:3.167);
mechanical differential lock, hand lever operated, self disengaged

Front axle and final drives: own make;
bevel gear drive (ratio 1:4.778);
spur gear final drive (ratio 1:3.167);
mechanical differential lock: engagement and disengagement hand lever operated

Transmission oils: capacity gear box, front axle, and final drives: 9.0 l;
recommended oil change period: 800 hrs;
capacity rear axle and final drives: 6.5 l;
recommended oil change period: 800 hrs;
(see end of chapter "Test conditions")

Total ratios and speed (tyres 7.50-18 - 6 ply)

Group	Gear No.	No.of engine revolutions for one revolution of the driving wheels	Nominal travelling speed at rated engine speed 3000 rev/min km/h
Forward Low L	1	349.73	1.31
	2	167.45	2.74
	3	85.03	5.39
Forward High H	1	65.07	7.04
	2	31.16	14.70
	3	15.81	28.97
Reverse R	1	266.46	1.72
	2	127.58	3.59
	3	64.78	7.07

Radius index: 405 mm

POWER TAKE-OFF

Main p.t.o.: not indipendent, hand lever operated;
changing of p.t.o. speeds hand operated;
one shaft at rear tractor in median plane, 465 mm above ground;
(with tyres size: 7.50-18)

p.t.o. proportional to engine speed:
540 rev/min
dimensions 35 mm diameter (1.3/8" in conformity with ISO R 500), 6 splines;
distance behind rear axle 347 mm;
p.t.o. speed at rated engine speed (3000 rev/min) 577 rev/min;
engine speed at standard p.t.o. speed (540 rev/min) 2807 rev/min;
ratio at rotation speed: 5.196;
power restriction: 27.5 kW; maximum torque: 97 N.m;
direction of rotation clockwise, viewed from tractor rear
800 rev/min (not in conformity with ISO R 500)
dimensions 35 mm diameter (1.3/8" in conformity with ISO R 500), 6 splines;
distance behind rear axle 347 mm;
p.t.o. speed at rated engine speed (3000 rev/min) 879 rev/min;
engine speed at p.t.o. speed (800 rev/min) 2730 rev/min;
ratio at rotation speed: 3.413;
direction of rotation clockwise, viewed from tractor rear

p.t.o. proportional to ground speed:
for size of tyres: 7.50-18, radius index 405 mm;
travelling distance for one revolution of p.t.o. shaft 0.168 m;
No. of p.t.o. shaft revolution for one revolution of the rear wheels: 15.13;
direction of rotation clockwise, viewed from tractor rear

Auxiliary p.t.o.:
not indipendent, hand lever operated;
changing of p.t.o. speeds hand operated;
one shaft at rear tractor in median plane, 385 mm above ground
(with tyres size: 7.50-18)

p.t.o. proportional to engine speed:
540 rev/min
dimensions 30 mm diameter: (30x26x6 mm not in conformity with ISO R 500), 6 splines;
distance behind rear axle 290 mm;
p.t.o. speed at rated engine speed (3000 rev/min) 577 rev/min;
engine speed at standard p.t.o. speed (540 rev/min) 2807 rev/min;
ratio at rotation speed: 5.196;
power restriction: 27.5 kW; maximum torque: 97 N.m;

direction of rotation: counterclockwise, viewed from tractor rear
800 rev/min (not in conformity with ISO R 500)
dimensions 30 mm diameter (30x26x6 mm not in conformity with ISO R 500), 6 splines;
distance behind rear axle 290 mm;
p.t.o. speed at rated engine speed (3000 rev/min) 879 rev/min;
engine speed at p.t.o. speed (800 rev/min) 2730 rev/min;
ratio at rotation speed: 3.413;
direction of rotation counterclockwise, viewed from tractor rear

