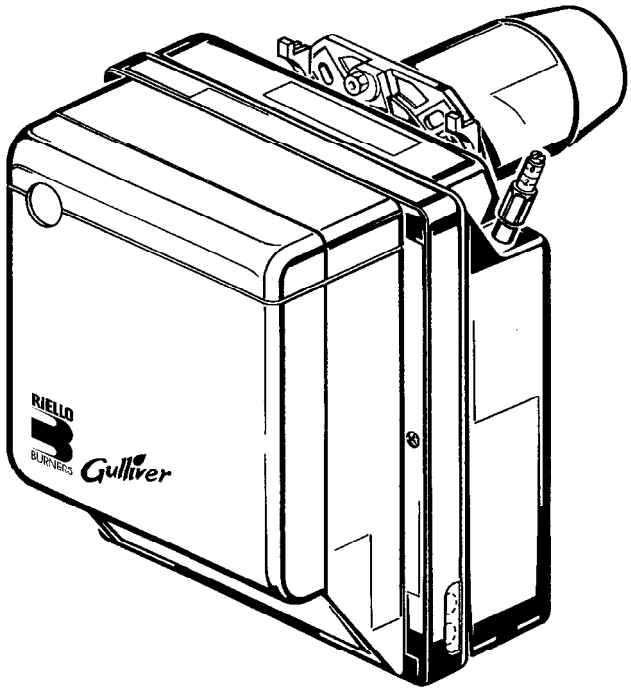
Montage und Bedienungsanleitung
Manuel d'entretien
Installation, use and maintenance instructions
Installatie-, gebruiks- en onderhoudsvoorschriften
Οδηγίες εγκατάστασης, χρήσης και συντήρησης

RIELLO BURNERS

D Öl-Gebläsebrenner
F Brûleur fioul
GB Light oil burner
NL Stookoliebrander
GR Καυστήρας Πετρελαίου

Einstufiger Betrieb
Fonctionnement à 1 allure
One stage operation
Eentrapsbrander
Μονοβάθμιοι

CE



Gulliver

CODE - ΚΩΔΙΚΟΣ	MODELL - MODELE - MODEL - ΜΟΝΤΕΛΟ	TYP - TYPE - ΤΥΠΟΣ
3736350	RG1	363 T1

INDEX

1. BURNER DESCRIPTION

One stage light oil burner.

- CE Certification No.: **0036 0341/03** as 92/42/EEC.
- The burner meets protection level of IP X0D (IP 40), EN 60529.
- Burner with CE marking in conformity with EEC directives: EMC 89/336/EEC, Low Voltage 73/23/EEC, Machines 98/37/EEC and Efficiency 92/42/EEC.

