Operating, Installation and Maintenance

Manual for AtmoGas AG55 - AG118 boilers.

Hoval

July 2002

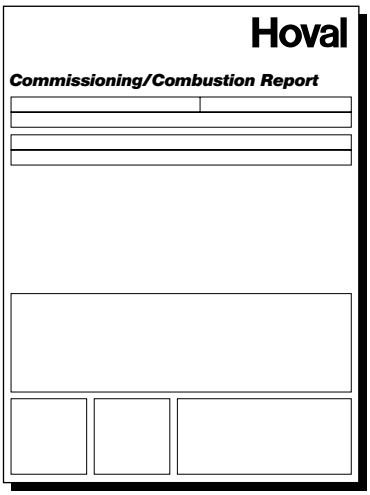
Contents

Introduction

These instructions have been written to give a brief description of the **Hoval AtmoGas AG** boilers, their installation, commissioning, operation and subsequent maintenance.

The installation of boilers and their ancillary equipment is normally carried out by a Corgi/ACOPS registered Heating Engineer, and for the purpose of this manual he is regarded as the installer, and as such it is his responsibility to ensure that he has read and understood the contents of this manual before installing the boiler.

It is essential that each boiler has all services connected to it before commissioning is requested.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Commissioning/Combustion Report

The installation should be in accordance with current I.E.E. Regulations, relevant British Standard and Codes of Practice, Building Regulations and Local Authority Bylaws.

Commissioning should be arranged via the heating engineer. Hoval engineers are available to carry out this work if requested. In this case the boiler combustion figures are recorded on the Hoval Commissioning Report and a copy of this will be issued for retention with this manual (example opposite). In any case, commissioning should only be carried out by qualified gas engineers.

A note should be entered below by the person responsible for the plant, giving the boiler model, output and reference 'K' number, as indicated on the nameplate.

For completion by Boiler Attendant

Boiler Model : _____

Gas : _____

Output (kW) : _____

Commissioning Date : _____

Serial. No. : _____

For technical, servicing or parts enquiries, telephone fax or e-mail to Hoval quoting the boiler(s) serial number, as above

Tel : 01636 672711
Fax : 01636 673532
e-mail : service@hoval.co.uk

1. General

AtmoGas AG boilers are cast-iron boilers with a two stages atmospheric gas burner and automatic ignition via an ignition burner. They are designed for use with a hot-water central heating system, and have an output rating of 54 - 117 kW. They need to be connected to a suitable chimney.

AtmoGas AG boilers are supplied with a standard control panel.

1.1 Technical specifications

The operating specifications given in this instructions manual have been set up on the base of the laboratory-determined values, in compliance with European standards:

• **EC**: the boilers comply with the following directives
- 90/336 EEC Gas-fueled Appliances and are tested according to the standard EN 297 and EN 656
- 73/23 EEC Low Voltage Directive
  Relevant standard: EN 60.335.1
- 89.366 EEC Electromagnetic Compatibility Directive
- Relevant standards: EN 50.081.1 / EN 50.082.1 / EN 55.014
- 92/42 EEC Efficiency Directive

EC no. : CE 0085 AU 0115

EN 297, type B_{11BS} : AG55 to AG71
EN 676, type B_{11} : AG82 to AG118

Country of destination	GB	
Class	II 2H3P	
Type of gas	G20	G31
Distribution pressure (mbar)	20	37

The boilers may be used with natural gas (G20) and with propane (G31). To switch to propane, carry out the operations described in chapter 4.

! All models are supplied preset for operation with natural gas.

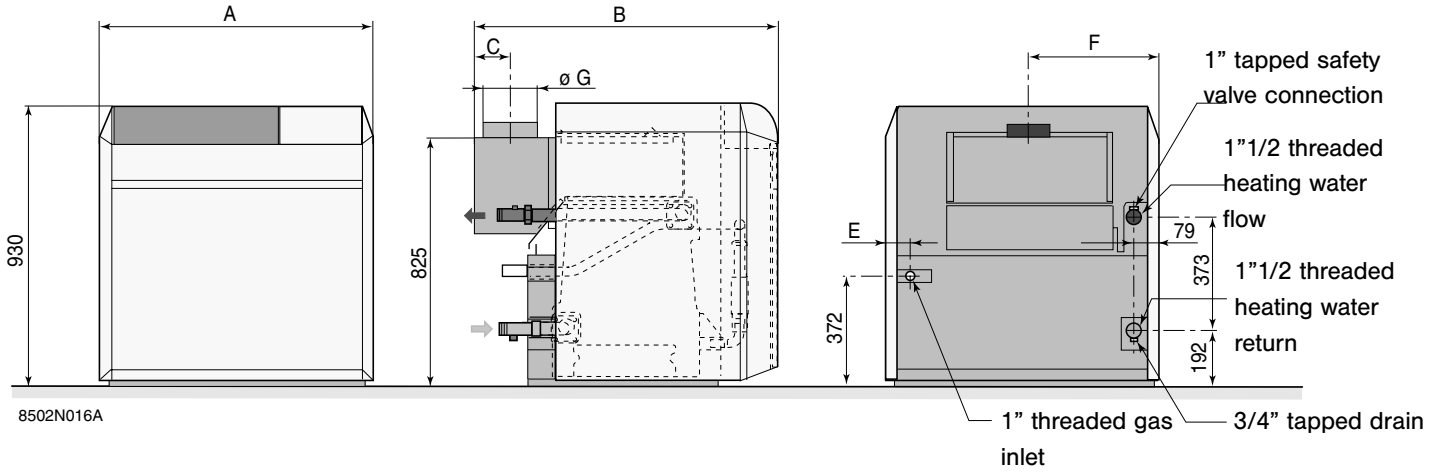
Type of boiler			AG 55	AG 64	AG 71	AG 82	AG 91	AG 100	AG 109	AG 118
Output power	2nd stage	kW	54	63	72	81	90	99	108	117
	1st stage	kW	27	36	36	45	45	54	54	54
Input power	2nd stage	kW	59.1	68.9	78.7	88.4	98.1	107.8	117.5	127.2
	1st stage	kW	29.6	39.4	39.4	49.1	49.1	58.8	58.8	58.8
Number of sections			7	8	9	10	11	12	13	14
Mass flue gas flow rate (as per DIN)	2nd stage	kg/s	119	138	163	177	197	216	235	255
	1st stage	kg/s	119	140	125	166	166	199	199	199
Flue gas temperature (1) Boiler temp. 80°C		°C	135	135	135	135	135	135	135	135
CO2 (natural gas) (1)		%	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Ionisation current		µA	3	3	3	3	3	3	3	3
Required flue nozzle draught (1)		daPa	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Minimum water flow temperature		°C	30	30	30	30	30	30	30	30
Maximum water flow temperature		°C	90	90	90	90	90	90	90	90
Maximum operating pressure		bar	6	6	6	6	6	6	6	6
Electrical connection		V / Hz	230 / 50	230 / 50	230 / 50	230 / 50	230 / 50	230 / 50	230 / 50	230 / 50
Electrical power (2)		W	19	19	19	19	19	19	19	19
Gas connection 20 mbar		Inch	1”	1”	1”	1”	1”	1” 1/4	1” 1/4	1” 1/4
Heating connections		Inch	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2
Diameter of flue connection		mm	180	180	180	200	200	200	220	220
Water content		litres	29	32.6	36.2	39.8	43.4	47	50.6	54.2
Hydraulic resistance (1)	at Δ T = 11 K	mbar	19	40	83	97	138	186	223	275
	at Δ T = 15 K	mbar	10	25	43	53	71	96	115	142
	at Δ T = 20 K	mbar	5.5	14	24	30	40	54	65	80
Water flow (2nd stage) (3) (4)	at Δ T = 11 K	m^3/h	4.2	4.9	5.6	6.3	7.0	7.7	8.4	9.1
	at Δ T = 20 K	m^3/h	2.3	2.7	3.1	3.5	3.9	4.3	4.6	5.0
	minimum	m^3/h	1.03	1.20	1.38	1.55	1.72	1.89	2.06	2.24
Net weight without water		kg	314	349	384	408	441	464	500	522

(1) In 2nd stage
At the factory-set power
(2) Electrical output of the boiler **alone** with no accessories
(3) A pump overrun of 5 minutes is recommended on boiler shutdown
(4) The stated minimum water flow rate must be met at all times

• Operating conditions

- Maximum safety temperatures: 110°C
- Maximum operating pressure: 6 bar
- Thermostat adjustable from 30 to 90°C
- Safety thermostat: 100°C

1.2 Main dimensions



	No of sections	A	B	C	E	F	øG int.
AG 55	7	863	952	102	75	452	180
AG 64	8	946	952	102	75	494	180
AG 71	9	1113	1007	124	159	536	180
AG 82	10	1113	1007	124	75	578	200
AG 91	11	1280	1007	124	159	619	200
AG 100	12	1280	1007	124	75	661	200
AG 109	13	1447	1007	124	159	703	220
AG 118	14	1447	1007	124	75	745	220

Important

The installer should fit a safety valve on the flow pipework before the flow connection isolation valve.
As well as the safety valve the installer should provide:
• for a pressurised system - an automatic air vent
• for an open vented system - a vent from the flow line.

2. Installing and connecting the boiler

2.1 Boiler location

- The figures indicate the minimum recommended dimensions for providing easy access around the boiler.

- Leave clearance equal to dimensions **a** and **b** for assembly tools (simplified JD tools, or JD-TE Plus tools) :
  if a = 500 mm ; b = 1400 mm
  if a = 1400 mm ; b = 500 mm

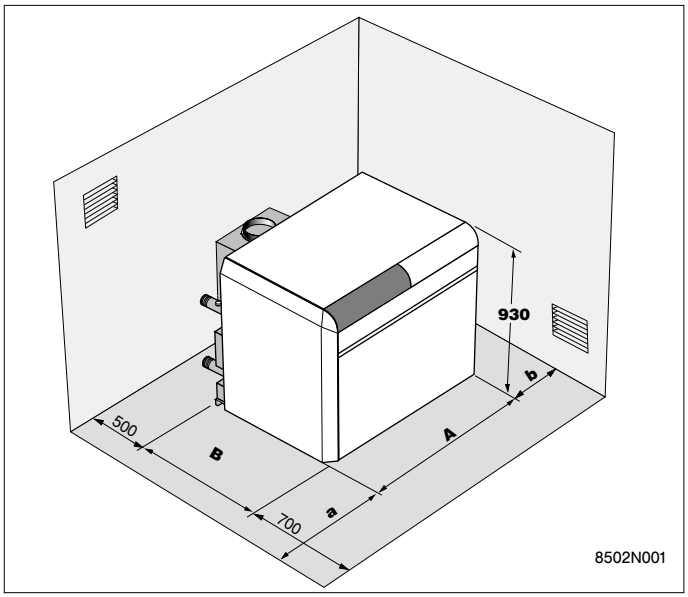
The boiler should be positioned on a fireproof base which is level and flat.

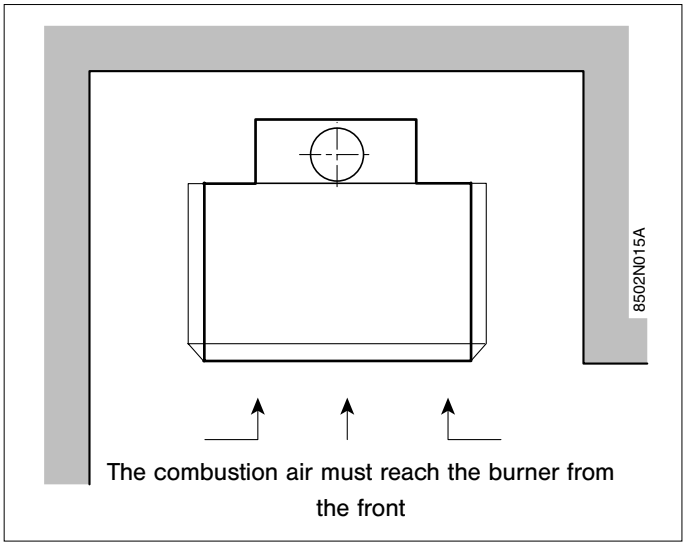
Remark : Please note that boilers installed in or close to rooms in which the atmosphere is polluted with chlorine or fluorine compounds may be subject to high corrosion.

For example : hairdressing salons, industrial premises (solvents), cooling equipment, etc.

Boilers installed in such locations shall not be covered by the guarantee.

Boiler dimensions in mm.





The combustion air must reach the burner from the front

AtmoGas AG		55	64	71	82
A	mm	863	946	1113	1113
B	mm	952	952	1007	1007

AtmoGas AG		91	100	109	118
A	mm	1280	1280	1447	1447
B	mm	1007	1007	1007	1007

• Boilerhouse Ventilation (models AG55 and AG64)

Detailed recommendations for ventilation requirements are given in BS5440-2.

• Boilerhouse Ventilation (models AG71 to AG118)

Detailed recommendations for air supply are given in BS6644.

The permanent ventilation of the boilerhouse (not including doors and windows which may be closed) is essential.

Boilerhouse ventilation serves two essential purposes. One is to permit combustion air to flow freely to the burners from outside the building and the second is to maintain a clean atmosphere within the boilerhouse at a reasonable temperature level.

Heat released from the boiler, the piping and the flue should not increase the boilerhouse temperature above 30°C.

Air Inlet requirements

It is essential that fixed air openings are provided at high and low level adjacent to the boiler front. Free inlet area of louvres required for ventilation and combustion air should not be less than 1200 mm^2/kW rating (1 m^2 per 800kW boiler rating). The inlet opening should be at low level with a further ventilation opening of half that area at high level.

Air inlets and ventilation outlets are best disposed at low level and high level respectively, so that air convection across the boilers will create the necessary air changes. Preferably the high level opening should not be too close to the low level opening that short circuiting of air, without ventilation across the boilers, can occur. Where louvres are utilised in the boilerhouse door, louvres over the full door height are satisfactory.

For boilerhouses below ground level, arrangements should be made to ìnduce fresh air into the boilerhouse where a natural flow of air is restricted by the buoyancy of air leaving higher level openings.

Any mechanical means of entering air into a basement boilerhouse should have a balancing outlet so that the air pressure in the boilerhouse does not exceed 0.05'' W.C. (12.5 Pa).

The air supply requirements stated above are based upon the rated output of the boiler(s).

Air supply by Mechanical Ventilation

The supply of air into a space housing the boiler by mechanical means should be mechanical inlet with natural or mechanical extraction. Mechanical extract ventilation with natural inlet must not be used.

Where a mechanical inlet and mechanical extract system is applied the design extraction rate should not exceed one third of the design inlet rate.

The requirements for air supply by mechanical ventilation are given in BS6644.

Note: For mechanical ventilation systems an automatic control should be provided to cut off the gas supply to the boiler(s) in the event of failure of air flow in either inlet or extract fans.

Draught diverter thermostat

A pre-set draught diverter thermostat is fitted as standard on AtmoGas AG 55, 64 and 71 boilers.

The purpose of the thermostat is to shutdown the boiler(s) in the event of combustion products spillage.

Boilers models AG 82 to 118 are not fitted with a draught diverter thermostat and are intended for installation in a room separated from living rooms and provided with appropriate ventilation directy to the outside.

Open Vented/Pressurised Systems

Open Vented Systems

A primary make up water and expansion tank is required for open vented systems. No special connection is provided at the boiler but it is recommended that the feed is connected into the heating return near the boiler.

The vent pipework should be taken above the primary make up and expansion tank.

The vent and safety valve connections should be made on the flow pipe close to the boiler before any other connections or valves are fitted.

Pressurised Systems

For independently pressurised systems a safety valve(s) should be provided and a connection for a test cock to check that water has filled the boiler.

The test cock should have a half circle copper pipe fitted to prevent water reaching the operator. When a pressurised system has been drained for repair etc, it is essential that the water level is checked (in each boiler in a multi-boiler system) to confirm that each one is full. This is essential as some systems, which are generally on a level below that of the boiler, may suffer from an air lock on refilling.

With a pressurised system, loss of water/loss of pressure is monitored by a pressure switch supplied by the heating engineer and fitted at the boiler. This should be interlocked with the boilers control circuit to close the burner down if a fault occurs. Loss of pressure can allow boiling to occur in the higher levels of the system.

Water Treatment

There is basic need to treat water contained in all heating and indirect hot water systems, particularly open vented systems.

One millimetre of lime reduces the heat conversion from flame via metal to water by 10 %.

In practice the deposition of these salts is liable to cause noises from the boiler body or even premature boiler failure.

Corrosion and the formation of black iron oxide sludge will ultimately result in premature radiator failure.

Open vented systems are not completely sealed off from the atmosphere as it is essential to provide a tank open to atmosphere if proper venting and expansion of system water is to be achieved. The same tank is used to fill the water and it is through the cold feed pipe that system water expands into the tank when the boiler passes heat into the system.

Conversely when the system cools, water previously expanded is drawn back from the tank into the system together with a quantity of dissolved oxygen.

Even if leakage from the heating and hot water systems is eliminated there will be evaporation losses from the surface of the tank which, depending on ambient temperature, may be high enough to evaporate a large portion of the system water capacity over a full heating session.

There will always be corrosion within a heating hot water system to a greater or lesser degree irrespective of water characteristics unless the initial fill water from the mains is treated. Even the water in closed systems will promote corrosion unless treated.

For these reasons, Hoval recommend strongly that when necessary the system be thoroughly cleaned prior to use of a stable inhibitor, which does not require continual topping up to combat the effects of hardness salts and corrosion on the heat exchangers of Hoval AtmoGas AG boilers together with their associated systems.

Hoval advise contact directly with major specialists on water treatment such as Grace Dearborn or Houseman.

2.2 Gas connections

Gas connections shall be in compliance with applicable regulations and standards.
In all events, a shut-off valve shall be located as close to the boiler as possible.

Class	II 2H3P	
Gas type	G20	G31
Distribution pressure (mbar)	20	37

2.3 Flues and Chimneys (models AG 71 to 118)

! Guidance for sizing flues and chimneys is given in CIBSE and HVCA guides and also Hoval Technical Data Sheets.

General Guidelines

- Individual chimneys and flues should be used whenever possible for multi-boiler plants so that combustion conditions are not disturbed by the operation of other boilers.
- Use of short runs of flues and with the minimum of large radius bends without horizontal runs before entering the main chimney at 45° are recommended and will cause the least resistance.
- Flues should not be less in diameter than the boiler outlet connection size.
- In deciding the flue run, the chimney height buoyancy should provide a negative pressure condition at the boiler flue outlet.

- If two flues must enter into one common stack they should be positioned to cause the least disturbance to the other gas stream (i.e. not opposite to each other).

- Where flues from two or more boilers join the header the gas streams should be flowing in the same direction at the point of intersection with the header.

- Header cross sectional areas should take account of the quantity of gas flowing at each intersection. Allow for condensation points in chimney and flue. Condensation should be drained at the base of the vertical run. Horizontal runs should drain away from the boiler.

- Steps should be taken in designing to prevent or minimise condensation forming by using double skin and/or insulated flue systems and suitably insulated brick stack or double skin steel chimney. This helps prevent condensation.

- There should be a removable flue section above the down draught diverter to allow for diverter removal.

- Chimney outlets should not be restrictive and low loss terminals should be used.

- Flues should be supported independently to prevent undue weight and forces due to expansion being transmitted to the boiler outlet connection.

- Adequate doors should be provided in flues and chimneys for cleaning and inspection purposes. Square tees must not be used for creating a drain point at a flue change of direction as this creates difficulties in firing the burner.

- Specialist flues are available for difficult situations suchs as a low level flue adjacent to a tall building. In this case a vertical balanced flue can be helpful. Refer to Hoval for further details.

Chimney sizes and height will need to take into account the following :

1. Clean Air Act.

2. Local Regulations.

3. Environmental Protection Act 1990.

4. Considerations to adjacent buildings.

5. Flue gases discharged to the atmosphere which contribute to health dangers should be minimised by maintaining the burner and boiler to ensure correct combustion and high efficiency to reduce running time to a minimum and to maintain low levels of CO_2 (Greenhouse effect) ; CO and NOx (dangerous gases). Current regulations for NOx limits (1993) are maximum 260 mg/kWh (148 p.p.m at 0% 0_2). Burners supplied with Hoval boilers fully meet this requirement.

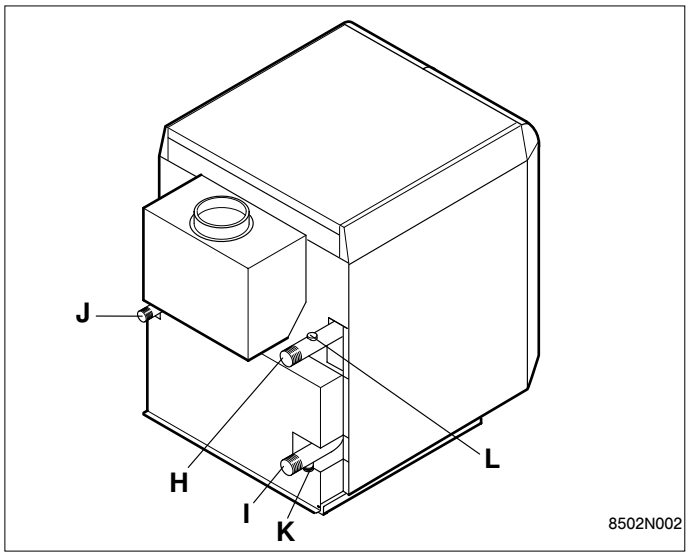
6. When an AtmoGas AG boiler is required to operate at a low return temperature, say 40°C, then the flue gas temperature will be low and the flue materials should be watertight and insulated accordingly, with drainage away from the boiler.

Note:
For models AG 55 and AG 64 please refer to BS5440-1 for the flue requirements.

2.4 Hydraulic connections

When the boiler is connected to an existing central heating system, the entire system must be flushed thoroughly in order to ensure that no sludge is introduced into the heating element of the boiler. The use of a sludge trap (strainer) on the boiler return is also recommended.

H 1"1/2 threaded water flow
I 1"1/2 threaded water return
J 1" threaded gas inlet
K 3/4" tapped drain
L 1"1/2 threaded auxiliary flow or connection for the safety valve



2.5 Filling the system

Recommendation
It is recommended that each system should be filled or refilled with treated water and specialist firms will be able to advise in this respect.

Check the following :

- all connections are made and tightened
- instrument pockets are fitted and water tight
- spare sockets are fitted with plugs and are water tight
- all valves in the heating circuit are open
- mixing or diverting valves are opened half way, then gradually fill with water until the altitude gauge (if fitted) indicates the correct head and the header tank is filled to appropriate level
- the installation is completely vented
- if a pressurisation unit is installed reference should be made to the makers filling instructions and applied
- installation debris and any deposits from the system are not allowed into the boiler
- the boiler is flushed out through the drain connection to ensure that the boiler is clean inside
- a large strainer is fitted to older systems to remove deposits before the return enters the boiler.