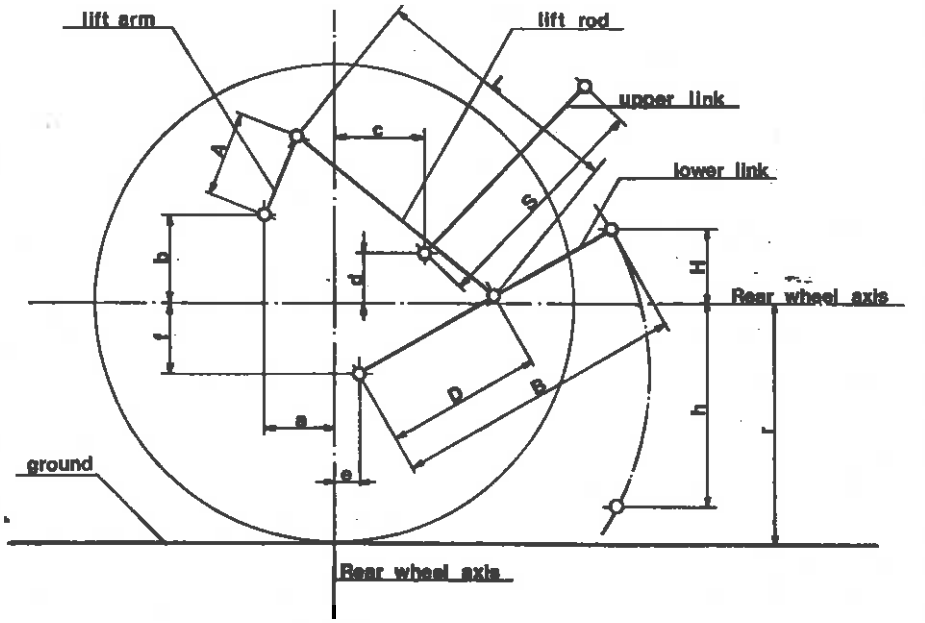
p.t.o. proportional to ground speed:
for size of tyres: 7.50-18, radius index 405 mm;
travelling distance for one revolution of p.t.o. shaft 0.168 m;
No. of p.t.o. shaft revolution for one revolution of the rear wheels: 15.13;
direction of rotation counterclockwise, viewed from tractor rear

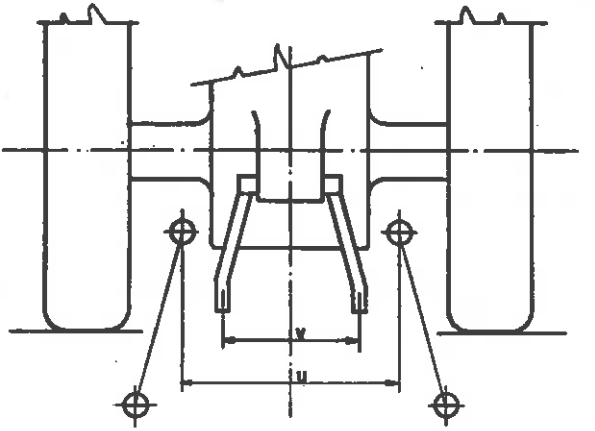
POWER LIFT

MITA hydraulic power lift in unit construction;
HYDROIRMA type AP 2/6.5 S 218 gear pump with 20.6 l/min delivery (optionally SALAMI 2 PA/6.25);
driven by crankshaft with gear connection;
one sieve filter MITA 80 mm;
one single acting cylinder with bore 80 mm and stroke 86 mm;
over pressure (safety) valve setting 18.0 $\pm$ 1 MPa;
hydraulic linkage lock for transport;
one valve with oil tapping at rear of tractor, available;
site of oil reservoir: over rear axle under the seat;
oil capacity: 6.5 l;
maximum volume of oil available to external cylinders: 4 l;
recommended oil change: 800 hrs;
recommended filter control and clear period: 800 hrs;
recommended oil: (see end of chapter "Test conditions")

THREE-POINT LINKAGE

Own make;
three-point linkage acc. to ISO 730/II, cat. 1 N





Dimensions of rear implement linkage (projected lehgths in mm)
Underlined dimensions are valid for power lift test page 18

