

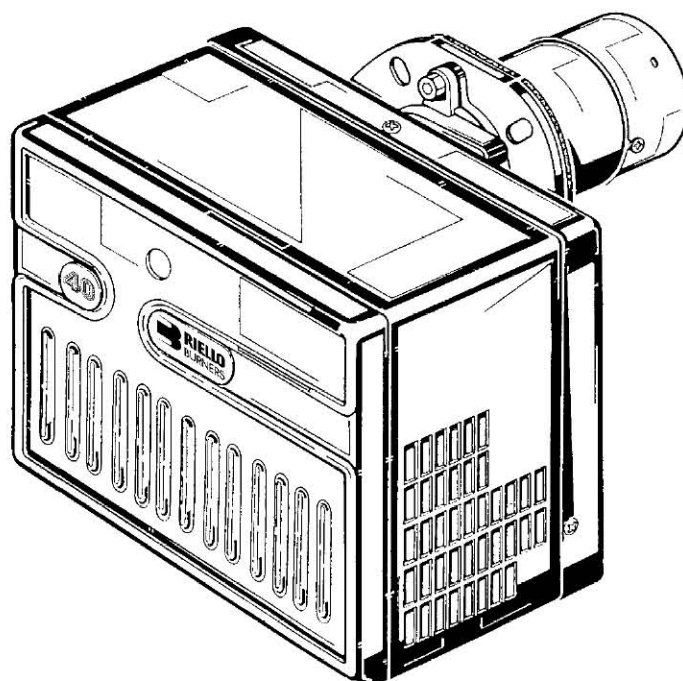
D Öl-Gebläsebrenner

F Brûleur fioul

GB Oil burner

NL Stookoliebrander

Zweistufiger Betrieb
Fonctionnement à 2 allures
Two stage operation
Tweetrapsbranders



RIELLO 40

CODE	MODELL - MODELE - MODEL	TYP - TYPE
3748414	G20D	484 T1

Oil burner

RIELLO 40 G20D

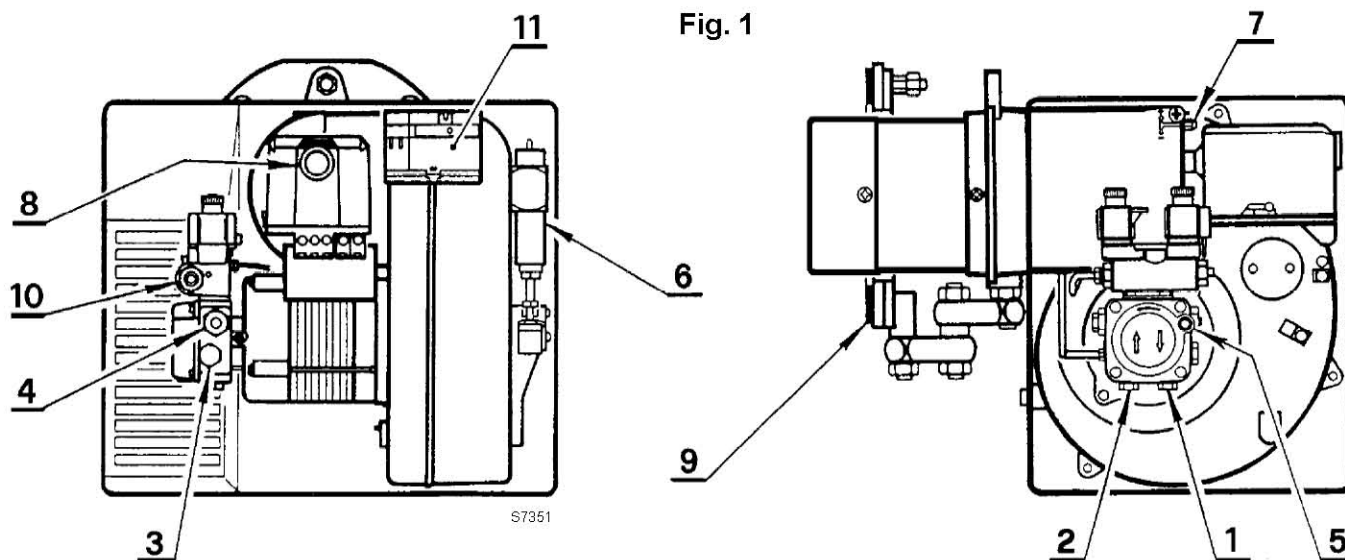
CODE **3748414**

TYPE **484T1**

TECHNICAL FEATURES

Thermal power – output	71 / 95 – 240 kW – 6 / 8 – 20 kg/h
Fuel	Gas oil, max. viscosity at 20 °C: 6 mm ² /s (1.5 °E)
Electrical supply	Single phase, 230V ± 10% ~ 50Hz
Motor	Run current 1.5A – 2750 rpm – 288 rad/s
Capacitor	5 µF
Ignition transformer	Secondary 8 kV – 16 mA
Pump	Pressure: 7 – 15 bar
Absorbed electrical power	0.33 kW

- ◆ Burner with CE marking in conformity with EEC directives: EMC89/336/EEC, Low Voltage 73/23/EEC, Machines 98/37/EEC and Efficiency 92/42/EEC.
- ◆ The burner meets protection level of IP 40, EN 60529.
- ◆ CE Certification No. : 0036 0259/99 as 92/42/EEC.

