

GB

Planet Dewy 90 A - 110 A

*Installation and
servicing instructions*



*The code of practice for the installation,
commissioning & servicing for central heating systems*

CERTIFICAZIONE
DEL SISTEMA DI
QUALITÀ AZIENDALE

ISO 9001
registered by



INSTALLER INSTRUCTIONS

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***The code of practice for the installation,
commissioning & servicing for central heating systems***

Please refer to commissioning instructions for filling in the log book

Note: All CORGI registered installers carry a CORGI ID Card.
You can check your installer is CORGI Registered by calling 01256 372300

SIME COMBINATION BOILERS

Installer checklist

Please remember to carry out the following checks after installation. This will achieve complete customer satisfaction, and avoid unnecessary service calls. A charge will be made for a service visit where the fault is not due to a manufacturing defect.

- Has a correct by-pass been fitted and adjusted?
- Has the system and boiler been flushed?
- Is the system and boiler full of water, and the correct pressure showing on the pressure gauge?
- Is the Auto Air Vent open?
- Has the pump been rotated manually?
- Is the gas supply working pressure correct?
- Is the boiler wired correctly? (See installation manual).
- Has the D.H.W. flow rate been set to the customer requirements?
- Has the customer been fully advised on the correct use of the boiler, system and controls?
- Has the log book provided been completed?

1 DESCRIPTION OF THE BOILER

1.1 INTRODUCTION

"PLANET DEWY 90 A - 110 A" boilers are premix condensation thermal appliances which use microprocessor technology for function control and management.

They comply with the european directives 90/396/CEE, 89/336/CEE, 73/23/CEE, 92/42/CEE and with the european specification EN 483.

These appliances heat and supply domestic hot water with a sealed forced draught

combustion chamber with electronic ignition and control.

The instructions given in this manual are provided to ensure proper installation and perfect operation of the appliance.

1.2 DIMENSIONS

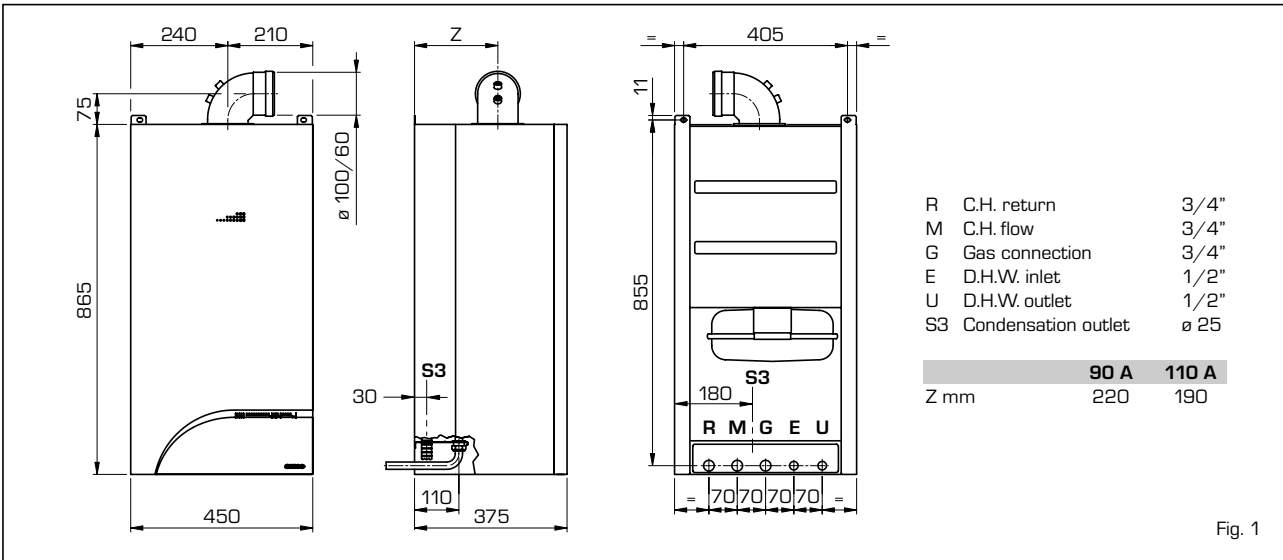


Fig. 1

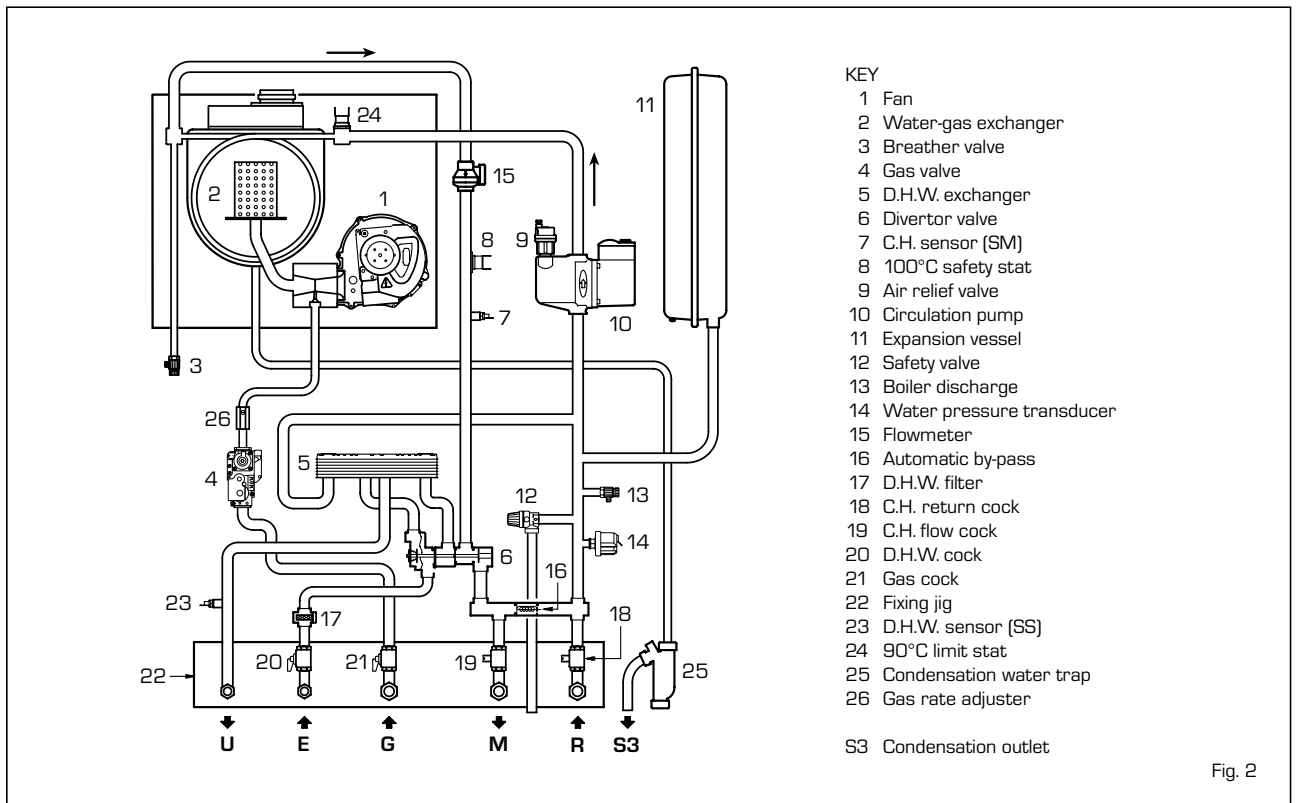
1.3 TECHNICAL FEATURES

		90 A	110 A
Heat output (80-60°C)			
Nominal	kW [kcal/h]	24.5 [21,070]	29.4 [25,280]
Minimum	kW [kcal/h]	8.6 [7,400]	10.4 [9,000]
Heat output (50-30°C)			
Nominal	kW [kcal/h]	26.9 [23,130]	32.4 [27,860]
Minimum	kW [kcal/h]	9.6 [8,250]	11.7 [10,060]
D.H.W. heat output			
Nominal	kW	24.5	29.4
Heat input			
Nominal/Minimum [g.c.v.]	kW	27.8/10.0	33.3/12.0
Nominal/Minimum [n.c.v.]	kW	24.9/9.0	30.0/10.8
Efficiency (80-60°C)			
Nominal/Minim. output [g.c.v.]	%	88.2/86.7	88.2/87.4
Nominal/Minim. output [n.c.v.]	%	97.9/96.3	98.0/97.1
Efficiency (50-30°C)			
Nominal/Minim. output [g.c.v.]	%	97.0/96.5	97.3/97.4
Nominal/Minim. output [n.c.v.]	%	107.7/107.2	108.1/108.2
Water content			
	l	4.8	5.3
Adsorbed power consumption			
	W	175	175
Electrical protection grade			
		IP X4D	IP X4D
Maximum water head			
	bar	3	3
Maximum temperature			
	°C	85	85
Expansion vessel			
Water content	l	8	8
Preloading pressure	bar	1	1
C.H. setting range			
	°C	20÷80	20÷80
D.H.W. setting range			
	°C	35÷60	35÷60