Rear tyres (size 7.50-18)	radius index	(r)	405
Front tyres (size 7.50-18)	radius index	(r')	405
Length of lift arms		(A)	230
Length of lower links		(B)	605
Distance of lift arm pivot point from rear wheel centre line	horizontally	(a)	60
	vertically	(b)	285
Horizontal distance between the 2 lower link points		(u)	385
Horizontal distance between the 2 lift arm end points		(v)	335
Length of upper link		(S)	400 to 540 450
Distance of upper link pivot point from rear wheel centre line	horizontally	(c)	265
	vertically	(d)	210
Distance of lower link pivot point from rear wheel centre line	horizontally	(e)	110
	vertically	(f)	110
Distance of lower link pivot points to lift rod pivot points on lower links		(D)	370
Length of lift rods		(L)	450
Heigth of lower link hitch points relative to rear exle centre line (situated 405 mm above ground)	in low position	(h)	255
	in high position	(H)	190

Heigth of lower hitch points when locked in transport position:
any heigth within lift range

SWINGING DRAWBAR - None

TRAILER HITCH

Cat. B (in accordance with italian regulation);
height above ground, 3 positions: 300 - 350 - 565 mm;
distance of hitch point from rear axle axis horizontally at rear: 395 mm;
distance of hitch point from p.t.o. shaft end:
vertically, below 165 - 115 above 100 mm
horizontally, rear 48 mm
maximum vertical permissible load: 4.9 kN;
diameter pin hole: 28 mm

HOLED DRAWBAR - None

STEERING

Hydrostatic power system with hand operated steering motor powered by engine. The oil is derived by means of a priority valve DANFOSS load sensing type OLSA 40 from the power lift circuit;
pump HYDROIRMA type AP 2/6.5 S 218;
oil reservoir capacity 6.5 l;
hydrostatic steering DANFOSS model OSPC 50 LS;
one double acting cylinder, bore 50 mm, stroke 112 mm;
working pressure 9 $\pm$ 5 MPa;
acting directly on front axle;
filter oil: sieve filter;
filter control and clear period: 800 hrs;
recommended oil: (see end of the chapter "Test conditions");
oil change period: 800 hrs

BRAKES

Service brake: own make; model 1042;
foot brakes hydraulically operated internal shoe type, acting with one only pedal (no steering brake) in the front and rear wheels;
trailer braking take-off: none

Parking brake: with indipendent mechanic system;
hand operated muscle power with mechanical transmission;
acting internal shoes on the rear wheels;
lever with ratchet operated

Steering brake: None

STEERING AND DRIVING WHEELS

Two diagonal pneumatics at front 7.50-18, 6 ply;
max permissible load on each tyre 5.9 kN at 180 kPa;

track width 990 or 1050 mm, adjustable by turning lugs;
rims 5.50 F - 18"

DRIVING WHEELS

Two radial pneumatics at rear 7.50-18, 6 ply;
max permissible load on each tyre 5.9 kN at 180 kPa;
track width 990 or 1050 mm, adjustable by turning lugs;
rims 5.50 F - 18"

WHEELBASE 1155 mm

PROTECTIVE STRUCTURE - None

DRIVER'S SEAT

Own make;
spring mounted seat;
rubber cushion;
longitudinal adjustement 40 mm;
vertical adjustement 0 mm

NUMBER OF GREASE POINTS 5

LIGHTING: angle of light in accordance with italian regulation

	Height above ground of centre with tyres 7.50-18 mm	Size mm	Distance from outside edge of tractor to center at 1050 mm track width mm
Head lights	765	Ø 125	540
Side lights	720	70 x 20	360
Rear lights	885	70 x 60	220
Reflectors	815	40 x 50	175

TEST CONDITIONS

Dimensions (with tyres 7.50-18)

Total lenght:	2710 mm without lower link
	3020 mm with lower link
Total max width:	1270 mm
Total height:	1230 mm to steering wheel
Ground clearance:	250 mm below trailer hitch in lowest position

Track of wheels

at front	1050 mm
at rear	1050 mm

Tractor mass

as used for drawbar performance test (without driver but with tanks full)

front	760 kg
rear	440 kg
total	1200 kg

Fuel and lubricants recommended and used in tests

Fuel: agricultural Diesel oil (in accordance with italian standard)
density at 15°C: 0,835 g/cm^3