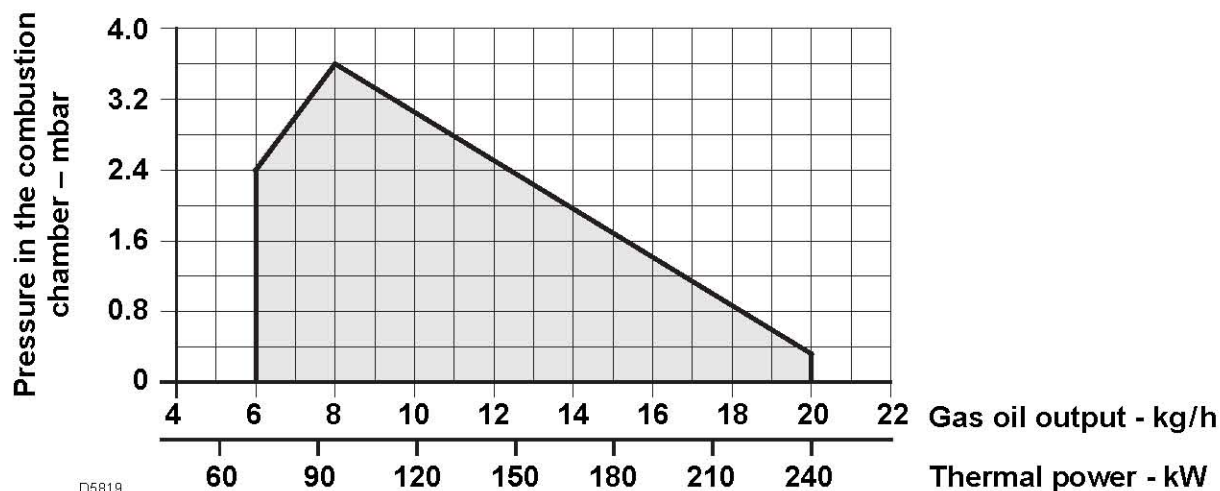


- 1 – Return line
- 2 – Suction line
- 3 – Gauge connection
- 4 – Pressure regulator, 2nd stage
- 5 – Vacuum gauge connection
- 6 – Hydraulic jacks with air-damper
- 7 – Combustion head adjustment screw
- 8 – Lock-out lamp and reset button
- 9 – Flange with insulating gasket
- 10 – Regulation pressure, 1st stage
- 11 – Economizer

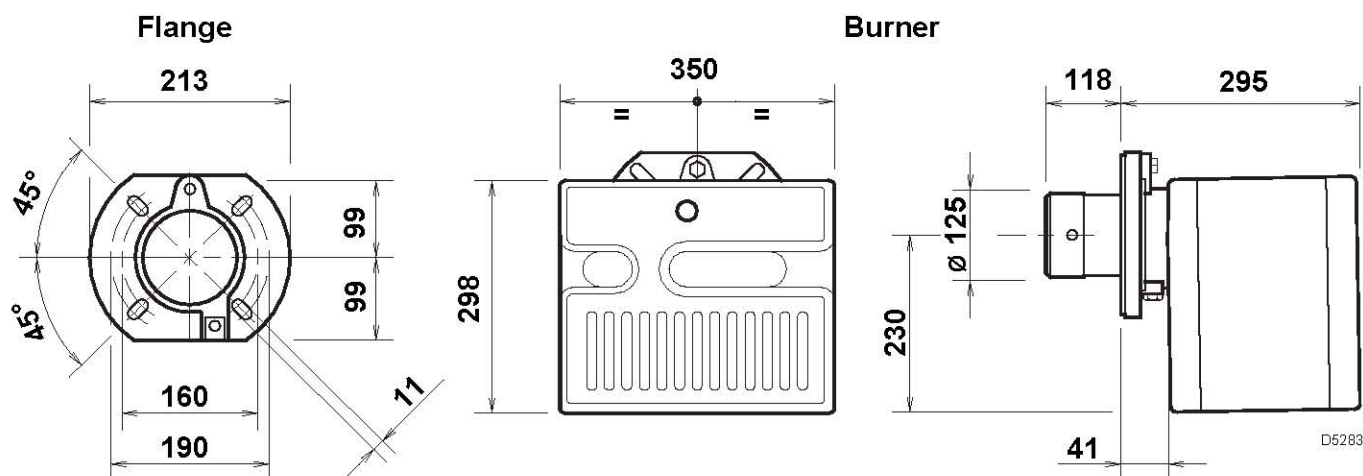
EQUIPMENT

Quantity	Description
2	Flexible pipes with nipples
1	Flange with insulating gasket
4	Screws and nuts for flange
1	Hinge
1	Screw with two nuts for flange
1	4 pin plug

WORKING RANGE (as EN 267)



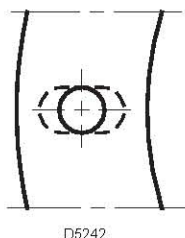
DIMENSIONS



MOUNTING THE BURNER

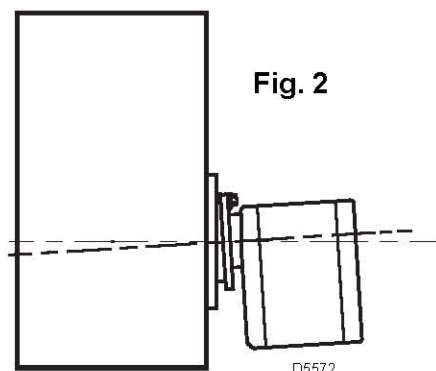
It is necessary that the insulating gasket (9, fig. 1) is placed between the boiler door and the burner flange.

This insulating gasket has four holes, which, if necessary, can be modified as shown on the drawing on the right.

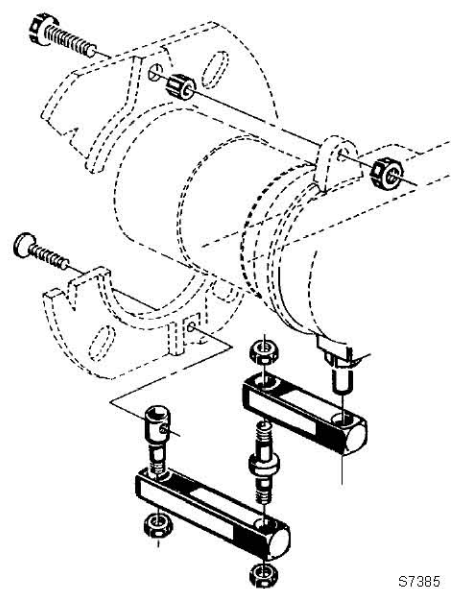


Verify that the installed burner is lightly leaned towards the button.
(See figure 2).