Important
The complete filling and draining down of the heating circuit must be carried out by the Heating Engineer prior to commissioning. Hoval will commission if requested.

2.6 Water flow & return temperatures

Consideration will already have been given to the system flow and return temperatures but please note :

1. The flow temperature can be adjusted to within the limit of 90°C given previously on page 4.

2. The return temperatures should be controlled to be not less than 30°C. For lower V.T. circuits a diverting valve should be used.

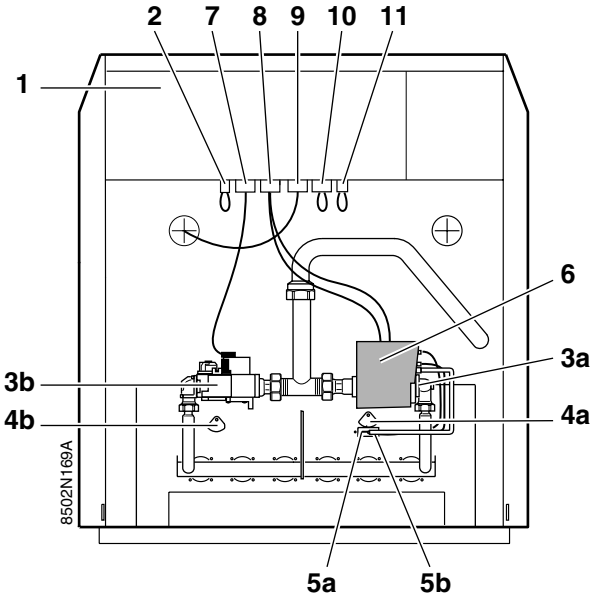
3. Differentials between the flow and return should not exceed 45K.

Danger of Frost

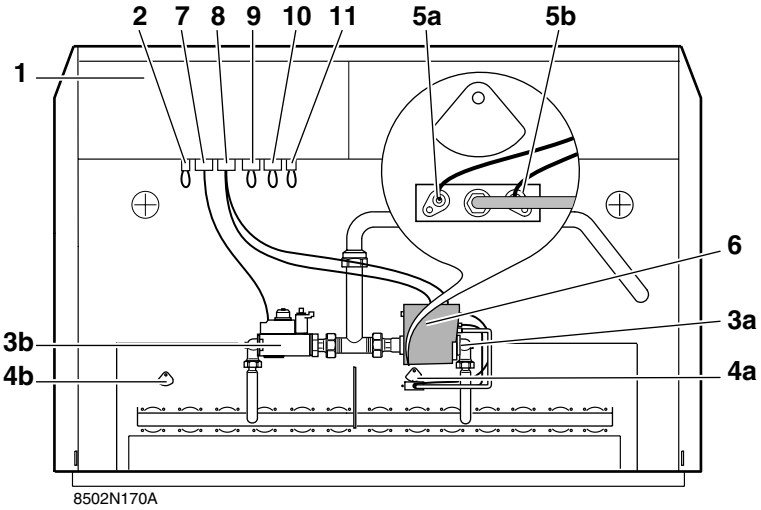
If the heating process is stopped for a relatively long period of time in winter, the entire heating system including the boiler must be emptied completely. While doing so, the discharge valve should be checked for dirt. The discharge valve at the boiler should remain open until the system is refilled.

3. Description and operation

AG 55 to AG 109
(7 to 13 sections)



AG 118
(14 sections)



1. **Boiler control panel** (description and operation: refer to the instructions supplied with the control panel).

2. **Connection for a minimum gas pressure switch: not used**

3. **Gas valve:**

3a: 1st stage gas valve; type VK4100C1026

3b: 2nd stage gas valve; type VK4105C1066 for AG 55 to AG 109 models and type VR4605CB1033 for AG 118 model.
The ignition of the main burner is progressive. Page 13 shows a cross-section view of the gas valve.

4. **Flame sighting device**

4a: 1st stage flame sighting device

4b: 2nd stage flame sighting device

5. **Complete ignition burner:**

5a: Ignition electrode:
ensures the ignition of the burner with spark

5b: Ionisation probe
checks the presence of the flame by means of the ionisation current.
(Supply voltage approximately 110 V)

6. **Safety control box**: performs and monitors the burner ignition, operation and switch-off sequences.

- Type Honeywell S 4565BF1161 (see the operating cycle on page 12).

Note: after resetting (button 12 page 19) the safety control box remains ready for use for around one minute.

7. **2nd stage burner connector**

8. **Safety control box and 1st stage burner connector**

9. **Draught diverter thermostat connector** in range for AG 55 to AG 71 models and optional for AG 82 to AG 118 models (package GC 22).

10. **Flue damper connector (not used)**

11. **Gas valve proving system kit connector** (optional, package CY 41)

Operation of the boiler fitted with the Honeywell S4565 BF 1161 safety control box:

Operating principe:
The burner monitoring and ignition sequences are handled by the safety control box.

Behaviour in normal conditions:
In the event of a request for heat, the boiler thermostat **TCH1** makes the connection.
The ignition transformer **TA**, integrated into the safety control box, and the gas valve safety device (supplying the pilot light) are switched on.
The gas emanating from the pilot light is lit by the ignition electrode and in the interval of time **ts** a minimum current of 0.9μA appears on the ionisation probe **SF** and the gas valve regulator device (supplying the main burner 1st stage) opens. If, in addition, **TCH2** is requested, the 2nd stage valve **VP2** opens.

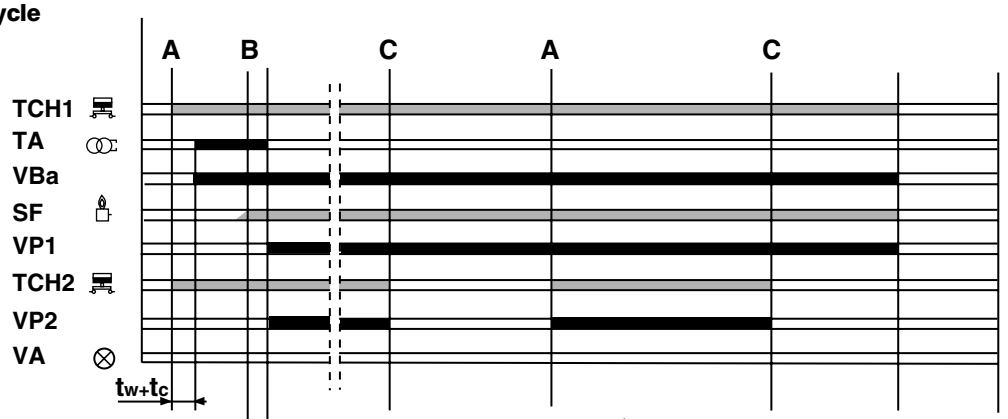
Behaviour in abnormal conditions:
- If the flame is not detected before the end of the safety period ts, the box is made safe and the safety light (item **12**, page 19) lights up.
To restart the boiler, press the reset button on the safety control box (item **12**, page 19).
- If there is no flame in normal operation, the box automatically repeats the starting sequence.
- If the flame is present prior to starting, the box remains in the ready for use position.

Resetting:
To reset, press the reset button (item 12, page 19). If the first reset produces no result, **wait at least 15 seconds** before carrying out a second. After operating the reset button, the alarm warning light goes out and the box restarts after **a waiting time of around 1 minute**.

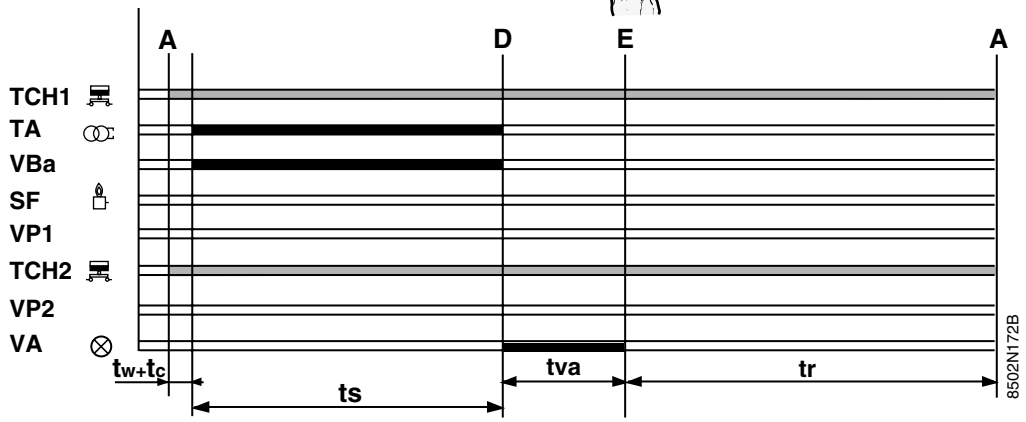
Note 1:
When starting it for the first time, the box may be in the safety position: press the reset button (item 12, page 19) to free it.

Note 2:
If the reset button is pressed during normal operation, the gas valves close and the box restarts a new ignition sequence.

Normal operating cycle

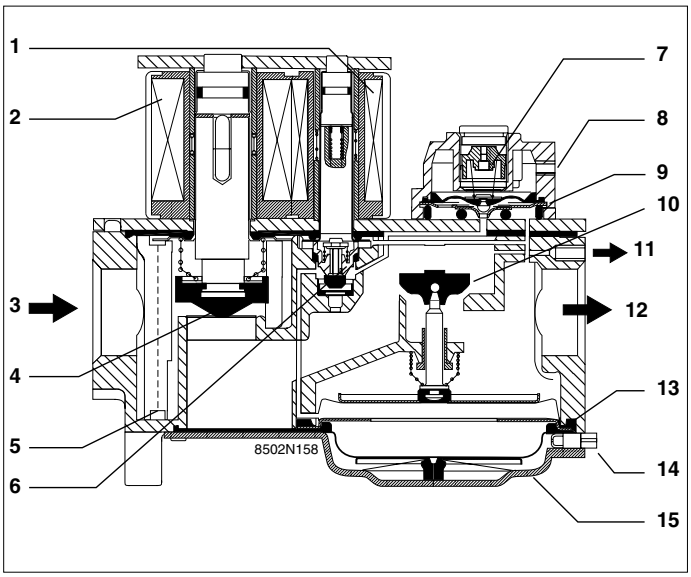


Operating cycle with safety device (start with flame signal)



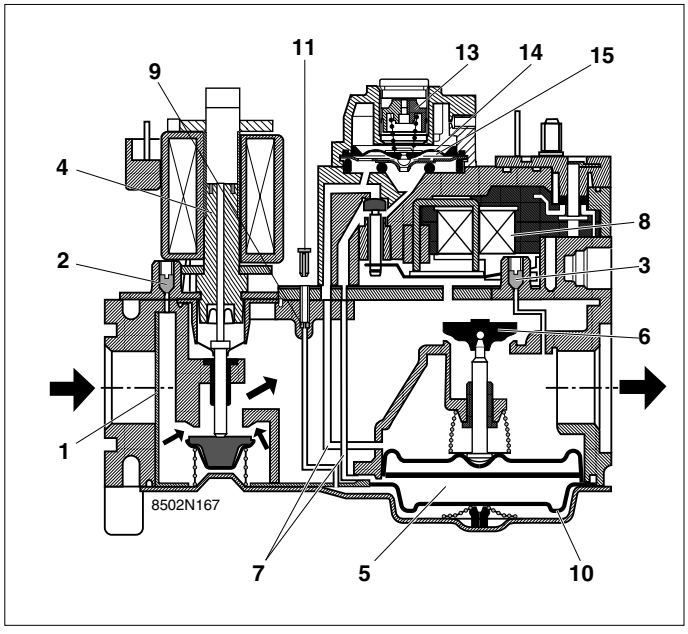
A	Request for 1st and 2nd stage heat
B	Flame formation at the pilot light
C	Request for 1st stage heat
D	Safety device owing to absence of flame signal
SF	Signal from burner flame
TA	Ignition transformer
TCH1	Boiler thermostat 1st stage
TCH2	Boiler thermostat 2nd stage
VA	Warning light when box is made safe
VBa	Ignition burner valve
VP1	Principal burner valve 1st stage
VP2	Principal burner valve 2nd stage
t3n	Flame stabilisation time: around 3 sec
tr	Restart waiting time: 1 min max
ts	Safety time: 55 sec max
tva	Alarm time: 15 sec
tw	Waiting time: 0 sec
tc	Auto-control time: 1.5 sec
	Necessary input signals
	Box output signals

Gas valve (1st stage for AG 55 to AG 118 boilers or 2nd stage for AG 55 to AG 109 boilers)



1 Control solenoid valve
2 Safety solenoid valve
3 Gas inlet
4 Safety valve, B quality level
5 Gas filter
6 Valve
7 Pressure adjusting screw
8 Pressure tap
9 Diaphragm
10 Main valve, D quality level
11 Output to ignition burner (* only on 1st stage valve VK4100C1026)
12 Output to principal burner
13 Principal valve diaphragm
14 Starting pressure adjustment screw
15 Starting pressure diaphragm

Gas valve (2nd stage for AG 118 boiler)



1 Gas filter
2 Upstream pressure tap
3 Downstream pressure tap
4 Safety solenoid valve
5 Lower regulation chamber
6 Controlled regulation valve
7 Distribution channel
8 Control solenoid valve
9 Threshold ignition system
10 Lower diaphragm of the threshold ignition system
11 Protective cap
13 Full power flow adjusting screw
14 Pressure regulator diaphragm
15 Regulation chamber

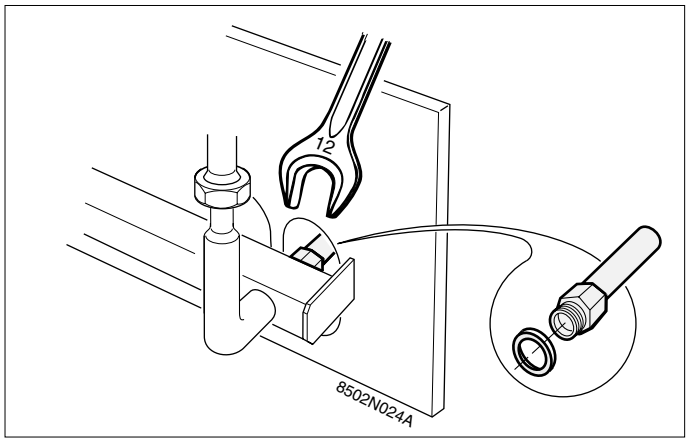
4. Adapting the boiler for a different type of gas

Applicable for switching from natural gas to propane and conversely (not applicable to AG 55 and AG 64)

4.1 Changing the burner injection nozzles

- Remove the injection nozzles with a 12-mm spanner.
- Mount the new injection nozzles taking care to replace the aluminium seal (refer to the markings table in chapter 5).

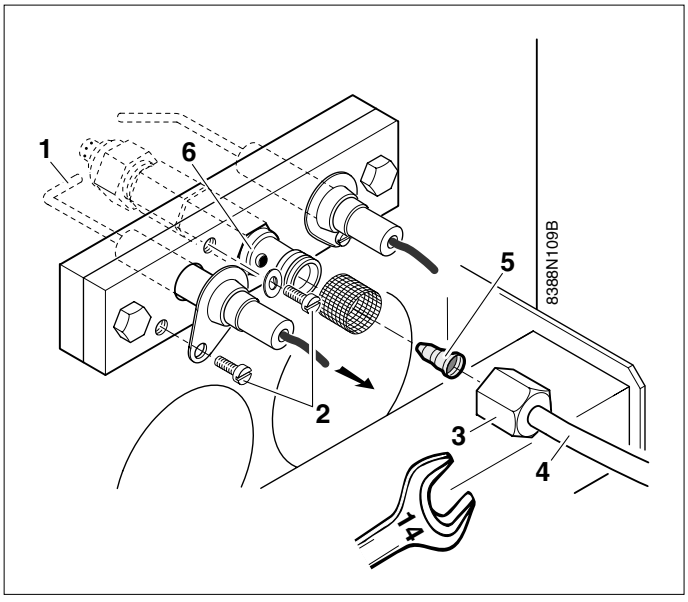
Important:
screw the injection nozzles first by hand, and then tighten them carefully using the wrench. Perform a tightness check.



4.2 Changing the ignition burner injection nozzle

- Dismantle the ignition electrode **1** fixed with the two screws **2** to access the gas supply pipe connecting nut **3**.
- Unscrew the connecting nut **3** (spanner 14), and pull down the gas supply pipe **4**.
- Remove the injection nozzle **5** from the ignition burner **6**.
- Insert the new injection nozzle **5**.
- Reattach the supply pipe **4** (spanner 14).
- Reattach the ignition electrode **1**.

	Natural gas	Propane
Injection nozzle marking	40	30
Injection nozzle diameter	0,40 mm	0,30 mm



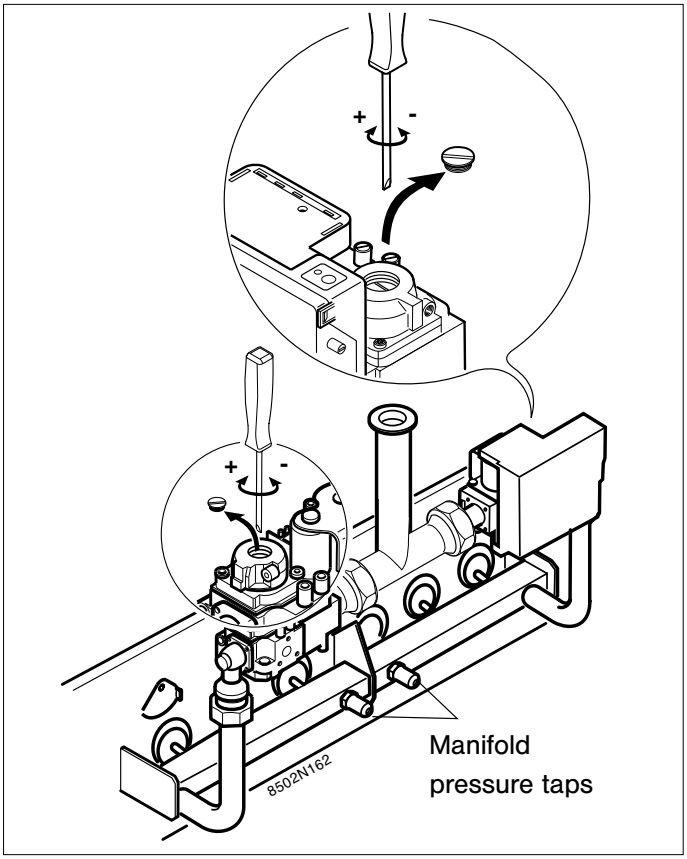
4.3 Adjusting the injection nozzles pressures (not applicable for AG 55 and AG 64)

The adjustment of the pressure must be carried out by a qualified professional.

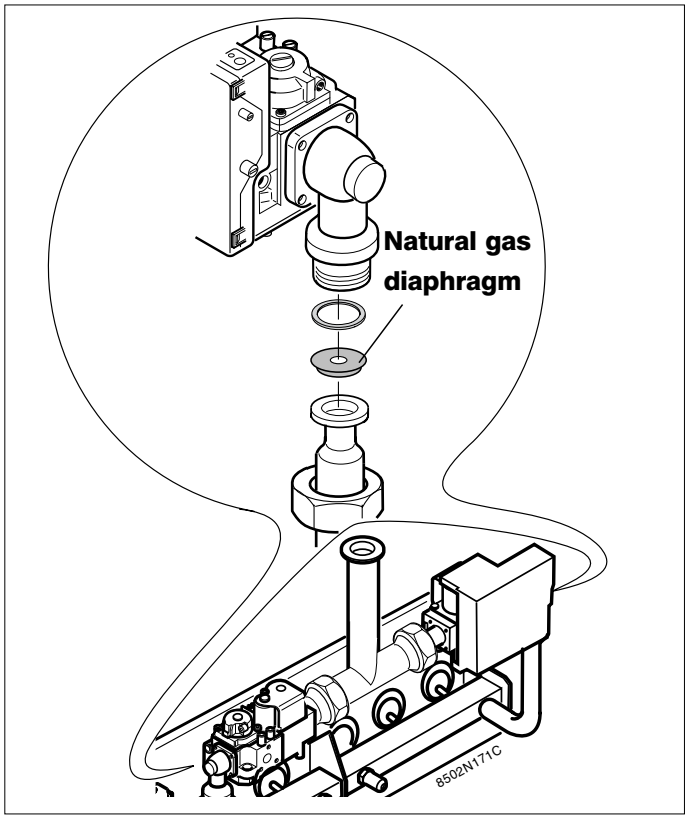
The boiler must be started up after having checked the points stated in chapter 6.1.

- Connect the pressure gauge to the left or right pressure tap of the manifold.
- Start the boiler up and set the boiler thermostats to the maximum position.
- Unscrew the protective tap of each valve.
- Using the screw located under the protective cap, adjust the pressure of the left and right valves as indicated in the table of chapter 5 - the pressure must be the same **at both manifold pressure taps.**
- Put the protective caps back in place.

Note:
Should you replace the gas valve, check that the screw under the protective cap is well screwed down for AG55 and AG64 models and carry out the pressure and progressiveness adjustment according to the instructions in this chapter.



***Note:** on the AG 55 and AG 64 models, the pressure regulator is completely screwed down (out of operation). On these models (1 stage), the natural gas injection nozzles pressure is set by a diaphragm (see chapter 5) located in the union at the outlet of the gas valve. This diaphragm must be removed to switch from natural gas to propane.



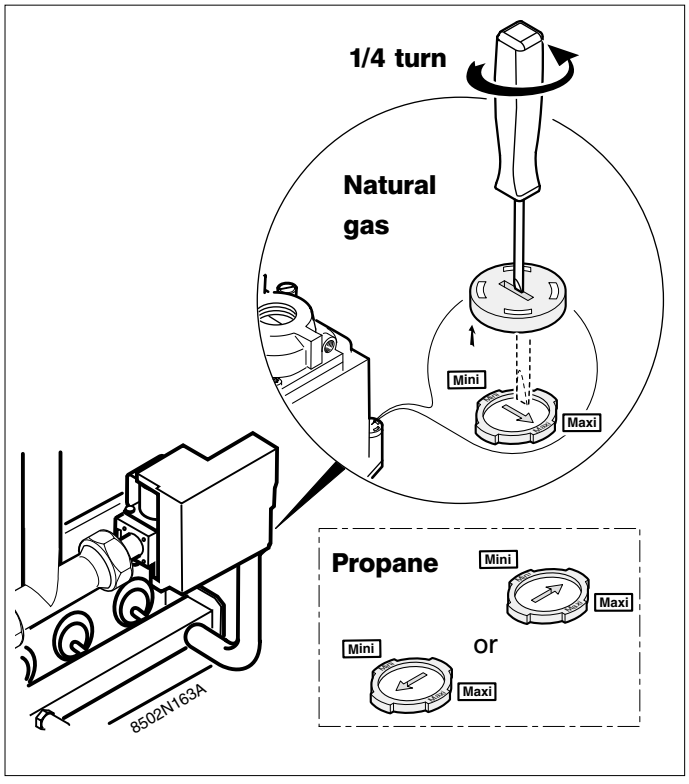
4.4 Adjustment of the starting pressure

If necessary, the starting pressure may be adjusted on the **right hand valve (1st stage)** using a flat bladed screwdriver.
It is adjusted to **maximum** in the factory.
To modify this adjustment, you must first of all remove the protection using a screwdriver (1/4 turn).