1 – Oil pump

2 – Control-box

3 – Reset button with lock-out lamp

4 – Flange with insulating gasket

5 – Air damper adjustment assembly

6 – Nozzle holder assembly

7 – Photoresistance

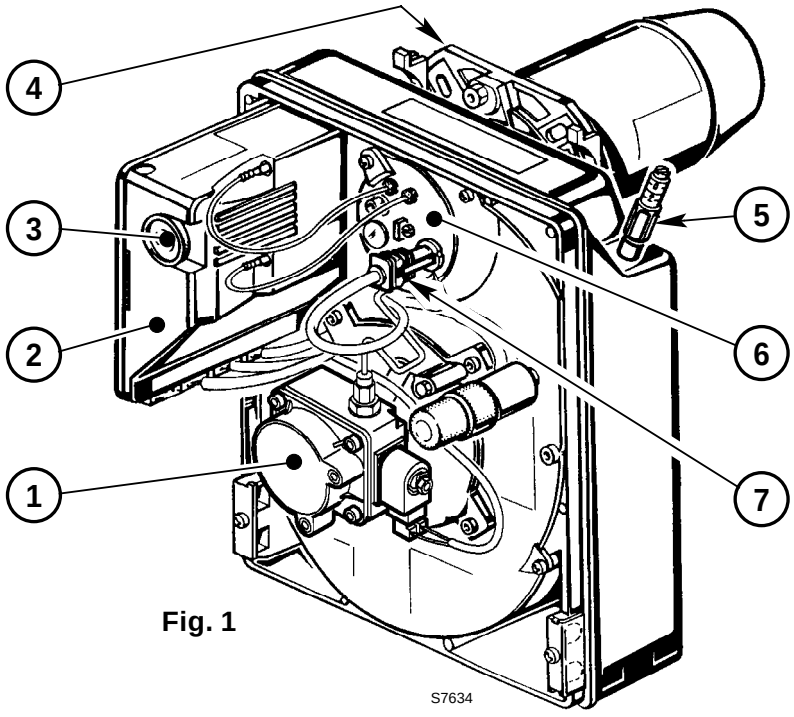


Fig. 1

1.1 BURNER EQUIPMENT

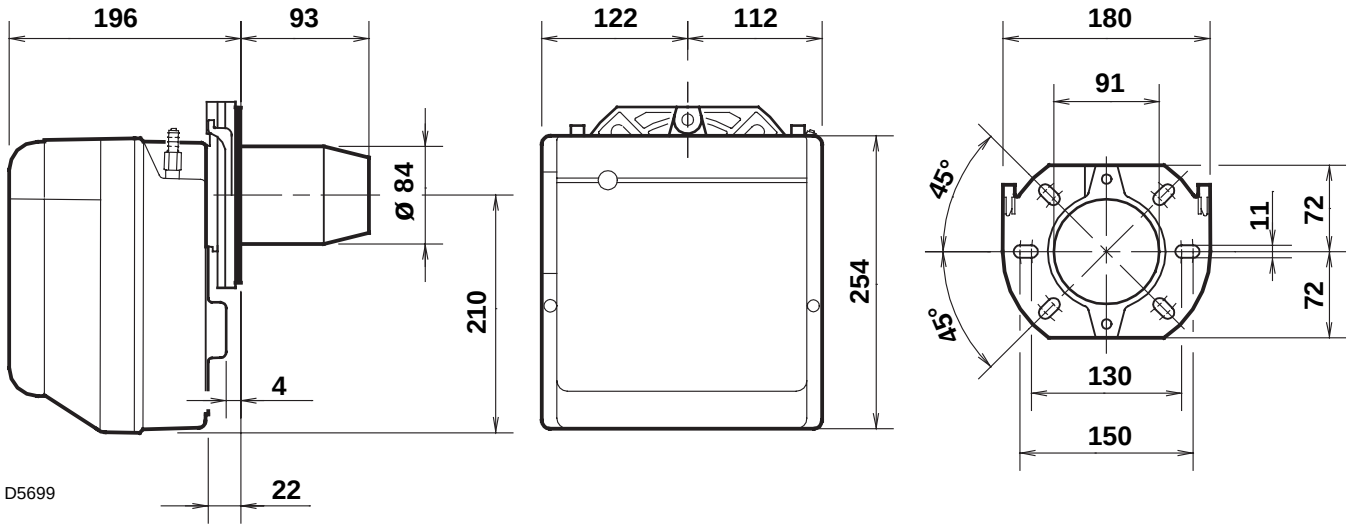
Flange with insulating gasket . . . . No. 1
Screw and nuts for flange . . . . . No. 1
7 pin plug . . . . . No. 1
Screw and nuts for flange to be fixed to boiler . No. 4
Flexible oil pipes with nipples . . . . . No. 2

2. TECHNICAL DATA

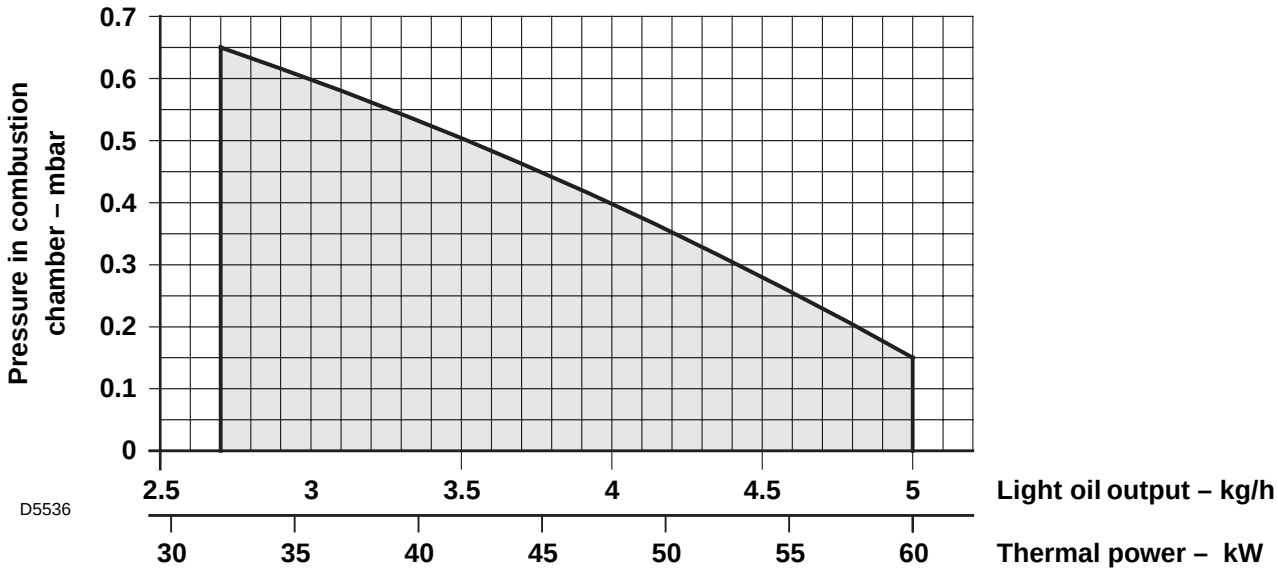
2.1 TECHNICAL DATA

TYPE	363T1
Output - Thermal power	2.7 – 5 kg/h - 32 – 60 kW
Fuel	Light oil, viscosity 4 – 6 mm^2/s at 20 °C
Electrical supply	Single phase, ~50Hz 230V ± 10%
Motor	Run current 0.85A – 2750 rpm – 289 rad/s
Capacitor	4 µF
Ignition transformer	Secondary 8 kV – 16 mA
Pump	Pressure: 8 – 15 bar
Absorbed electrical power	0.17 kW

2.2 OVERALL DIMENSIONS



2.3 FIRING RATE, (as EN 267)



3. INSTALLATION

THE BURNER MUST BE INSTALLED IN CONFORMITY WITH LEGISLATION AND LOCAL STANDARDS.