The burner is designed to allow entry of the flexible oil-lines on either side of the burner.



BURNER FIXING AND HINGE ASSEMBLY



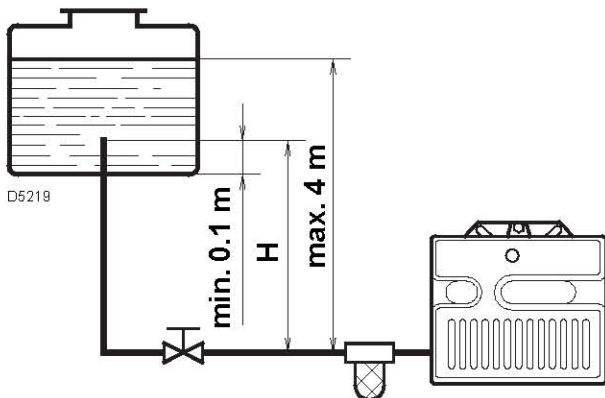
OIL LINES

Warning: before starting the burner make sure that the return pipe-line is not clogged: any obstruction would cause the pump seals to break.

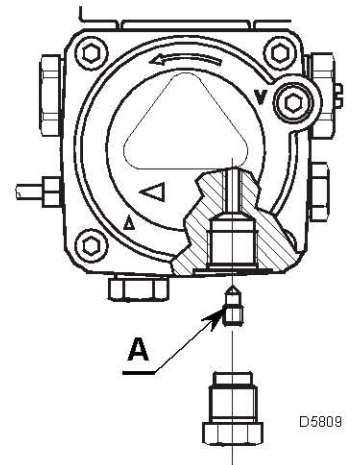
WARNING

The pump is supplied for use with a two pipe system.
For use on a one pipe system, it is necessary to remove the by-pass screw (A), (see figure).

SYSTEM NOT PERMITTED IN GERMANY



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



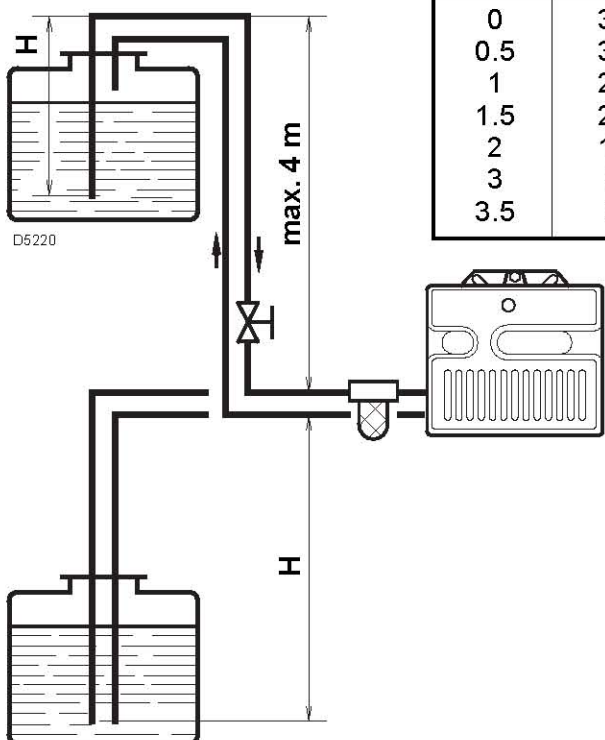
PRIMING THE PUMP

Loosen the plug of the vacuum gauge (5, fig. 1, page 1) and wait until the fuel flows out.

H = Difference of level.

L = Max. length of the suction line.

I.D. = Internal diameter of the oil pipes.



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

The pump vacuum should not exceed a maximum of 0.4 bar (30 cm Hg).
Beyond this limit gas is released from the oil.

Oil lines must be completely airtight.

The return line should terminate in the oil tank at the same level as the suction line; in this case a non-return valve is not required.

When the return line arrives over the fuel level, a non-return valve must be used.

This solution however is less safe than previous one, due to the possibility of leakage of the valve.

PRIMING THE PUMP

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.

A filter must be installed on the suction fuel line.