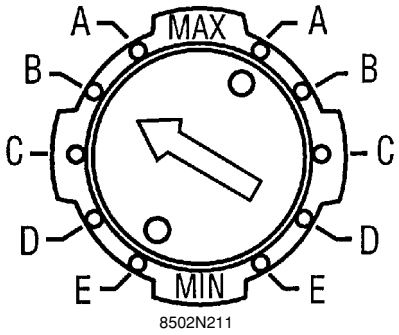
	Natural gas	Propane
Starting pressure	11 mbar	10 mbar
Advised position	"Max"	Position C

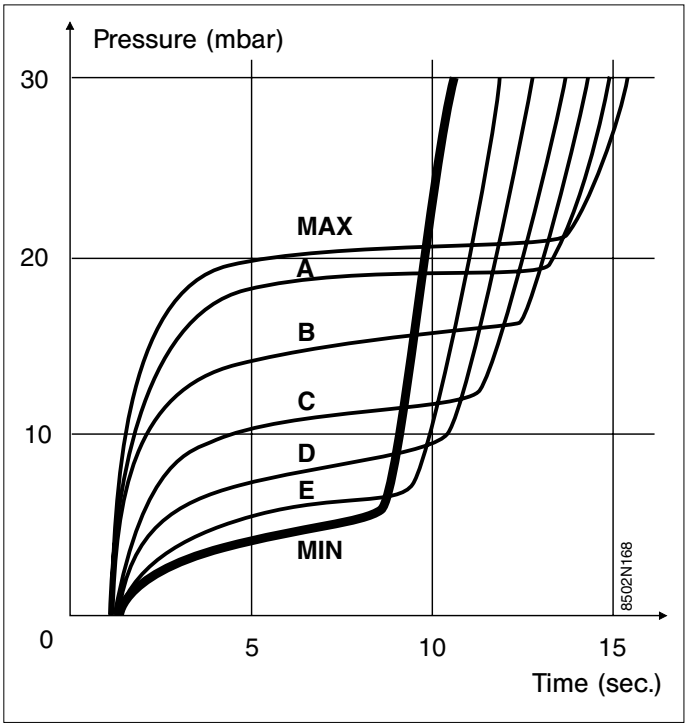
Note:
The progressiveness of the left hand valve (2nd stage) is always set at "Min".

There is no adjustment to be made to the left hand valve of a 14 element boiler.



Using the adjustment of the progressiveness screw.





4.5 Fixing the label

Fix the label which indicates the type of gas for which the boiler is fitted and set.

5. Setting pressures and calibrated injection nozzle markings

Adjusting pressures and injection nozzles marking table

Type of boiler		AG 55	AG 64	AG 71	AG 82	AG 91	AG 100	AG 109	AG 118
Injection nozzle pressure									
Natural gas	mbar	11	11	14	14	14	14	14	14
Propane	mbar	36	36	36	36	36	36	36	36
Start-up pressure									
Natural gas	mbar	11	11	11	11	11	11	11	11
Propane	mbar	10	10	10	10	10	10	10	10
Injection nozzle									
Number of injection nozzles		6	7	8	9	10	11	12	13
Natural gas injection nozzles marking		272B	272B	257B	257B	257B	257B	257B	257B
Propane injection nozzles marking		160B	160B	160 B	160B	160B	160B	160B	160B
Diaphragm									
Diaphragm marking									
1st stage valve	mm	5.7	6.5	-	-	-	-	-	-
2nd stage valve	mm	5.7	5.7	-	-	-	-	-	-

Flow table (15° C - 1013 mbar)

Type boiler	AG 55	AG 64	AG 71	AG 82	AG 91	AG 100	AG 109	AG 118
Natural gas								
2nd stage m3/h	6.25	7.29	8.33	9.35	10.38	11.41	12.43	13.46
Propane								
2nd stage kg/h	4.59	5.35	6.11	6.87	7.62	8.37	9.13	9.88

6. Commissioning
6.1 Checks required before starting up the boiler

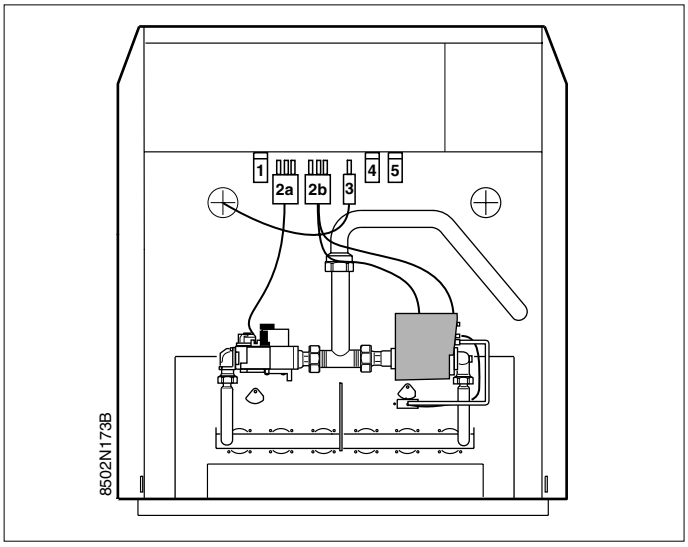
It is essential that the following points are completed by the Heating Engineer before commissioning is requested through Hoval.

- **System full of water and vented**
- **Heating load available e.g. pumps working**
- **Fuel purged to burner isolation valve**
- **The gas supply pressure is correct**
- **Electrical connections made and correctly fused**
- **Correct boilerhouse ventilation**
- **Other manufacturer's equipment has been installed & commissioned as necessary, e.g. pressurisation units.**

If the above are not completed and commissioning is unable to commence, clients will be charged for the abortive visit.

When a Hoval Engineer is engaged to commission the boiler the following items are checked (if another qualified service company carries out the commissioning the same checks should be made).

- the boiler and system is filled with water and vented, including circulation pumps.
- an independently pressurised system is operating correctly. Suppliers of the equipment should adjust their equipment during commissioning.
- the electrical installation with the appropriate wiring diagram.
- the gas line is purged.
- the burner assembly is correctly located and that is has suitable nozzles for the fuel available at site (e.g. Natural Gas).
- the boiler relief valve setting is suitable for the system (The setting should be at least 0.5 bar above the system pressure).
- the Heating Engineer will have the opportunity to receive instruction on the correct operation of the plant during commissioning.



Electrical circuit

Make sure all connectors below the control panel are well in place:

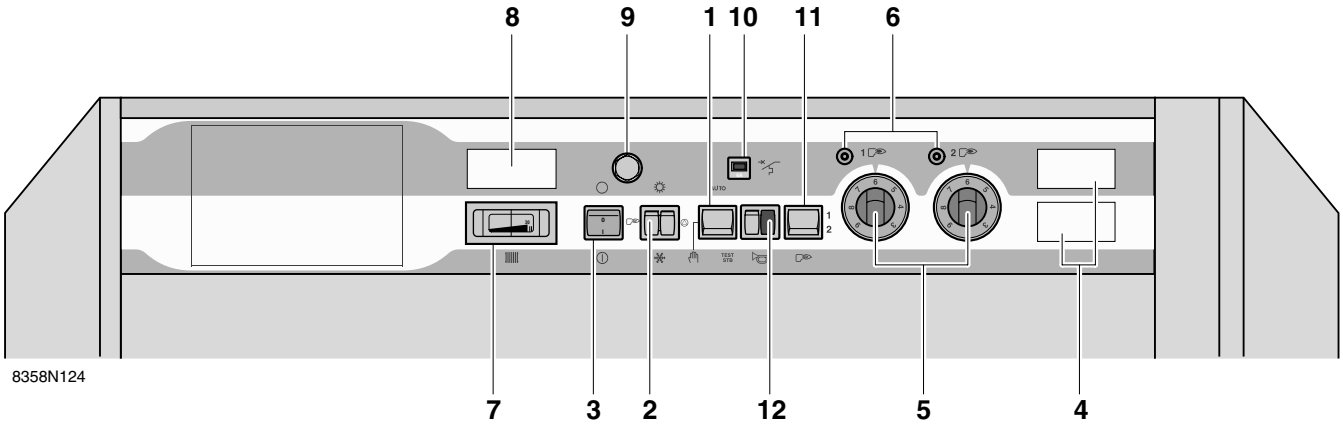
1. Gas pressure switch (not used, factory-mounted bridging plug)
2a. 2nd stage gas valve
2b. Safety control box + 1st stage gas valve
3. Draught diverter thermostat package **GC 22** (optional as from the AG 82 model, factory-mounted bridging plug)
4. Flue damper (not used, factory-mounted bridging plug)
5. Gas valve proving system package **CY 41** (optional, factory-mounted bridging plug)

Gas circuit

Check the setting of the gas train as follows:

- connect a pressure gauge to the manifold pressure tap,
- make sure the injection nozzles pressure complies with the pressures given in chapter 5. If necessary, adjust the pressure as indicated in paragraph 4.3 and 4.4.

6.2 Starting up



1. Three-position switch:

1.1 AUTO: Not applicable in the UK

1.2 Manual ✋ : Manual position

Always operate the boiler with this switch set in the manual position ie under the dictates of the boiler thermostats (item **5**)

1.3 Test STB: momentary action for testing the safety thermostat

Press the TEST STB switch until the boiler cuts out.

2. Double switch Burner / Heating pump:

Always ensure that both switches are in the winter ❄ position at all times (summer ☼ position not applicable in the UK).

3. On/Off switch: It is used to cut off power supply to the boiler. : " ⏻ " is the On position and " ○ " is the Off position.

4. Locations for hour run meters

for the first and the second stage (optional)

5. Boiler thermostats (40°C to 90°C)

A factory-mounted stop limits the maximum temperature to 75°C. This stop may be moved if necessary.

6. 1st or 2nd stage operation indicators

They only light up when the relevant thermostat or the regulator require heating and the safety contact is closed.

7. Boiler thermometer.

8. Location for flue gas thermometer (optional)

9. Safety thermostat (100° C) with manual reset :

It is fitted on the supply circuit. It cuts off the gas supply in the event of overheating. The boiler can only be started up manually, after the cause of the overheating has been corrected.

To reset the thermostat, remove cap 9 and press the reset button with a screwdriver.

10. 4A circuit-breaker

time delay circuit-breaker with manual reset

11. Switch selecting the number of stages of the burner

12. Burner lockout indicator and reset switch

Before turning the boiler on, ensure that the pre-commissioning checks detailed in section 6.1 (page 18) have been made.

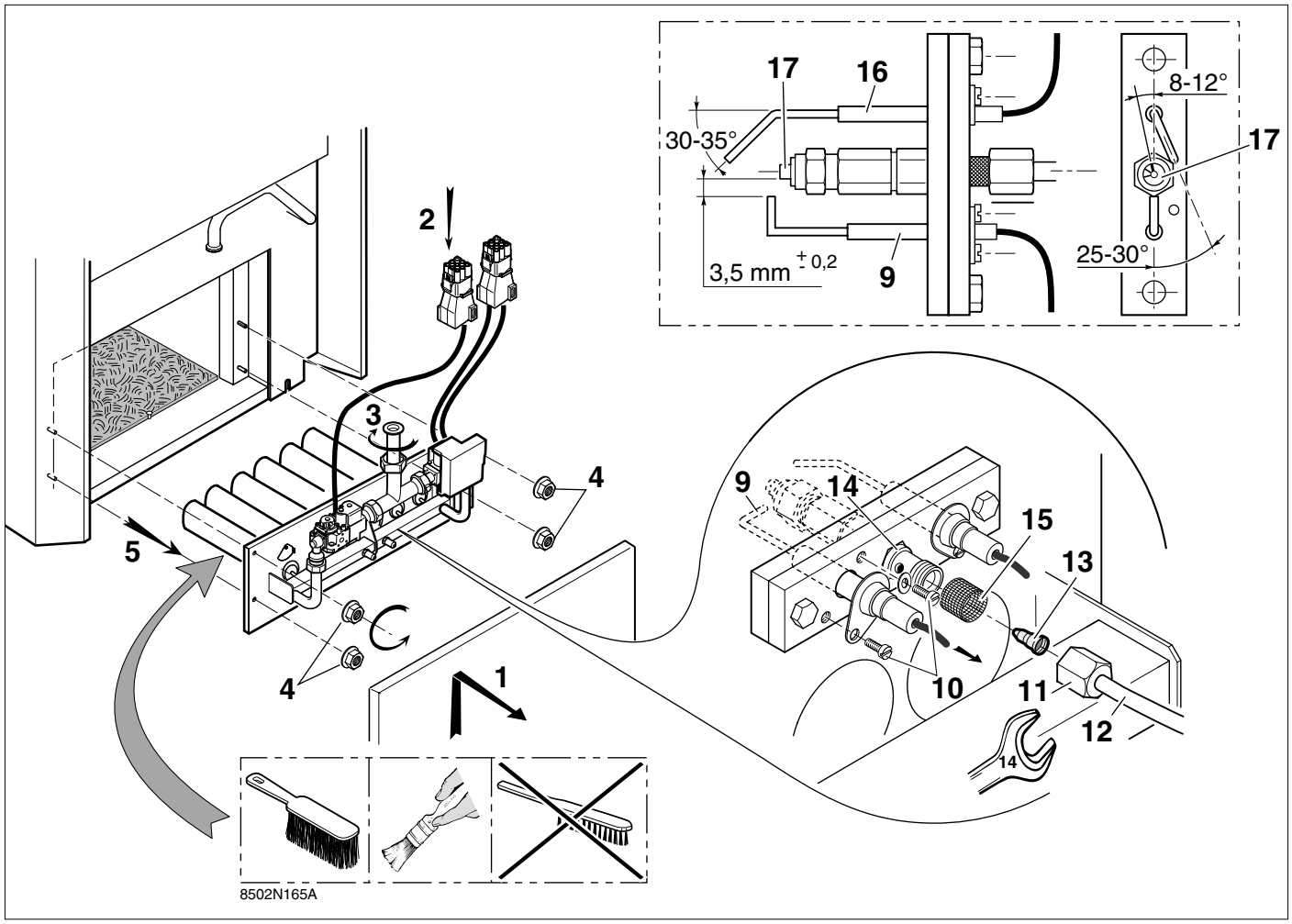
Carry out the start-up operations in the order indicated below:

- Open the main gas shut-off valve.
- Check the position of the 3-position switch **1**: Ensure this switch is set on the manual position.
- Ensure that the Summer/Winter switch **2** is set to the "Winter" position.
- Set the adjusting elements (thermostats **5**, regulator) so that heat is required.
- The 1st stage thermostat must be set to a value approximately 5°C higher than the 2nd stage thermostat.
- Set the On/Off switch 3 to the "On" position.

7. Maintenance (to be performed by a qualified professional)

Clean the burner regularly for unit efficiency.
Cleaning is recommended at least once a year.

7.1 Cleaning the burner



Main burner:

- Cut off the power supply to the boiler.
- Cut off the gas supply.
- Remove the lower boiler panel **1**.
- Disconnect the connectors **2** located under the control panel.
- Unscrew the pipe union **3** on the gas inlet pipe.
- Unscrew the 4 burner drawer fastening nuts **4**.
- Remove the burner drawer **5**.
- Clean the burner rails (slots) using a soft brush or a vacuum cleaner.
  Do not use a metal brush!

Ignition burner:

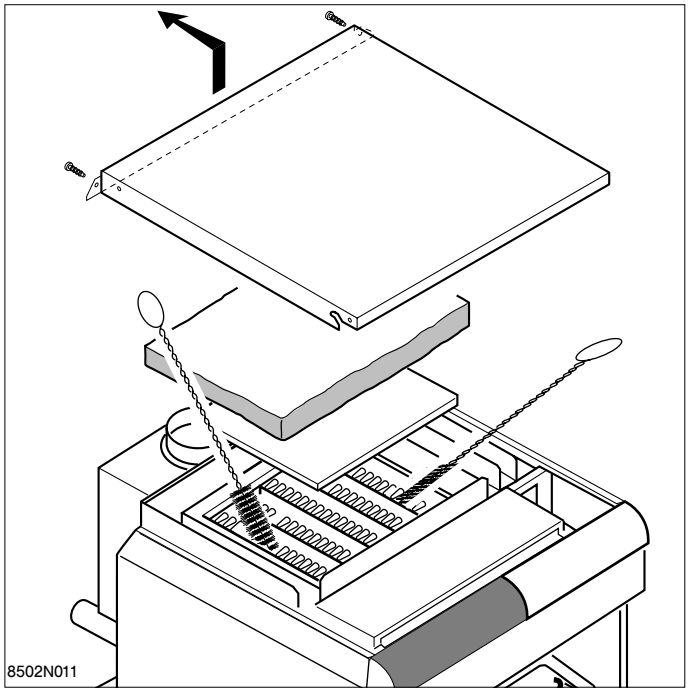
- Remove the ignition electrode **9** fixed by the screw **10** to access the connecting nut **11** of the gas supply pipe.
- Unscrew the connecting nut **11** (spanner 14) and pull down the gas supply pipe **12**.
- Remove the injection nozzle **13** and the filter **15**.
- The ignition burner injection nozzle **13** and the filter **15** must be cleaned at least once a year.
- Reattach the supply pipe **12** (spanner 14).
- Remount the ignition electrode **9**.
- Check, according to the sides shown in the diagram, the positioning of the ionisation probe **16**, the spacing of the ignition electrode **9** and the positioning of the flame diffuser **17** (only necessary in the event of boiler malfunction cf. table "Incidents and remedies" on page 23).

After reassembling, perform a gas tightness check.

7.2 Cleaning the heating sections

Check the condition of the heating sections once a year, and clean if dirty.
If the boiler need to be swept, remove the burner drawer from the combustion chamber so that deposits and soot do not block the openings of the gas burner rail.

Once the burner has been removed as directed in section 7.1 :
- Remove the top cover.
- Remove the top insulating material.
- Open the sweeping trap of the flue gas removal unit.
- If necessary, clean the boiler body with the special brush supplied.
- After having cleaned the boiler body, clean the combustion chamber plate with a hand-brush or a vacuum cleaner.

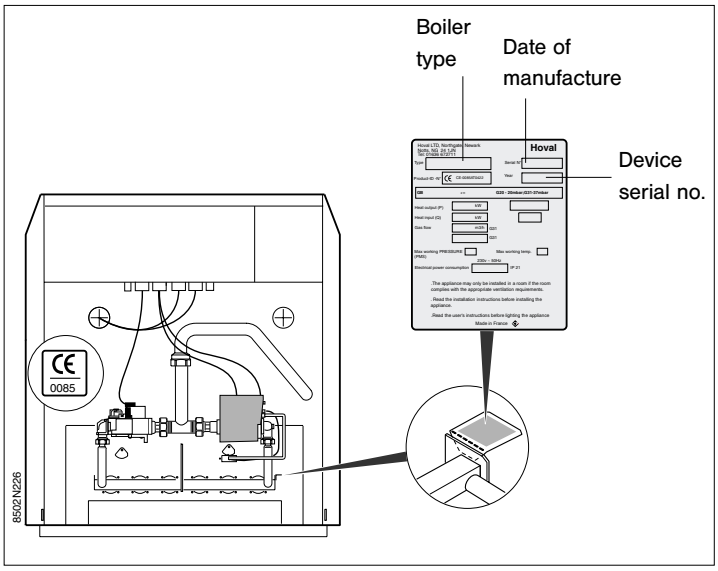


7.3 Painted surfaces

Painted surfaces may be cleaned with cold or lukewarm soapy water. Wipe with a soft cloth or a wet sponge.

7.4 Identification plate

The identification plate fixed on the gas train is used to identify the boiler correctly. It also provides the main specifications data for the boiler.



(1) 02 = 2002, 03 = 2003....