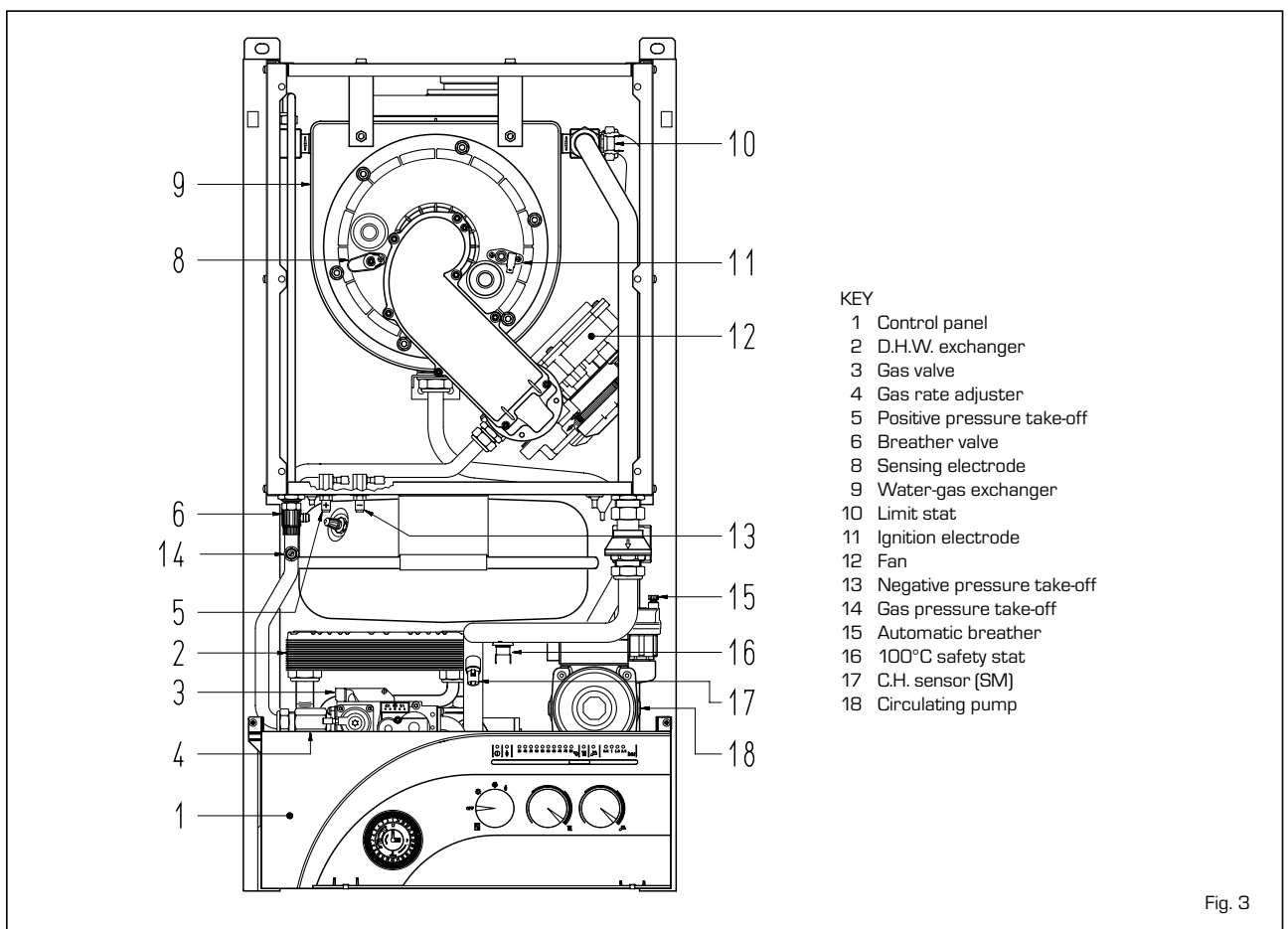
		90 A	110 A
D.H.W. flow rate (EN 625)			
	l/min	10.5	13.7
D.H.W. flow rate Δt 30°C			
	l/min	11.5	14.1
D.H.W. flow rate Δt 35°C			
	l/min	9.8	12.1
Minimum D.H.W. flow rate			
	l/min	2	2
D.H.W. pressure			
Minimum	bar	0.5	0.5
Maximum	bar	7	7
Smokes temperature			
Maximum/Minimum (80-60°C)	°C	65/64	70/69
Maximum/Minimum (50-30°C)	°C	46/43	48/45
Smokes flow			
	kg/h	42.4	49.0
Category			
		II2H3P	II2H3P
Type			
		C13-33-43-53-83	C13-33-43-53-83
Weight			
	kg	49	51.4
Main burner nozzles			
Quantity	n°	1	1
G20	ø mm	6.5	6.0
Gas consumption			
Nominal/Minimum (G20)	m³/h	2.65/0.95	3.17/1.14
Gas supply pressure			
G20	mbar	20	20
Pollutants in flue gas			
CO	ppm	35	27
NOx	ppm	30	35

The gas consumptions refer to the calorific value at standard conditions at 15°C - 1013 mbar.

1.4 FUNCTIONAL DIAGRAM



1.5 MAIN COMPONENTS



2 INSTALLATION

The boiler must be installed in a fixed location and only by specialized and qualified firms in compliance with all instructions contained in this manual. Furthermore, the installation must be in accordance with current standards and regulations.

2.1 BOILER ROOM

The "PLANET DEWY 90 A - 110 A" version boilers can be installed in any domestic environment without any location restrictions or extra air requirements.

2.2 FIXING THE WALL MOUNTING BRACKET

- Mark the position of the two wall mounting bracket fixing holes and the flue/air duct hole on the appropriate wall(s).
- Drill the top two fixing holes using a 10 mm masonry drill and fit the plastic plugs provided.
- Cut the hole in the wall for the flue/air duct. The diameter should not be less than 100 mm (4 in) and must be horizontal. If the hole is not accessible from the outside of the building, its minimum diameter should be sufficient to allow the insertion of the wall liner (130 mm - 5 1/4 in diameter) which will be sealed with mortar.
- Accurately measure the wall thickness, and note this dimension for later use.
- Secure the wall mounting bracket in position using the screws provided. Ensure that it is the correct way up, as indicated in fig. 4.

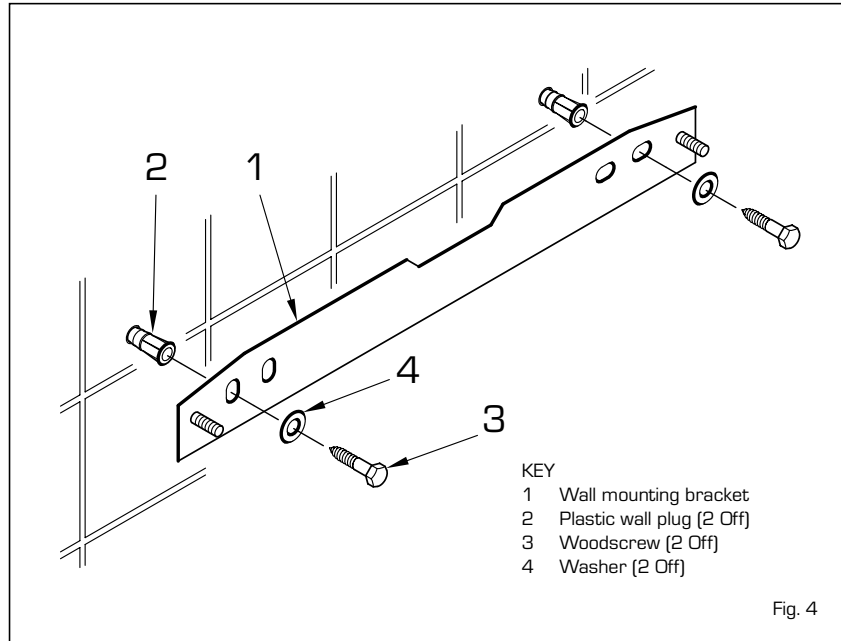
2.2.1 Replacement wall kit for other makes (optional)

The kit code n° 8093900 is supplied complete with mounting instructions.

2.3 CONNECTING UP SYSTEM

Before proceeding to connect up the boiler, you are recommended to flush out the system in order to eliminate any foreign bodies that might be detrimental to the operating efficiency of the appliance. When making the hydraulic connections, make sure that the dimensions indicated in fig. 1 are respected. To facilitate the hydraulic connections the boiler is equipped with a valve pack code 5184803 complete with instructions sheet.

A safety valve set at 3 bar is fitted to the appliance, the discharge pipe provided should be extended to terminate safely away from the appliance and where a discharge would not cause damage to persons or property but would be detected. The pipe should be a minimum of 15 mm id. and should be able to withstand boiling water; any horizontal runs must be kept to a minimum as pipework may be prone to freezing.



The gas connection must be made using seamless steel or copper pipe (Mannesmann type), galvanized and with threaded joints provided with gaskets, excluding three-piece connections, except for initial and end connections. Where the piping has to pass through walls, a suitable insulating sleeve must be provided.

When sizing gas piping, from the meter to the boiler, take into account both the volume flow rates (consumption) in m³/h and the relative density of the gas in question.

The sections of the piping making up the system must be such as to guarantee a supply of gas sufficient to cover the maximum demand, limiting pressure loss between the gas meter and any apparatus being used to not greater than 1.0 mbar for family II gases (natural gas).

An adhesive data badge is sited inside the front panel; it contains all the technical data identifying the boiler and the type of gas for which the boiler is arranged.

2.3.1 Connection of condensation water trap

The drip board and its water trap must be connected to a civil drain through a pipe with a slope of at least 5 mm per metre to ensure drainage of condensation water.

The plastic pipes normally used for civil drains are the only type of pipe which is appropriate for conveying condensation to the building's sewer pipes.

2.3.2 Filter on the gas pipe

The gas valve is supplied ex factory with an inlet filter, which, however, is not adequate to entrap all the impurities in the gas or in gas main pipes.

To prevent malfunctioning of the valve, or in

certain cases even to cut out the safety device with which the valve is equipped, install an adequate filter on the gas pipe.

2.4 CHARACTERISTICS OF FEEDWATER

It is absolutely essential that the water for the central heating system is to be treated in the following cases:

- Very extensive system (with high contents of feedwater).
- Frequent addition of makeup water into the system.
- Should it be necessary to empty the system either partially or totally.

2.5 COAXIAL DUCT ø 60/100

The air inlet-smoke outlet assembly, code 8096200, is included in the standard supply of the appliance complete with mounting instructions.

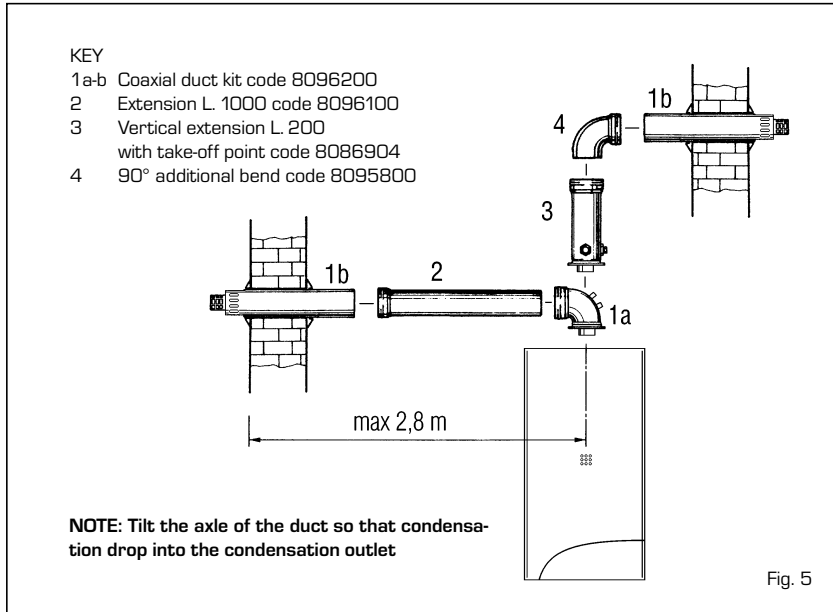
Note: to use only special accessories for condensing boilers.

2.5.1 Coaxial duct accessories

The accessories to be used for this type of installation and some of the connecting systems that may be adopted are illustrated in fig. 5.

With the pipe bend included in the kit, the maximum length of the piping should not exceed 2.8 meter.

Where the supplementary bend code 8095800 is used, the total length of the piping can reach a maximum of 1.6 meter. When the vertical extension code 8086904 is used, the terminal part of the pipe must always come out horizontally.



installed (excluding the doublers) and must not be greater than 12.5 mm H₂O (version "90 A") e 15.5 mm H₂O (version "110 A"). For head losses in the fittings, refer to Table 2.

NOTE: to use only special accessories for condensing boilers.

2.5.2 Positioning the outlet terminals

The outlet terminals for forced-draught appliances may be located in the external perimeter walls of the building. To provide some indications of possible solutions, Table 1 gives the minimum distances to be observed, with reference to the type of building shown in fig. 6.