BURNER ELECTRICAL WIRING

230V ~ 50Hz

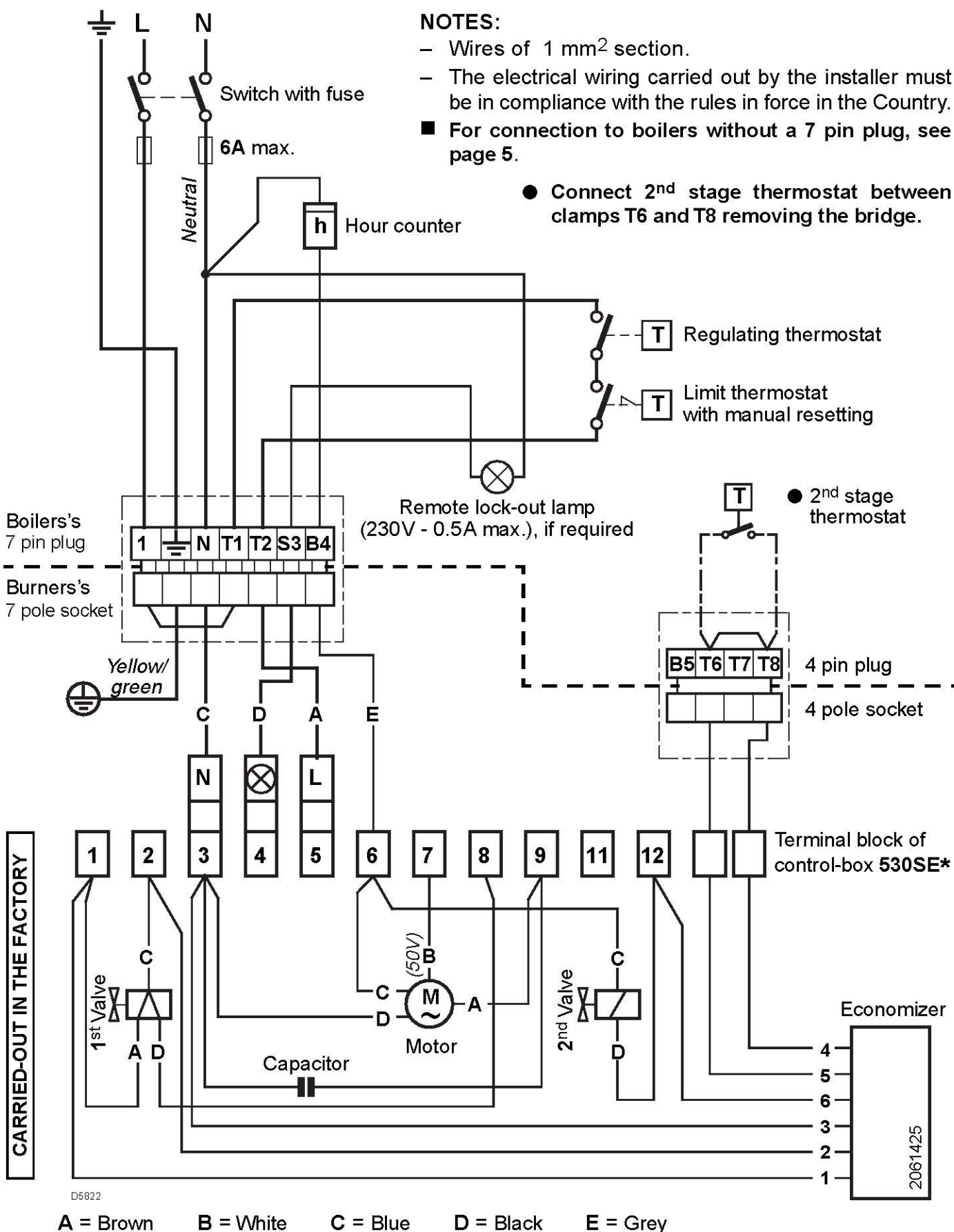
WARNING

DO NOT EXCHANGE THE NEUTRAL WITH THE PHASE

NOTES:

- Wires of 1 mm² section.
- The electrical wiring carried out by the installer must be in compliance with the rules in force in the Country.
- **For connection to boilers without a 7 pin plug, see page 5.**

- **Connect 2nd stage thermostat between clamps T6 and T8 removing the bridge.**



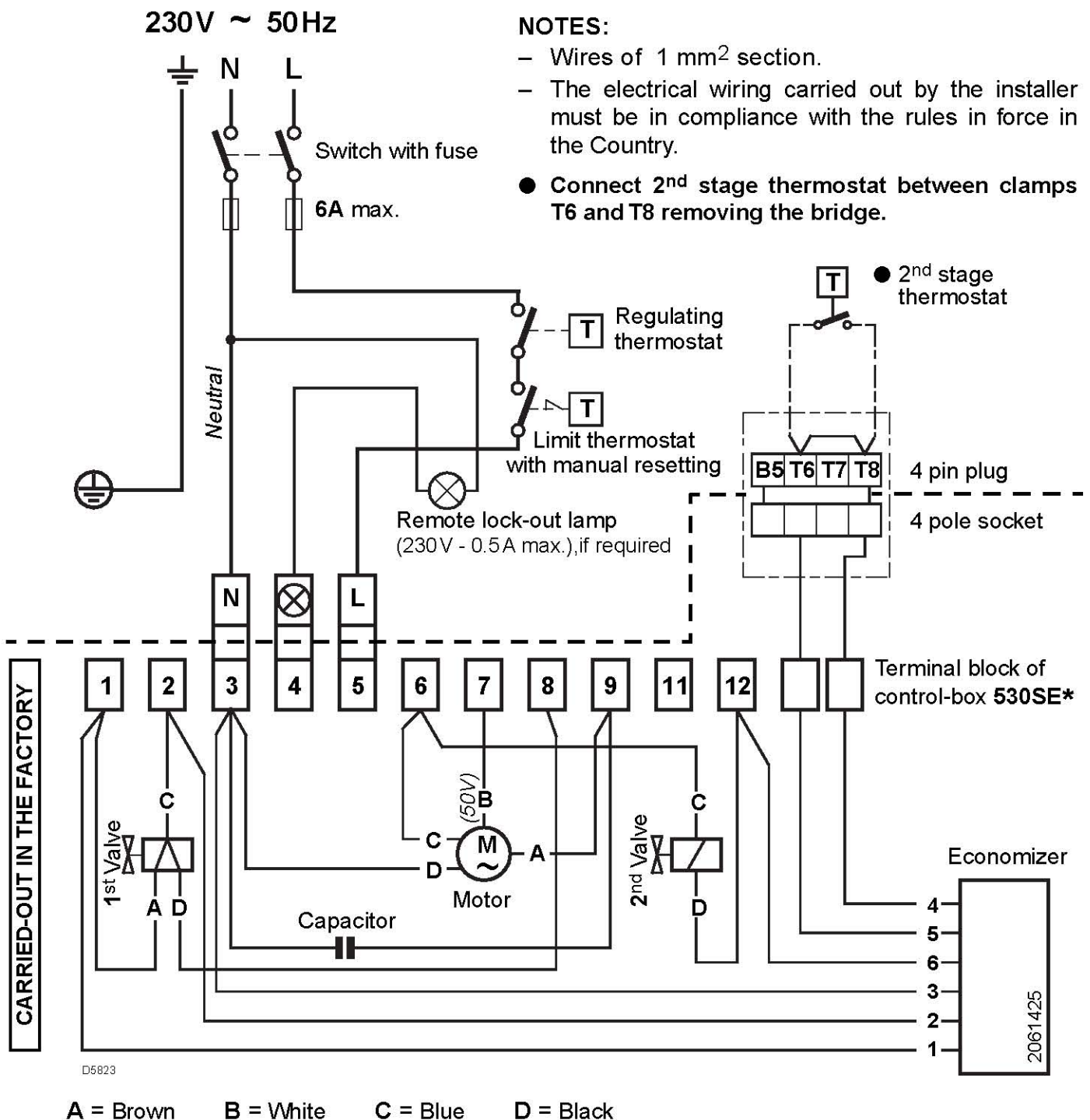
NOTE:

The burner is provided with a 7 pole socket for the direct electrical connection to the boiler's plug (see diagram at page 4). Should the boiler be without plug, it is then necessary:

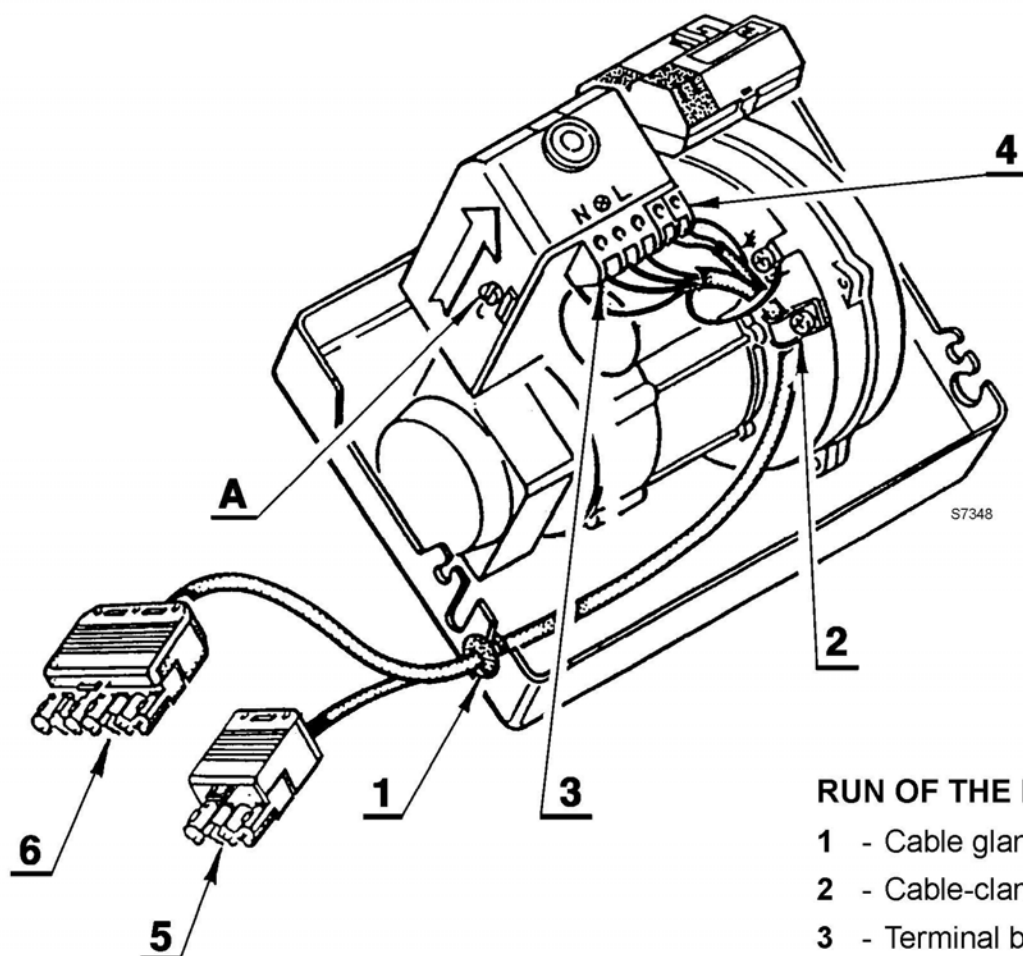
- remove the socket and respective cable mounted on the burner;
- carry out the electrical connection direct to the wiring terminal block of the burner as shown on the diagram below.

BURNER ELECTRICAL WIRING

WARNING DO NOT EXCHANGE THE NEUTRAL WITH THE PHASE



To remove the control-box from the burner, loosen screw (A) (see figure below) and pull towards the arrow.



RUN OF THE ELECTRICAL CABLES

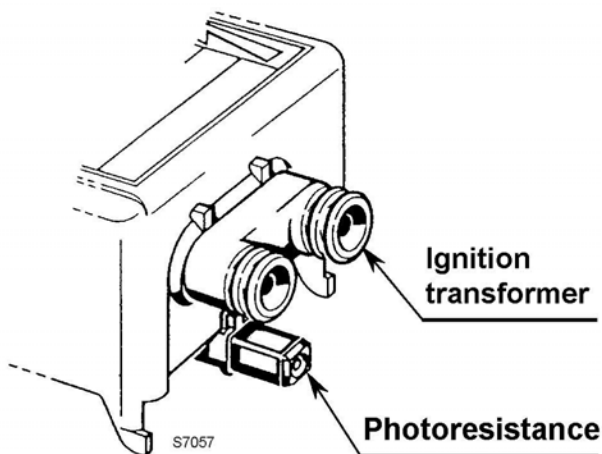
- 1 - Cable gland
- 2 - Cable-clamp
- 3 - Terminal block
- 4 - Clamps for 2nd stage thermostat
- 5 - 4 pole socket for 2nd stage thermostat
- 6 - 7 pole socket for burner

N - Neutral

⊗ - Lock-out lamp

L - Phase

≡ - Burner-earth



The photoresistance is fitted directly into the control-box (underneath the ignition-transformer) on a plug-in support.