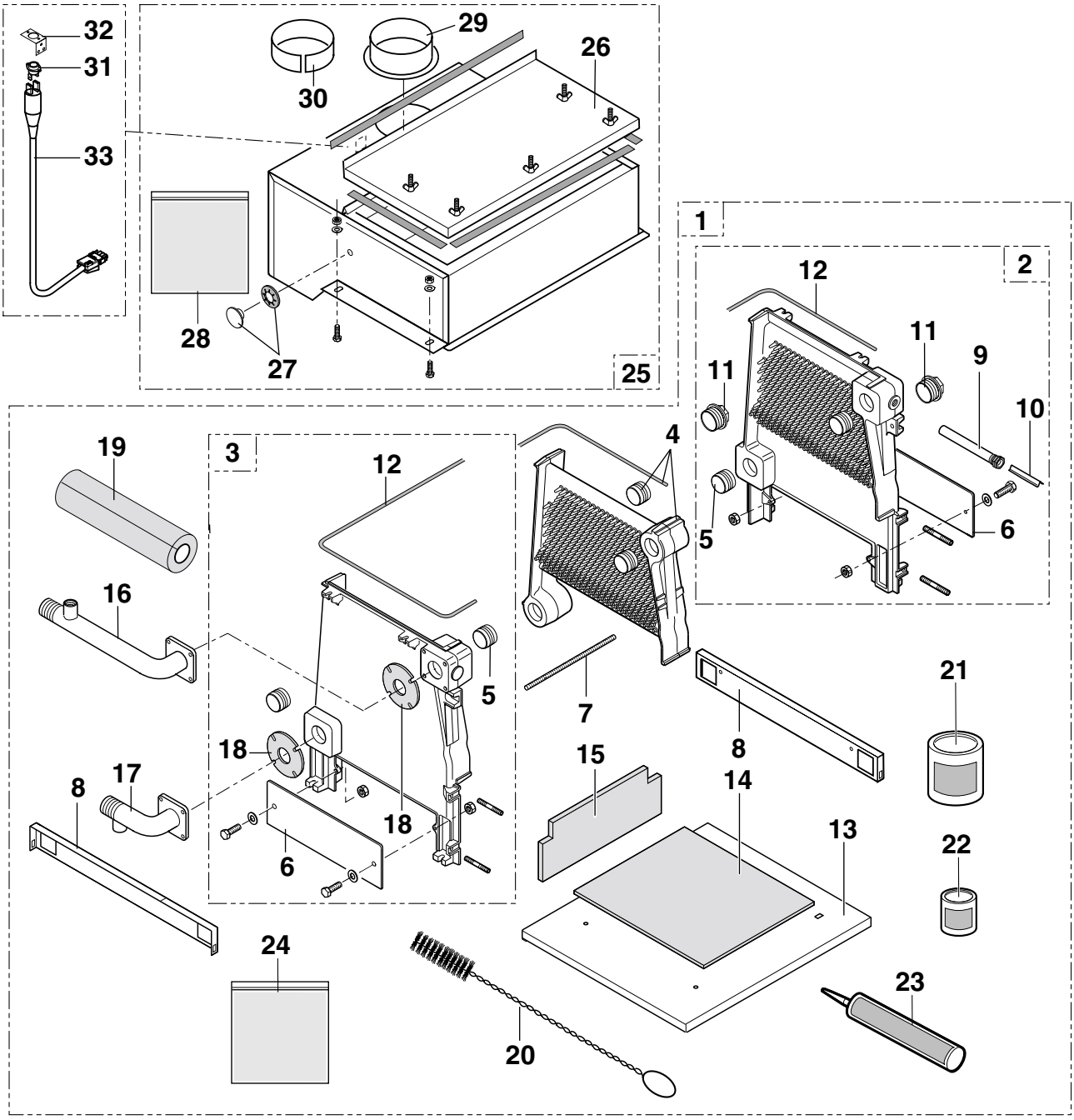
7.5 Faults and remedies

Symptoms	Possible causes	Remedies
The burner does not start and the control safety box is not out of order (red warning light not lit item **12**, page 19)	-The boiler thermostat is not required -Adjustment (option) is not required	-Set the thermostats (item **5**, page 19) or the regulator (optional) so that heat is required
	-Following overheating, the safety thermostat has engaged -No power	-Correct the cause of the overheating and reset the safety thermostat (item **9**, page 19) - Set the On/Off switch to the "On" ○ position
The burner does not start and the safety control box switches to the safety position (red warning light lit (item **12**, page 19)	-Made safe because of lack of gas -1st stage gas valve defective -No spark on the electrode -The draught diverter thermostat switched -No ionisation current	-Purge the gas supply line and press the reset button on the control panel -Check the gas valve and replace it if necessary. -Check the connection of the electrical cables to the safety control box and the electrode -Check the draught of the chimney and reset the safety thermostat (item **2**, page 19). -Check the position of the ionisation probe and ignition burner flame diffuser (refer to chapter 7.1)
	-Filter or ignition burner injection nozzle blocked	-Clean the filter and the ignition burner injection nozzle (refer to chapter 7.1)
The burner starts, but with reduced power	-Upstream pressure too low -Filter clogged -Gas block defective -Injection nozzles too large -Injection nozzles and/or diaphragms inappropriate (see table § 5 page 17) -Gas valve defective	-Check the gas supply -Clean the filter -Replace it -Check the injection nozzles -Check the injection nozzles and the diaphragms -Check the gas valve and replace it if necessary
The burner starts and after a few minutes the safety control box switches to the safety position	-The draught diverter thermostat switched	-Wait for the thermostat to cool down and check the draught of the chimney. We draw your attention to the seriousness of misplaced interventions on the control device of the combustion products evacuation: a defective evacuation must be corrected by improving the draught conditions of the chimney. In case of a thermostat failure, it must imperatively be replaced with a part recommended in our "Spart Parts List". Its position shall not be modified, it is defined by means of the 2 bosses of the fastening square that are positioned in 2 holes of the draught diverter. The thermostat shall not be put out of function.
Cast iron body dirty (furnace side)	-Upstream pressure too high -Burner dirty -Gas block defective -Boiler room ventilation insufficient or badly located	-Check the gas supply -Clean the burner -Replace it -Enlarge the ventilation openings, streamline the air vents
Noisy boiler	-Air in system -Body scaled -Injection nozzles inappropriate	-Bleed correctly -Remove the scale of the heating circuit -Check the injection nozzles
Boiler too hot or too cold	-3-position selector (item **1**, page 19) " ✋ - AUTO - ⏻ " on ✋ position -Boiler thermostat adjustment inappropriate (item **5**, page 19)	Check the position of the 3-position switch -Set the boiler thermostat to the maximum position.
Backfire	-Injection nozzles too large -Upstream pressure too low	-Check the injection nozzles and the pressure
Whistling	-Injection nozzles too small -Upstream pressure too high	

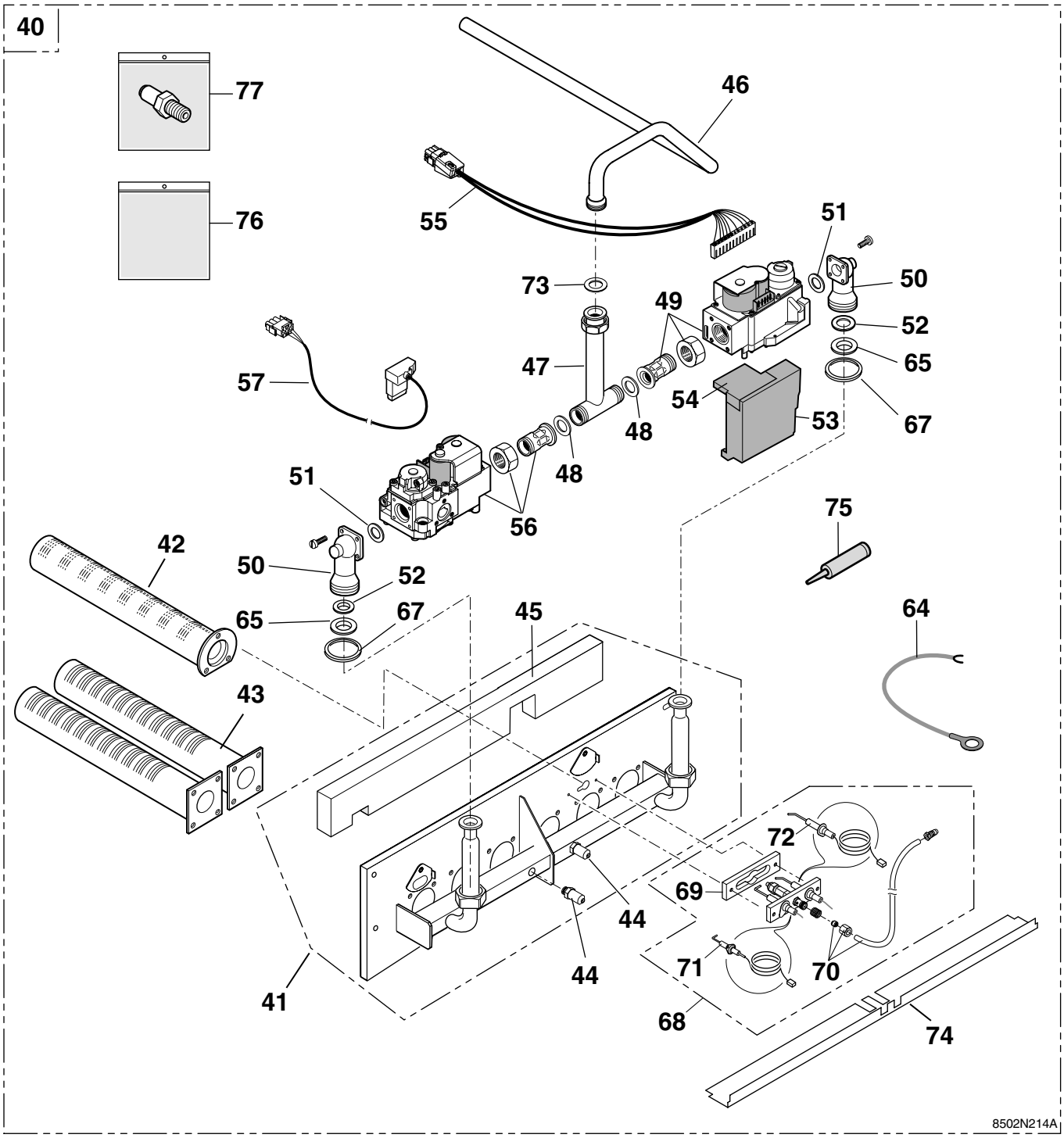
8. Exploded view and list of spare parts

Note : While ordering spares, **do not forget to state the code number given opposite the description of the required part in the list.**