3.1 BOILER FIXING

- ➤ Put on the flange (1) the screw and two nuts, (see fig. 3).
- ➤ Widen, if necessary, the insulating gasket holes (5).
- ➤ Fix the flange (1) to the boiler door (4) using screws (2) and *(if necessary)* the nuts (3) **interposing the insulating gasket (5)**, (see fig. 2).

Fig. 2

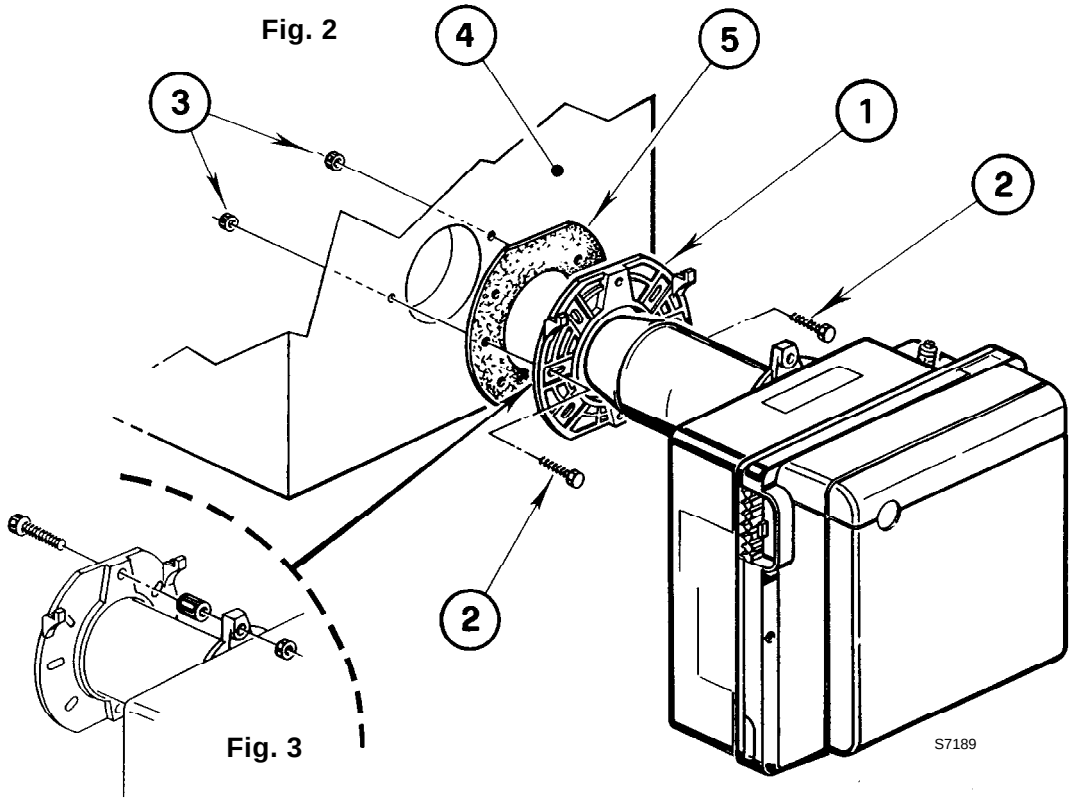
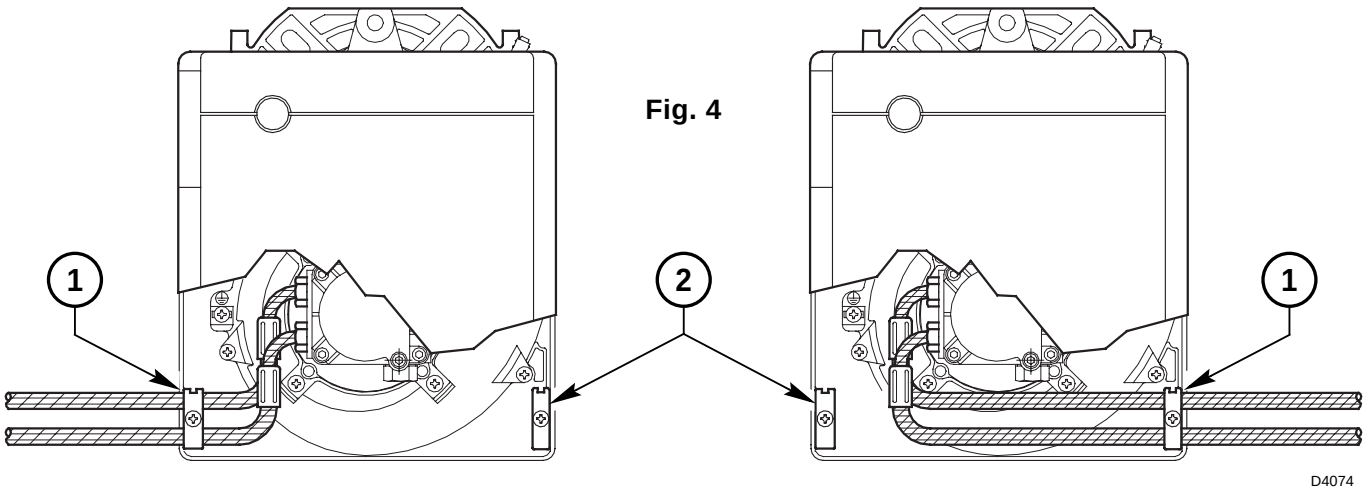


Fig. 3

3.2 FUEL SUPPLY

The burner is designed to allow entry of the oil supply pipes on either side.
Depending on the oil supply pipes position (to the right or to the left hand side of the burner) the fixing plate **(1)** and closing plate **(2)** should be reversed, (see fig. 4).

