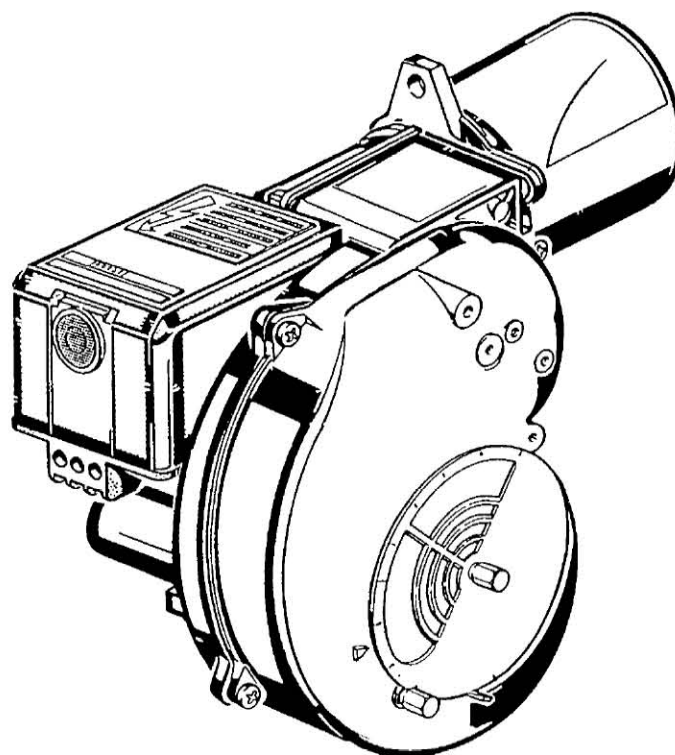


Oil - kerosene burners

One stage operation



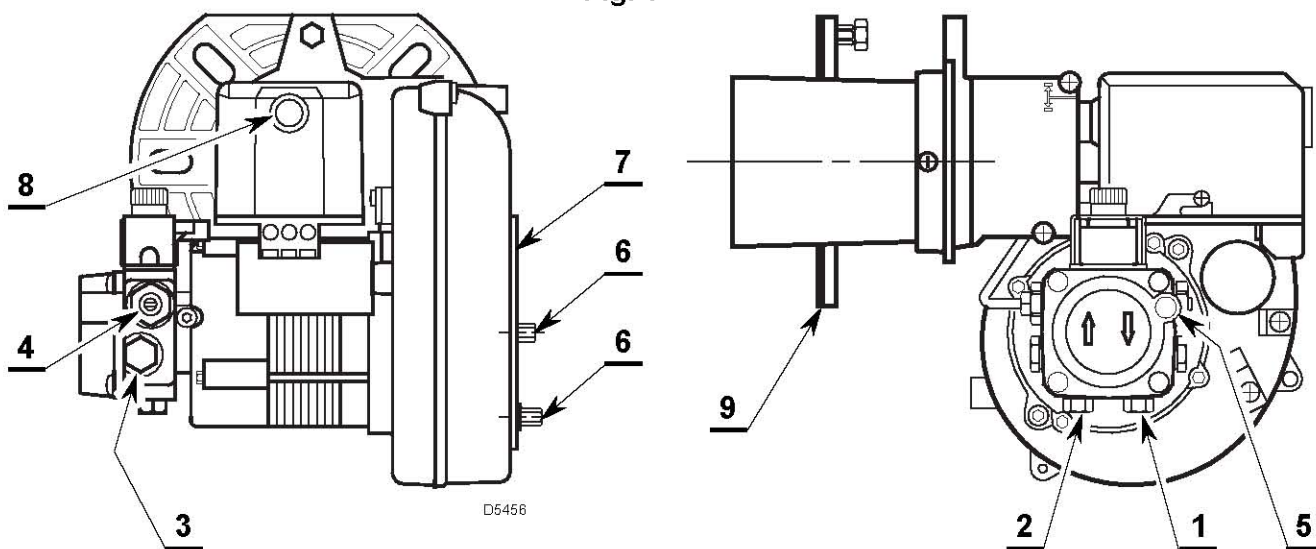
CODE	MODEL	TYPE
3744112	G5X	441 T1
3744113	G5X	441 T1