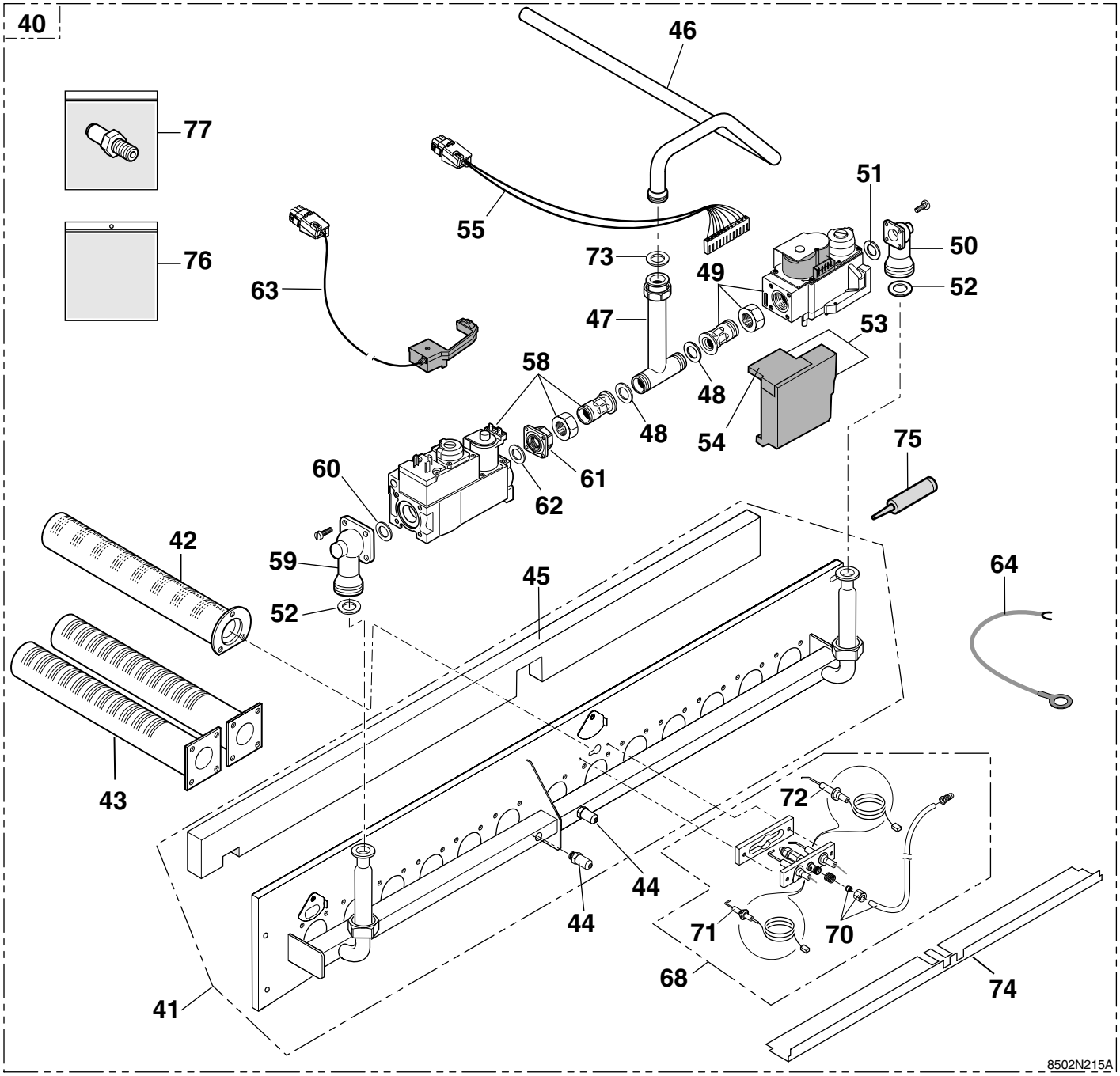
- Boiler body + draught diverter



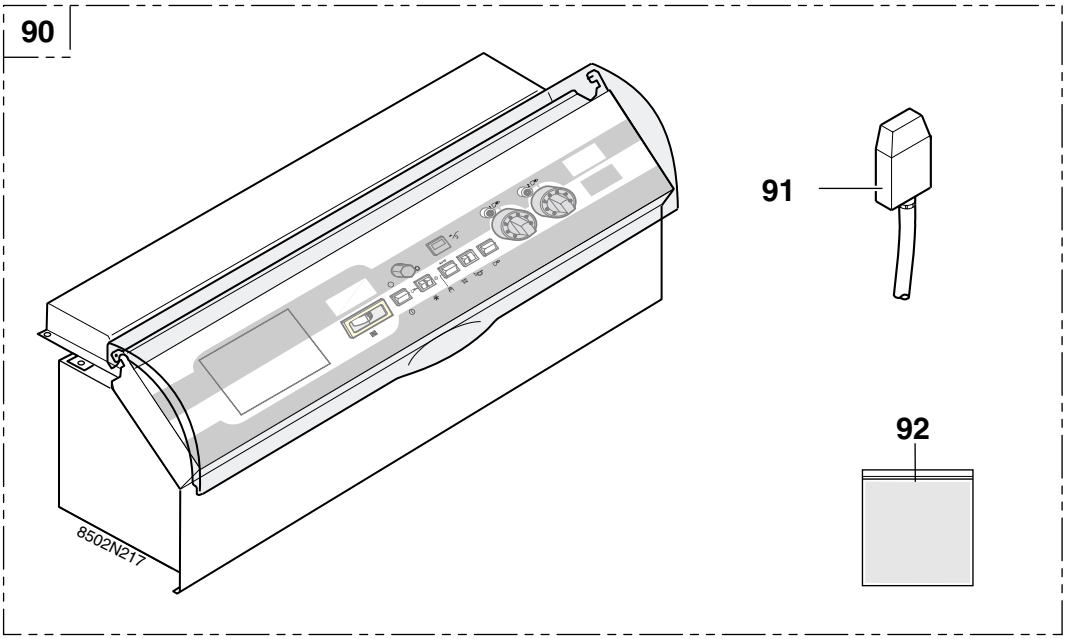
- Gas train AG 55 to AG 109



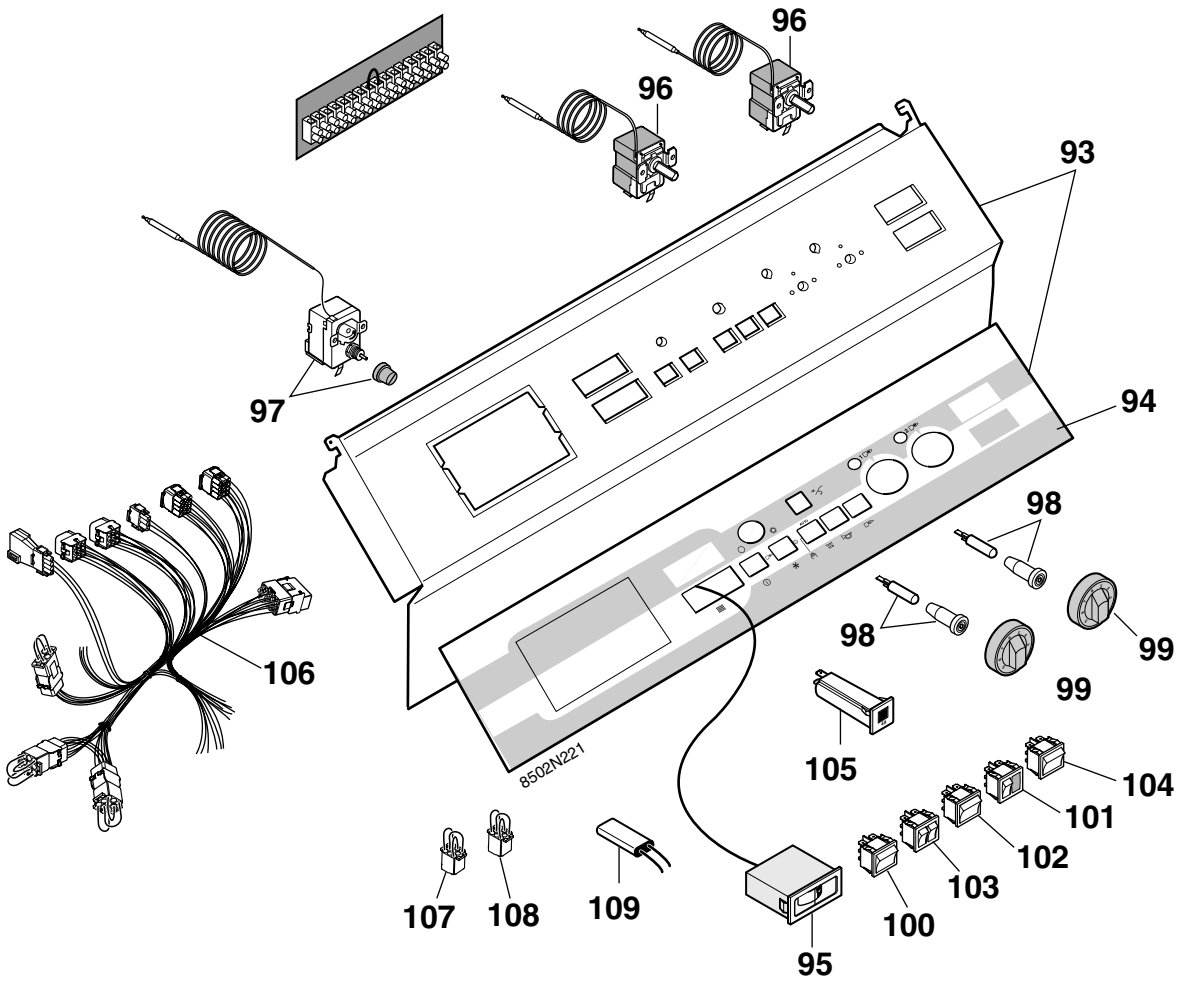
- Gas train AG 118



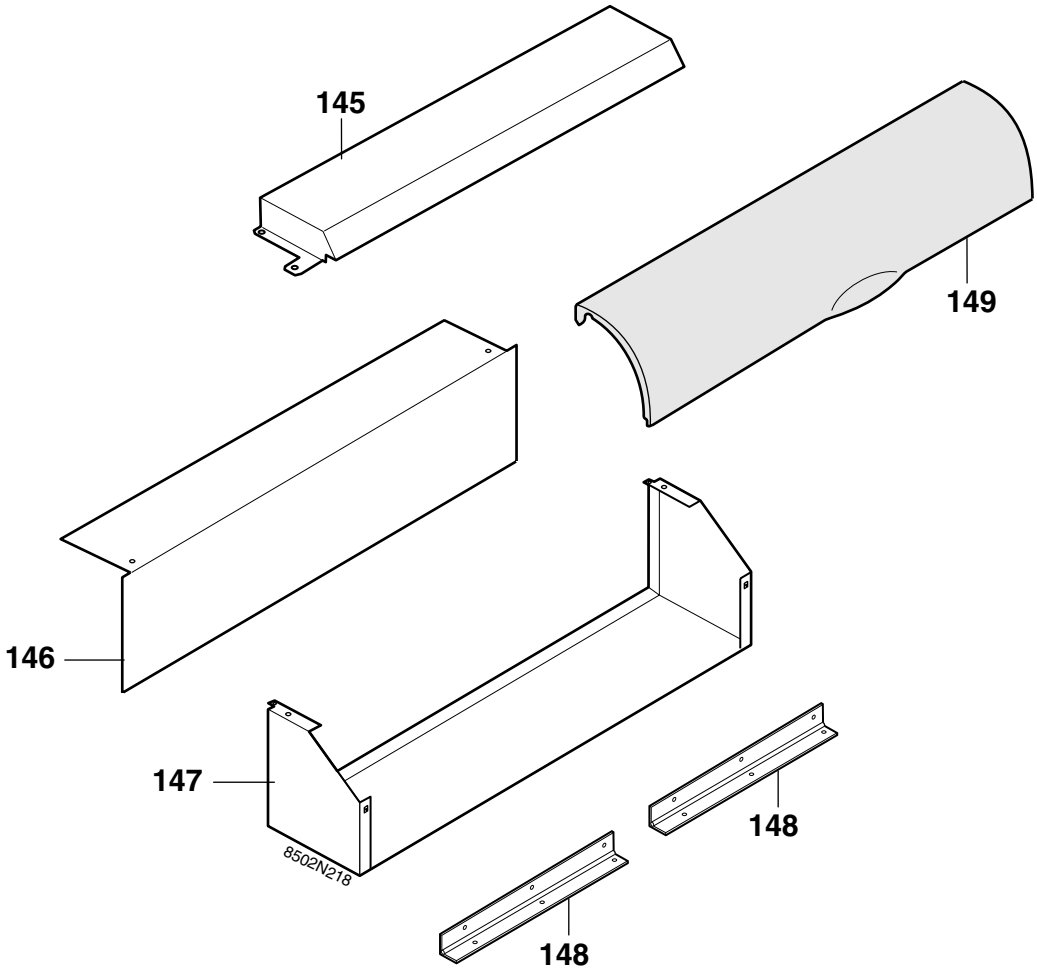
- Control panel



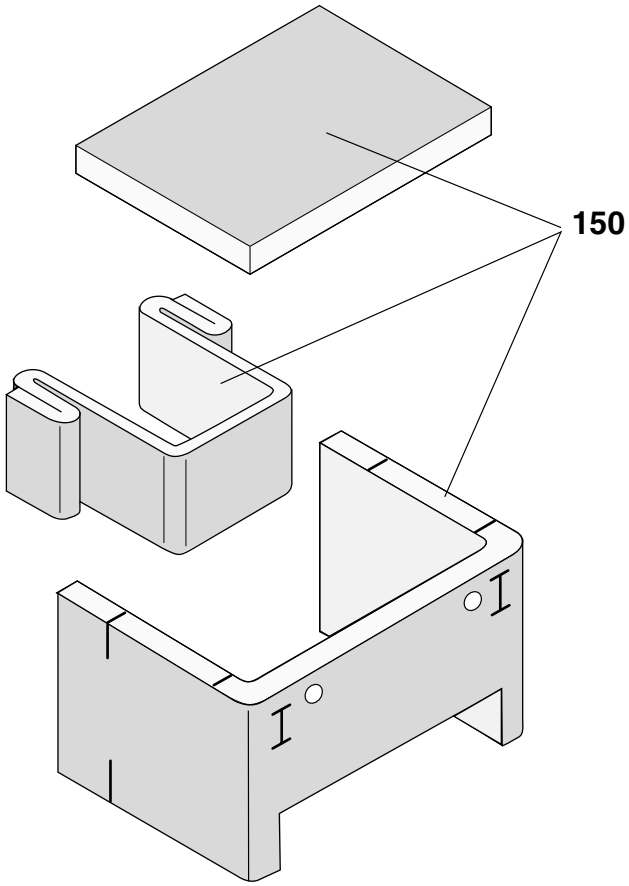
- Control panel + components



- Casing for control panel

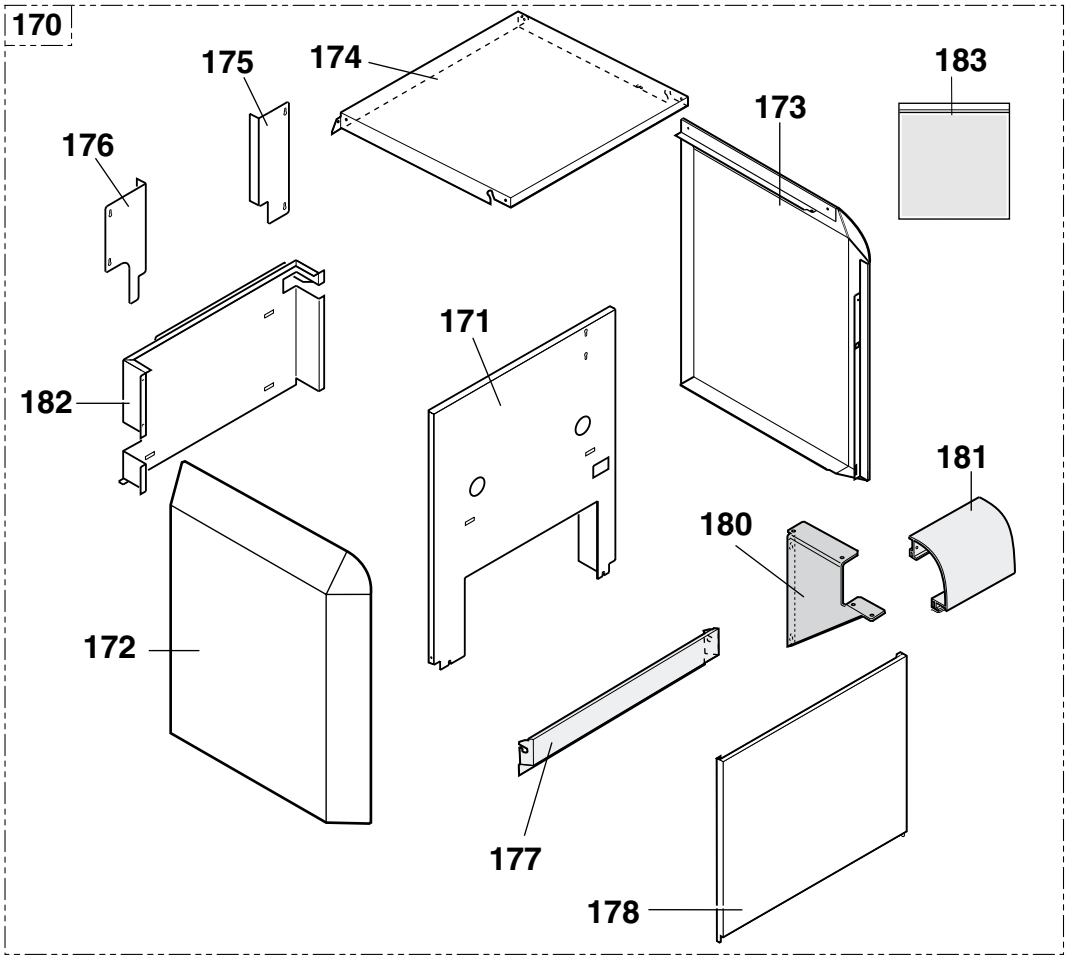


- Boiler body insulation



8502N074

- Casing



8502N014A

Ref.	Code no.	DESCRIPTION
		Boiler body
1	8377-8910	Complete AG 55 boiler body
1	8377-8911	Complete AG 64 boiler body
1	8377-8912	Complete AG 71 boiler body
1	8377-8913	Complete AG 82 boiler body
1	8377-8914	Complete AG 91 boiler body
1	8377-8915	Complete AG 100 boiler body
1	8377-8916	Complete AG 109 boiler body
1	8377-8917	Complete AG 118 boiler body
2	8377-5500	Complete left-hand side section
3	8377-5501	Complete right-hand side section
4	8377-5502	Intermediate section
5	8377-0547	Nipple
6	8377-8920	Complete closing plate
7	8377-5503	M8 assembly rod - length 580
7	8377-5504	M8 assembly rod - length 660
7	8377-5505	M8 assembly rod - length 750
7	8377-5506	M8 assembly rod - length 830
7	8377-5507	M8 assembly rod - length 910
7	8377-5508	M8 assembly rod - length 1000
7	8377-5509	M8 assembly rod - length 1080
7	8377-5510	M8 assembly rod - length 1170
8	8377-8726	Fastening coss-bar
9	9536-5611	1/2” pocket - length 160
10	9536-5613	Pocket contact spring
11	9495-0249	1” 1/2 plug
12	9504-6127	Tightness thermocord ø 10
13	8377-8904	Complete AG 55 base
13	8377-8905	Complete AG 64 base
13	8377-8906	Complete AG 71 - AG 82 base
13	8377-8907	Complete AG 91 - AG 100 base
13	8377-8908	Complete AG 109 - AG 118 base
14	9755-0727	Under burner insulation - AG 55
14	9755-0728	Under burner insulation - AG 64
14	9755-0729	Under burner insulation - AG 71
14	9755-0730	Under burner insulation - AG 82
14	9755-0731	Under burner insulation - AG 91
14	9755-0732	Under burner insulation - AG 100
14	9755-0733	Under burner insulation - AG 109
14	9755-0734	Under burner insulation - AG 118
15	9755-0717	Rear insulation - AG 55
15	9755-0718	Rear insulation - AG 64
15	9755-0719	Rear insulation - AG 71
15	9755-0720	Rear insulation - AG 82
15	9755-0721	Rear insulation - AG 91
15	9755-0722	Rear insulation - AG 100
15	9755-0723	Rear insulation - AG 109
15	9755-0724	Rear insulation - AG 118
16	9754-9668	Flow pipe
17	9754-9660	Return pipe - AG 55 - AG 64
17	9754-9670	Return pipe - AG 71 - AG 82
17	9754-9671	Return pipe - AG 91 - AG 100
17	9754-9672	Return pipe - AG 109 - AG 118
18	9755-0189	Flange gasket
19	8377-4091	Flow pipe insulation
20	9696-0228	Brush 21 x 11 L500
21	8800-8966	Metal filler
22	9430-5027	Nipple lubricant
23	9428-5066	Permabond A 1044 paste
24	8377-5534	Set of body accessories
		Draught diverter
25	8502-8639	Complete draught diverter - AG 55
25	8502-8640	Complete draught diverter - AG 64
25	8502-8641	Complete draught diverter - AG 71
25	8502-8642	Complete draught diverter - AG 82
25	8502-8643	Complete draught diverter - AG 91
25	8502-8644	Complete draught diverter - AG 100
25	8502-8645	Complete draught diverter - AG 109
25	8502-8646	Complete draught diverter - AG 118
26	8502-5500	Complete cleaning trap - AG 55
26	8502-5501	Complete cleaning trap - AG 64
26	8502-5502	Complete cleaning trap - AG 71
26	8502-5503	Complete cleaning trap - AG 82
26	8502-5504	Complete cleaning trap - AG 91
26	8502-5505	Complete cleaning trap - AG 100
26	8502-5506	Complete cleaning trap - AG 109
26	8502-5507	Complete cleaning trap - AG 118
27	8377-5533	Draught diverter tap
28	8377-8708	Bag of screws for the draught diverter
29	9758-1497	Flue nozzle ø 180
29	8116-8076	Flue nozzle ø 200
29	8377-8146	Flue nozzle ø 225
29,1	8377-8226	Adapter ring ø225 to ø220 for AG109 - AG 118 flue nozzle
30	9536-3357	Draught diverter thermostat 65°C (for AG55 to AG71 boilers, optional GC22 for AG82 to AG118 boilers)
31	8375-8077	Draught diverter thermostat fastening square

Ref.	Code no.	DESCRIPTION
32	8502-4917	Draught diverter thermostat electric harness
		Gas train
40	8502-5562	Complete gas circuit - AG 55
40	8502-5563	Complete gas circuit - AG 64
40	8502-5564	Complete gas circuit - AG 71
40	8502-5565	Complete gas circuit - AG 82
40	8502-5566	Complete gas circuit - AG 91
40	8502-5567	Complete gas circuit - AG 100
40	8502-5568	Complete gas circuit - AG 109
40	8502-5569	Complete gas circuit - AG 118
41	8502-5570	Burner support - AG 55
41	8502-5571	Burner support - AG 64
41	8502-5572	Burner support - AG 71
41	8502-5573	Burner support - AG 82
41	8502-5574	Burner support - AG 91
41	8502-5575	Burner support - AG 100
41	8502-5576	Burner support - AG 109
41	8502-5577	Burner support - AG 118
42	8502-5557	FURIGAS ignition burner bar below the ignitor + screws
43	8368-8595	FURIGAS burner
44	9536-0220	Pressure tap
45	8502-5599	Burner drawer insulation - AG 55
45	8502-5600	Burner drawer insulation - AG 64
45	8502-5601	Burner drawer insulation - AG 71
45	8502-5602	Burner drawer insulation - AG 82
45	8502-5603	Burner drawer insulation - AG 91
45	8502-5604	Burner drawer insulation - AG 100
45	8502-5605	Burner drawer insulation - AG 109
45	8502-5606	Burner drawer insulation - AG 118
46	9754-9041	Gas inlet pipe - AG 55 to AG 64
46	9754-9042	Gas inlet pipe - AG 71 to AG 100
46	9754-9043	Gas inlet pipe - AG 109 to AG 118
47	9754-9353	Connection pipe
48	9501-3062	Green seal ø 30 x 21 x 2
49	8502-4704	Honeywell CVI 1st stage gas valve (AG55 to AG118)
50	9754-9889	Elbow flange LOVATO
51	9502-3306	O-ring 27.7 x 22.5 x 2.5
52	9755-0196	Seal 27.2 x 16 x 3
53	8502-5578	Honeywell complete safety control box
54	9536-5259	Safety control box cover
55	8502-4922	Electric harness for safety box
56	8502-4705	2nd stage valve Honeywell CVI (AG55 to AG109)

Ref.	Code no.	DESCRIPTION
57	8502-4923	Electric harness for 2nd stage gas valve (AG55 to AG109)
58	8502-4706	2nd stage gas valve Honeywell (AG118)
59	9754-9839	Elbow flange
60	9755-0178	Seal 30 x 21 x 2
61	9754-9231	Straight flange 1/2”
62	9758-0632	O-ring
63	8502-4901	Electric harness for 2nd stage gas valve (AG118)
64	8502-4916	Earthing cable
65	9536-9106	Diaphragm ø 5.7 24.3x 1 - AG55
65	9536-9107	Diaphragm ø 6.5 24.3 x 1 - AG 64
67	9501-3068	Green seal 24 x 30 x 1.5
68	8502-8719	Complete ignition burner
69	8406-8092	Tie
70	8502-5579	Ignition bruner supply pipe
71	9758-0451	Wired, elbow ionisation probe
72	9533-2802	Wired ignition spark plug
73	9501-3064	Green seal ø 32 x 44 x 2
74	8502-8033	Combustion chamber plate - AG 55
74	8502-8108	Combustion chamber plate - AG 64
74	8502-8109	Combustion chamber plate - AG 71
74	8377-8188	Combustion chamber plate - AG 82
74	8377-8189	Combustion chamber plate - AG 91
74	8377-8190	Combustion chamber plate - AG 100
74	8377-8191	Combustion chamber plate - AG 109
74	8377-8192	Combustion chamber plate - AG 118
75	9432-0214	Red silicone
76	8502-5516	Gas train screws set
		Conversion sets
77	8502-7174	Propane conversion set - AG 55 to AG 118

Ref.	Code no.	DESCRIPTION
		Control panel
90	8502-8851	Complete control panel
92	8502-5519	Control panel screws
93	8358-0659	Front plate holder + skin
94	9421-0705	Skin
95	9536-5157	Flat thermometer - large model
96	8500-0002	30-90°C adjusting thermostat
97	8500-0031	100°C safety thermostat
98	9521-6281	Green round indicator light
99	8555-5501	Adjusting button + pin
100	9532-5027	Green On/Off bipolar switch
101	9532-5102	Resetting switch
102	9532-5103	STB test switch
103	8500-0034	Bipolar switch
104	8500-0035	Bipolar switch
105	9534-0288	4A TS710/4A circuit-breaker
106	8502-4921	Cable harness
107	8502-4913	Flue damper connector bridge
108	8377-4917	Draught diverter thermostat connector bridge
109	8350-4805	EMI suppressor
		Control panel casing
145	8502-5558	Protection cover
146	8502-8625	Board supporting plate
147	8502-8778	Board supporting plate
148	9483-0102	Piano hinge (2 pieces)
149	8387-5556	Flap
		Boiler body insulation
150	8377-8931	Complete casing - AG 55
150	8377-8932	Complete casing - AG 64
150	8377-8933	Complete casing - AG 71
150	8377-8934	Complete casing - AG 82
150	8377-8935	Complete casing - AG 91
150	8377-8936	Complete casing - AG 100
150	8377-8937	Complete casing - AG 109
150	8377-8938	Complete casing - AG 118

Ref.	Code no.	DESCRIPTION
		Casing
170	8502-7267	Complete casing - AG 55
170	8502-7268	Complete casing - AG 64
170	8502-7269	Complete casing - AG 71
170	8502-7270	Complete casing - AG 82
170	8502-7271	Complete casing - AG 91
170	8502-7272	Complete casing - AG 100
170	8502-7273	Complete casing - AG 109
170	8502-7274	Complete casing - AG 118
171	8502-8838	Complete front plate - AG 55
171	8502-8839	Complete front plate - AG 64
171	8502-8840	Complete front plate - AG 71
171	8502-8841	Complete front plate - AG 82
171	8502-8842	Complete front plate - AG 91
171	8502-8843	Complete front plate - AG 100
171	8502-8844	Complete front plate - AG 109
171	8502-8845	Complete front plate - AG 118
172	8502-8836	Complete left side panel
173	8502-8837	Complete right side panel
174	8502-0584	Top panel - AG 55
174	8502-0585	Top panel - AG 64
174	8502-0586	Top panel - AG 71 - AG 82
174	8502-0587	Top panel - AG 91 - AG 100
174	8502-0588	Top panel - AG 109 - AG 118
175	8502-8029	Upper rear right panel AG 55, 64, 82, 100, 118
175	8502-8030	Upper rear right panel AG 71, 91, 109
176	8502-8031	Upper rear left panel - AG 55 to AG 118
177	8502-0589	Upper front panel - AG 55
177	8502-0590	Upper front panel - AG 64
177	8502-0591	Upper front panel - AG 71 - AG 82
177	8502-0592	Upper front panel - AG 91 - AG 100
177	8502-0593	Upper front panel - AG 109 - AG 118
178	8502-8846	Lower front panel - AG 55
178	8502-8847	Lower front panel - AG 64
178	8502-8848	Lower front panel - AG 71 - AG 82
178	8502-8849	Lower front panel - AG 91 - AG 100
178	8502-8850	Lower front panel - AG 109 - AG 118
180	8502-8014	Additional part support - AG 55 to AG 118
181	8502-0599	Additional part - AG 55
181	8502-0600	Additional part - AG 64
181	8502-0601	Additional part - AG 71 - AG 82
181	8502-0602	Additional part - AG 91 - AG 100
181	8502-0603	Additional part - AG 109 - AG 118
182	8377-8172	Lower rear panel - AG 55

Ref.	Code no.	DESCRIPTION	Ref.	Code no.	DESCRIPTION
182	8377-8173	Lower rear panel - AG 64			
182	8377-8174	Lower rear panel - AG 71			
182	8377-8175	Lower rear panel - AG 82			
182	8377-8176	Lower rear panel - AG 91			
182	8377-8177	Lower rear panel - AG 100			
182	8377-8178	Lower rear panel - AG 109			
182	8377-8179	Lower rear panel - AG 118			
183	8377-8702	Casing screws set			

Installer :

Servicing company :

ADHO001A

Hoval

Conservation of Energy
Protection of the Environment

Hoval Limited, Northgate, Newark, Notts, NG24 1JN
Tel.: 01636 672711 • Fax: 01636 673532
e-mail: service@hoval.co.uk
Web Site: www.hoval.co.uk

Assembly AtmoGas 55-118

Tools required :

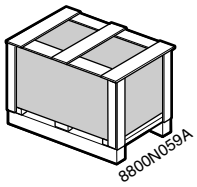
- 1 simplified JD or JD-TE Plus assembly tool (unassembled boiler body),
- Water pump pliers,
- 1 hammer,
- 13, 17, 19, 22 mm spanners,
- 1 knife,
- 1 13 mm tubular hexogon box spanner
- 1 Phillips head screwdriver

Packaging :

The tables below provide the number of packages that make up the boiler. The packages are listed in the order in which they are opened during assembly.

● **Boiler body + accessories**

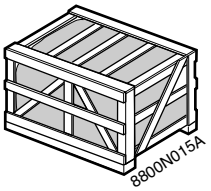
- Assembled body: start the assembly at **point 9.**



AtmoGas boiler	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Assembled boiler body package + accessories	CY 075	CY 076	CY 003	CY 004	CY 005	CY 006	CY 007	CY 008

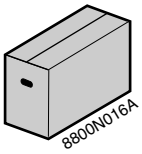
or

- Unassembled boiler body



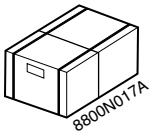
AtmoGas boiler	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Unassembled boiler body package + accessories	CY 085	CY 086	CY 035	CY 036	CY 037	CY 038	CY 039	CY 040

● **Gas train**



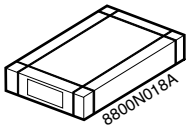
AtmoGas boiler	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Gas train package	GC 289	GC 290	GC 291	GC 292	GC 293	GC 294	GC 295	GC 296

● **Draught diverter**



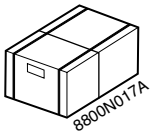
AtmoGas boiler	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Draught diverter package + piping + insulation	GC 033	GC 034	GC 035	GC 036	GC 037	GC 038	GC 039	GC 040

● **Casing**



AtmoGas boiler	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Casing package	GC 281	GC 282	GC 283	GC 284	GC 285	GC 286	GC 287	GC 288

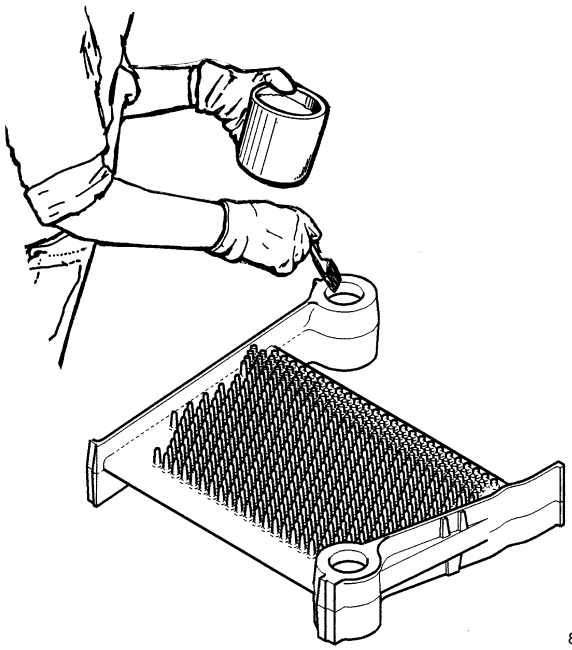
● **Control panel**



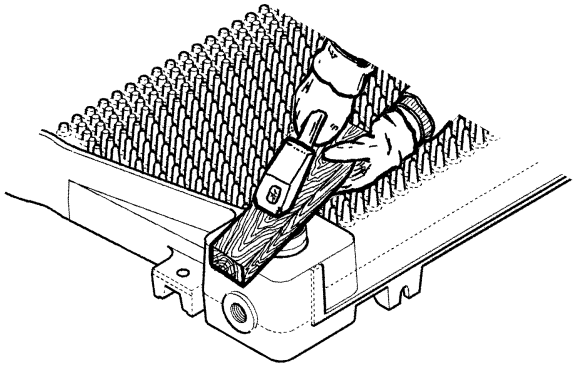
AtmoGas boiler	AG 55 to AG 118
Control panel package	GC 297

The assembly of the options possibly supplied with the boiler is described in the instructions supplied with them, or in the instructions for the control panel. The list of the available options is given in the price list.

1



8377N001



8377N002

Package no.:

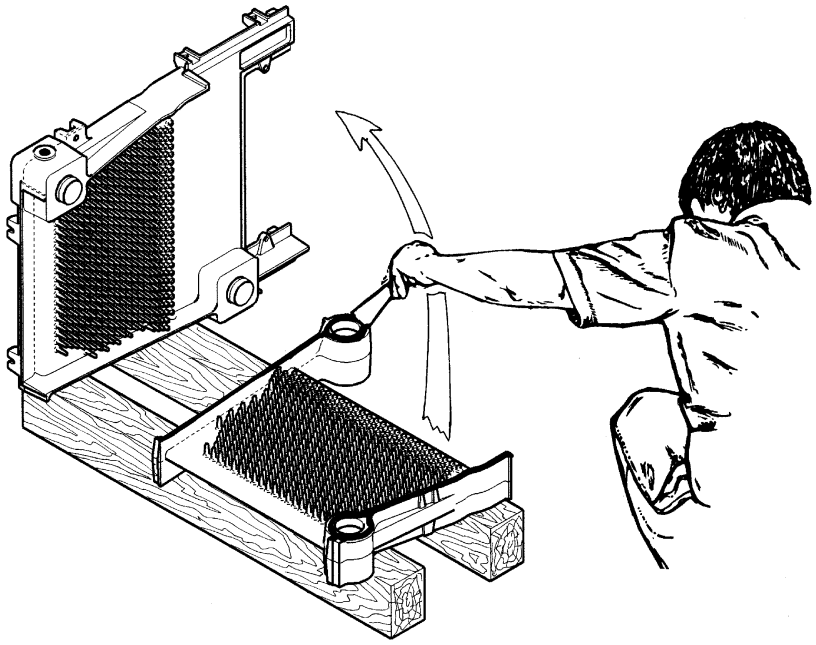
AtmoGas	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Boiler body + accessories	GC 085	GC 086	GC 035	GC 036	GC 037	GC 038	GC 039	GC 040

Assembly of the body

- Use diluent to clean the bores of the first side section. Clean the nipples and **coat them with the lubricant supplied.**
- Press in the 2 nipples moderately using a piece of wood.