2.6 SEPARATE PIPES ø 80

A special kit may be used to separate the flue gas outlet from the fresh air intake. The intake may be installed to the right or left of the flue gas outlet. Both ducts may be oriented in any direction. Refer to fig. 7 for positioning. The maximum overall length of the intake and exhaust ducts depends on the head losses of the single fittings

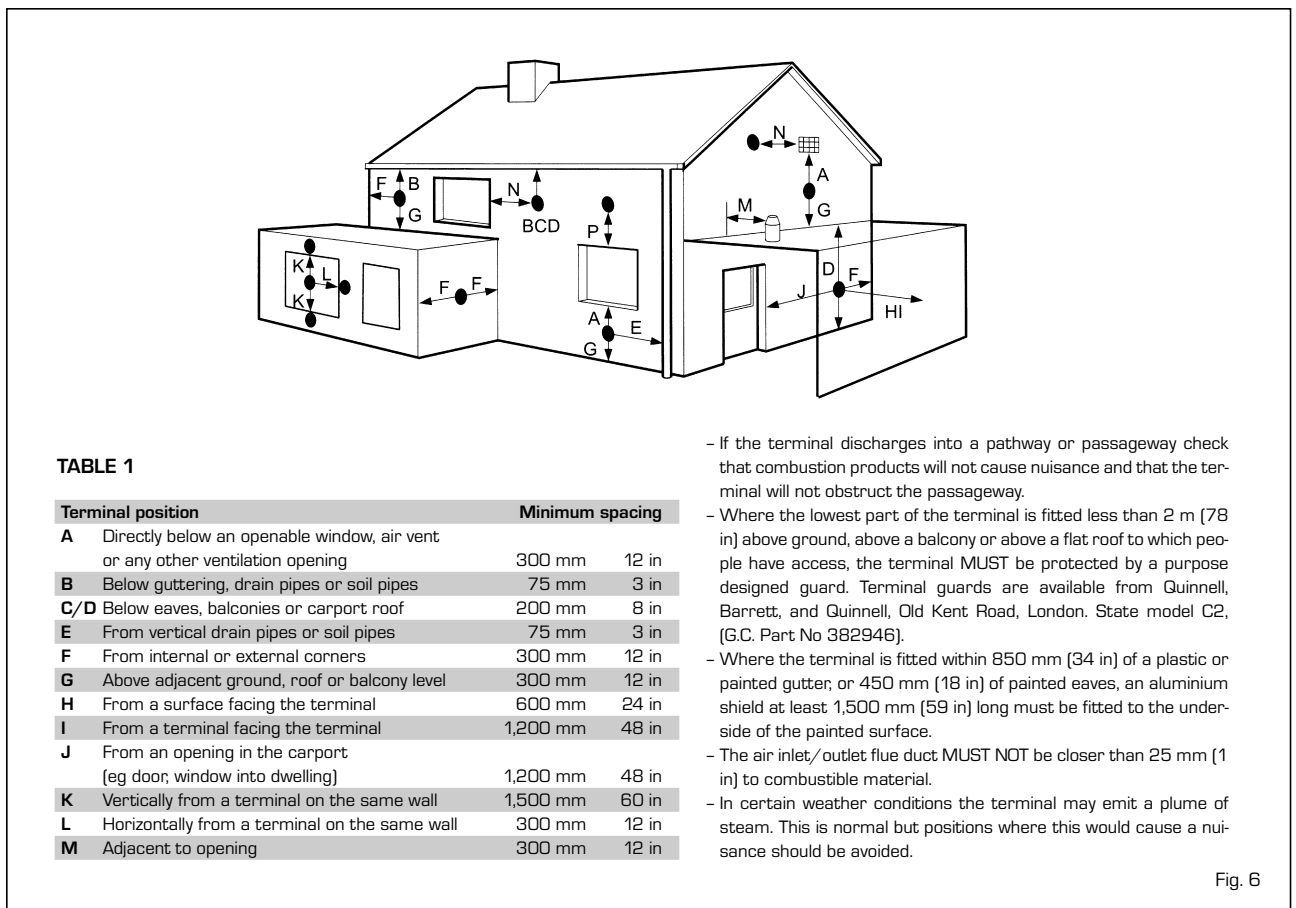
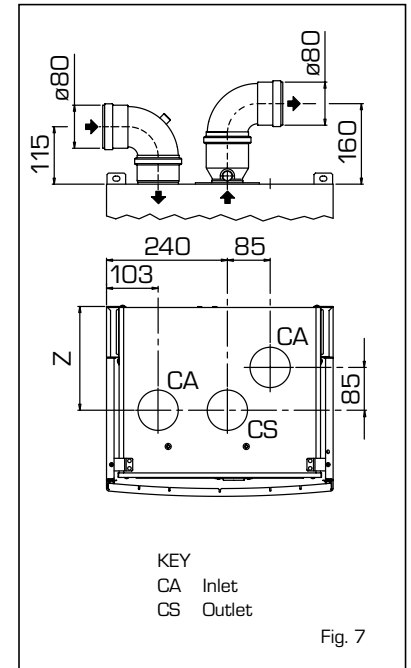


TABLE 2

Accessories ø 80	Head loss (mm H ₂ O) vers. "90 A"			Head loss (mm H ₂ O) vers. "110 A"		
	Inlet	Outlet	Roof outlet	Inlet	Outlet	Roof outlet
90° elbow MF	0,30	0,40	-	0,30	0,50	-
45° elbow MF	0,20	0,30	-	0,20	0,40	-
Extension L. 1000 (horizontal)	0,20	0,30	-	0,20	0,40	-
Extension L. 1000 (vertical)	0,30	0,30	-	0,10	0,30	-
Outlet terminal	-	0,30	-	-	0,40	-
Inlet terminal	0,10	-	-	0,10	-	-
Doubler fitting	0,50	1,60	-	0,50	1,80	-
Roof outlet terminal L.1240	-	-	0,50	-	-	0,60

Example of allowable installation calculation version "90 A" in that the sum of the head losses of the single fittings is less than 12,5 mm H₂O:

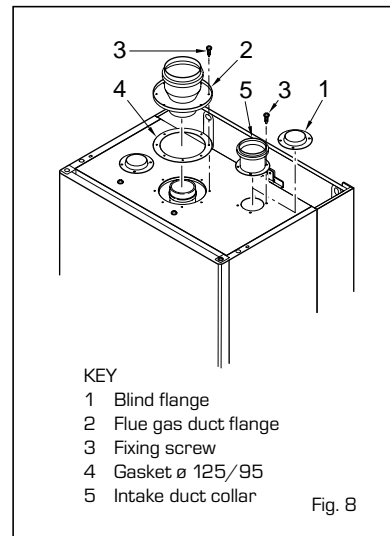
	Inlet	Outlet		
7 m horizontal pipe ø 80 x 0,20	1,40	-		
7 m horizontal pipe ø 80 x 0,30	-	2,10		
n° 2 90° elbows ø 80 x 0,30	0,60	-		
n° 2 90° elbows ø 80 x 0,40	-	0,80		
N° 1 terminal ø 80	0,10	0,30		
Total head loss	2,10	3,20	=	5,3 mm H₂O

2.6.1 Separate pipe accessories

Kit code 8089903 is supplied for this purpose (fig. 8). The sectored diaphragm is to be used according to the maximum head loss allowed in both pipes, as given in fig. 9.

2.6.2 Separate-pipes roof outlet

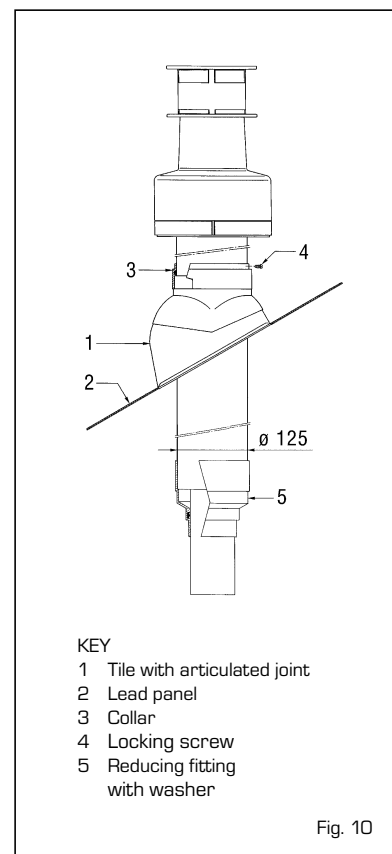
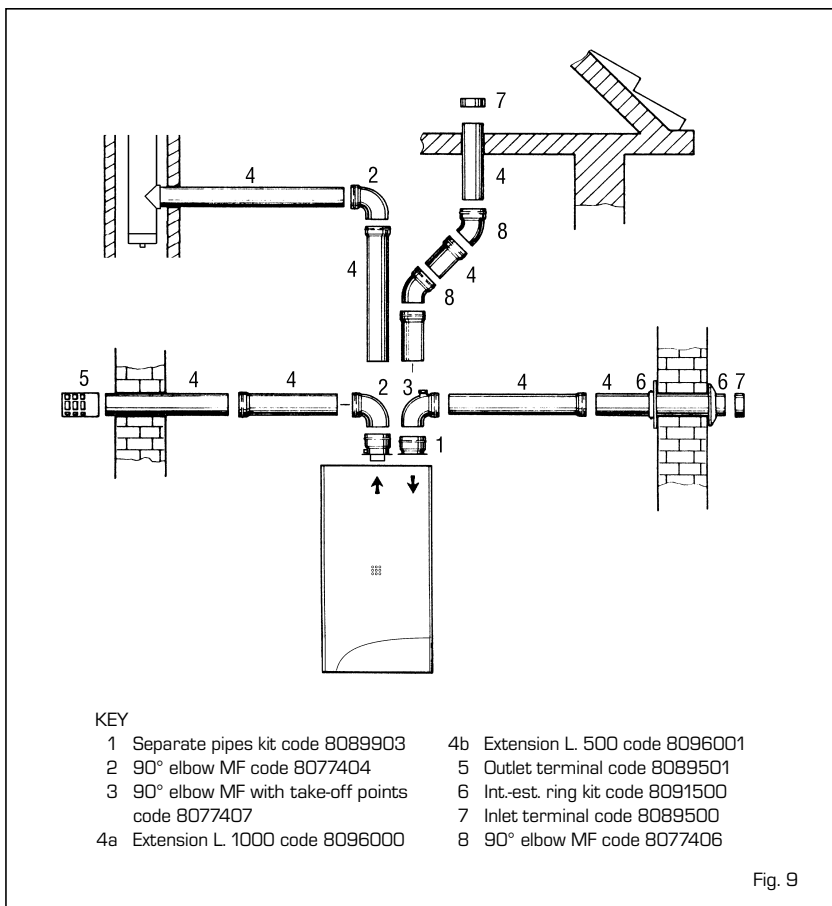
The roof outlet terminal L. 1240 cannot be shortened and when positioning the tile, the minimum distance from the discharge head terminal must not be less than 700 mm (fig. 10). The accessories to be used for this type



of installation and some of the connecting systems that may be adopted are illustrated in fig. 11. There is the possibility of doubling the air-intake and smoke-outlet pipes and then bringing them back together again so as to obtain a concentric discharge by using the doubler fitting (9 fig. 11).

For this type of discharge the sum of the maximum rectilinear development allowed for the pipes must not exceed 12.5 mm H₂O (version "90 A") e 15.5 mm H₂O (version "110 A").

When calculating the lengths of pipe, take into account the parameters given in the **Table 2**.