TECHNICAL FEATURES

TYPE	441T1
Thermal power – output	17 – 40 kW – 1.5 – 3.4 kg/h
Fuel	Gas oil 35 sec max. viscosity 6 mm ² /s at 20 °C Kerosene 28 sec
Electrical supply	single phase, 230V ± 10% ~ 50Hz
Motor	run current 0.85A – 2850 rpm – 298 rad/s
Capacitor	4 µF
Ignition transformer	secondary 8 kV – 16 mA
Pump	maximum pressure 14 bar (203 psi)
Absorbed electrical power	0.16 kW

◆ Burner with CE marking in conformity with EEC directives: EMC89/336/EEC and Efficiency 92/42/EEC.

Fig. 1



- 1 – Return line
- 2 – Suction line
- 3 – Gauge connection
- 4 – Pump pressure regulator
- 5 – Vacuum gauge connection
- 6 – Screws fixing air-damper
- 7 – Air damper
- 8 – Lock-out lamp and reset button
- 9 – Flange with insulating gasket

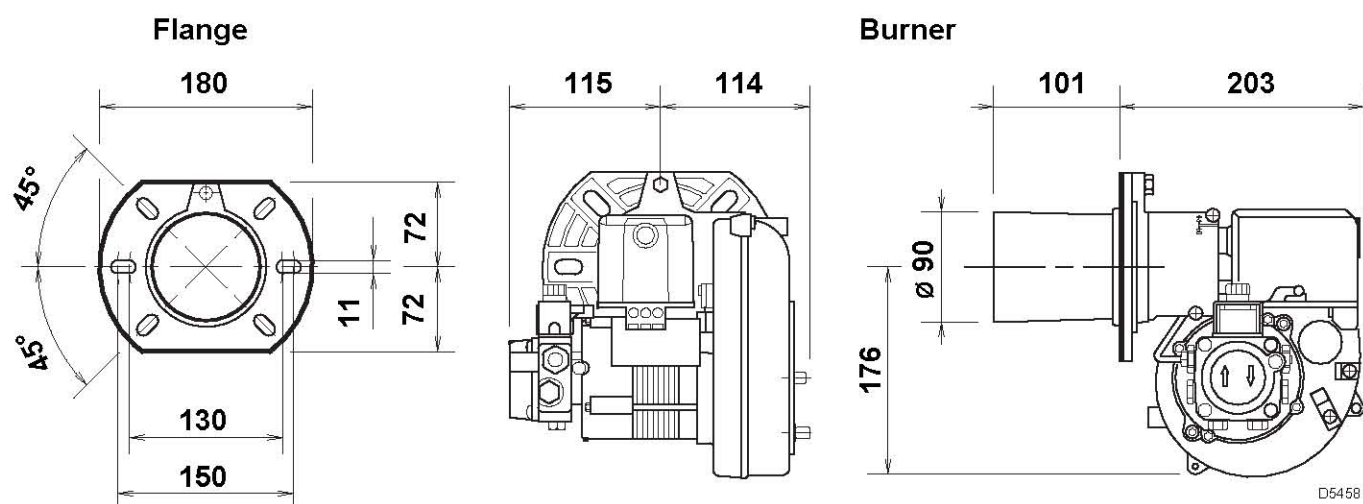
EQUIPMENT

Quantity	Description
1	Flange with insulating gasket
1	Screw of by-pass pump
1	Screw with two nuts for flange
1	Flexible pipe with connector

WORKING RANGE (as EN 267)



