

5
Start-up, calibration and operation of the burner
5.1 Notes on safety for the first start-up

WARNING

The first start-up of the burner must be carried out by qualified personnel, as indicated in this manual and in compliance with the standards and regulations of the laws in force.


WARNING

Check the correct working of the adjustment, command and safety devices.

5.2 Adjustments before first firing

The following adjustments must be carried out:

- open the manual valves upline of the gas train;
- bleed the air from the gas pipes using the screw on the socket (Fig. 18, page 24).

- Adjust, if present, the min. gas pressure switch to the start of the scale.

5.3 Burner start-up

Proceed as follows:

- close the thermostat and switch on the burner's power;
- open manual gas cocks;
- light signal **"POWER ON"** must be switched on.
- Turn the selector **"OFF/ON"** on position **"ON"**;
- light signal **"CALL FOR HEAT"** must be switched on.

The burner starts up in pre-purging mode at maximum speed.

Subsequently, the START value speed decreases and start-up occurs. If the fan starts up but at the end of the safety time the flame does not appear, burner goes into lockout mode.

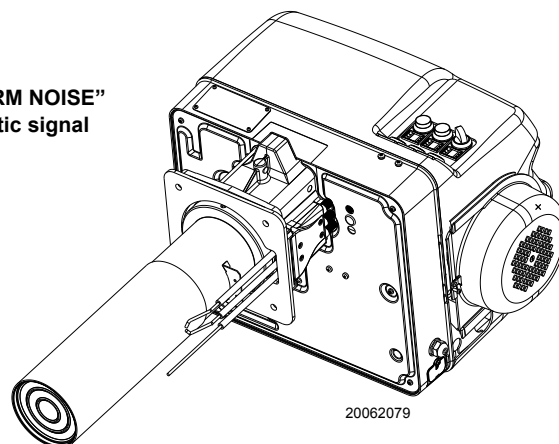
At the gas valve opening, the light signal **"VALVE ON"** must be switched on.

Reset and wait for a new start-up attempt.

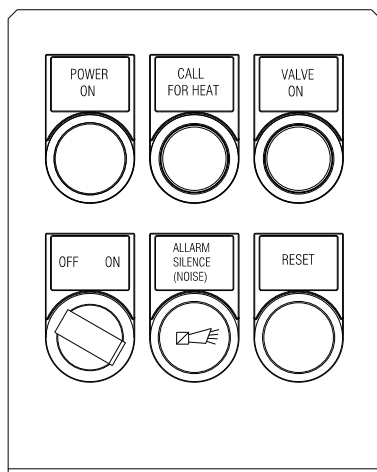
If ignition continues to not occur, it may be the case that the gas is not arriving at the combustion head within the safety time of 3s.

Rotate the screw V1 (Fig. 18, page 24), located on the gas valve mixer, slightly in an anti-clockwise direction. Once the burner has fired, proceed with the global adjustment of the burner.

"ALARM NOISE"
acoustic signal



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Fig. 26


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Fig. 25

Key (Fig. 25)

- **"OFF/ON"** switch
- **"RESET"** signal button
- **"POWER ON"** signal
- **"CALL FOR HEAT"** signal
- **"ALARM NOISE"** acoustic signal
- **"ALARM SILENCE"** button
- **"VALVE ON"** signal

5.4 Fan adjustment

Modulation is based on variable-speed technology.

Combustion air delivery can be adjusted by varying the motor's speed (rpm).

The proportioning gas train delivers the right amount of fuel, depending on the pressure detected in the purging circuit.

Hence the output delivered is adjusted by varying the motor's speed of rotation. The speed of the motor can be adjusted setting the control box.