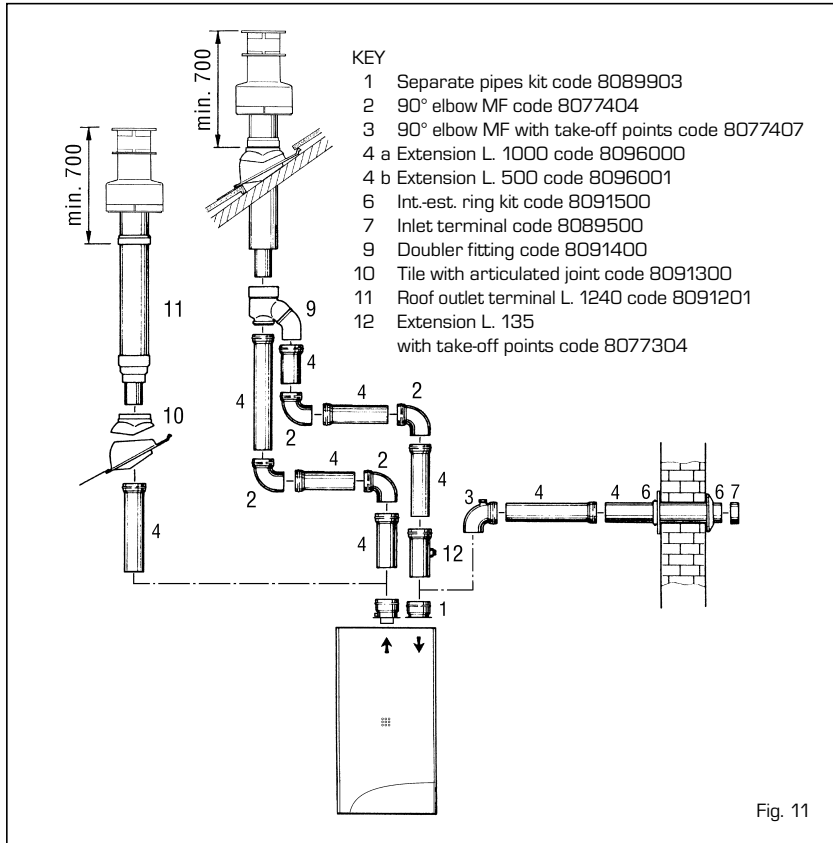


Fig. 11

Ø 60 PIPING SYSTEM

A special kit for separating smoke release pipes and air intake pipes.

The diameter 80 intake pipe may be installed to the right or left of the diameter 60 smoke pipe, indifferently.

Both pipes may be oriented in any direction. Refer to fig. 7 for positioning of boiler connections.

Maximum total length, obtained by adding together the lengths of intake and flue pipes, is determined by the load loss of individual accessories inserted and must be no more than 12.5 mm H₂O (version "90A") and 15.5 mm H₂O (version "110A").

Refer to **Table 2** for head losses of Ø 80 intake pipe accessories; refer to **Table 2/a** for head loss of Ø 60 exhaust pipe accessories.

TABLE 2/a

Accessories Ø 60	Head loss (mm H ₂ O)	
	"90 A"	"110 A"
90° elbow	1,1	1,3
Extension L. 1000	0,7	0,9
Outlet terminal	0,6	0,8
Tee joint	1,4	1,6

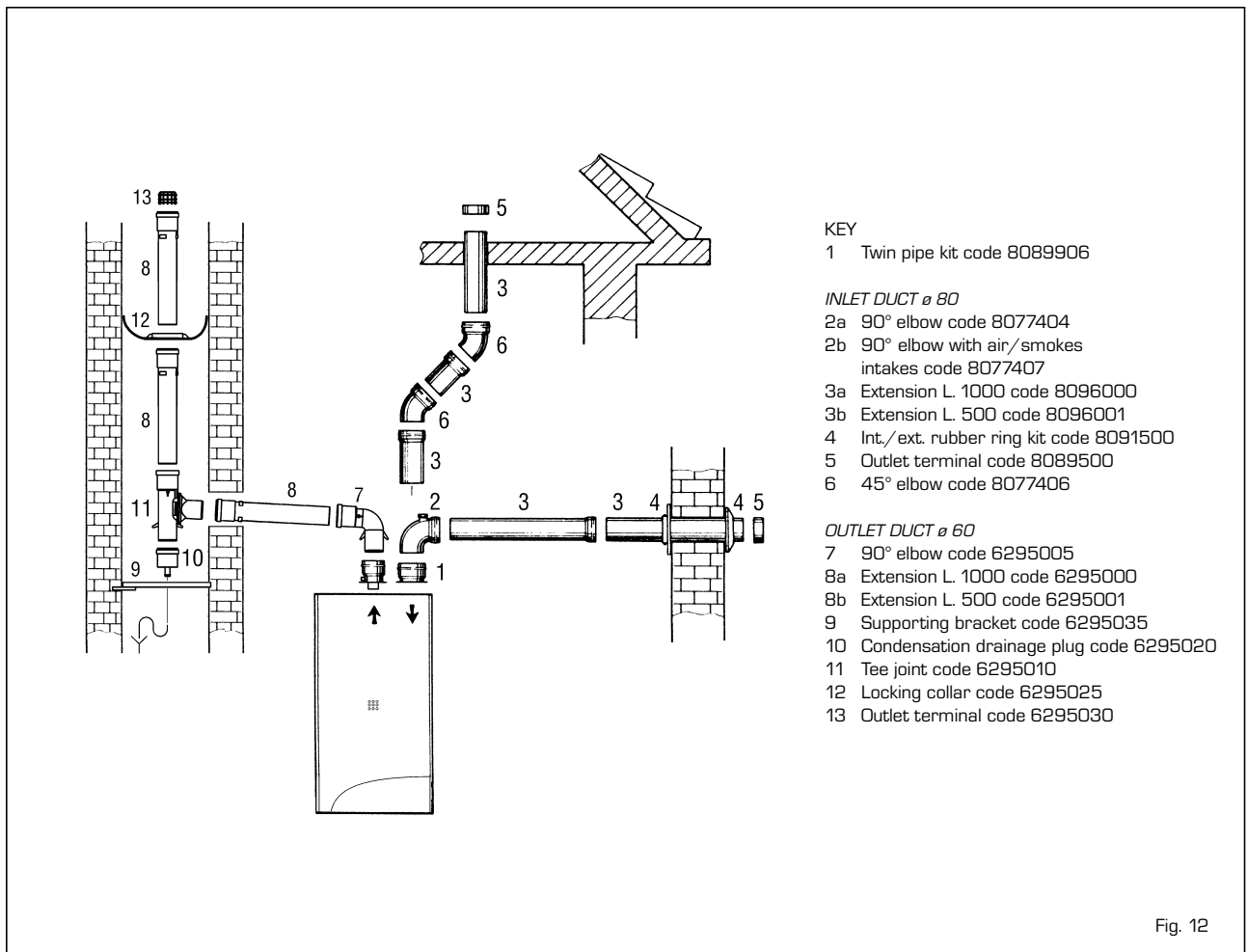


Fig. 12

2.7.1 Accessories completing installation

The complete range of accessories required for this type of installation is shown in fig. 12.

WARNING:

With this kind of installation, the smoke safety thermostat kit code 8089815 is required to protect the smoke channel if there is a diameter 60 exhaust pipe. Refer to the wiring diagram in fig. 13.

2.8 ELECTRICAL CONNECTION

The boiler is supplied with an electric cable. Should this require replacement, it must be purchased exclusively from SIME.

The electric power supply to the boiler must be 230V - 50Hz single-phase through a fused main switch, with at least 3 mm spacing between contacts. Respect the L and N polarities and the earth connection.

NOTE:

SIME declines all responsibility for injury or damage to persons, animals or things, resulting from the failure to provide for proper earthing of the appliance.

2.8.1 Room stat connection

To gain access to the TA-CR-SE (J2) electronic board connector; remove the control panel cover and connect the room stat to the terminals 4-5 after having removed the jumper (fig. 13). The thermostat or timer-thermostat, recommended for better room temperature control, must be class II as specified by standard EN 60730.1 (clean contact).

WARNING: Applying mains voltage to the terminals of board TA-CR-SE will irreparably damage the control board. Make sure that any connections to be made are not carrying mains voltage.

2.8.2 Wiring diagram

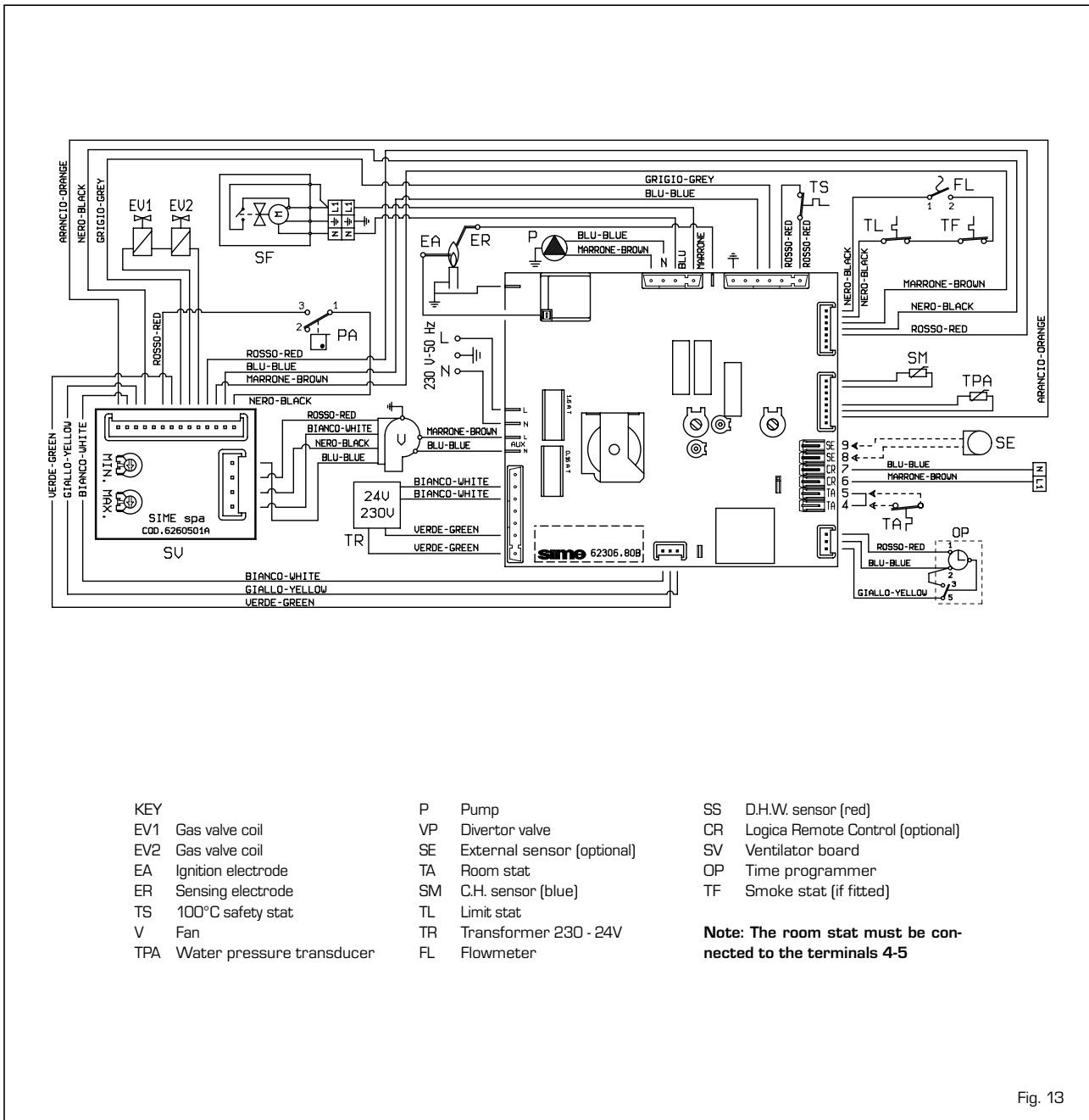
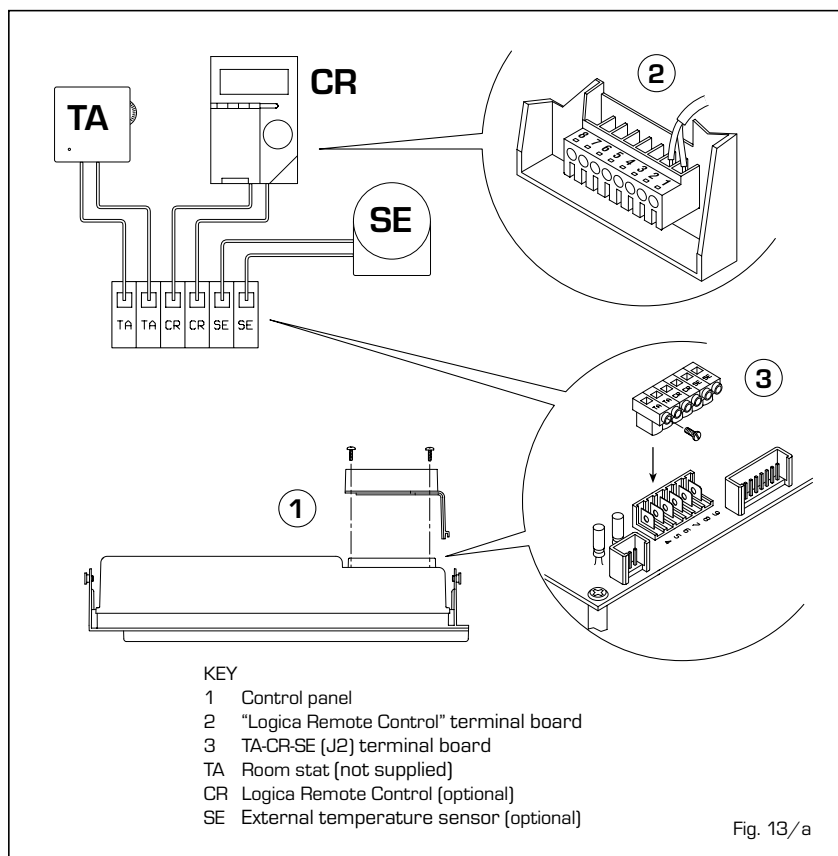