Engine oil: ESSO TRACTOR LUBE UNIVERSAL SAE 20 W-40, or another in conformity with MIL L 2104 B supp. 1

Gear box, rear and front axle, final drives: ESSO GEAR OIL GX 80 W-90, or another in conformity with MIL L 2105 C

Power lift and steering: ESSO NUTO H 68

Grease: ESSO GP

Remarks and repairs: None

COMPULSORY TESTS

(i) MAIN POWER TAKE-OFF PERFORMANCE

Date of tests: 16th September 1986
Location of tests: Istituto di Meccanica agraria - Università di Bologna (IMAUBo) - Cadriano
Type of dynamometer: SCHENCK hydraulic dynamometer U-40

Power	Speed		Fuel consumption			Specific energy
	engine	p.t.o.	hourly		specific	
kW	rev/min	rev/min	l/h	kg/h	g/MJ (g/kWh)	kW.h/l
Maximum power						
At 2-hour test						
27.5	3000	577	9.07	7.57	76.5 (275)	3.03
At rated engine speed						
27.5	3000	577	9.07	7.57	76.5 (275)	3.03
At standard p.t.o. speed						
27.2	2806	540	8.69	7.26	74.1 (267)	3.13
Part loads, the governor hand lever in the position corresponding to the maximum power at full load (curve A)						
(i) The torque corresponding to maximum power at rated engine speed						
27.5	3000	577	9.07	7.57	76.5 (275)	3.03
(ii) 85% of torque obtained in (i)						
24.2	3100	597	7.98	6.66	76.3 (275)	3.03
(iii) 75% of torque defined in (i)						
18.4	3125	601	6.68	5.58	84.2 (303)	2.75
(iv) 50% of torque defined in (i)						
12.3	3160	608	5.17	4.32	97.6 (351)	2.38
(v) 25% of torque defined in (i)						
6.2	3230	622	4.02	3.36	149.8 (539)	1.54
(vi) Unloaded						
--	3280	632	3.02	2.52	--	--

Power kW	Speed: engine rev/min	Speed: p.t.o. rev/min	Fuel consumption: hourly l/h	Fuel consumption: hourly kg/h	Fuel consumption: specific g/MJ (g/kWh)	Specific energy kW.h/l
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve B)						
(i) The torque corresponding to maximum power available						
27.2	2805	540	8.69	7.26	74.1 (267)	3.13
(ii) 85% of torque obtained at maximum power						
23.8	2885	555	7.69	6.42	74.9 (270)	3.09
(iii) 75% of torque defined in (i)						
18.1	2905	559	6.04	5.04	77.4 (279)	3.00
(iv) 50% of torque defined in (i)						
12.2	2965	571	4.89	4.08	92.7 (334)	2.50
(v) 25% of torque defined in (i)						
6.3	3025	582	3.59	3.00	133.4 (480)	1.74
(iv) Unloaded						
0.9	3080	593	2.59	2.16	—	—

Standard specific fuel consumption: 76.3 - 97.6 - 74.9 - 92.7 g/MJ
(275 - 351 - 270 - 334 g/kWh)