Fig. 4

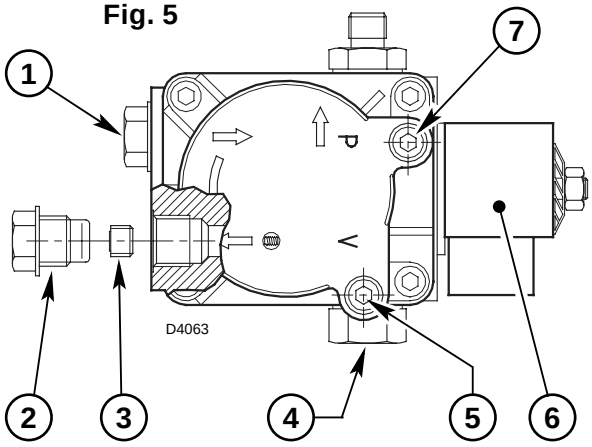


3.3 HYDRAULIC SYSTEMS

WARNING:

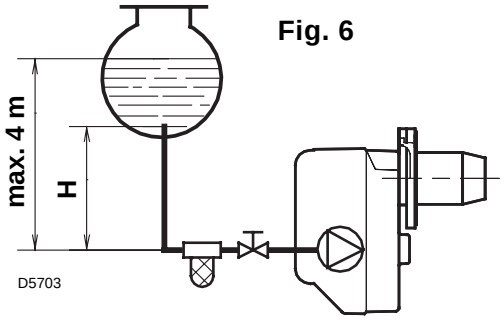
- **The pump is designed to allow working with two pipes. In order to obtain one pipe working it is necessary to unscrew the return plug (2), remove the by-pass screw (3) and then screw again the plug (2). (See fig. 5).**
- **Before starting the burner make sure that the return pipe-line is not clogged. An excessive back pressure would cause the damage of the pump seal.**

Fig. 5



SYSTEM NOT PERMITTED IN GERMANY

Fig. 6



H meters	L meters	
	I. D. 8 mm	I. D. 10 mm
0.5	10	20
1	20	40
1.5	40	80
2	60	100

1 - *Suction line*
2 - *Return line*
3 - *By-pass screw*
4 - *Pressure adjuster*
5 - *Suction gauge connection*
6 - *Valve*
7 - *Gauge connection*

PRIMING PUMP:

On the system in fig. 6 it is sufficient to loosen the suction gauge connection (5, fig. 5) and wait until oil flows out.

On the systems in fig. 7 and 8 start the burner and wait for the priming. Should lock-out occur prior to the arrival of the fuel, await at least 20 seconds before repeating the operation.

The pump suction should not exceed a maximum of 0.4 bar (30 cm Hg).
Beyond this limit gas is released from the oil. Oil pipes must be completely tight.

In the vacuum systems (fig. 8) the return line should terminate within the oil tank at the same level as the suction line. In this case a non-return valve is not required. Should however the return line arrive over the fuel level, a non-return valve is required.
This solution however is less safe than previous one, due to the possibility of leakage of the valve.

H meters	L meters	
	I. D. 8 mm	I. D. 10 mm
0	35	100
0.5	30	100
1	25	100
1.5	20	90
2	15	70
3	8	30
3.5	6	20

Fig. 7

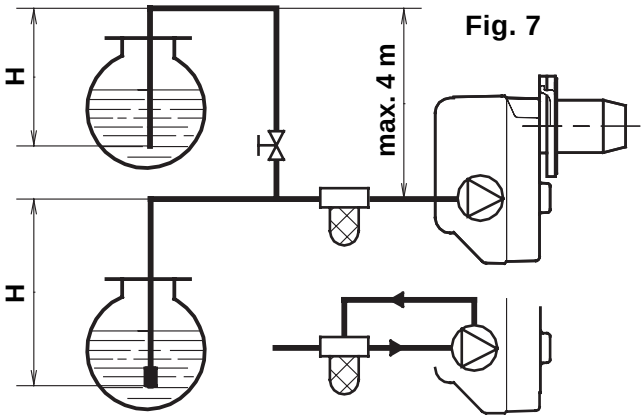
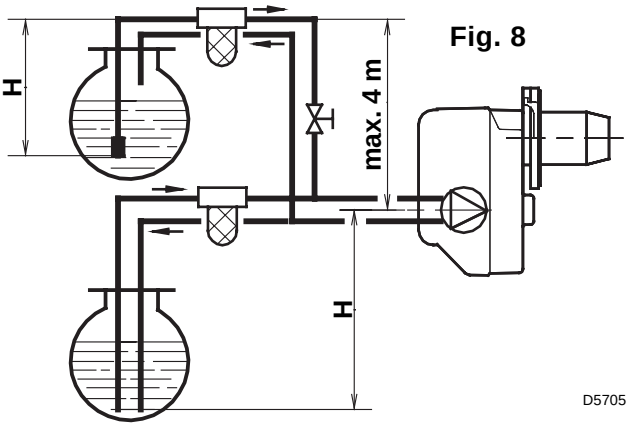