Fig. 13



2.8.3 "Logica Remote Control" connection (optional)

The electrical plant must comply with local standards and all cables must comply with low safety voltage requirements of EN 60730.

For lengths up to 25 m, use cables of section 0.25 mm², for longer lengths up to 50 m use cables of section 0.5 mm². First of all, assemble and wire the socket, then insert the equipment which will start-up as soon as it receives current.

To gain access to connector TA-CR-SE (J2) remove the control panel cover and connect the climate regulator to terminals 6-7 (fig. 13/a).

WARNING: External voltage must not be connected to terminals D3-D4-D5 of the "Logica Remote Control".

A room temperature sensor can be connected to terminals D3-D4. Alternatively, a telephone remote switch with a zero potential contact or a window contact can be connected.

2.8.4 External temperature sensor connection (optional)

The cables must comply with low safety voltage requirements of EN 60730.

For lengths up to 25 m, use cables of section 0.25 mm², for longer lengths up to 50 m use cables of section 0.5 mm².

To gain access to boiler connector TA-CR-SE (J2) remove the control panel cover and connect the external temperature sensor to terminals 8-9 (fig. 13/a).

2.9 LOGICA REMOTE CONTROL

All the boiler's functions can be managed by an optional digital multifunctional device code 8092204 for the remote of the boiler itself and for regulating room climatic conditions with an operational reserve of 12 hours.

The heating circuit is controlled by the room temperature sensor built-in the equipment or by the atmospheric conditions, with or without environmental inflow, if the boiler is connected to an external sensor.

Characteristics:

- Ergonomic control unit divided according to function (control levels).
- Clear division of basic functions:
 - operating regime, correction of set value and presence button are directly accessible;
 - Different real current values are accessible through the "info" button;
 - other functions can be programmed after the cover has been opened;
 - special service level with protected access;
- Each setting or modification is displayed and confirmed.
- Time setting (special line for changing BST/CET).
- Heating programme with max. 3 heating

periods per day, individually selectable.


- Copy function for easy transfer of heating programme to the next or previous day.
- Holiday programme: the programme is interrupted for the holiday period and automatically restarted on returning home.
- Option to return the heating program to default values.
- Programming lock (child safety).

Functions:

- Delivery temperature control guided by the atmospheric conditions, taking into account the dynamics of the building.
- Delivery temperature control guided by atmospheric conditions with influence of ambient temperature.
- Ambient temperature control only.
- Adjustable influence of ambient temperature shift.
- Switch-on and switch-off optimisation.
- Rapid lowering.
- ECO functions (daily heating limiter; automatic summer/winter switch-over).
- Controllable maximum delivery temperature limit (specifically for floor plants).
- Limitation of increase in pre-set delivery temperature.
- Anti-freeze protection for buildings.
- Domestic hot water control with nominal value requirement and enable.
- Connection to room sensor or switching of operating regime through the telephone system with external contact or through a window contact.

2.9.1 Installation

The unit must be installed in the main living room. For installation, follow the assembly instructions inserted in the package.



At this point, with the selector knob on , the installer can adjust the basic parameters settings according to the individual needs (point 2.9.2).



If there is a thermostatic radiator valve fitted, this must be set to maximum.

2.9.2 Installation settings

The settings for the basic operating parameters for individual needs are reported in the instruction leaflet supplied with the "Logica Remote Control" and in the section reserved for the user in this manual.

For further adjustments which can be carried out by the installer, the "Logica Remote Control" offers a level of service and parameterising which can only be accessed through a special combination of buttons.

To activate this level of service or parameterising press buttons  and  least 5 seconds.

This will activate the parameterising level. Then use the same arrow buttons to select the individual input lines and adjust the values with  or .

HEATING CIRCUIT SETTINGS

<p>Antifreeze protection "Pre-set ambient temperature value"</p>	<p>51</p>	<p>Heating takes place up to this pre-set value if the plant is activated in stand-by (e.g. holidays). In this way, the building antifreeze function is active, preventing an excessive lowering of the ambient.</p>
<p>Summer/Winter switch-over temperature</p>	<p>52</p>	<p>This parameter regulates the temperature of the automatic summer/winter switch-over.</p>
<p>Type of control: 0 = with ambient influence 1 = without ambient influence</p>	<p>53</p>	<p>This parameter de-activates the ambient influence and as a result all the optimisations and adaptations. If a valid external temperature is not transmitted, the controller switches to the pure ambient control guide variable.</p>
<p>Influence of ambient temperature</p>	<p>54</p>	<p>If the ambient controller is used only as a remote control (placed in the reference room and without an external sensor connected), the value must be set at 0 (zero). If the change in ambient temperature from the pre-set value remains high during the entire day, the influence must be increased. If the ambient temperature is around the pre-set value (control oscillation), the influence must be reduced.</p> <p>Note: If the ambient temperature influence constant is set at 0, the adaptation of the heating curve is deactivated. In this case, parameter 57 will have no effect at all.</p>
<p>Maximum limit of delivery temperature</p>	<p>55</p>	<p>The delivery temperature is limited to the maximum set value.</p>
<p>Variation of the maximum speed of the delivery temperature</p>	<p>56</p>	<p>The increase per minute of the prescribed delivery temperature value sent in °C is limited to the imposed value.</p>
<p>Activation of adaptation</p>	<p>57</p>	<p>With the activation of the adaptation, the pre-set value transmitted to the boiler regulator is adapted to the effective heat need. The adaptation functions with both the atmospheric guide with ambient influence and with pure ambient control. If the "Logica Remote Control" is set as a remote control only, the adaptation must be is deactivated.</p>
<p>Optimisation of switch-on time</p>	<p>58</p>	<p>If the switch-on time optimisation is active, the "Logica Remote Control" modifies the heating gradient until it finds the optimum heating point 0 = off 1 = on</p>
<p>Heating gradient</p>	<p>59</p>	<p>The "Logica Remote Control" selects the switch-on time such that the set value has more or less been reached at the start of the usage time. The more severe the night-time cooling, the earlier the heating time starts.</p> <p>Example: Current ambient temperature 18.5°C Nominal ambient temperature 20°C Heating gradient 30 min/K Presetting of switch-on time: 1.5 K x 30 min/K = 45 minutes</p> <p>00 means that the switch-o time has not been pre-set (function disabled).</p>
<p>Presetting switch-off time (00 = off)</p>	<p>60</p>	<p>If the switch-off time optimisation is active (value > 0), the "Logica Remote Control" modifies the pre-set time until it finds the optimum switch-off time.</p>

DOMESTIC HOT WATER SETTINGS

<p>Reduced domestic hot water pre-set value</p>	<p>61</p>	<p>The reduced pre-set value of the temperature of the domestic hot water allow the required water temperature to be obtained outside the programmed usage times (daily programme 8).</p>
<p>Domestic hot water load</p>	<p>62</p>	<p>0 = 24 hours/day 2 = blocked 1 = standard 3 = second daily programme (8)</p>

SERVICE VALUES

Final user level 2 programming block

63

This block [1] can be activated to display all the parameters without modifying them. Pressing buttons $\left[\text{=}$ or $\left[\text{+}$ displays "OFF".

WARNING:

The activation block can be deactivated temporarily by pressing buttons $\left[\blacktriangle \right]$ and $\left[\pm \right]$ simultaneously; a confirmation sign appears on the display. At this point press simultaneously the buttons $\left[\blacktriangle \right]$ and $\left[\blacktriangledown \right]$ for at least 5 seconds. To permanently remove the activation block, set parameter 63 on 0.

Input function D3/D4

64

The freely programmable input (terminals D3 and D4) allows three different functions to be activated. The parameter has the following significance:

- 1** = If an external sensor is connected, the display will show the temperature of the external sensor (_ _ = no sensor connected, function disabled).
- 2** = With an external contact, it is possible to switch-over to "reduced pre-set value of the ambient temperature".
- 3** = With an external contact, it is possible to switch-over to "reduced pre-set value of the antifreeze ambient temperature" (short circuit 0 0 0 or interruption _ _ _). The display shows the current status of the external contact.

Operating mode of external contact

65

If input D3/D4 is connected to a zero potential external contact (parameter 64 = 2 or 3), the operating mode of the contact can be determined (remote telephone switch or window contact). The operating mode specifies the status of the contact in which the required function is active.

Display: Operating mode closed (short circuit) 0 0 0
 Operating mode open (interruption) _ _ _

External and ambient sensor influence

66

Determines the mix ratio between the internal and external ambient sensor when parameter 64 = 1.

- 0 %** = internal sensor only active (0% external - 100% internal)
- 50 %** = mean value of external + internal sensor
- 100 %** = external sensor only active

The set mix is used for ambient control and display. If the external sensor is short circuited or interrupted, the operation continues with the internal sensor.

2.9.3 Gradient of the characteristic heating curve

The gradient of the characteristic heating curve is imposed on the current value "15" of Logica.

Increasing the gradient as shown in the drawing of fig. 14, the delivery temperature increases in correspondence to the outside temperature.

2.10 EXTERNAL TEMPERATURE SENSOR

The "Logica Remote Control" can be connected to an external temperature sensor available as an optional extra (code 8094100). This configuration ensures and maintains the required temperature constant in the room. The ambient temperature is, in fact, indicated and evaluated as the calculated mean of the value measured inside and outside the dwelling. For installation, follow the assembly instructions inserted in the package.