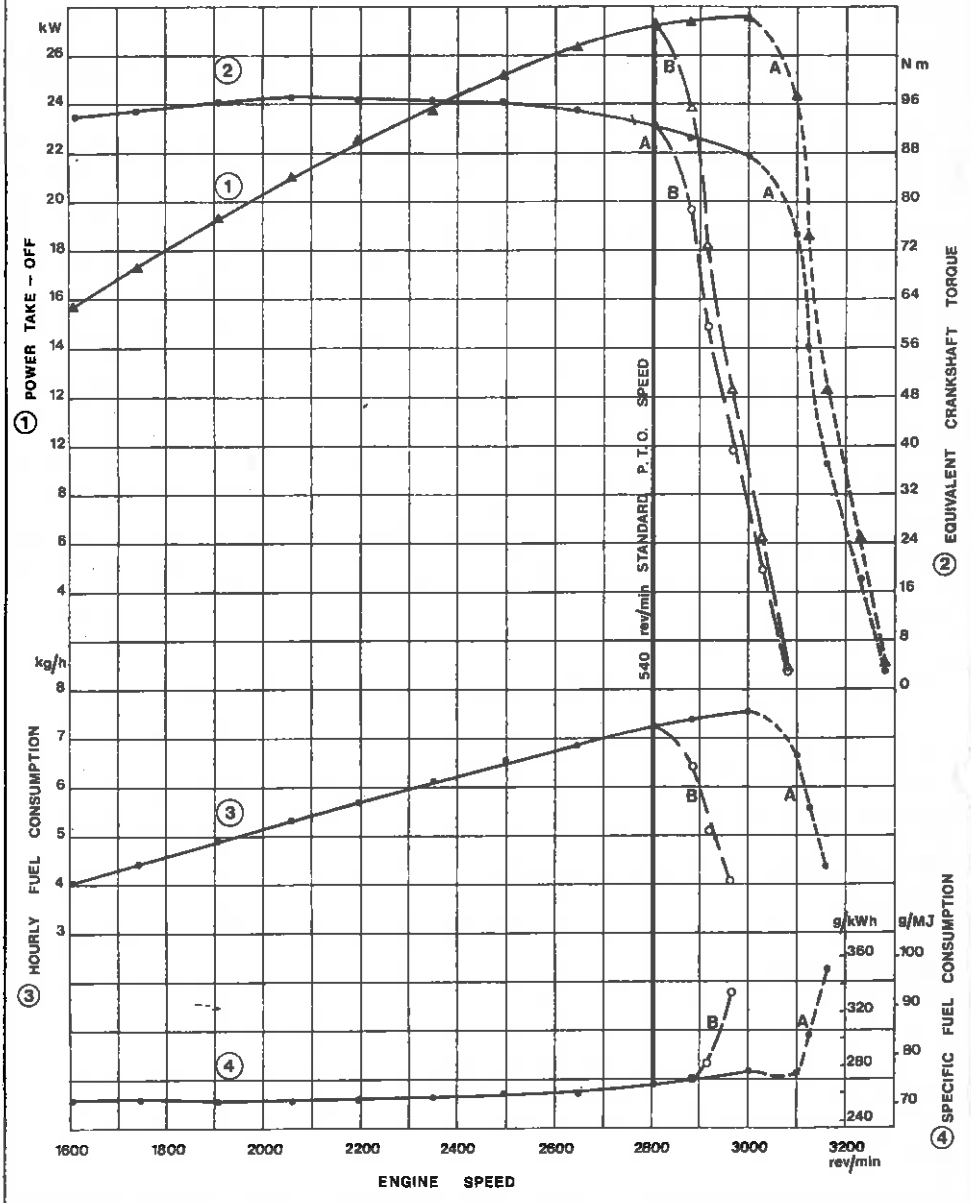
No load maximum engine speed: 3290 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 87.5 N.m
Maximum equivalent crankshaft torque: 97.0 N.m at 2060 rev/min of the engine

Mean atmospheric conditions:	temperature	26 °C
	pressure	101.8 kPa
	relative humidity	48 %
Maximum temperatures:	coolant	109 °C
	engine oil	128 °C
	fuel	35 °C
	engine air intake	31 °C

POWER TAKE-OFF TEST

Date and location of test: 16th September 1986
Istituto di Meccanica agraria - Università di Bologna (IMAUBo) - Cadriano