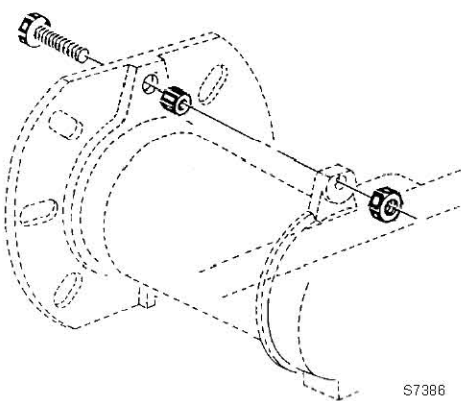
DIMENSIONS



MOUNTING THE BURNER

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

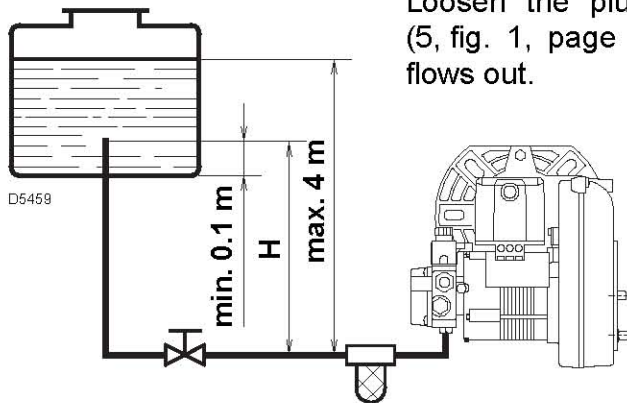
BURNER FIXING



OIL LINES

PRIMING THE PUMP

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

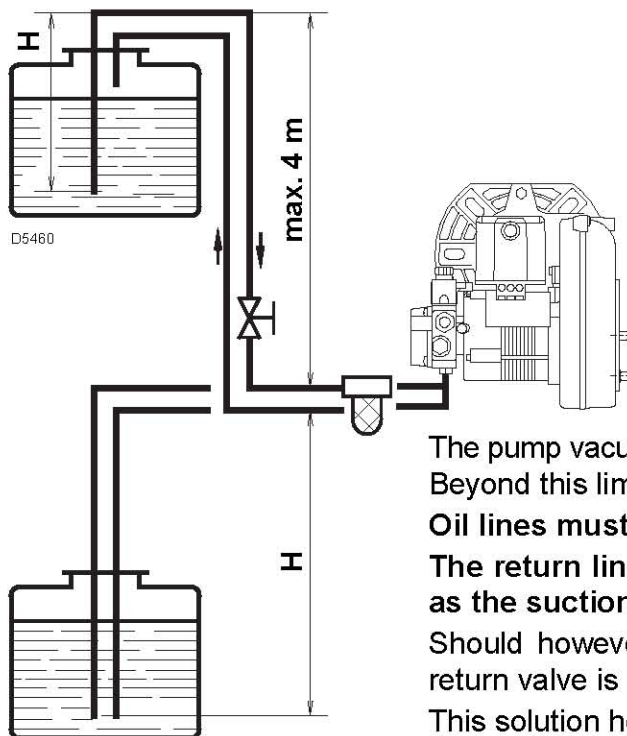


H meters	L meters	
	I. D. 8 mm	I.D. 10 mm
0.5	10	20
1	20	40
1.5	40	80
2	60	100

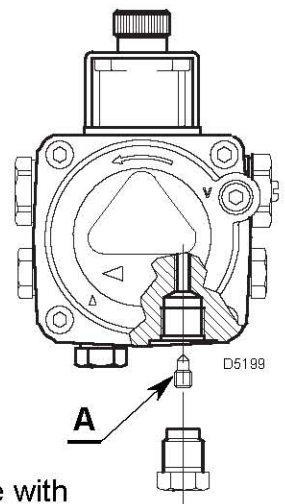
H = Difference of level.

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



WARNING

The pump is supplied for use with a one pipe system. For use on a two pipe system, it is necessary to screw the by-pass screw (A) supplied as burner's accessory. (See figure).

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.