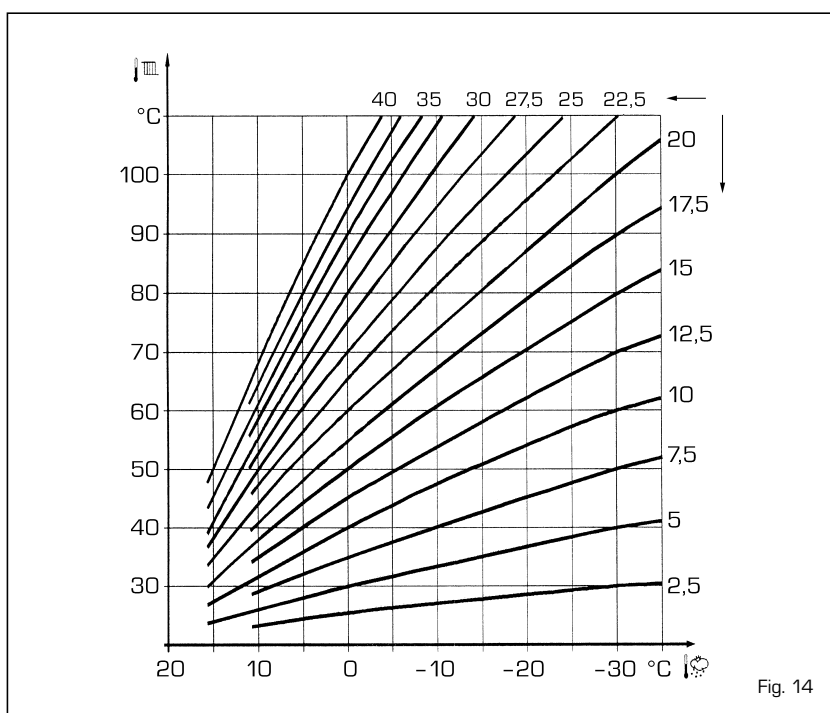


Fig. 14

3 CHARACTERISTICS

3.1 ELECTRONIC BOARD

The electronic boards are manufactured in compliance with the EEC 73/23 low-voltage directives.

They are supplied with 230V and, through a built-in transformer, send a voltage of 24V to the following components: gas valve, safety stat, C.H. and D.H.W. sensor; external temperature sensor (optional), modulator; micro divertor valve, flow switch safety valve, water pressure transducer; room stat or "Logica Remote Control".

An automatic and continuous modulation system enables the boiler to adjust the heat output to the various system requirements or the User's needs. The electronic components are guaranteed against a temperature range of 0 to +60°C.

3.1.1 Central heating operation

Upon demand for heating from the room temperature stat or climatic controller "Logica Remote Control", the circulation pump is activated, and approximately 90 seconds must elapse for the burner to start operating. This will happen only if the temperature is set above the value detected by the heating sensor. The heat output can be varied according to the system needs by adjusting the trimmer (14 fig. 16). At start-up of each working cycle, after the period of slow ignition having a duration of approx. 3 sec, the boiler will set itself at the heat output set on the trimmer.

3.1.2 D.H.W. operation

Upon demand for hot water, the boiler starts instantaneously when the microswitch on the divertor valve makes.

The required power output is regulated, via flame modulation, by the D.H.W. sensor (with fixed limit 67°C), which will compare the temperature read with the temperature set on the potentiometer.

With the delivery temperature between 70÷75°C, the flame modulation is effected by the heating sensor. When the heating flow sensor is at 75°C the electronic limiter will trip and switch-off the burner.

3.1.3 Fault finding

The indicator leds signalling irregular and/or incorrect operation of the equipment are indicated in fig. 15.

3.1.4 Devices

The electronic board is equipped with the following devices:

- "POT. RISC." trimmer (14 fig. 16)
Sets the maximum heating power value. To increase the value turn the trimmer clockwise; to reduce the value turn the trimmer anticlockwise.
- "POT. ACC." trimmer (8 fig. 16)
Trimmer to vary the pressure level upon

ignition (STEP), of the gas valve.

According to the type of gas for which the boiler is equipped, the trimmer must be regulated so as to obtain a pressure of approx. 3 mbar at the burner for methane gas and 7 mbar for butane gas (G30) and propane gas (G31).

To increase pressure, turn the trimmer clockwise; to reduce pressure, turn the trimmer counterclockwise.

The slow ignition pressure level can be set during the first 3 seconds following burner ignition.

After setting the pressure level upon ignition (STEP) according to the type of gas, check that the pressure for heating is still at the value previously set.

- "MET-GPL" connector (11 fig. 16)
With the connector switched-off, the boiler is set-up for natural gas; with the connector switched-on, the boiler is ready for LPG.
- "ANN. RIT." connector (7 fig. 16):
In the heating phase, the electronic board is programmed to include a burner technical delay interval of approx. 90 seconds, which occurs both at system cold starting and at subsequent re-ignitions. The aim is to overcome the problem of repeated ignitions and turning off with very short time intervals between. This could occur in particular in systems presenting high head losses. At each restart after the period of slow ignition, the boiler will set itself for about 1 minute at the

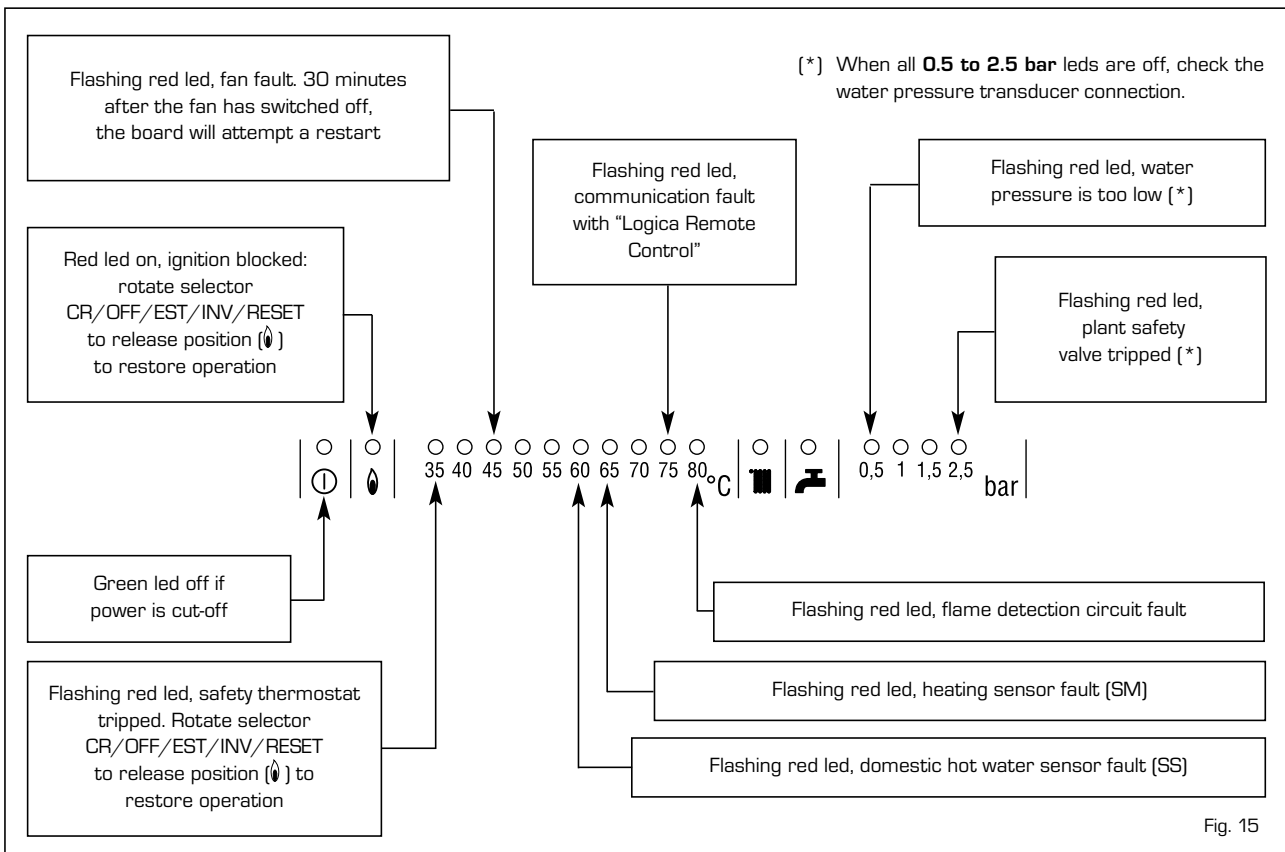


Fig. 15

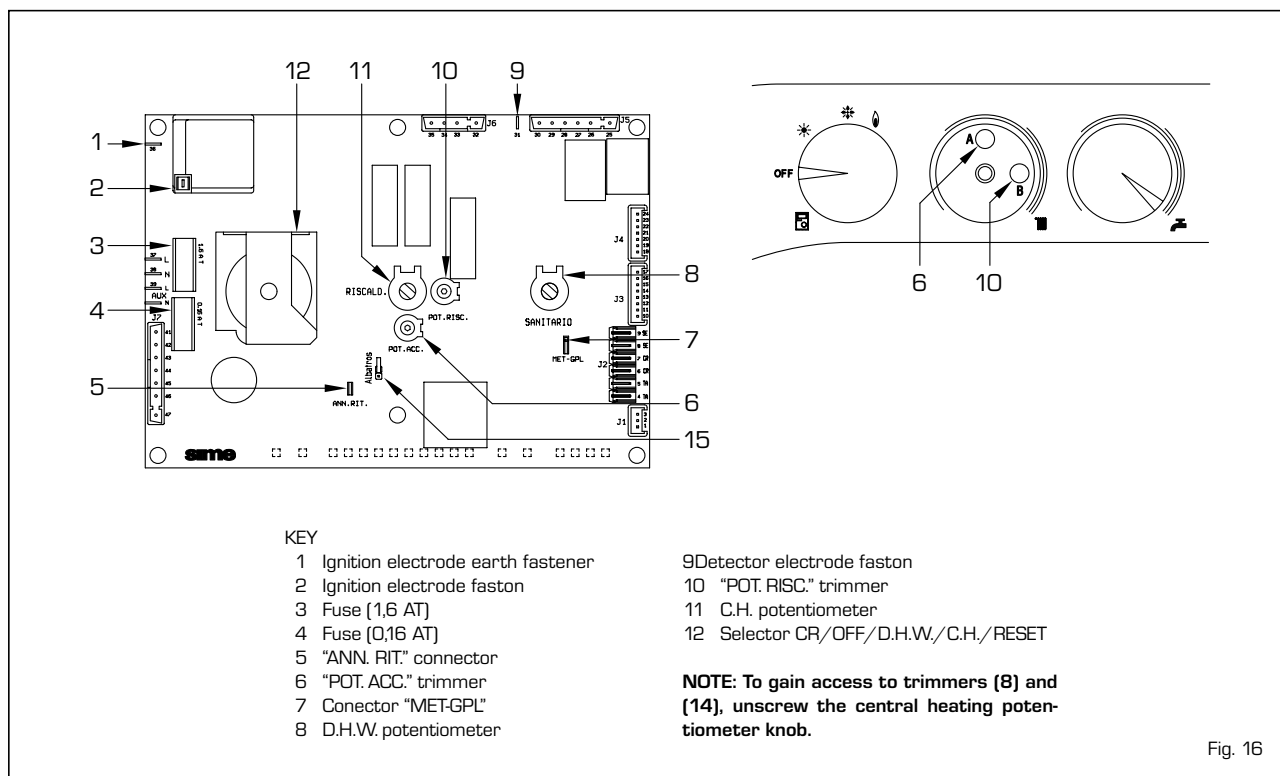


Fig. 16

minimum modulation pressure, and will then move to the heating pressure value set. When the connecting link is inserted, both the programmed technical pause and the period of operation at minimum pressure in the startup phase will be cancelled. In this case, the times elapsing between turning off and subsequent re-ignition will depend on a temperature difference of 5°C detected by the SM sensor (heating flow sensor).