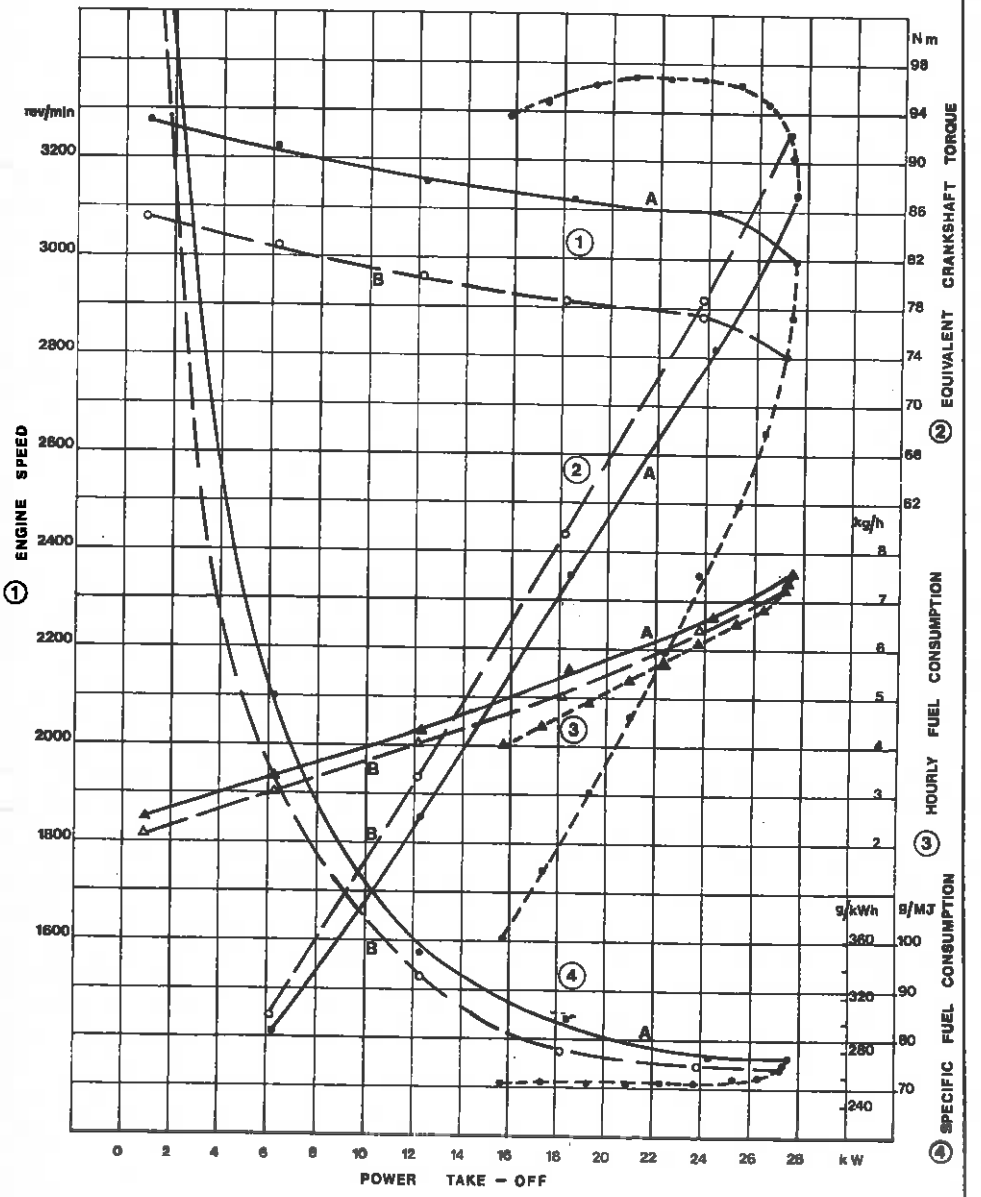
Motor: LOMBARDINI LDA 625-3



POWER TAKE-OFF TEST

Date and location of test: 16th September 1986
Istituto di Meccanica agraria - Università di Bologna (IMAUBo) - Cadriano

Motor: LOMBARDINI LDA 625-3



(2) DRAWBAR PERFORMANCE

Date of tests: 7th October 1986
Type of track: concrete
Type and size of tyres: front: PIRELLI 7.50-18 (6 ply)
rear: PIRELLI 7.50-18 (6 ply)