The adjustments, via the onboard operating panel (Fig. 27), are carried out by means of the positions:

START	determines the ignition position	(P0)
MIN	determines the minimum modulation	(P1)
MAX	determines the maximum modulation	(P2)

5.5 Matching the working points "Speeds for low-fire (P1), ignition load (P0) and high-fire (P2) for the heating engineer to the application

- Mains voltage is available
- Safety loop is closed
- There is no heat request, unit is in standby (OFF)

Proceed as follows (Fig. 27):

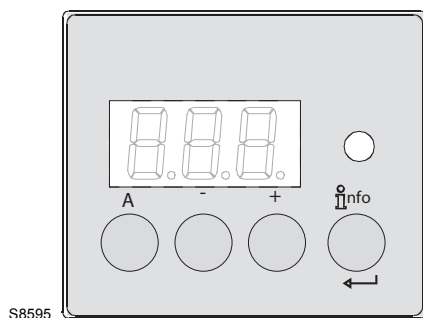


Fig. 27

- keep the button **A** and **+** or **-** simultaneously depressed for > 5 seconds;
- display shows **OFF** blinking.



CAUTION

If there is no operating action for >30 seconds, the LME7... changes automatically to standard mode. This means that adaptation of the working points must be started again.

- Heat request (temperature controller) ON.
- Basic unit is started and runs through the startup phase. Then, the unit runs through the respective program phases in accordance with the program sequence; the numbers appear blinking.
- The unit proceeds to the end of the prepurge phase (P30), goes to the start load position and then displays **P0** (ignition load speed). In the process, the display shows alternately **P0** and a 3-digit number.

NOTE:

The 3-digit number shows the setting value for parameter **P0/P1** or **P2** as the speed and must be multiplied by 10.

- By pressing **A** and **+** or **-** the speed can be changed in step sizes of 10 rpm within the limits predefined by the OEM (**P0max**, **P0min**).

NOTE:

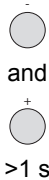
the setting value of P0 must be greater than the setting value of P1. The basic unit checks the setting values. If setting rules are violated, the unit goes to lockout and displays error message Loc: 225.

- Press **info** to transfer the setting value to the onboard memory.
- The startup phase proceeds. The burner is ignited. The program proceeds to lowfire position **P1**. In the process, the display shows alternately **P1** and the speed.
- By pressing **A** and **+** or **-** the speed can be changed in step sizes of 10 rpm within the limits predefined by the OEM (P1max, P1min).
- Press **info** to transfer the setting value to the onboard memory.
- The burner proceeds to high-fire position **P2**. In the process, the display shows alternately **P2** and the speed.
- By pressing **A** and **+** or **-** the speed can be changed in step sizes of 10 rpm within the limits predefined by the OEM (P2max, P2min).
- Press **info/reset** to transfer the setting value to the onboard memory.
- By pressing ESC (press **+** or **-** simultaneously) the setting process is ended and the burner changes to the operating position.
- In the operating position, the output predefined by the external load controller applies.

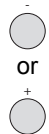
NOTE:

To store the settings in the PME... program module, a manual backup is required.

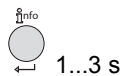
Manual backup



Press and simultaneously for >1 second (Escape) to start a manual backup process.
Parameter **PrC** appears.
Display: **PrC**



Press or for parameter **bAC**.
Display: **bAC**



Run appears during download (backup process) of the program sequence.



Alternately



Display shows alternately **End** and **bAC**.
Display shows the end of data exchange.



Display appears for 2 minutes or can be finished by pressing



When the backup process is completed, the display shows **OFF**.



Press for >1 second to reset the unit.
Display: **OFF**

Tab. O



If any parameters are changed, a backup must be made!

5.6 Burner shut down

Switch off power supply. If burner is switched off for extended periods, close manual gas cocks.



A vent shut off system shall be applied to a barometric damper installed in the venting system at the time of conversion of the appliance.

This will electrically disconnect the burner should there be a blockage in the vent (chimney).

The installer must identify the main electrical power switch and manual gas shut off valve, for emergency conditions. The burner cover must be in place and secured before the burner is placed in operation.

5.7 Gas valve adjustment

The adjustment of the output of gas is achieved by using the two screws V1 and V2.

To alter the maximum output of gas use screw V1:

- to increase the output: turn the screw anticlockwise (unscrew);
- to reduce the output: turn the screw clockwise (tighten).