ATTENTION: It is essential that the operations described above be carried out by authorized technical staff.

3.2 TEMPERATURE SENSOR AND WATER PRESSURE TRANSDUCER

Tables 3 - 3/a show the resistance values (Ω) that are obtained on the sensor as the temperature varies and the transducer values obtained as the pressure varies.

When sensor (SM) is interrupted, neither of the boiler's heating services will function. With sensor (SS) interrupted, the boiler will only work in heating mode.

TABLE 3 (Sensors)

Temperature (°C)	Resistance (Ω)
20	12.090
30	8.313
40	5.828
50	4.161
60	3.021
70	2.229
80	1.669

TABLE 3/a (Transducer)

Pressure (bar)	Resistance (Ω)	
	mín	máx
0	297	320
0,5	260	269
1	222	228
1,5	195	200
2	167	173
2,5	137	143
3	108	113
3,5	90	94

3.3 ELECTRONIC IGNITION

Ignition and flame detection is controlled by two electrodes located on the burner. These guarantee maximum safety with intervention times, for accidental switching off or gas failure, of within one second.

3.3.1 Operating cycle

Rotate the selector knob to summer or winter, and verify that green led (\odot) lights up to confirm the presence of voltage.

The boiler is now ready to start working upon demand for heating or drawing off of D.H.W.; a discharge current is sent to the ignition electrode, and the gas valve opens at the same time. The burner must be ignited within 10 seconds.

However, it is possible for ignition failures to occur, with consequent activation of signal indicating that the control box has "locked out".

- Gas failure

The control box runs through the cycle normally sending electric power to the

ignition electrode. The electrode continues spark discharge for a maximum of 10 sec. If the burner does not light, the lock-out indicator will light up.

This may occur upon first ignition or after long periods of boiler lay-off when there is air in the pipes. It may be caused by the gas cock being closed or by one of the valve coils having a break in the winding, so that the valve cannot open.

- Ignition electrode fails to spark

In the boiler, only the gas to the burner is seen to open.

After 10 sec. the warning light indicating equipment "lock-out" lights up.

This may be due to a break in the wire of the electrode or to the wire not properly fastened to the electric terminal of the control box;

- No detection of flame

The continuous spark discharge of the electrode is noted starting from ignition even though the burner is lit.

After 10 seconds have elapsed, the sparks cease, the burner goes out, and the warning light indicating equipment "lock-out" lights up.

There could have a break in the wire of the sensing electrode or the electrode itself is touching earth: the electrode is worn out and needs replacing. The control box is defective.

When there is a sudden voltage failure, the burner shuts out immediately; when power supply returns, the boiler will start up again automatically.

3.4 FLOW SWITCH SAFETY VALVE

A flow switch safety valve intervenes, blocking the operation of the burner if the boiler is without water due to the formation of an air lock in the heat exchanger or if the circulator is not working.

NOTE: If replacing the flow switch valve, make sure that the arrow stamped on the valve points in the same direction as the flow of water.

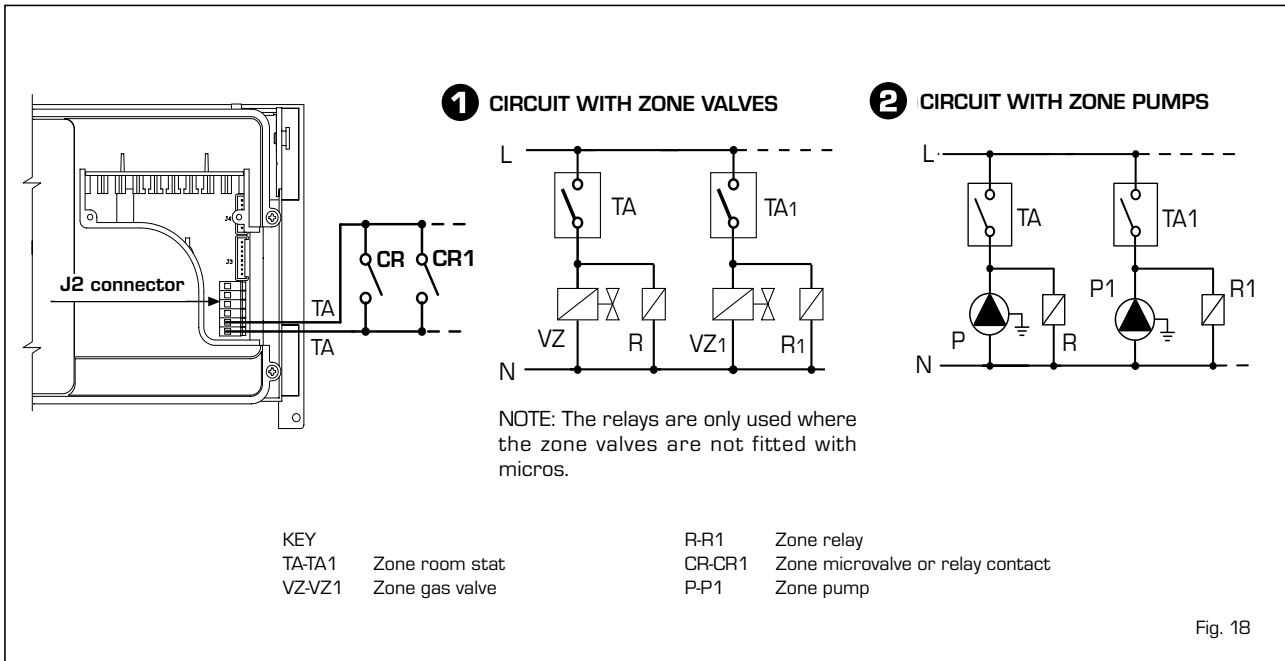
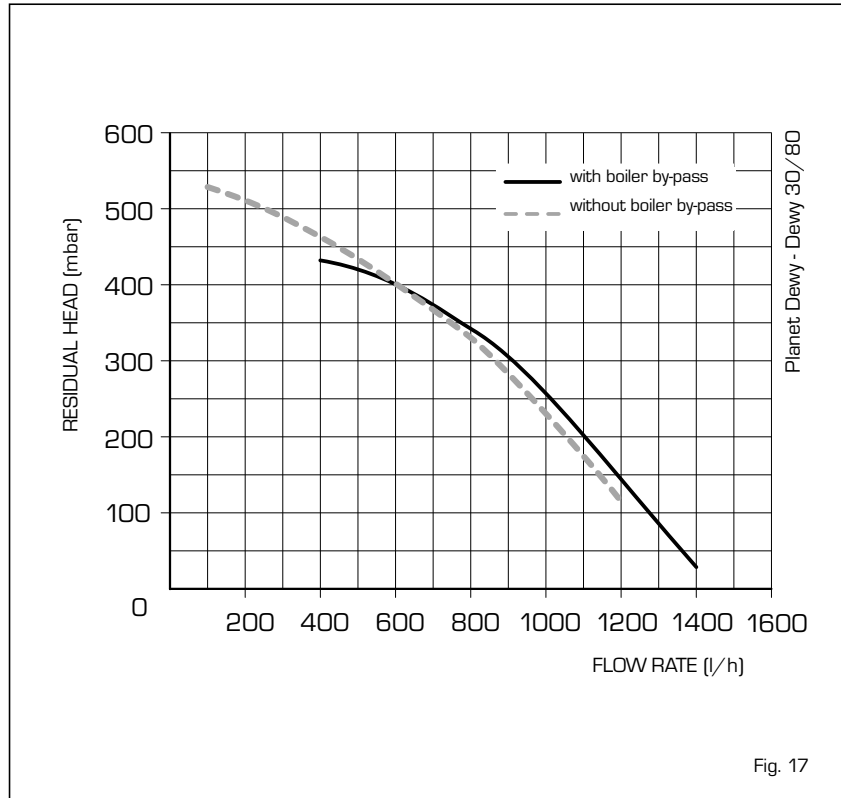
3.5 SYSTEM AVAILABLE HEAD

The head available for the heating plant is shown as a function of the flow in graph in fig. 17.

3.6 MAINS ELECTRICITY CONNECTION

Use a separate electricity supply to connect the room stats and relative zone valves or pumps. The micro or relay contact connection is made to TA-CR-SE (J2) connector of the circuit board after having removed the jumper (fig. 18).

SIME SUPPORT



4 USE AND MAINTENANCE

THE BENCHMARK INITIATIVE

All relevant sections of the logbook must be filled in at the time of installation and thereafter service information on the back page of the logbook.

Commissioning of the boiler is not complete until the logbook is filled in.

4.1 TEMPERATURE ADJUSTMENT OF D.H.W.

The system with a potentiometer for adjusting the temperature of D.H.W. with a setting range from 35° to 60°C offers a double advantage:

- 1) The boiler adapts perfectly to any type of D.H.W. system, whether the mixing system is a mechanical or a thermostat-controlled type.
- 2) The thermal output is dosed according to the temperature required, which means a considerable saving in fuel.

NOTE:

In order to avoid any misunderstanding please remember that the value obtained by the product of temperature difference (in °C) between D.H.W. output and input into the boiler by the hourly flow rate measured on the tap, where hot water is drawn off (l/h), cannot be higher than the useful output developed by the boiler.

4.2 ADJUSTMENT OF D.H.W. FLOW RATE

To adjust the hot water flow rate, use the flow-rate regulator on the diverter valve. Remember that the flow rates and corresponding temperatures of use of hot water, given in section 1.3, have been obtained by positioning the selector of the circulation pump on the maximum value. Should there be any reduction in the D.H.W. flow rate, the filter installed on the inlet to the pressure switch valve (9 fig. 7) will need cleaning.

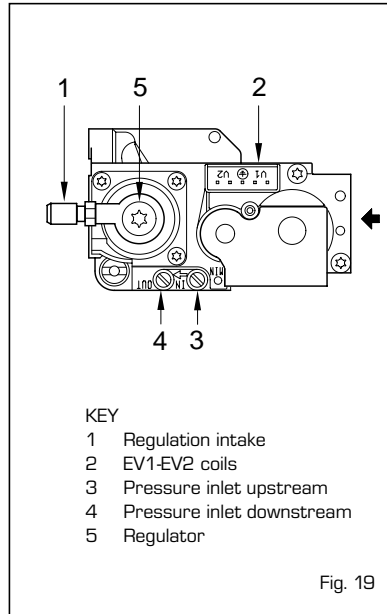
To access the filter, you must first turn off the cold domestic water tap assembled on the template.

4.3 GAS VALVE

The boiler, is equipped standard with the HONEYWELL VK 8115M gas valve (fig. 19).