Gear no.and group	Power kW	Drawbar pull kN	Speed km/h	Engine speed rev/min	Slip of wheels %
(1) MAXIMUM DRAWBAR POWER IN TESTED GEARS					
1 L	3.4	9.90	1.24	3260	14.8
2 L	7.2	10.10	2.57	3220	14.9
3 L	13.9	10.20	4.92	3150	15.1
1 H	18.0	10.20	6.35	3120	15.0
2 H	24.7	6.30	14.12	3000	5.5
3 H	23.6	2.95	28.86	3000	1.2
(2) TRANSMISSION AND FUEL CONSUMPTION CHARACTERISTICS					
i) Selected gear 2 H (highest maximum available power)					
2 H	24.7	6.30	14.12	3000	5.5
ii) 75% of pull at maximum power					
2 H	19.8	4.75	15.00	3110	3.1
iii) 50% of pull at maximum power					
2 H	13.6	3.15	15.52	3170	1.6
iv) Highest gear 3 H same pull as in ii), reduced engine speed					
3 H	Impossible test				
v) Highest gear 3 H same pull as in iii), reduced engine speed					
3 H	13.5	3.10	15.63	1620	1.7

Height of drawbar above ground: 290 mm
Tyre inflation pressure: front: 160 kPa
rear: 150 kPa

Specific energy	Specific consumption	Temperatures			Atmospheric conditions		
		Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
kW.h/l	g/MJ (g/kWh)	°C	°C	°C	°C	%	kPa
0.96	242.7 (874)	24	50	85	24	55	102.0
1.65	141.6 (510)	26	55	89	24	55	102.0
2.32	99.8 (359)	30	57	91	23	60	102.0
2.56	90.5 (326)	32	62	93	22	62	102.0
2.72	85.2 (307)	35	70	96	22	65	102.0
2.61	89.7 (323)	35	68	94	22	65	102.0
2,72	85.2 (307)	35	70	96	22	65	102.1
2.69	86.1 (310)	30	63	93	22	62	102.1
2.51	92.3 (332)	30	60	90	22	62	102.1
3.15	73.7 (265)	26	65	81	23	60	102.1

(3) LIFTING FORCE AND HYDRAULIC POWER

Date and location of tests: 22nd October 1986 - Istituto di Meccanica agraria Università di Bologna (IMAUBo) - Cadriano

Hydraulic fluid

Make and type: ESSO NUTO H 68
Type of hydraulic system: open centre system, draft and position control, top link sensing
Hydraulic fluid temperature at beginning of test: 60 °C

Power lift test

	Height of lower hitch point above ground in down pos. mm	Vertical movement mm	Max. force exerted through full range daN	Corresp. pressure of hydraul. fluid MPa	Moment about rear axle kN.m	Max. tilt angle of mast over range of lift degrees
At hitch points	178	445	965	15.7	6.90	--
On the frame	168	535	640	15.7	7.95	13°

Main linkage dimensions: see drawings and table on page 7 and 8

Lifting heights relative to the horizontal plane including the lower link pivot points

cm	-15.5	-14.5	-10.0	0	+10.0	+15.0	+20.0	+25.0	+30.0	+35.0	+38.0

Lifting forces at hitch points (corresponding pressure 15.7 MPa)

daN	--	965	1010	1140	1185	1220	1170	1155	1155	--	--

Lifting forces at test frame (corresponding pressure 15.7 MPa)

daN	940	--	950	925	880	845	765	720	680	640	600

Hydraulic power test

Sustained pressure with relief valve open		17.5	MPa
Pump delivery rate at minimum pressure		17.5	l/min
Flow rate corresponding to a hydraulic pressure equivalent to 90 per cent of the actual relief valve pressure setting and corresponding hydraulic power:			
	Flow rate	17.0	l/min
	Pressure	15.7	MPa
	Power	4.4	kW
Flow rate and hydraulic pressure corresponding to maximum hydraulic power:			
	Flow rate	16.8	l/min
	Pressure	16.0	MPa
	Power	4.5	kW

Tapping point used for test: derivation next of the distributor valve

REMARKS AND REPAIR None

Bologna, January 1987

TEST ENGINEER
Prof.Dr. G. Capelli

HEAD OF TRACTOR TEST CENTRE
Prof. Dr. G. Cassani-Ropa

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