To alter the minimum output of gas act on the screw V2 on the gas valve.

Remove the protection screw and act on the intern screws with a hex key:

- to increase the output: turn the screw clockwise (tighten);
- to reduce the output: turn the screw anticlockwise (unscrew).

5.8 Burner adjustment

The optimum adjustment of the burner requires an analysis of flue gases at the generator outlet. In conformity with the US and Canadian requirements, the burner application at the generator, the adjustment and the testing must be carried out in compliance with the instruction manual of the generator itself, including the control of the CO and CO₂ concentration in the flue gases and of their temperature (See Tab. F at page 12).

Check in sequence:

- max output
- min output
- ignition output

MAX output should match the value required by the boiler that is used. To increase or decrease its value, adjust the trimmer MAX located on the control box. Measure the gas delivery on the meter to precisely establish the burnt output.

Using a combustion analyser, measure the value of the CO₂ or the O₂ in order to optimise the burner calibration.

The correct values are: CO₂ 8.2 - 9%.

To correct these values act on the gas valve in the following way:

- to increase the gas delivery and the CO₂: turn the screw V1 anticlockwise (unscrew);
- to reduce the gas delivery and the CO₂: turn the screw V1 clockwise (tighten).

MIN output should match the value required by the boiler that is used. To increase or decrease its value, adjust the trimmer MIN located on the control box.

Measure the gas delivery on the meter to precisely establish the burnt output.

Using a combustion analyser, measure the value of the CO₂ or the O₂ in order to optimise the burner calibration.

The correct values are: CO₂ 7.8 - 8.5%.

To correct these values act on the gas valve in the following way:

- to increase the gas delivery and the CO₂: turn the screw V2 clockwise (tighten);

- to reduce the gas delivery and the CO₂: turn the screw V2 anticlockwise (unscrew).

5.8.1 Optimum calibration values

	MIN output		MAX output	
	CO ₂ (%)	O ₂ (%)	CO ₂ (%)	O ₂ (%)
Methane	8	6.6	8.5	5.7
LPG	9.5	6.4	10	5.6

Tab. P

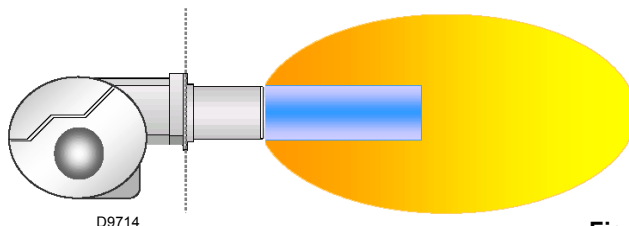


Fig. 28

5.9 Check of modulating operation

The burner leaves the factory set to 0-10 V signal for the modulating operation.

5.9.1 Display of preset output

Display is possible only when:

- in operating mode or standby,
- program sequence for modulating operation via analog preset output.





Press  for display of the relative current position of the actuator.

Signal lamp blinks green.

Display shows **.oP**.



1..3 s



Press  (1...3 seconds) for display of the relative current position.

Signal lamp blinks green.

The **relative** value **.57** of the current position is displayed.

Example: value **.57**

PME7... with PWM fan:

Current speed 0 rpm = 0% display

Current speed corresponds to the rated load speed = 100% display



> 3 s



When pressing  for >3 seconds, the point after the number begins to blink. When the button is released, the value is displayed for 2 minutes.

Signal lamp blinks green.

Then, the normal display appears.

Display: value **57**, point **.** blinks

Tab. Q

5.9.2 Load controller inputs

Selection source preset output analog/3-position step input (P654)

The following input signals can be selected and handled via parameter P654.

- 3-position step input (feedback potentiometer ASZxx.3x required/depending on the program sequence)
- 0...10 V
- 0...135 Ω
- 0...20 mA
- 4...20 mA with lockout at I < 4 mA (AZL2...: Loc: 60)
- 4...20 mA