Fig. 8



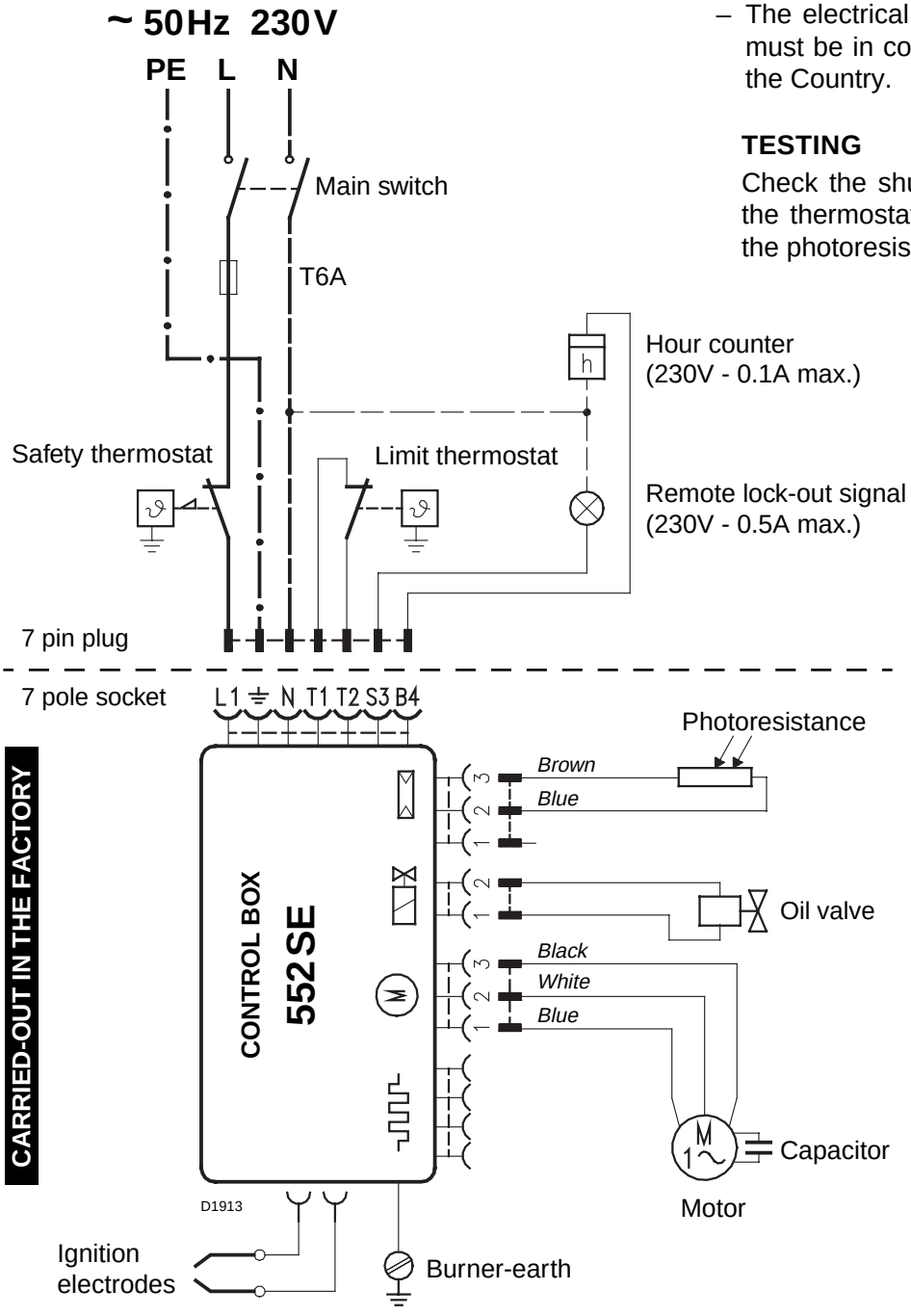
It is necessary to install a filter on the fuel supply line.

H = difference of level; **L** = max. length of the suction line; **I. D.** = internal diameter of the oil pipes.

3.4 ELECTRICAL WIRING

WARNING

DO NOT EXCHANGE NEUTRAL WITH PHASE



NOTES:

– Wires of min. 1 mm^2 section.
(Unless requested otherwise by local standards and legislation).

– The electrical wiring carried out by the installer must be in compliance with the rules in force in the Country.

TESTING

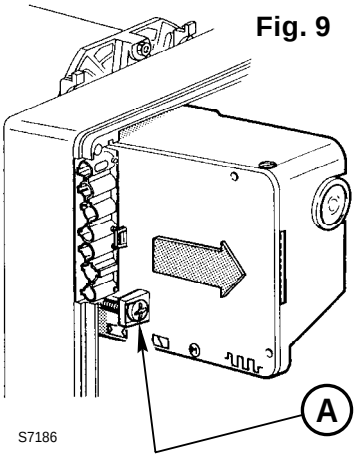
Check the shut-down of the burner by opening the thermostats and the lock-out by **darkening** the photoresistance.