TESTING

Check the shut-down of the burner by opening the thermostats.

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 CO₂ concentration in the flue gases, their temperatures and the average temperature of the water in the boiler.

To suit the required appliance output, fit the nozzle, the settings of the combustion head and the air damper opening in accordance with the following schedule.

Nozzle 1		Pump pressure bar		Burner output kg/h $\pm$ 4%		Comb. head adjustment 2	Air damper adjustment 3	
GPH	Angle	1 st	2 nd	1 st	2 nd	Set-point	1 st stage Set-point	2 nd stage Set-point
1.75	60°	9	14	6.1	7.6	1	2.3	2.6
2.00	60°	9	14	7.0	8.7	1.5	2.5	3.0
2.25	60°	9	14	7.8	9.8	2	2.7	3.5
2.50	60°	9	14	8.7	10.8	2.5	2.9	3.8
3.00	60°	9	14	10.4	13.0	3.5	3.2	4.3
3.50	60°	9	14	12.2	15.2	4	3.5	5.0
4.00	60°/45°	9	14	13.9	17.3	5	4.5	6.5
4.50	60°/45°	9	14	15.6	19.5	6	5.0	8.0

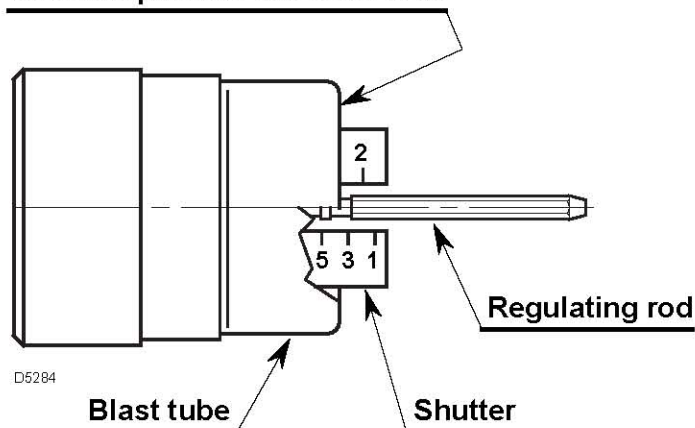
1 NOZZLES RECOMMENDED: Monarch type R - PLP ; Delavan type B - W
Steinen type S - SS ; Danfoss type S

Angle: 60° : in most cases. Particularly suited to avoid flame-detachment during ignition.

45° : for narrow and long combustion-chambers.

2 COMBUSTION HEAD SETTING: This is done when fitting the nozzle, with the blast tube removed. It depends on the output of the burner and is carried out by rotating the regulating rod, till the terminal plane of the blast tube is level with the set-point, as indicated in the schedule.

Terminal plane of the blast tube



In the sketch on the left, the combustion head is set for an output of 3.00 GPH at 8/14 bar, while the shutter is level with set-point 3.5, as required by the above schedule.

Combustion head settings indicated in the schedule are valid for most cases.

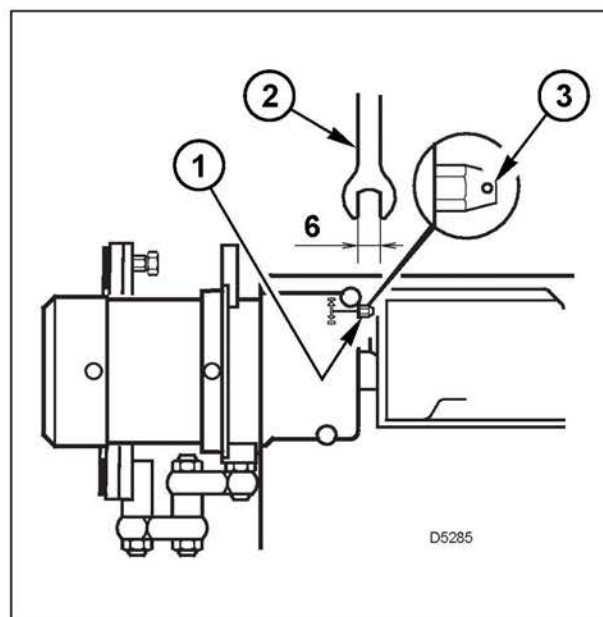
The setting of the fan output according to the installation should normally be done only through the air damper. Should one subsequently want to retouch also the setting of the combustion head, with the burner running, operate on the rod (1) with a 6 mm spanner (2) as follows:

Turn to the right: (sign +), in order to increase the volume of air entering the combustion chamber and thus diminishing its pressure.

There is a reduction of CO₂ and the adhesion of the flame to the air diffuser disc improves. (Setting advisable for ignitions at low temperatures).

Turn to the left: (sign -), in order to reduce the volume of air entering the combustion chamber and thus increasing its pressure. The CO₂ improves and the adhesion of the flame to the diffuser tends to reduce. (This setting is not advisable for ignitions at low temperatures).

In any case do not bring the combustion head setting more than one point away from that indicated in the schedule. One set-point corresponds to 3 turns of the rod; a hole (3) at its end facilitates counting the number of turns.



3 AIR DAMPER ADJUSTMENT:

The settings indicated in the schedule refer to the burner with its metal cover fitted and the combustion chamber with "zero" depression. These regulations are purely indicative.

Each installation however, has its own unpredictable working conditions: actual nozzle output; positive or negative pressure in the combustion-chamber, the need of excess air, etc. All these conditions may require a different air-damper setting.