Should however the return line arrives over the fuel level, the non-return valve is indispensable.

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.

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:

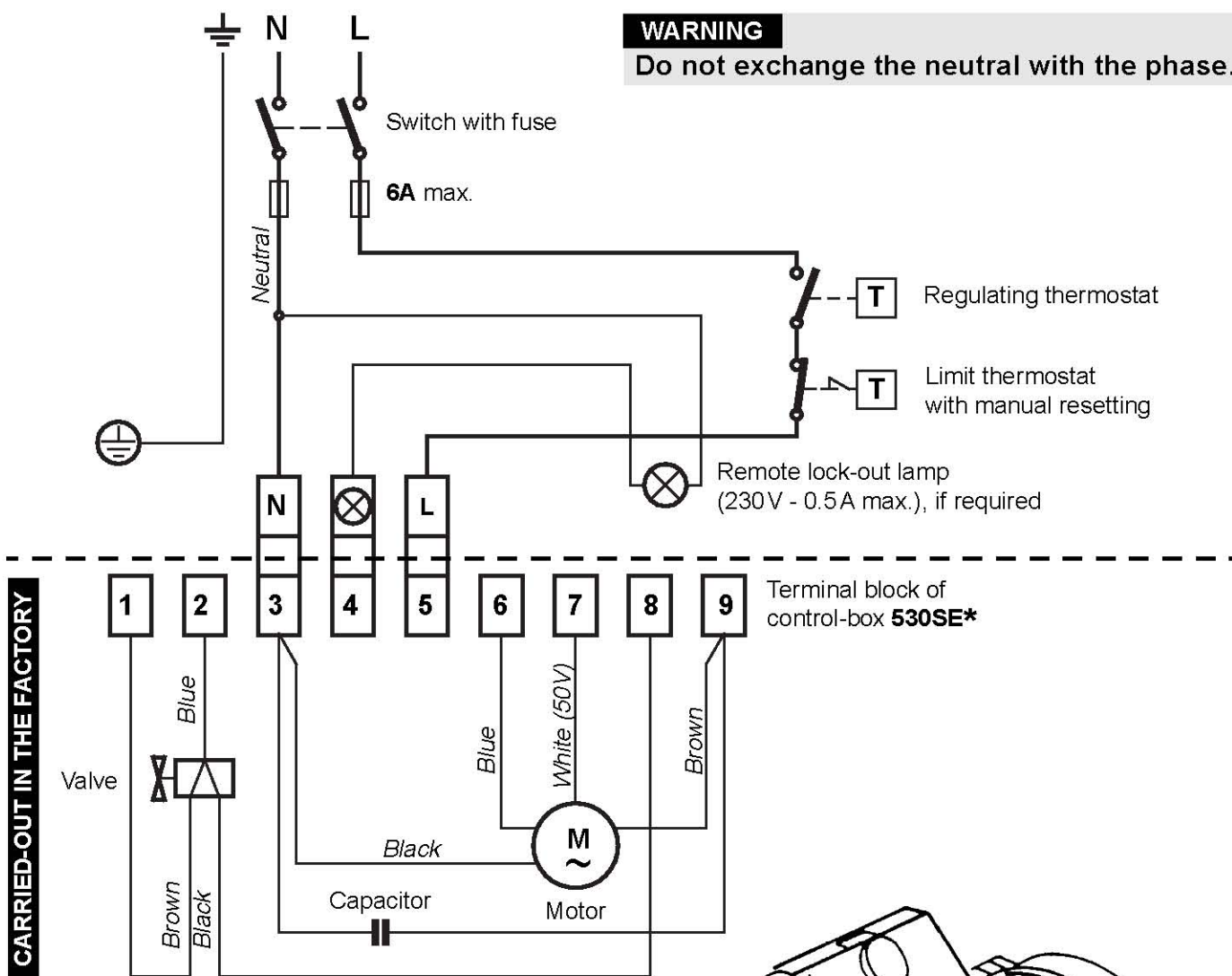
- ◆ Check periodically the flexible pipes conditions. Using kerosene, they have to be replaced at least every 2 years.
- ◆ A metal bowl filter with replaceable micronic filter must be fitted in the oil supply pipe.