CONTROL BOX

To remove the control-box from the burner, loosen screw (**A,** fig. 9) and pull to the arrow direction, after removing all components, the 7 pin plug **and earth wire**.

In case of disassembly of the control box, retighten the screw (A) with a torque wrench setting of 1 – 1.2 Nm.

Fig. 9



4. WORKING

4.1 COMBUSTION ADJUSTMENT

In conformity with Efficiency Directive 92/42/EEC the application of the burner on the boiler, adjustment and testing must be carried out observing the instruction manual of the boiler, including verification of the CO and CO_2 concentration in the flue gases, their temperatures and the average temperature of the water in the boiler.

To suit the required appliance output, choose the proper nozzle and adjust the pump pressure, the setting of the combustion head, and the air damper opening in accordance with the following schedule.

The values shown in the table are measured on a CEN boiler (as per EN 267).
They refer to 12.5% CO_2 at sea level and with light oil and room temperature of 20 °C.

Nozzle		Pump pressure	Burner output	Combustion head adjustment	Air damper adjustment
GPH	Angle	bar	kg/h ± 4%	Set-point	Set-point
0.65	60°	12	2.7	2.5	1.5
0.75	60°	12	3.0	3	2.9
0.85	60°	12	3.4	3.5	4.2
1.00	60°	12	4.0	4	5.6
1.10	60°	12	4.4	4	6.3
1.10	60°	15	5.0	4	6.7

4.2 RECOMMENDED NOZZLES:

Delavan type **W** - B ; Danfoss type S - B - **H**
Monarch type R - **NS** ; Steinen type S - Q - **H**

For ignitions at low temperature (lower than + 8 °C) act as follows:

- Use nozzles with empty or half-empty cone of the following type:
  Delavan type **W** ; Danfoss type **H**;
  Monarch type **NS** ; Steinen type **H,**
  or *(as alternative)* increase the pump pressure up to **14 bar**.
- If necessary, adopt both solutions.

MAINTENANCE POSITION

THE ACCESSIBILITY TO THE NOZZLE, THE DIFFUSER DISC AND THE ELECTRODES IS MADE EASY IN 2 WAYS:

A **Fig. 10**

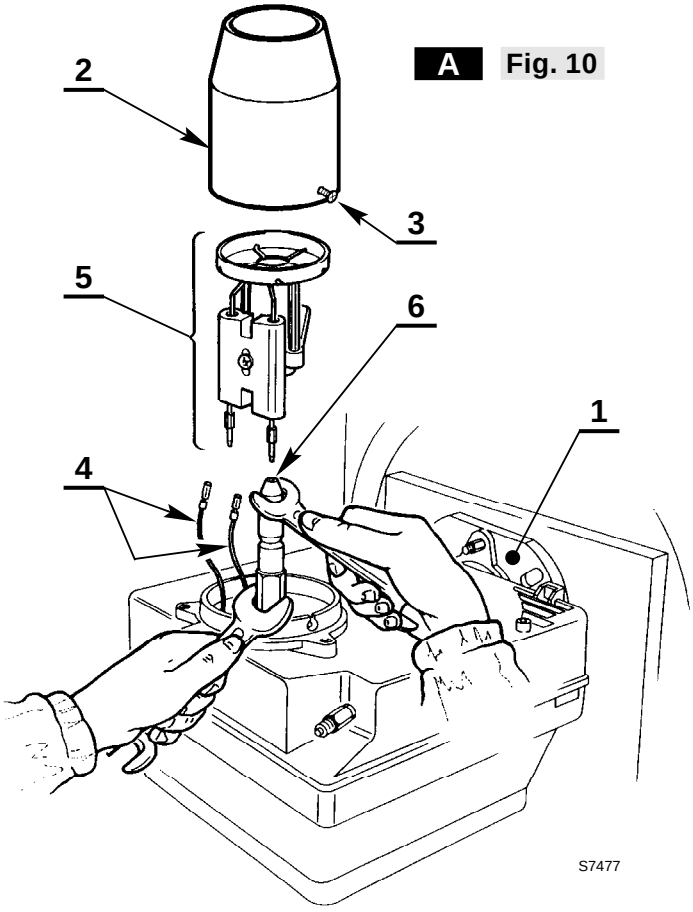
➤ Remove the burner out of the boiler, after loosing the fixing nut to the flange.

➤ Hook the burner to the flange (1), by removing the blast tube (2) after loosing the fixing screws (3).

➤ Remove the small cables (4) from the electrodes and the diffuser disc-holder assembly (5) from the nozzle-holder assembly after loosing its fixing screw (3, fig. 12, page 7).

➤ **Screw the nozzle (6) correctly and tighten it as shown in the figure.**

A **Fig. 10**



B **Fig. 11**

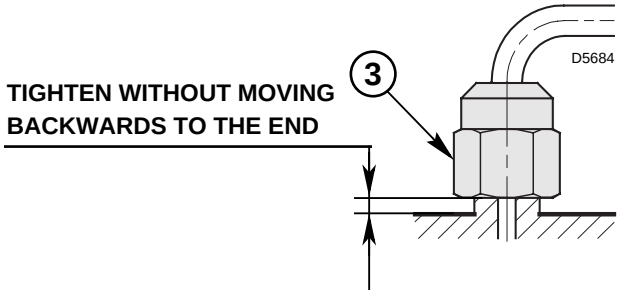
➤ Remove nozzle-holder assembly (1) after loosing screws (2) and nut (3), remove the small cables (4) from the control box and the photoresistance (6).