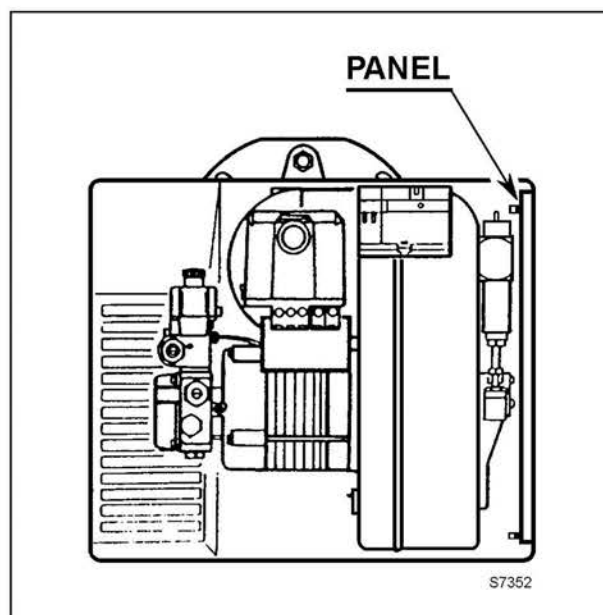
It is important to take account of the fact that the air output of the fan differs according to whether the burner has its metal cover fitted or not.

Therefore we recommended to proceed as follows:

- adjust the air damper as indicated in the schedule (3);
- mount the cover, simply by means of the upper screw;
- check smoke number;
- should it become necessary to modify the air output, remove the cover by loosening the screw, adjust the air damper, remount the cover and finally recheck the smoke number.

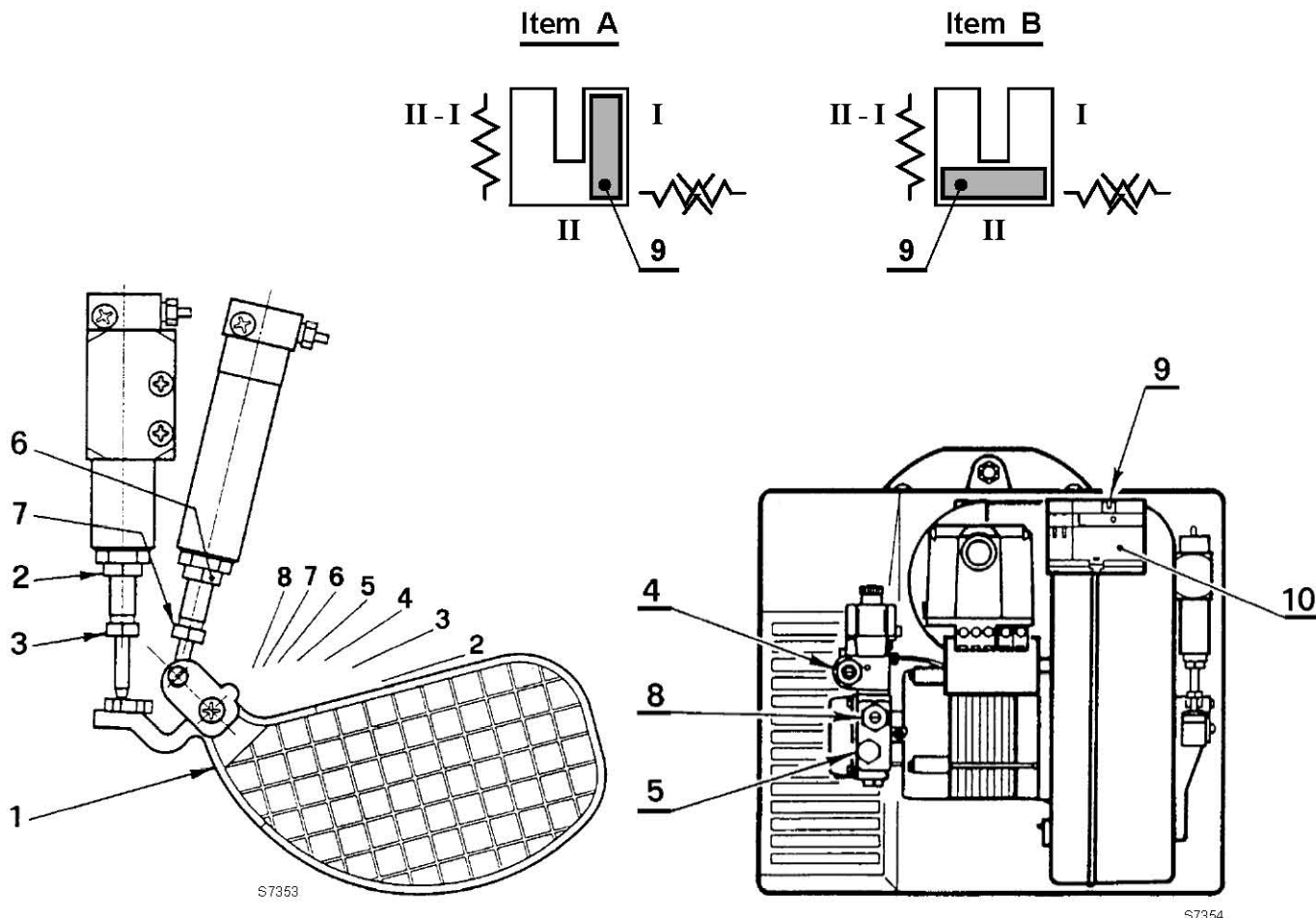
NOTE:

When the burner works at a firing rate higher than **18 kg/h** remove the panel fitted inside the metal cover. (See figure).



PUMP PRESSURE AND AIR OUTPUT

The burner is provided with an hydraulic device controlled by the economizer which reduces to approx. 70% the max. output of gas oil and air.



1st STAGE ADJUSTMENT

Adjustment of air shutter: place the small plug (9) of the economizer (10) into the position I (*Item A*). In this way the burner will remain permanently in the 1st stage.

Unloosen the nut (2), turn the screw (3) until the air shutter (1) reaches the position desired. Then lock the nut (2).

Pressure regulation: this is set at 8 bar at the factory.

Should such pressure be reset or changed, just turn the screw (4). The pressure gauge must be mounted in place of cap (5).

2nd STAGE ADJUSTMENT

Adjustment of air shutter: place the small plug (9) of the economizer (10) into the position II (*Item B*). In this way the burner remains permanently in the 2nd stage.