BURNER ELECTRICAL WIRING

230V ~ 50Hz

WARNING

Do not exchange the neutral with the phase.

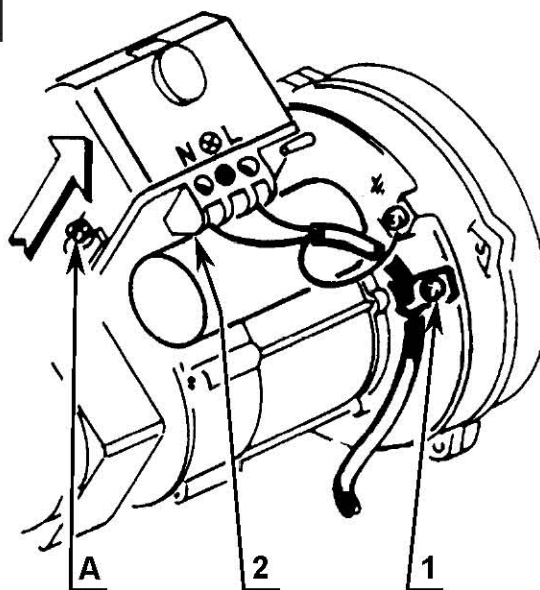


NOTES

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



RUN OF THE ELECTRICAL CABLE

- | | |
|--------------------|------------------|
| 1 - Cable clamp | N - Neutral |
| 2 - Terminal block | L - Phase |
| | ⏏ - Burner-earth |

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 then adjust the pump pressure 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% CO₂ at sea level and with light oil and room temperature of 20 °C.

FUEL GAS OIL				
Nozzle 1		Pump pressure 2	Burner output	Air damper adjustment 3
GPH	Angle	bar	kg/h ± 4%	Set-point
0.40	80°	11	1.50	1.4
0.50	60°	12	2.00	1.7
0.60	60°	12	2.40	2.1
0.65	60°	12	2.60	2.5
0.75	60°	12	3.00	3.0
0.85	60°	12	3.40	3.6

FUEL KEROSENE				
Nozzle 1		Pump pressure 2	Burner output	Air damper adjustment 3
GPH	Angle	bar	kg/h ± 4%	Set-point
0.50	60°	8	1.5	1.4
0.60	60°	8	1.8	1.6
0.65	60°	8	1.9	1.7
0.75	60°	8	2.2	2.0
0.85	60°	8	2.5	2.4
1.00	60°	8	3.0	3.0
1.10	60°	8	3.3	3.6

1 NOZZLES RECOMMENDED:

Monarch type R - NS

Delavan type W - A - E - B

Steinen type Q - H

Danfoss type H - S

Danfoss type ES (only for kerosene)

Angle: 60° – in most cases.

80° – in case of flame detachment, during ignitions at low temperatures.

NOZZLE INSTALLED: Delavan type 0.60 GPH - 80° W.

2 PRESSURE:

8 bar: the pump leaves the factory set at this value, which is suitable only for kerosene.

10 bar: maximum pressure for kerosene.

FOR GAS OIL INCREASE PRESSURE

12 bar: in most cases.

14 bar: improves flame retention; it is therefore suitable for ignitions at low temperatures.