➤ Withdraw the small cables (4) from the electrodes, remove the diffuser disc-holder assembly (10) from the nozzle-holder assembly (1) after loosing screw (3, fig. 12).

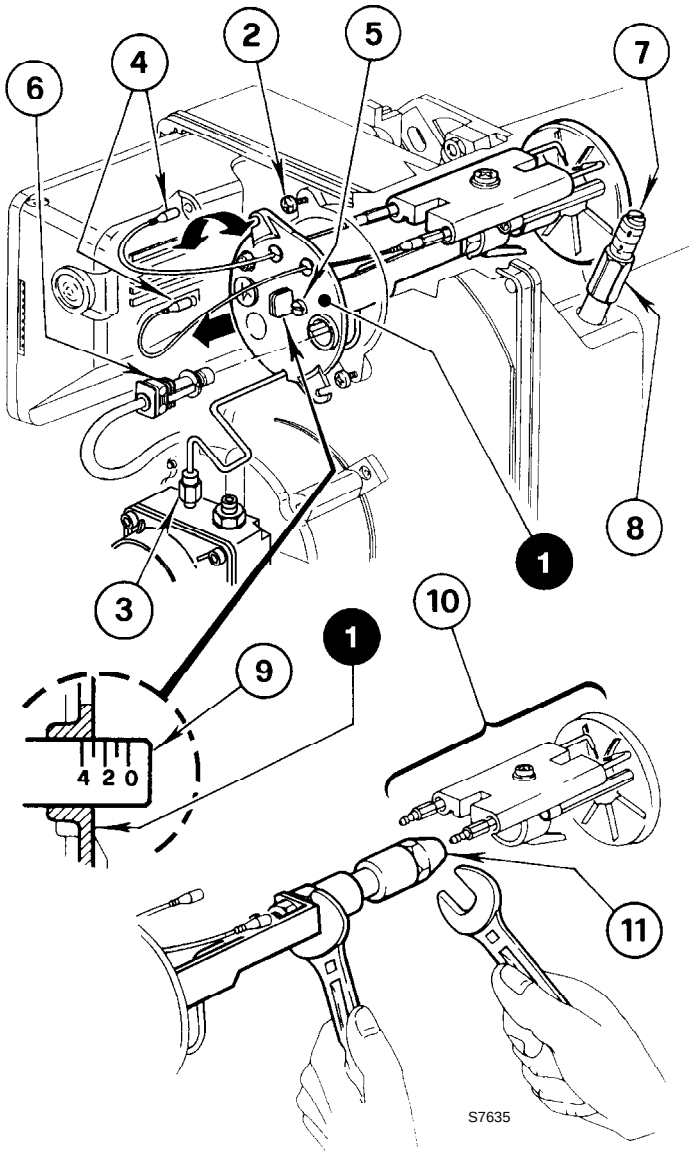
➤ **Screw the nozzle (11) correctly and tighten it as shown in figure**.

ATTENTION

During the reassembly of the nozzle-holder assembly screw the nut (3) as shown in the figure below.



B **Fig. 11**



4.3 SETTING OF DIFFUSER DISC / ELECTRODES (see fig. 12)

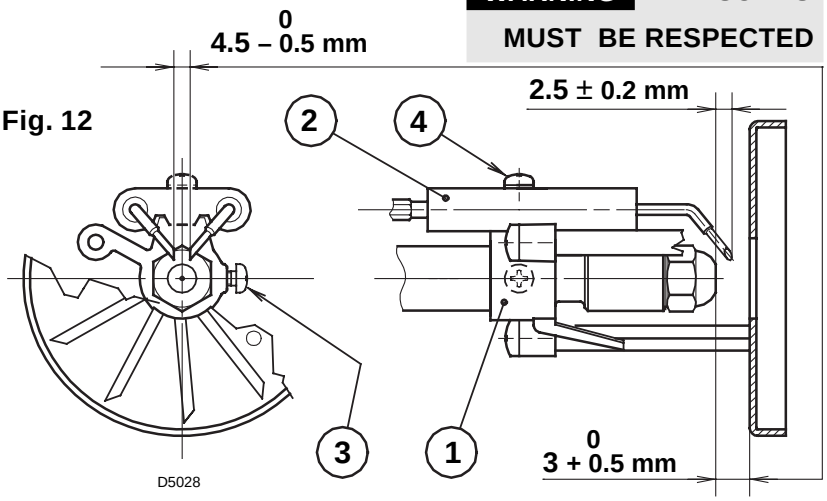
ATTENTION

Loosen screw (3) to set the diffuser disc-holder assembly (1) and loosen screw (4) to set the electrodes assembly (2).

To have access to the electrodes carry out operation as described in **chapter "4.2 RECOMMENDED NOZZLES"** (page 6).

WARNING **MEASURES MUST BE RESPECTED**

Fig. 12



4.4 PUMP PRESSURE

The pump leaves the factory set at 12 bar.
To change it act on pump pressure adjust screw (4, fig. 5, page 4).