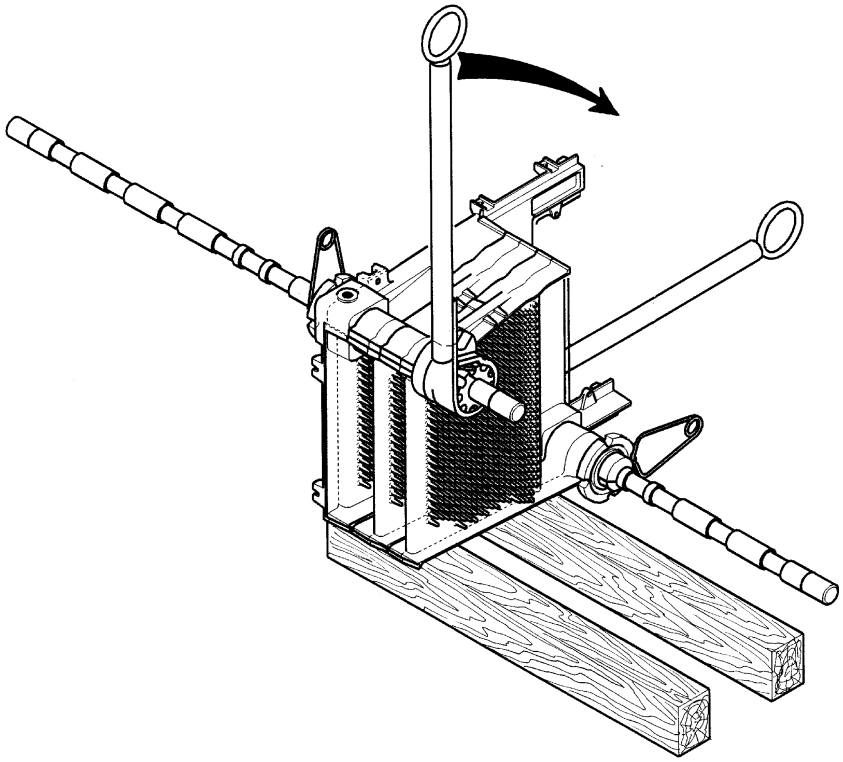
2

- Put the first side section in place on a rectangular wood block (height 60 mm minimum) and prop it up.
- First intermediate section: Carefully apply filler on the whole length of the sealing grooves using a spatula so as to ensure correct tightness of the boiler body. Make sure the bores are clean.
- Place the first intermediate section against the side section and press it moderately and simultaneously on the 2 nipples of the rear section.



8377N003

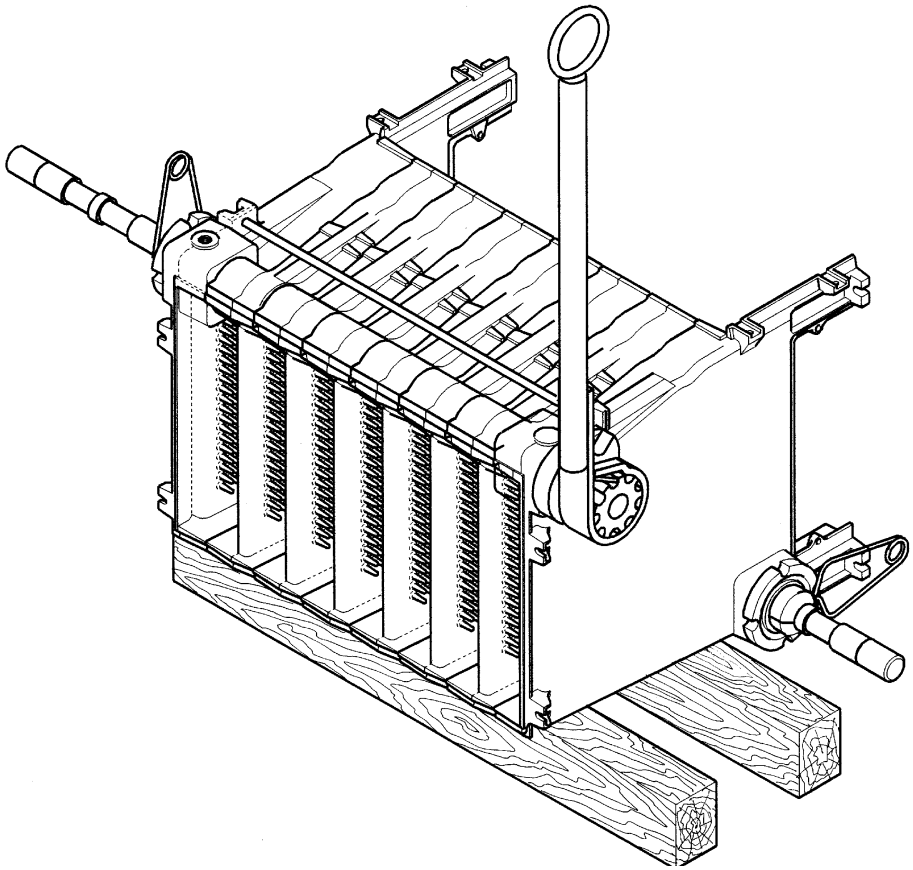
3



8377N004

- Proceed as described in **1** and **2** for the third section.
- Put the assembly tool in place when the **3 first sections** are in place.
- Tighten gradually so as to bring about simultaneous and identical closing of both upper and lower connections.

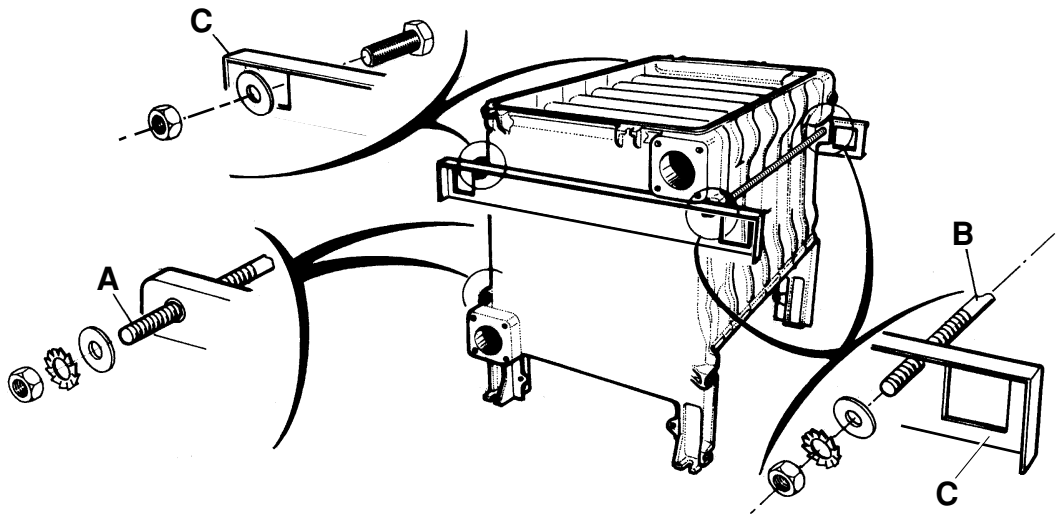
4



8377N005

- Assemble the remaining intermediate sections and the second side section as per the instructions under pictures **1** to **3**.
- Remove the assembly tool.

5

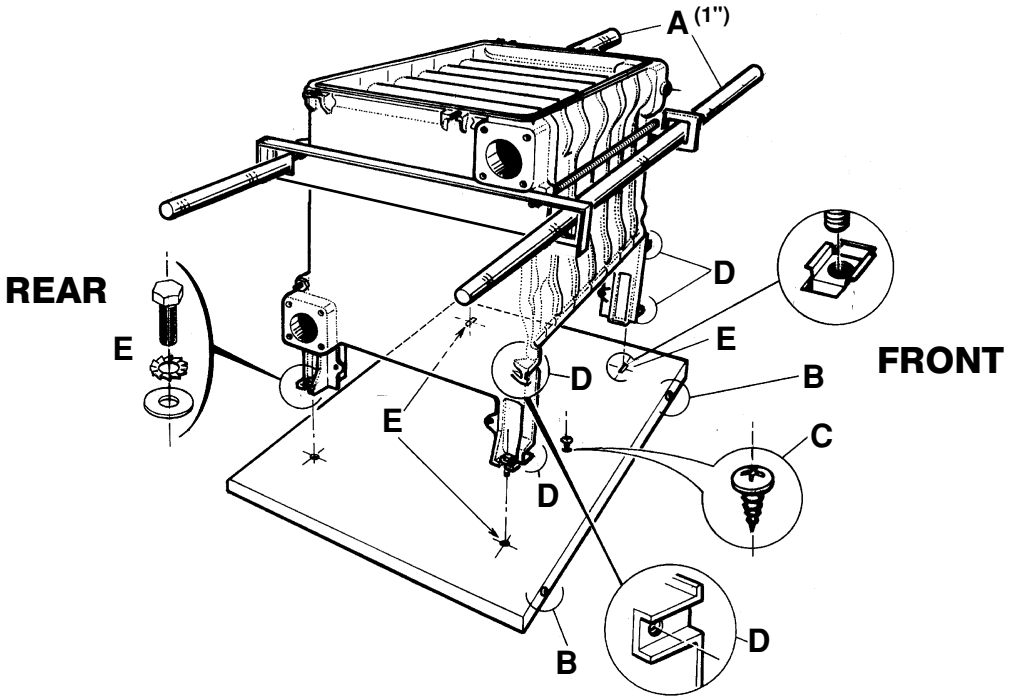


8377N006 A

Assembling the assembly rods and the cross-bars

- Mount the lower assembly rod A with 2 H8 nuts and 2 ø 8 washers + 2 serrated washers (13 mm spanner).
- Fasten the upper assembly rod B with 2 H8 nuts + 2 ø 8 washers + 2 serrated washers.
- Fasten the two cross-bars C with 2 HM8 x 35 screws + 2 H8 nuts + 2 ø 8 washers.

6



8377N007 A

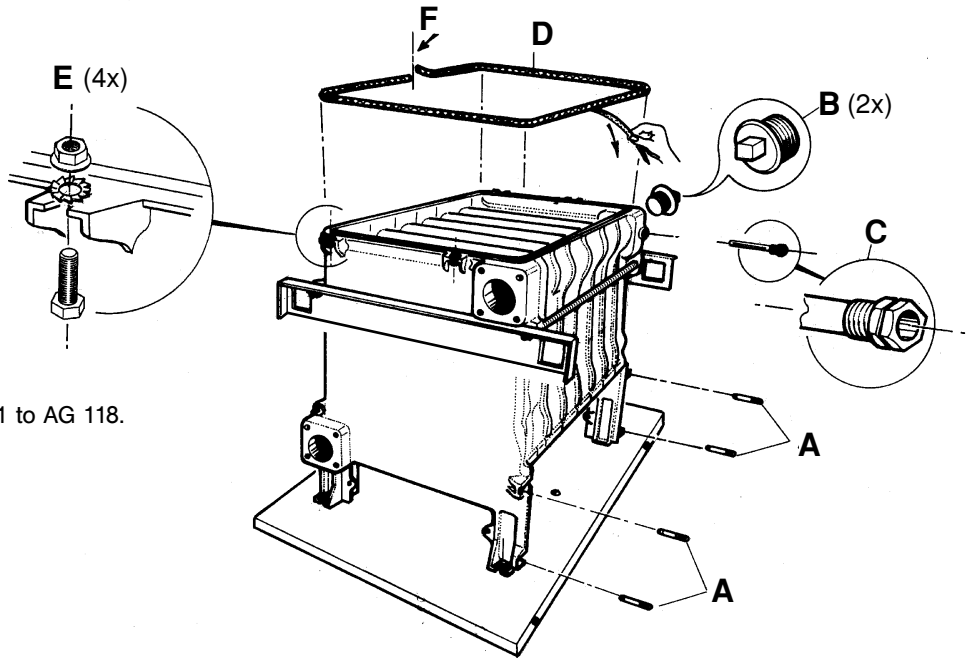
Mounting the body on the base

- Put the boiler body in place on the base using 2 1" tubes **A**.

Caution: the base front side can be found thanks to the 2 bushings **B** and the screw **C**, which are located on the front side. The body front side is given by the 4 threaded ears **D**.

- Fasten the body on the base using 4 HM 8 x 25 screws + 4 ø 8 serrated washers + 4 L8 washers (**E**).

7



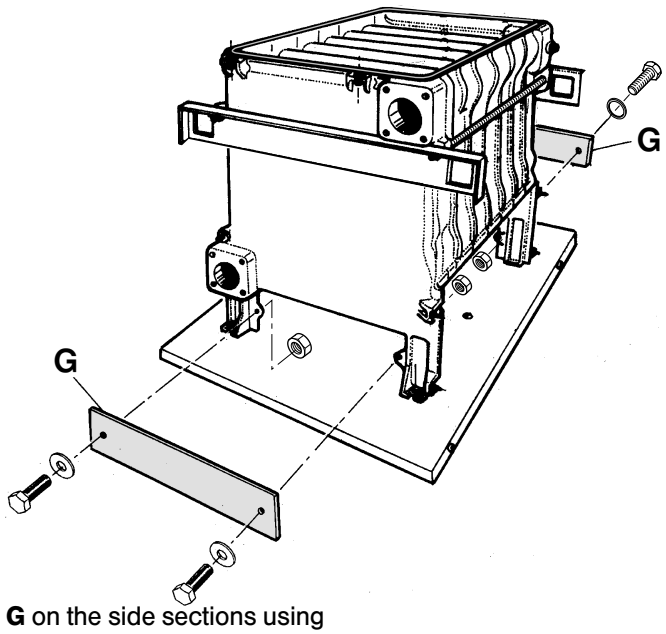
Detail E:
only AG 71 to AG 118.

8377N008 B

Assembling the accessories to the body

- Screw 4 M8 pins **A** onto the front side to fasten the burner drawer on the side sections: screw the short thread in the section.
- Screw the 2 1"1/2 plugs **B** on the right body side (seen from the front) using a suitable tightness product (pasta or hemp).
- Mount the pocket **C** in the front side of the body (22 mm spanner) using a suitable tightness product (pasta or hemp).
- Put the ø 10 thermocord D in place, put the junction point at the centre of the rear side of the body.
- **AG71 to AG118** (detail E): Install on the 4 side ears of the body 4 HM 6 x 30 screws + 4 flanged nuts + 4 serrated washers.

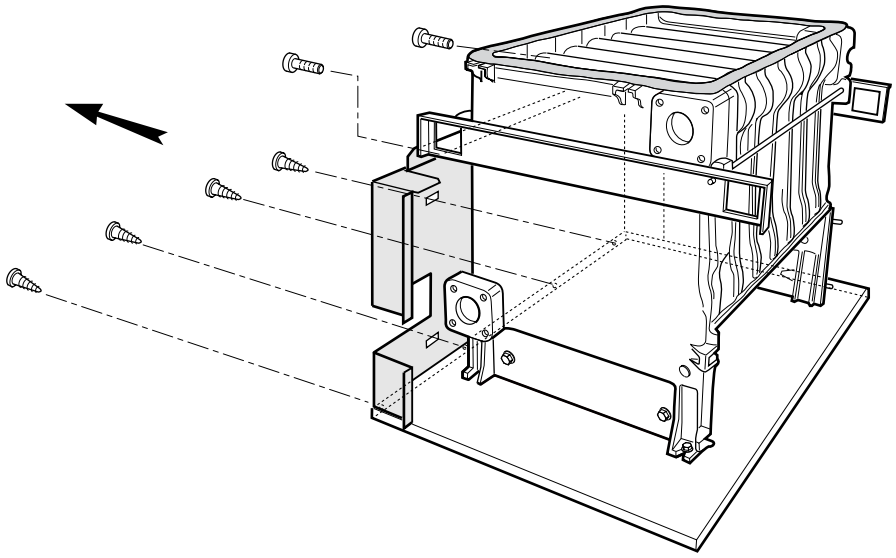
8



8377N009 B

- Mount the 2 closing plates **G** on the side sections using 4 HM 8 x 25 screws + 4 nuts + 4 ø8 wide washers.

9 Assembled body



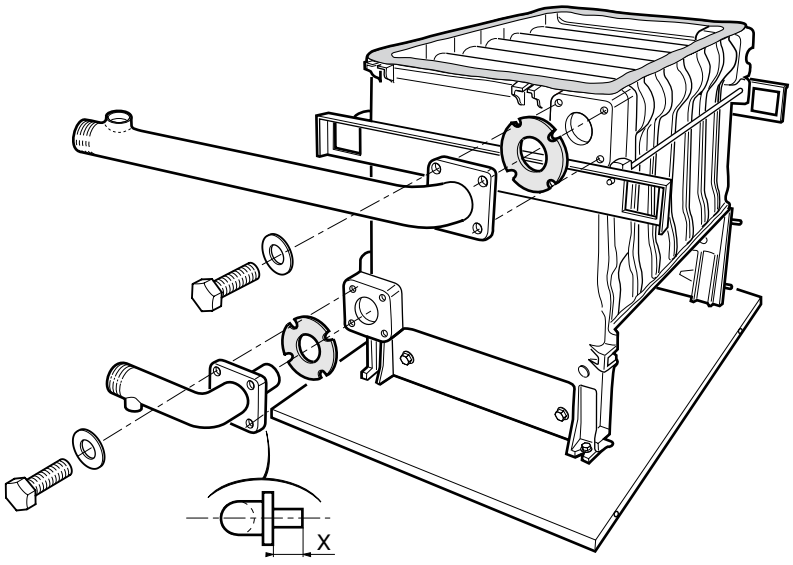
8377N100 A

Package no.
Assembled body:

AtmoGas	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Assembled body	CY 075	CY 076	CY 003	CY 004	CY 005	CY 006	CY 007	CY 008

- At the delivery, remove the rear panel fastened onto the base and the cross-bars (keep the fastening screws that will be used later).

10



8377N010 A

Dimension x:

AtmoGas	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
x	40	40	120	120	250	250	380	380

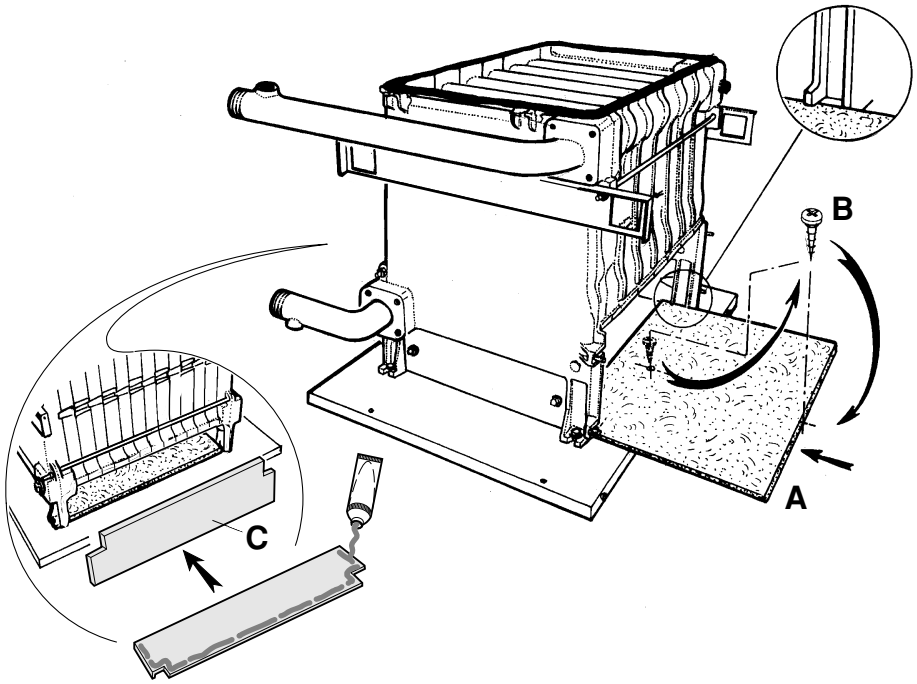
Package no.

AtmoGas	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Draught diverter + Piping + Insulation	GC 033	GC 034	GC 035	GC 036	GC 037	GC 038	GC 039	GC 040

Assembling the flow and return pipes

- Fasten the flow pipe with its seal with 4 HM 10 x 25 screws + 4 wide L10 washers (17 mm spanner).
- Fasten the return pipe with the injection tube and the seal with 4 HM 10 x 25 screws + 4 wide L10 washers (17 mm spanner).

11

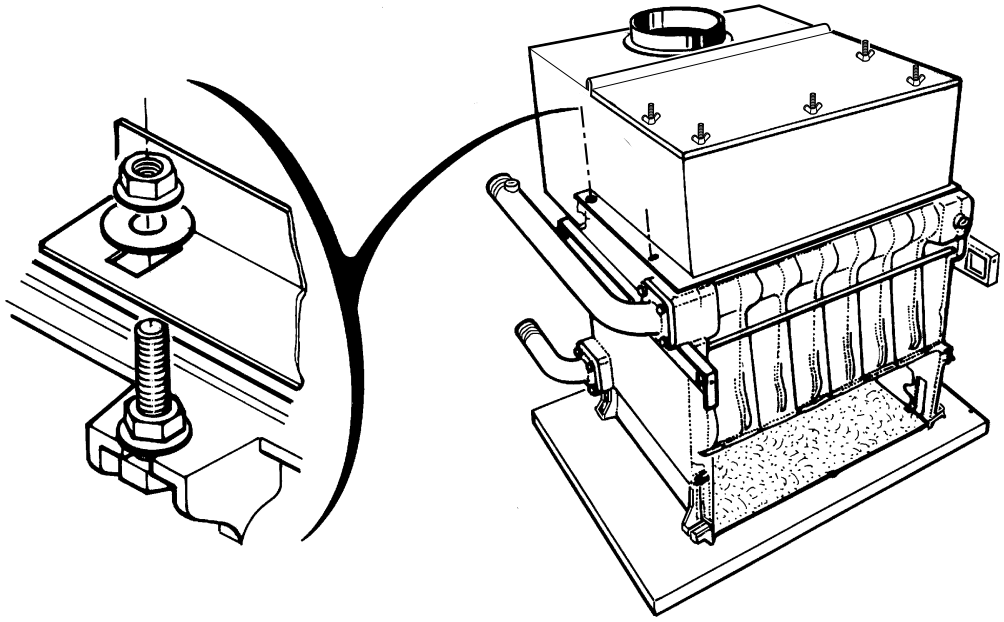


8377N011 A

Assembling the under burner insulation and the rear burner insulation

- Put the under burner insulation **A** in place after having unscrewed the ø 6.4 x 15.9 self tapping screw **B** previously mounted on the base.
- Place the insulation on the base using screw **B** removed previously.
- Put the rear insulation **C** in place after having applied Collafeu paste (1 tube supplied), as shown on the picture.