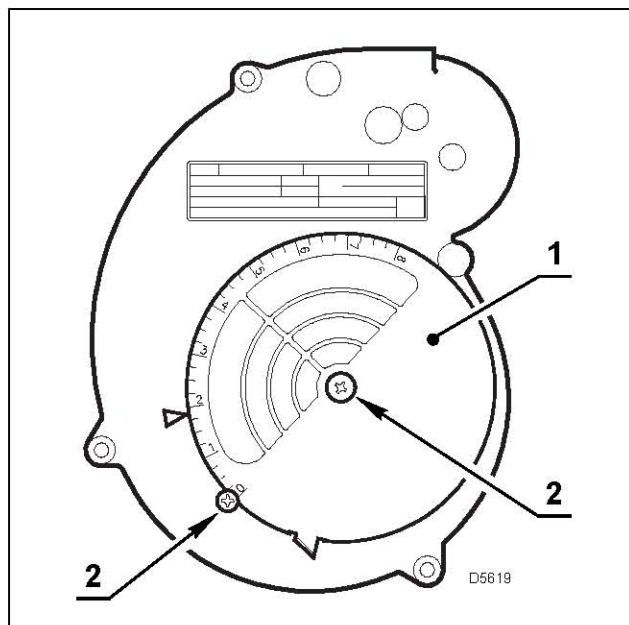
3 AIR DAMPER ADJUSTMENT:

The regulation of the air-rate is made by adjusting the air damper (1), after loosening the screws (2). When the optimal regulation is reached, screw tight the screws (2).

The settings indicated in the schedule 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.

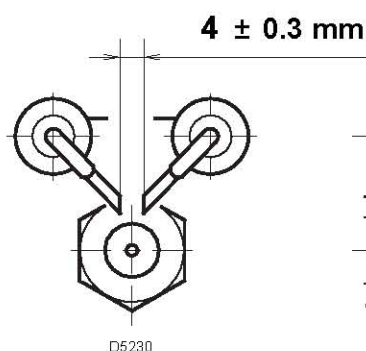
All these conditions may require a different air-damper setting.



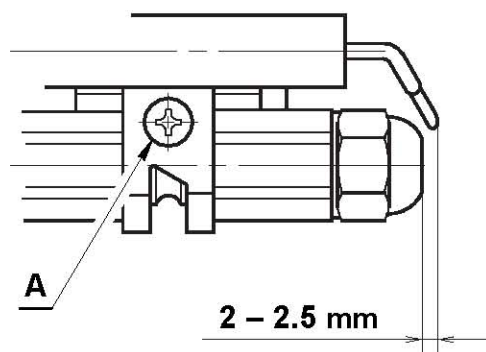
ELECTRODE SETTING

Attention:

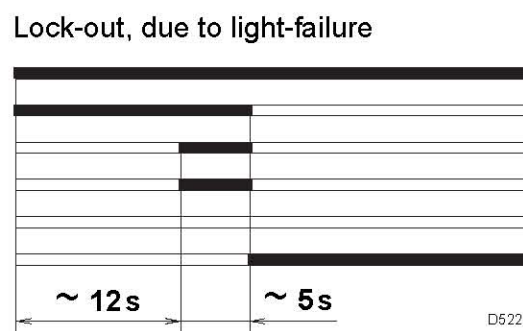
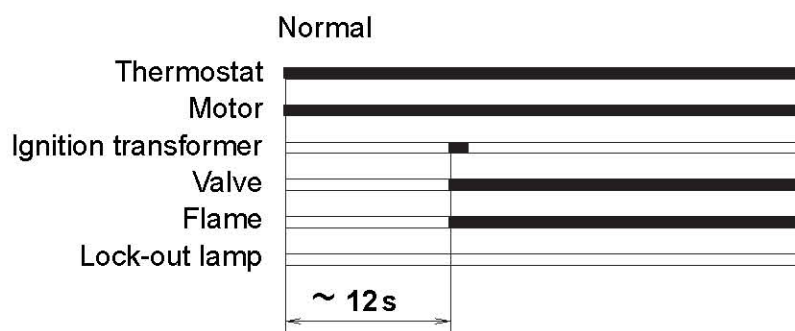
Before assembling or removing the nozzle, loosen the screw (A) and move the electrodes ahead.



**IMPORTANT:
THESE DIMENSIONS
MUST BE OBSERVED**



BURNER START-UP CYCLE



D5229