4.5 COMBUSTION HEAD SETTING (see fig. 11, page 7)

It depends on the output of the burner and is carried out by rotating clockwise or counterclockwise the setting screw (5) until the set-point marked on the regulating rod (9) is level with the outside plane of the nozzle-holder assembly (1).

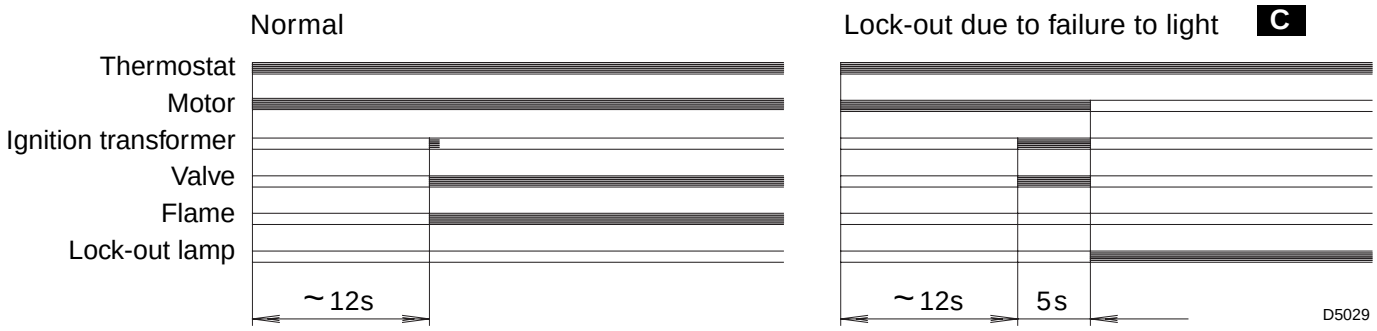
➤ In the sketch the combustion head is set for an output of 0.75 GPH at 12 bar.
The set-point **3** of the regulating rod (9) is at the same level with the outside plane of the nozzle-holder assembly (1) as shown in the schedule.

4.6 AIR DAMPER ADJUSTMENT (see fig. 11, page 7)

➤ To vary the setting adjust the screw (7) after loosing the nut (8).

➤ When burner shuts down the air damper automatically closes till a **max. chimney depressure of 0.5 mbar.**

4.7 BURNER START-UP CYCLE



C Lock out is indicated by a lamp on the control box (3, fig. 1, page 1).

5. MAINTENANCE

The burner requires periodic maintenance carried out by a qualified and authorised technician **in conformity with legislation and local standards.**

Maintenance is essential for the reliability of the burner, avoiding the excessive consumption of fuel and consequent pollution.

Before carrying out any cleaning or control always first switch off the electrical supply to the burner acting on the main switch of the system.

THE BASIC CHECKS ARE:

➤ Check that there are not obstructions or dents in the supply or return oil pipes.

➤ Clean the filter in the oil suction line and in the pump.

➤ Clean the photoresistance, (7, fig. 1, page 1).

➤ Check for correct fuel consumption.

➤ Replace the nozzle (see fig. 10, page 6) and check the correct position of electrodes (fig. 12, page 7).

➤ Clean the combustion head in the fuel exit area, on the diffuser disc.

➤ Leave the burner working without interruptions for 10 min. and set rightly all the components stated in this manual. **Then carry out a combustion check verifying:**

- Smoke temperature at the chimney;
- Content of CO_2 (%);
- Content of CO (ppm);
- Smoke value according to opacity smokes index according to Bacharach scale.

6. FAULTS / SOLUTIONS

Here below you can find some causes and the possible solutions for some problems that could cause a failure to start or a bad working of the burner.

A fault usually makes the lock-out lamp light which is situated inside the reset button of the control box (3, fig. 1, page 1).

When lock out lamp lights the burner will attempt to light only after pushing the reset button. After this if the burner functions correctly, the lock-out can be attributed to a temporary fault.
If however the lock out continues the cause must be determined and the solution found.

FAULTS	POSSIBLE CAUSES	SOLUTION
The burner doesn't start when the limit thermostat closes.	Lack of electrical supply.	Check presence of voltage in the L1 - N clamps of the 7 pin plug.
		Check the conditions of the fuses.
		Check that safety thermostat is not lock out.
	The photoresistance sees false light.	Eliminate the light.
	Start thermostats are faulty.	Replace them.
	The connections in the control box are wrongly inserted.	Check and connect completely all the plugs.
Burner runs normally in the prepurge and ignition cycle and locks out after 5 seconds ca.	The photoresistance is dirty.	Clear it.
	The photoresistance is defective.	Change it.
	Flame moves away or fails.	Check pressure and output of the fuel.
		Check air output.
		Change nozzle.
		Check the coil of solenoid valve.
Burner starts with an ignition delay.	The ignition electrodes are wrongly positioned.	Adjust them according to the instructions of this manual.
	Air output is too high.	Set the air output according to the instructions of this manual.
	Nozzle dirty or worn.	Replace it.

WARNING

The manufacturer cannot accept responsibility for any damage to persons, animals or property due to error in installation or in the burner adjustment, or due to improper or unreasonable use or non observance of the technical instruction enclosed with the burner, or due to the intervention of unqualified personnel.