12



8502N043

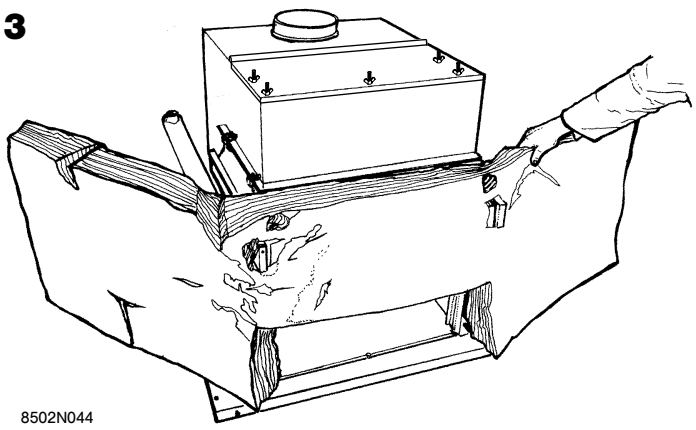
Package no.

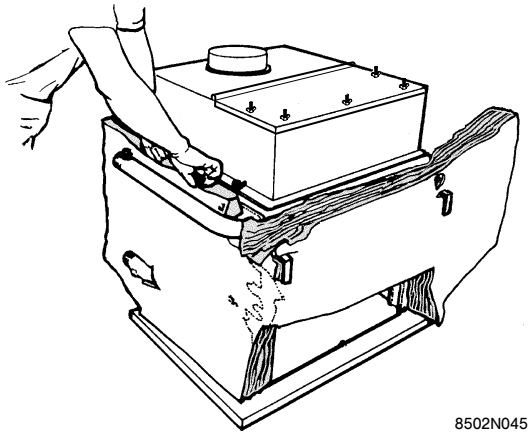
AtmoGas	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Draught diverter + Piping + Insulation	GC 033	GC 034	GC 035	GC 036	GC 037	GC 038	GC 039	GC 040

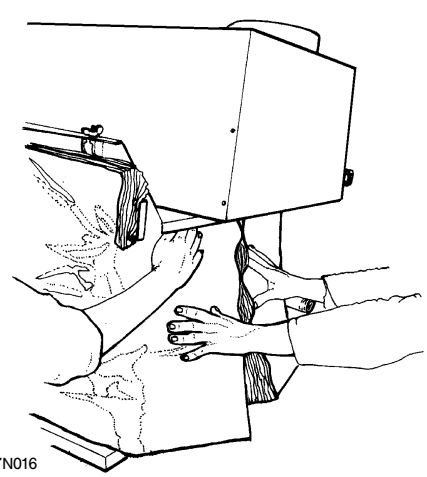
Assembling the draught diverter

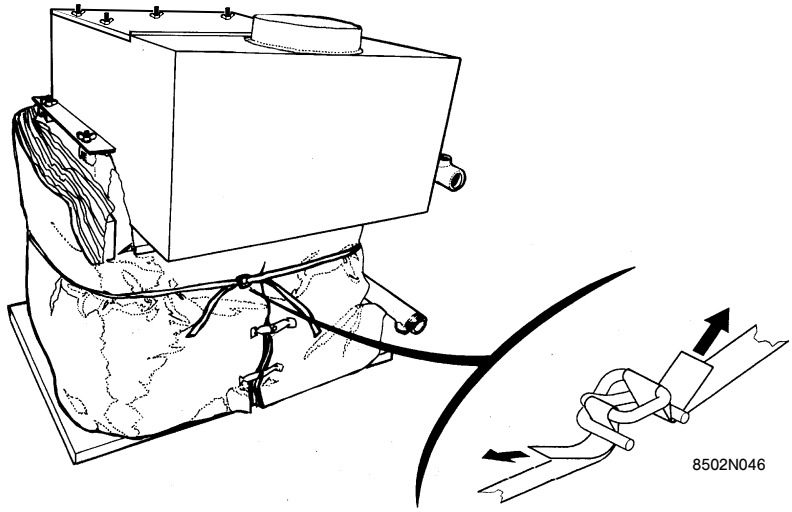
- Place the draught diverter on the body and fasten it using 4 ø 6 flanged nuts.

13





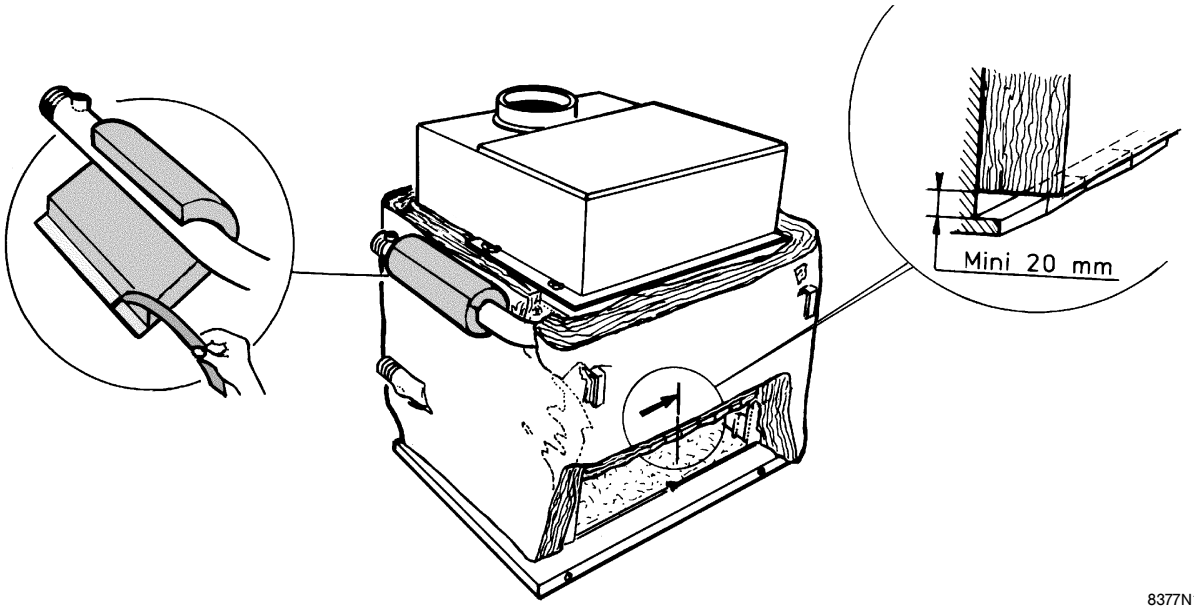




Assembling the body insulation

- Put the body insulation in place holding it on the front side and fold it on both sides.
- On the backside, insert both ends under the seam of the draught diverter.
- Hold the insulation in position by means of a strap and two ties on the backside.

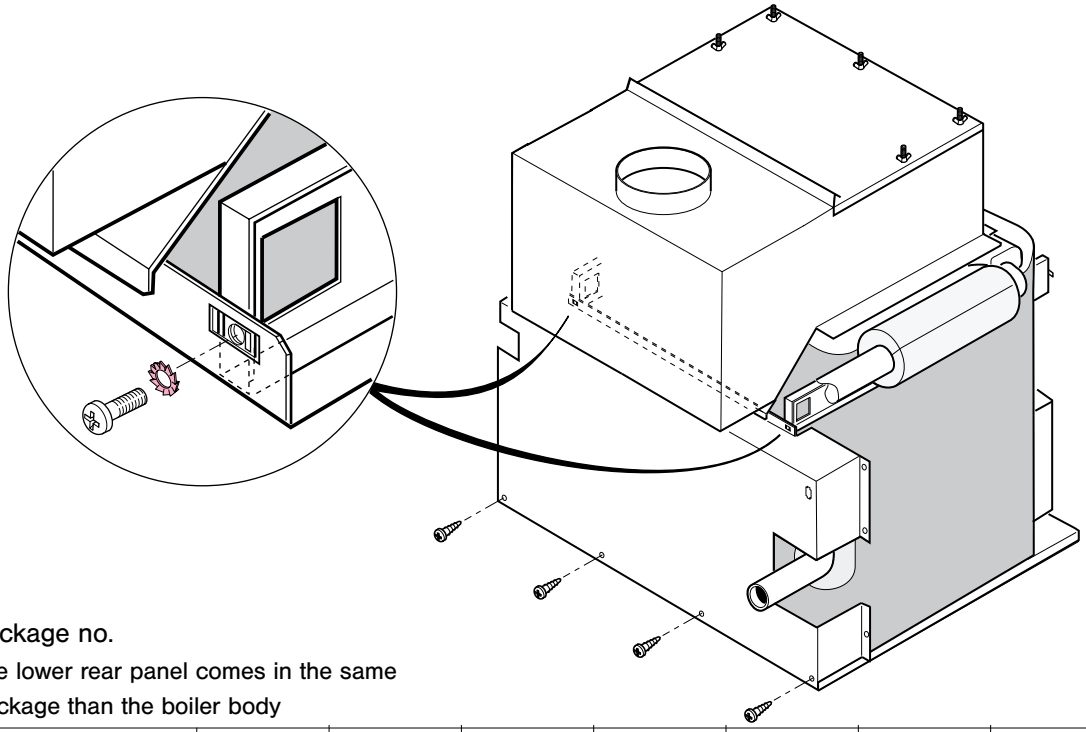
14



Assembling the flow pipe insulation

- Stick the insulation with self-adhesive tape on the flow pipe.

15



8502N048

Package no.

The lower rear panel comes in the same package than the boiler body

AtmoGas	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Disassembled body	CY 085	CY 086	CY 035	CY 036	CY 037	CY 038	CY 039	CY 040
Assembled body *	CY 075	CY 076	CY 003	CY 004	CY 005	CY 006	CY 007	CY 008

* Panel previously removed (in picture 9)

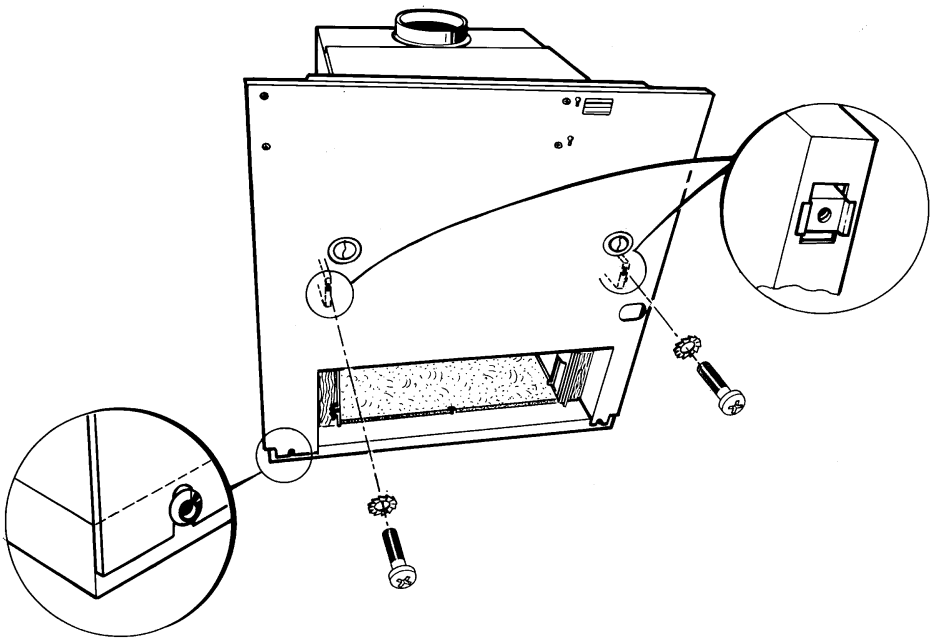
Assembling the lower rear panel

- Fasten the lower rear panel:

• on the base using 4 (AG55-AG82) or 5 (AG91-AG118) ø 3.9 x 6.4 endless screws

• on the cross-bars using 2 ø 6 x 10 screws + 2 DD ø 6 double-serrated washers.

16



8377N019A

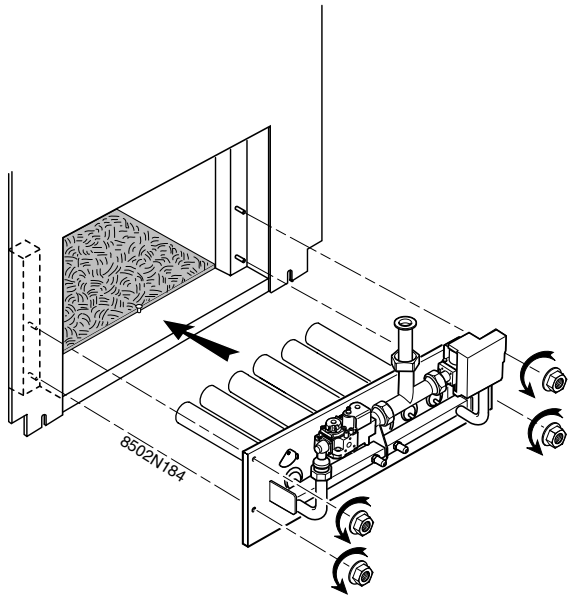
Packag no.

AtmoGas	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Casing	GC 281	GC 282	GC 283	GC 284	GC 285	GC 286	GC 287	GC 288

Assembling the front plate

- Place the plate on the 2 bushings of the base and press it against the two cross-bars, taking care not to jam the body insulation between the plate and the cross-bars.
- Fasten it onto the cross-bars using 2 HM6 x 10 screws + 2 DD ø 6 double serrated washers.

17



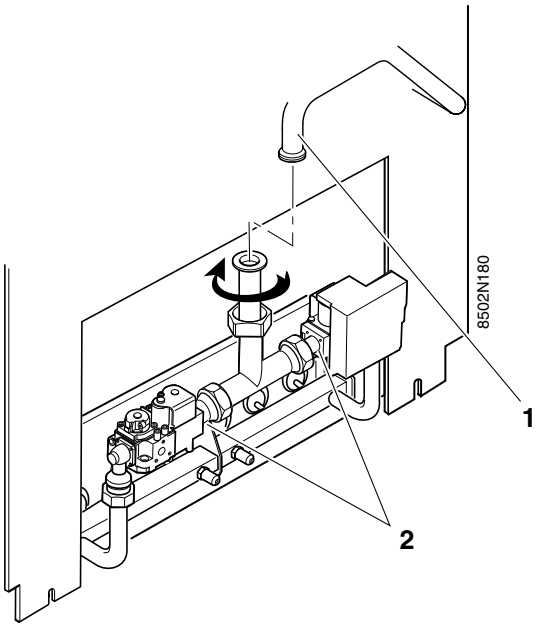
Package no.

AtmoGas	AG55	AG64	AG71	AG82	AG91	AG100	AG109	AG118
Gas train	GC 289	GC 290	GC 291	GC 292	GC 293	GC 294	GC 295	GC 296

Assembling the burner drawer

- Put the pre-mounted burner drawer in place and fasten it onto the 4 pins of the body using the 4 M8 notched flanged nuts that are supplied mounted on the pins (13 mm spanner).

18

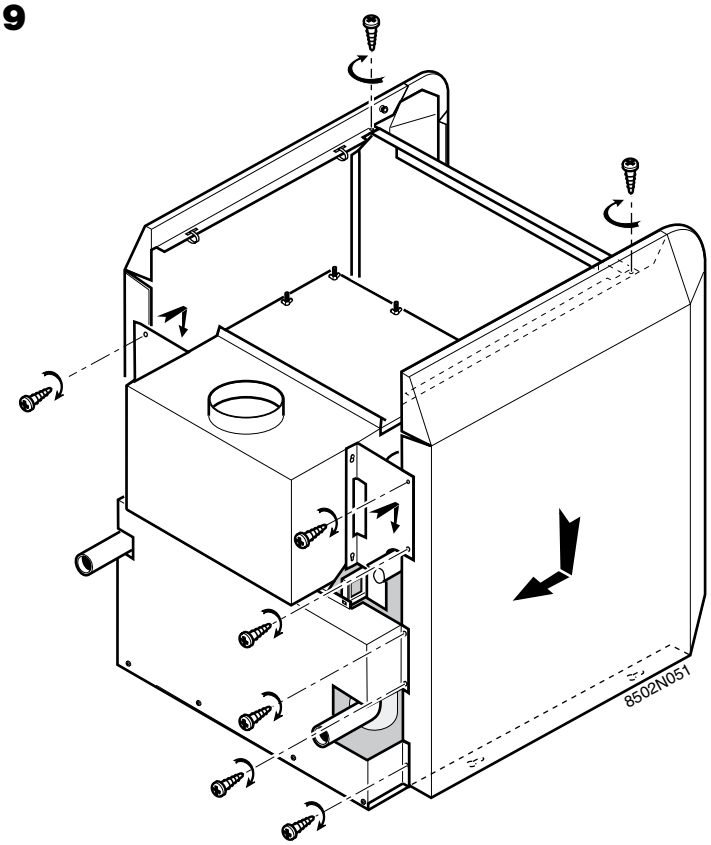


Assembling the gas inlet pipe

1- Put the gas inlet pipe in place, inserting the flat gasket ø 27 x 38 x 2 (supplied in the gas train screws set).

2- Tighten the connection(s) at the inlet of the gas valve(s).

19



Assembling the side panels

- Put the lower part of the panels (cage nut located in the upper front part) in the 2 openings on each side of the base and slide them backwards.

- Fasten them onto the front plate with 1 ø 3.9 x 6.4 self tapping endless screw + 1 ø 4 serrated washer.

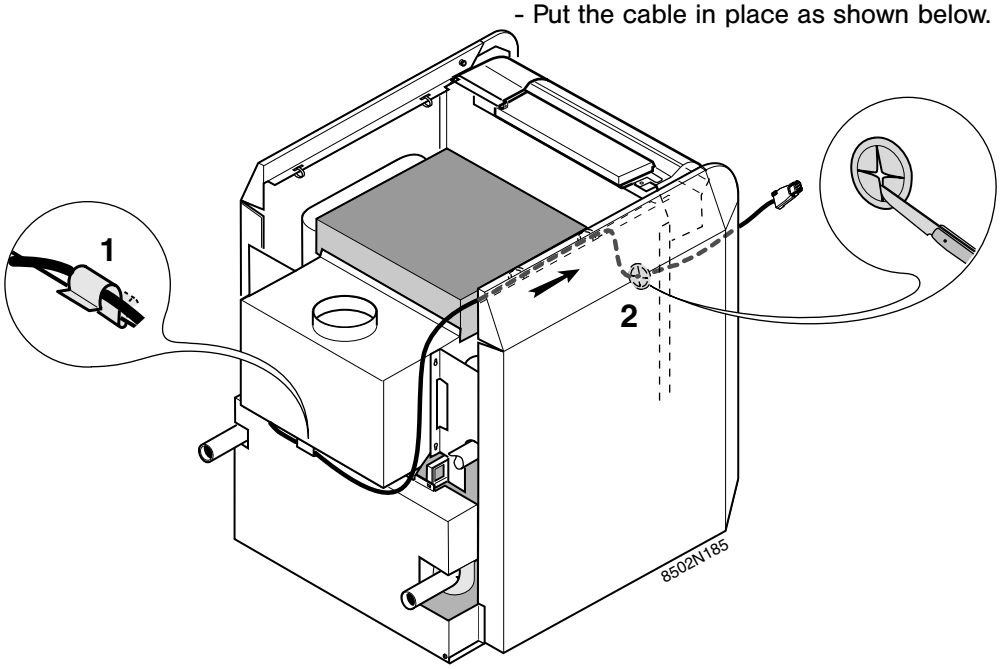
- Fasten them onto the lower rear plate with 3 ø 3.9 x 6.4 self tapping endless screws for each panel.

- Mount the 2 upper rear plates and fasten them onto the side plates using 2 self tapping screws.

20 Assembling the draught diverter thermostat

• **AG55 - AG71**: the draught diverter thermostat is supplied mounted in the draught diverter. Simply put the connection cable in place as shown below.

• **AG82 - AG118**: the draught diverter thermostat is supplied as an option.
- Fasten the draught diverter thermostat on the rear plate inside of the draught diverter (as explained on the leaflet supplied with the option).
- Put the cable in place as shown below.

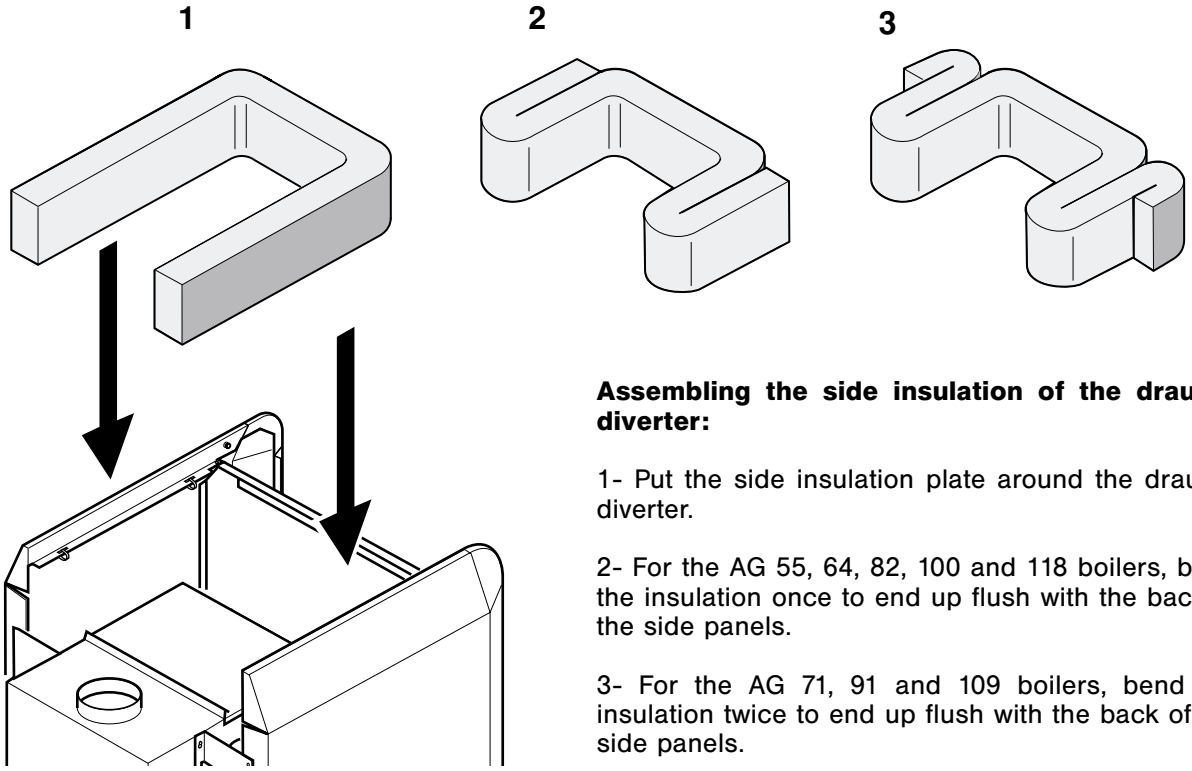


Installing the draught diverter thermostat cable.
- Fasten the draught diverter thermostat cable on the draught diverter rear plate using the clip supplied **1**.