Unloosen the nut (6), turn the screw (7) until the air shutter (1) reaches the position desired. Then lock the nut (6).

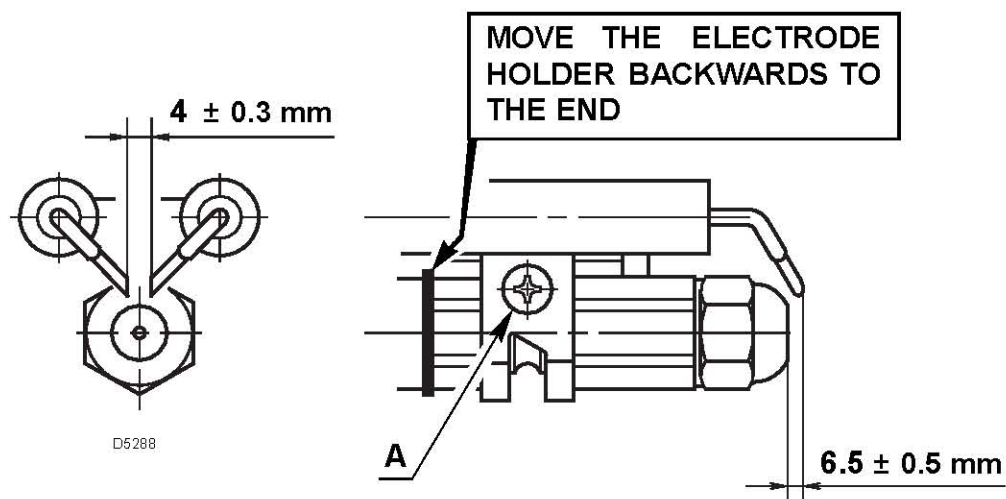
Pressure regulation: this is set at 14 bar at the factory.

Should such pressure be reset or changed, just turn the screw (8). The pressure gauge must be mounted in place of cap (5).

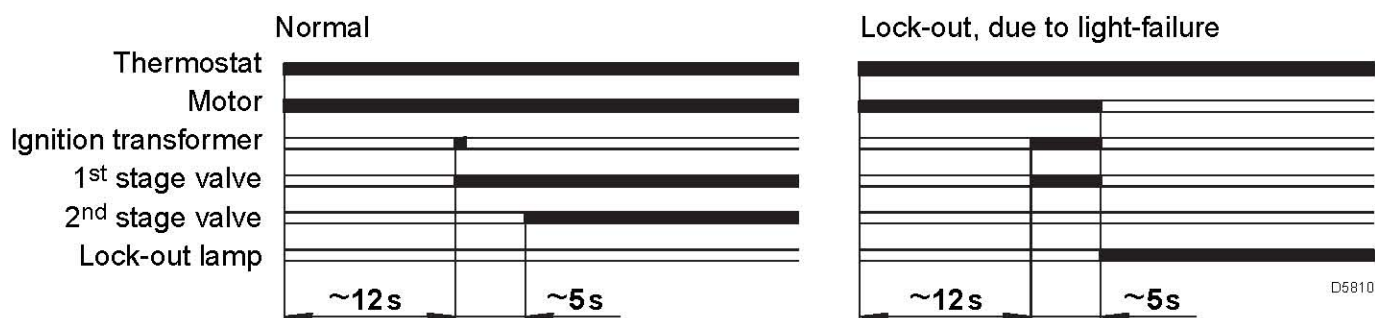
ELECTRODE SETTING

Attention:

Before assembling or removing the nozzle, loosen the screw (A) and move the electrodes ahead.



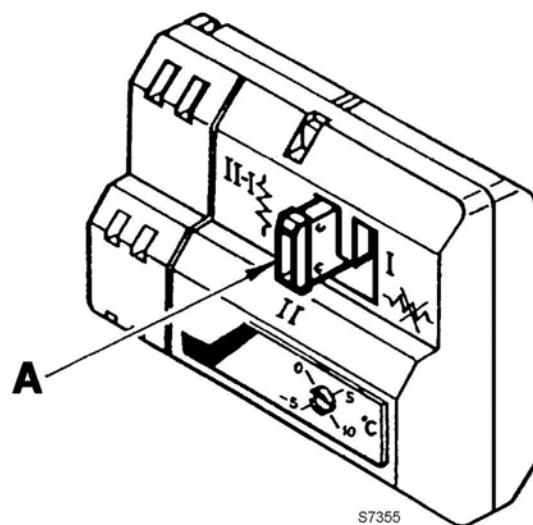
BURNER START-UP CYCLE



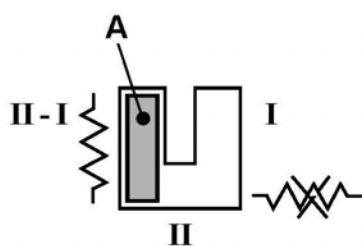
ECONOMIZER

This economizer showed in fig. on the right can be wired to a 2nd stage thermostat; in this case it performs two functions:

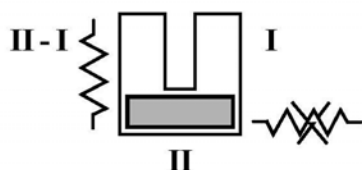
1. Delay of 5 - 6 seconds in the intervention of the 2nd stage valve against 1st stage valve.
2. In relation of the position of the plug **A**, it determines the type of required operation:



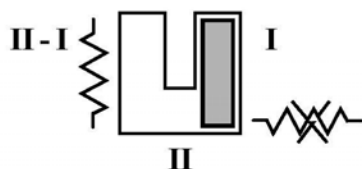
S7355



Position I - II = Burner operation in 1st or 2nd stage on request of the 2nd stage thermostat.



Position II = Burner operation only in 2nd stage - compulsorily.



Position I = Burner operation only in 1st stage - compulsorily.