- Fasten the male and female connectors of the cable on the lower rear plate.
- Bring the cable to the front of the boiler, passing it through the diaphragm cable gland **2** of the front plate.

21

AG55, 64, 82, 100 and 118 boilers **AG 71, 91 and 109 boilers**



8502N052

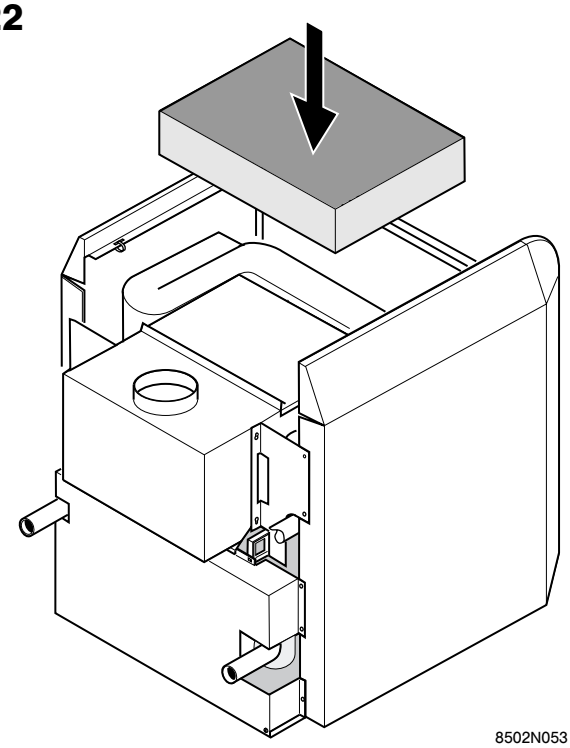
Assembling the side insulation of the draught diverter:

1- Put the side insulation plate around the draught diverter.

2- For the AG 55, 64, 82, 100 and 118 boilers, bend the insulation once to end up flush with the back of the side panels.

3- For the AG 71, 91 and 109 boilers, bend the insulation twice to end up flush with the back of the side panels.

22

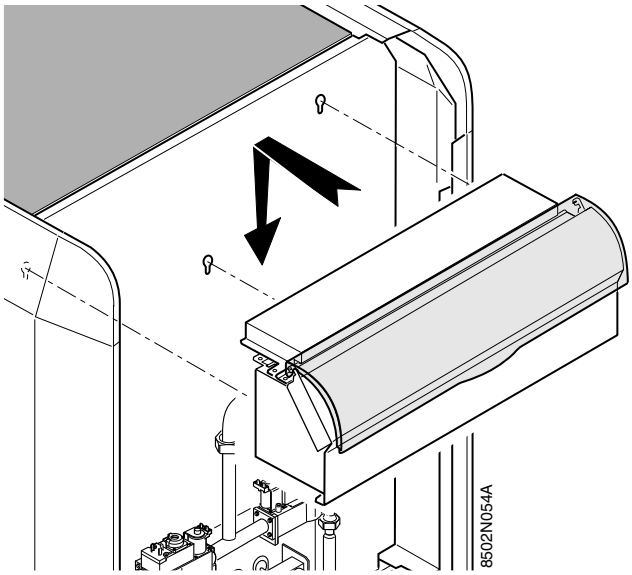


8502N053

Assembling the top insulation of the draught diverter

- Put the top insulation panel on the draught diverter.

23



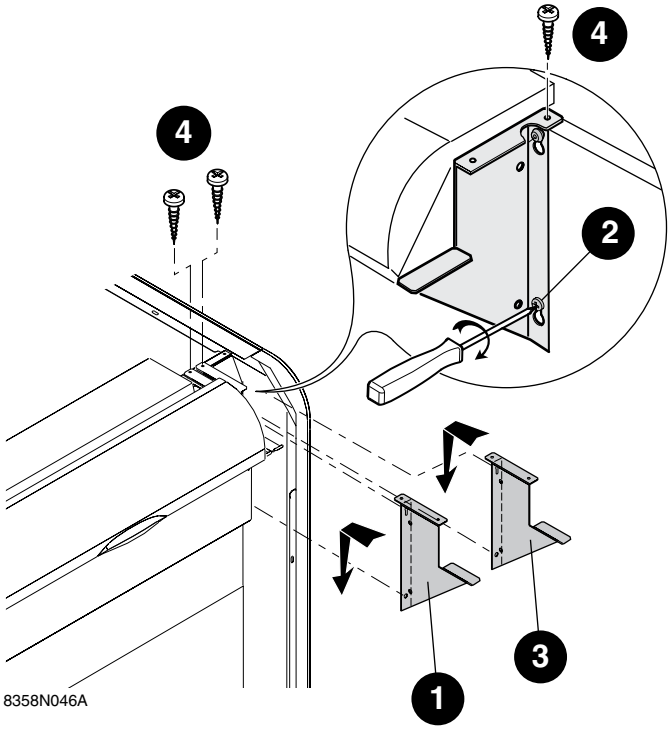
Assembling the control panel

Put the control panel in place in the 3 openings on the front panel.

Package no.:

- control panel package : GC 297

24



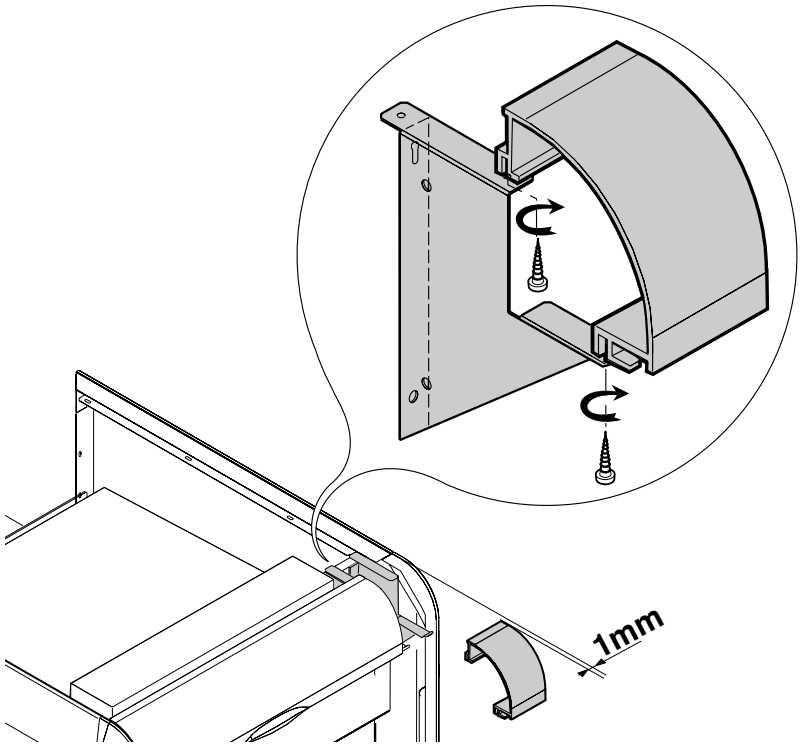
- Put the first square ❶ in place in the 1st opening of the front panel.
  Screw the square using screw ❷.

- Put the second square ❸ in place as explained above.

- Fasten the 2 squares on the front panel using 2 screws ❹.

Note: the AG55 boiler only requires one square.

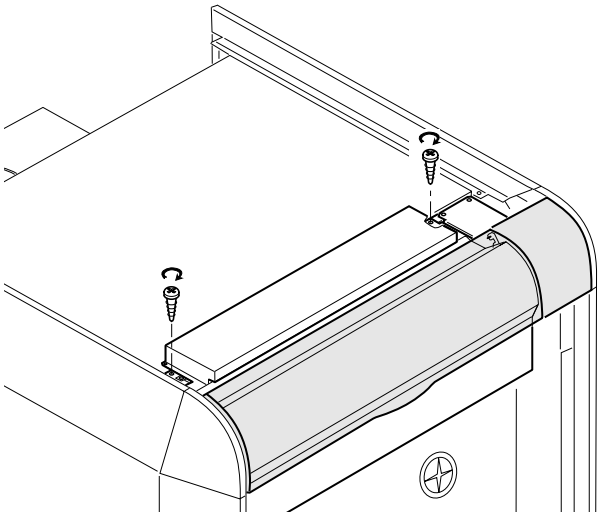
25



8358N052

- Put the additional part in place on the supports, at 1 mm of the right-hand side panel.
- Screw the additional part from the bottom with 4 screws.

26

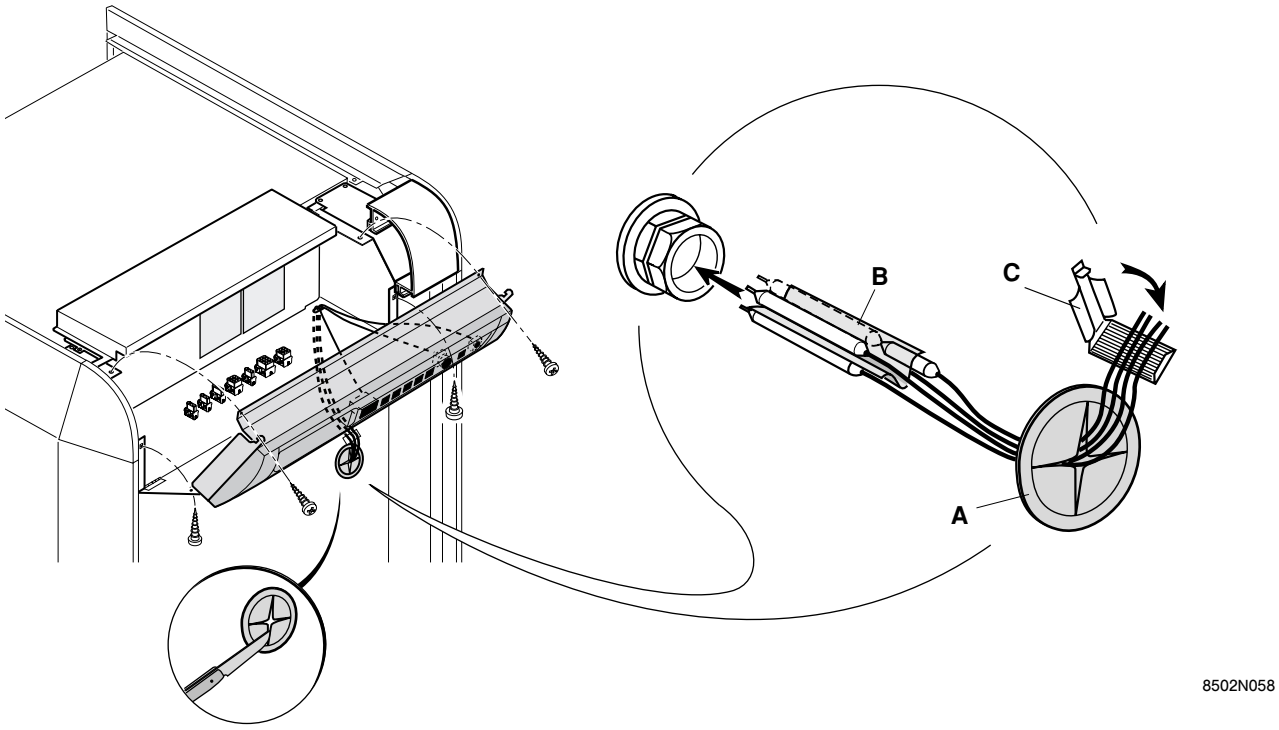


8502N057B

8502N057B

Fasten the control panel on the front plate with 2 screws.

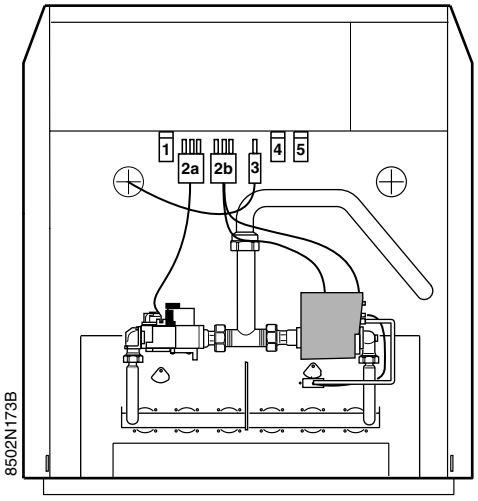
27



Placing the sensors

- Unscrew the 4 screws to open the control panel.
- Unreel the capillaries and insert them in the lower opening inside of the control panel.
- Remove the diaphragm cable gland from the front panel, cut an opening in it with a cutting tool and insert the sensors. Put the cable gland back in place on the front panel.
- Insert the sensors in the pocket of the boiler putting in place the separator supplied in the bag of the instructions manual (see detail).
- Hold the sensor cables on the front plate with the previously mounted flat cable tie.
- Close the control panel.

28



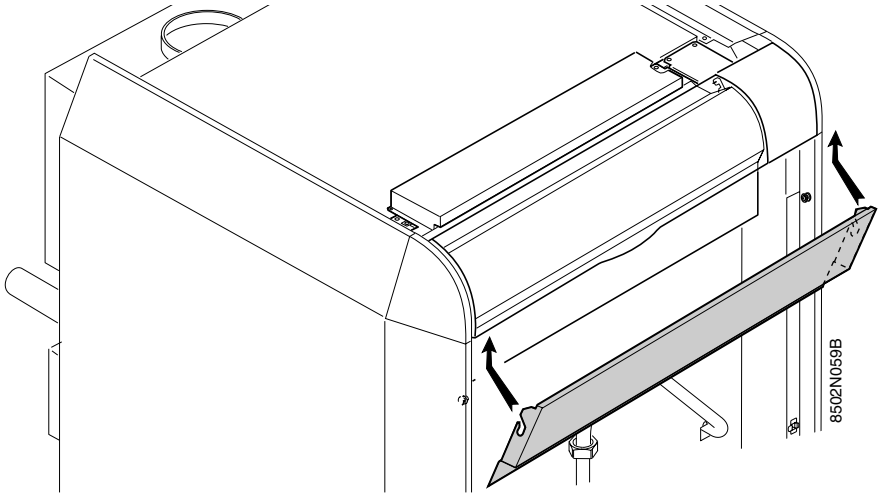
Gas train connection and electrical connections

- Connect the 3 connectors coming from the gas train.

Refer to the label placed below the control panel.

1. Gas pressure switch (not used, factory-mounted bridging)
2a. 2nd stage gas valve
2b. Safety control box + 1st stage gas valve
3. Draught diverter thermostat package **GC 22** (optional as from the AG 82 models, factory-mounted bridge)
4. Flue damper (not used, factory-mounted bridging plug)
5. Gas valve proving system package **CY 41** (optional, factory-mounted bridging plug)

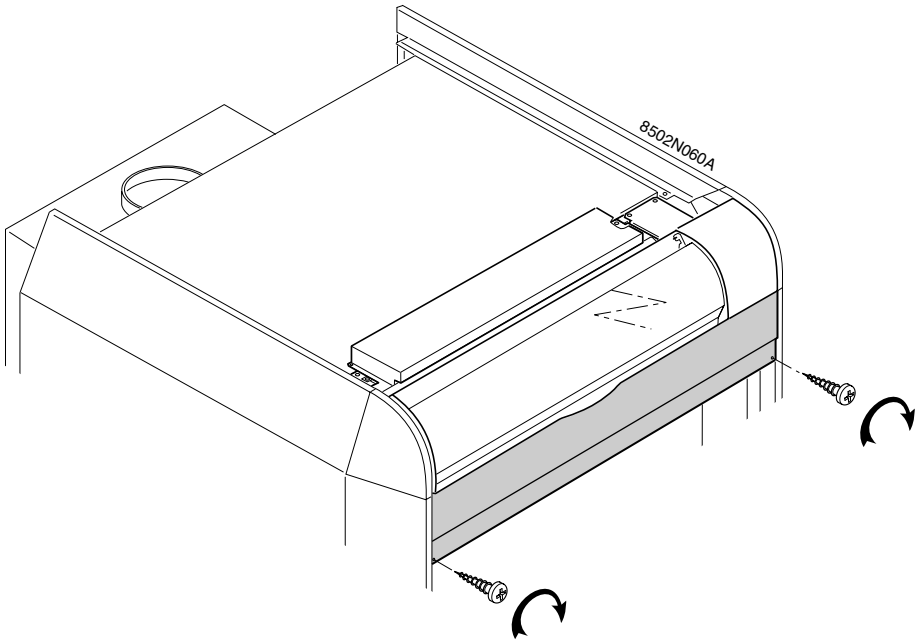
29



Assembling the upper front panel

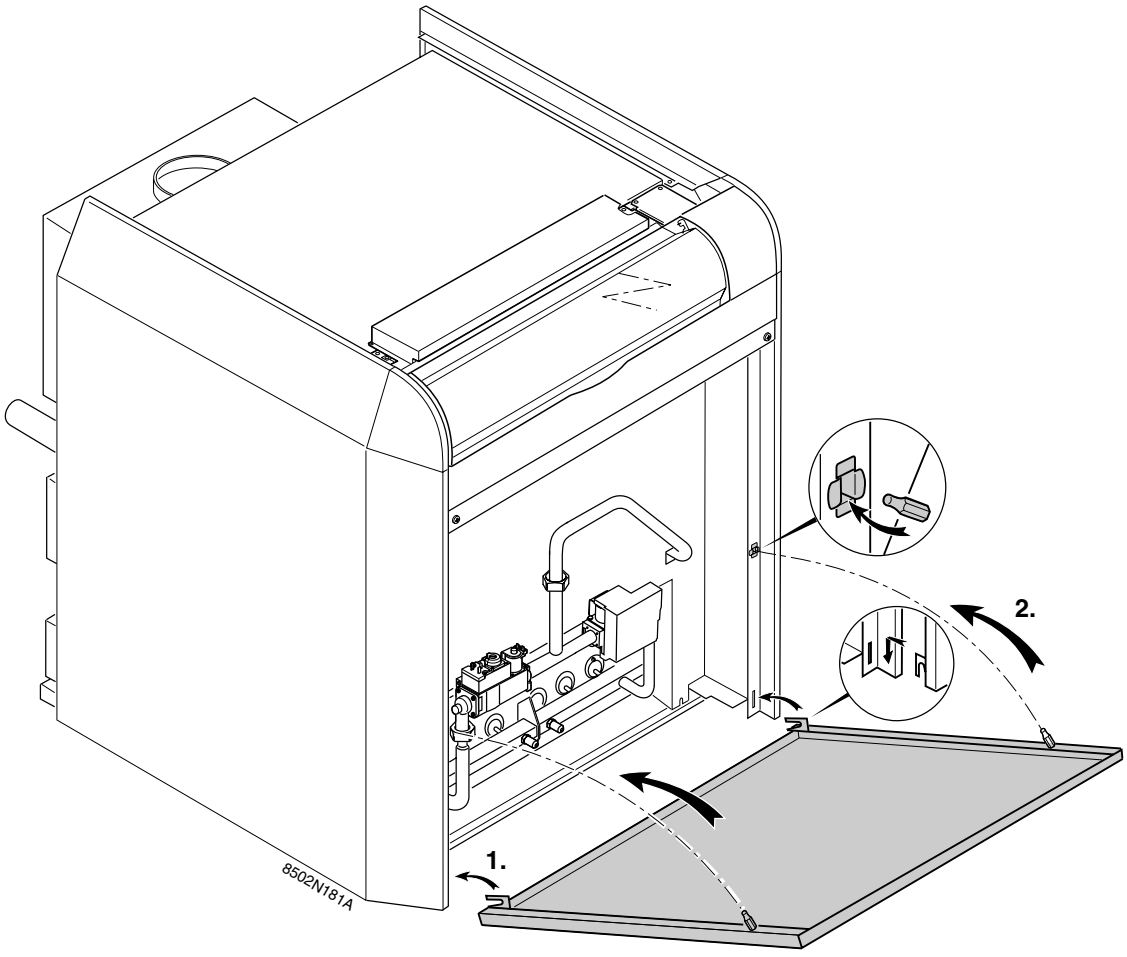
1) Put the upper front panel in place.

30



2) Fasten the upper front panel with 2 screws.

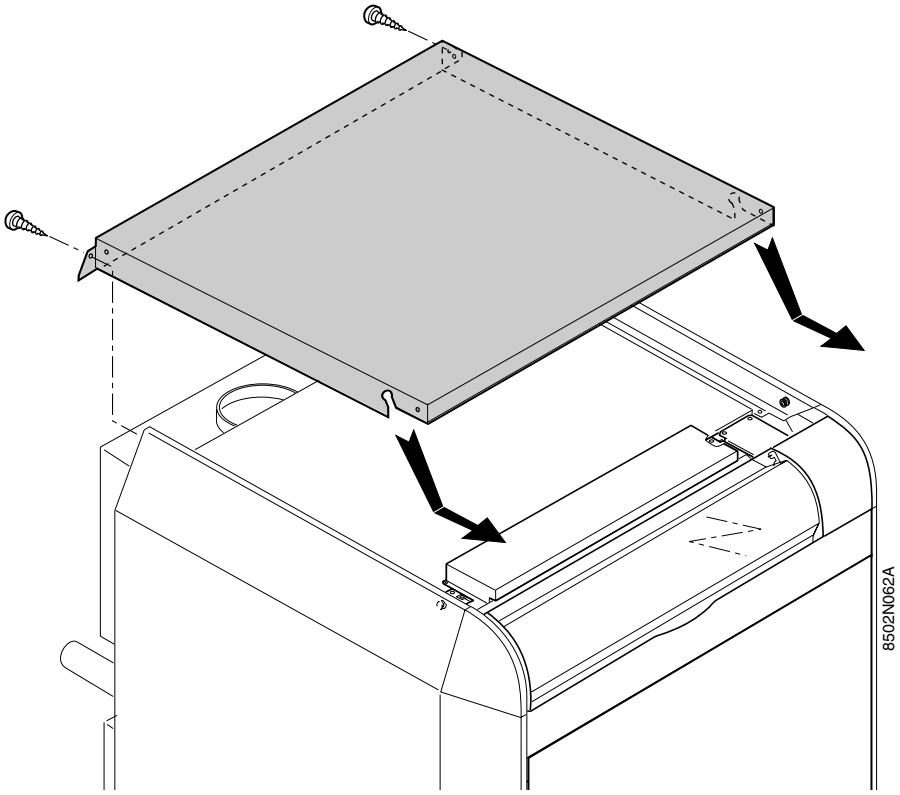
31



Assembling the boiler door

1. Insert the door in the lower part of the side panels.
2. Close the door

32



Installing the top panel

- Slide the top panel on the bushings towards the front and fasten it on the rear with 2 screws.

Installer :

☎

Servicing company :

☎

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Protection of the Environment

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