4.4 ADJUSTMENT OF HEAT OUTPUT FOR HEATING

To adjust boiler heat output for heating purposes, i.e., modifying the setting made at the factory which is approximately 17 kW, use a screwdriver to adjust the heating heat out-



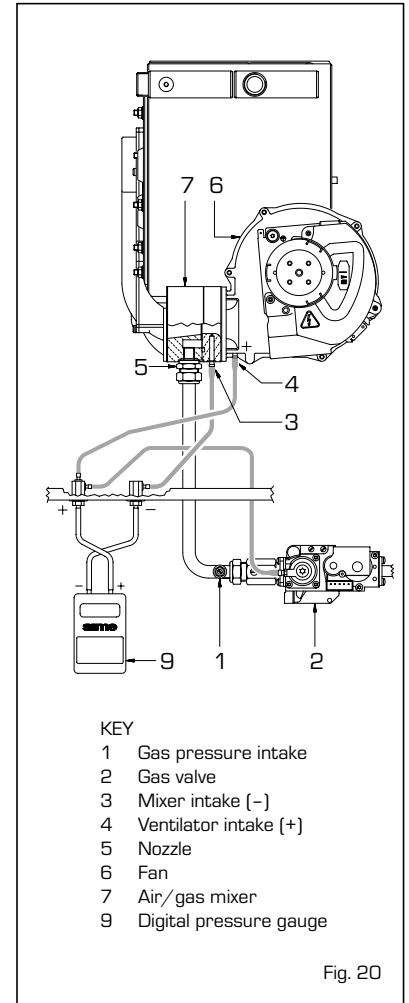
- KEY
- 1 Regulation intake
 - 2 EV1-EV2 coils
 - 3 Pressure inlet upstream
 - 4 Pressure inlet downstream
 - 5 Regulator

Fig. 19

put trimmer (14 fig. 16).

To increase working pressure, turn the trimmer clockwise; to reduce pressure, turn the trimmer counterclockwise.

To determine boiler heat output setting, check energy consumption by observing the meter and then compare with the values shown in **Table 4 - 4/a**, or measure "air Δp" with a digital pressure gauge connected up as shown in fig. 20. Compare values with those shown in **Table 4 - 4/a**.



- KEY
- 1 Gas pressure intake
 - 2 Gas valve
 - 3 Mixer intake (-)
 - 4 Ventilator intake (+)
 - 5 Nozzle
 - 6 Fan
 - 7 Air/gas mixer
 - 9 Digital pressure gauge

Fig. 20

4.4.1 Diagram illustrating heat output in relation to "air Δp" version "90 A"

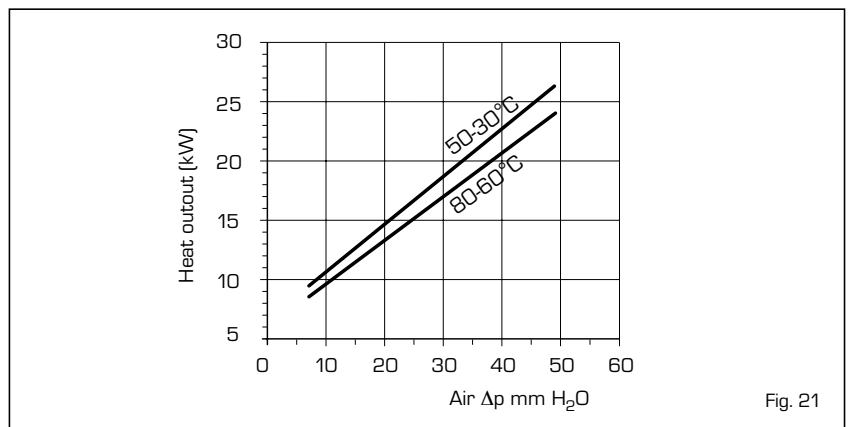


Fig. 21

4.5 TIME-CLOCK INSTRUCTIONS

TABLE 4

Variable heat output		Air Δp *	Gas consumption **	
(80-60°C)	(50-30°C)		G20	
kW	kW	mm H ₂ O	m ³ /h st	
24.5	26.9	49.5	2.65	
18.7	20.6	35.0	2.06	
13.2	14.6	20.0	1.46	
8.6	9.6	7.0	0.95	

* Air Δp is measured during boiler operation using a differential pressure gauge connected to the ventilator intake.

** The gas consumptions refer to the calorific value at standard conditions at 15°C - 1013 mbar.

4.4.2 Diagram illustrating heat output in relation to "air Δp" version "110 A"

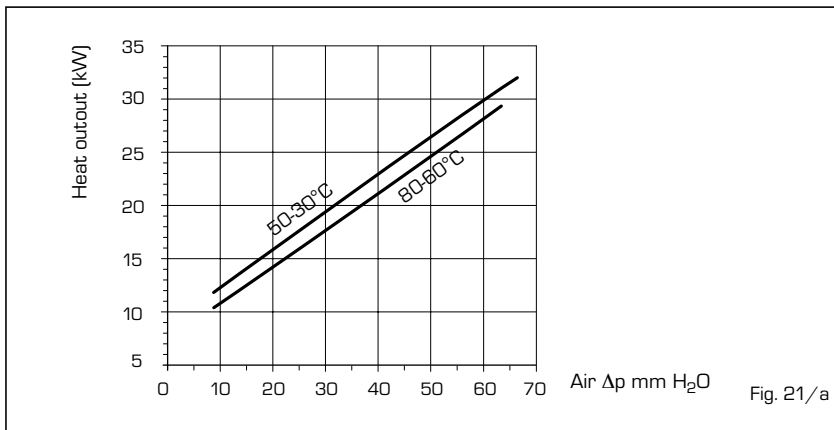


TABLE 4/a

Variable heat output		Air Δp *		Gas consumption **
(80-60°C)	(50-30°C)	(80-60°C)	(50-30°C)	G20
kW	kW	mm H ₂ O	mm H ₂ O	m ³ /h st
29.4	32.4	63.8	66.4	3.17
22.9	25.0	45.0	45.0	2.48
16.1	17.6	25.0	25.0	1.75
10.5	11.7	8.4	9.2	1.14

* Air Δp is measured during boiler operation using a differential pressure gauge connected to the ventilator intake.

** The gas consumptions refer to the calorific value at standard conditions at 15°C - 1013 mbar.

Setting the time

Turn the clock dial in a clockwise direction until it reads the time of the day.

Program setting

Press inwards the segments on the program disk corresponding to the selected switching periods.

Function 1: segment set outwards (C.H. "ON")

Function 2: segment set inwards (C.H.

"OFF")

Manual override

0 = "OFF" permanently

⊕ = automatic programmed operation

1 = "ON" permanently

Programming characteristics

Cycle 24 hour

Number of actions per cycle 96

Program time per segment 15 min.

Min. interval between two actions 15 min.

4.6 DISASSEMBLY OF

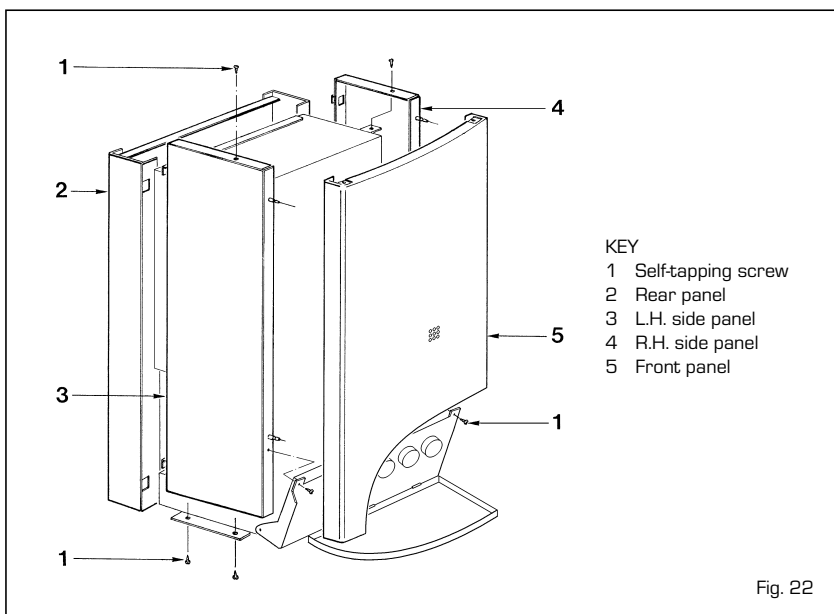


Fig. 22

EXPANSION VESSEL

To disassemble the expansion vessel, proceed as follows:

- Make sure that the water has been emptied out of the boiler.
- Unscrew the connection and the locknut.
- Remove the expansion vessel.

Before refilling the system, using a pressure gauge attached to the valve make sure that the expansion vessel is preloaded at a pressure of 0.8 to 1 bar.

4.7 REMOVAL OF OUTER CASING

It is possible to completely disassemble the shell for an easy maintenance of the boiler following these simple instructions (fig. 22):

- Remove the two screws locking the front panel to the sides.
- Pull the front panel (5) forwards so as to release it from the slot-in pins located on the sides.
- Unscrew the two screws fixing the instrument panel to the sides.
- Unscrew the four screws fixing the sides to the instrument panel support.
- Push the sides (3) and (4) upwards, sliding them out of their slots.

4.8 CLEANING AND MAINTENANCE

Preventive maintenance and checking of efficient operation of equipment and safety devices must be carried out exclusively by authorized technical personnel.

During the maintenance operations it is necessary that the authorized technical personnel verify that the condensation water trap is full of water (this is required particularly when the generator is kept unused for a long period).

The possible filling is effected in the hole provided (fig. 23).

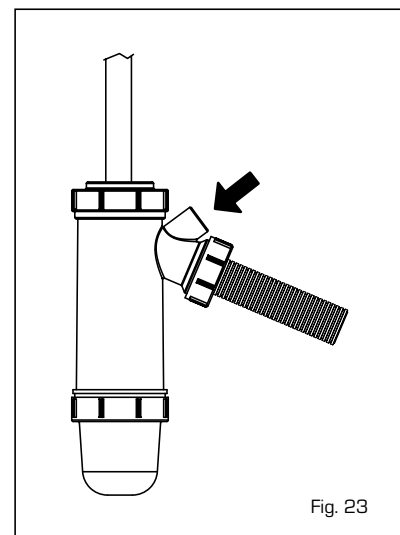


Fig. 23

5 FAULT FINDING

If an electrical fault occurs on the appliance the preliminary electrical system checks contained in the British Gas Multimeter Instruction Booklet must be carried out first. When any service or replacement of electrical components which has required the breaking and re-making of electrical connections has taken place, the following tests must be repeated:

- earth continuity;
- short circuit;
- polarity;
- resistance to earth.

5.1 EARTH CONTINUITY CHECK

Appliances must be electrically disconnected, meter set on Ω (ohm) x 1 scale and adjust zero if necessary. Tests leads from any appliance earth point (e.g. inside control box) see wiring diagrams (section 7) to earth pin on plug. Resistance should be less than 1 Ω (ohm). If the resistance is greater than 1 Ω (ohm) check all earth wires for continuity and all contacts are clean and tight. If the resistance to earth is still greater than 1 Ω (ohm) then this should be investigated further.

5.2 SHORT CIRCUIT CHECK

Switches turned FULL ON - meter set on Ω (ohms) x 1 scale. Test leads from L to N on appliance terminal block, if meter reads 0 then there is a short circuit.

Meter set on Ω (ohm) x 100 scale. Repeat it with leads from L to E. If meter reads less than infinity (∞) there is a fault.

NOTE: Should it be found that the fuse has failed but no fault is indicated, a detailed continuity check (i.e. by disconnecting and checking each component) is required to trace the faulty component.

It is possible that a fault could occur as a result of local burning/arcing but no fault could be found under test. However, a detailed visual inspection should reveal evidence of burning around the fault.

5.3 POLARITY CHECK

Appliance reconnected to mains supply and meter set on 300 V ac scale. Test at appliance terminal block.

- Test leads from L to N meter reads

approx.: 240 V ac.

- Test leads from L to E " * " meter reads approx. 240 V ac.
- Test leads from N to E " * " meter reads from 0 to 15 V ac.

5.4 RESISTANCE TO EARTH CHECK

Appliance must be disconnected from main supply and meter on Ω (ohm) x 100 scale.

All switches including thermostat on test leads from L to E - if meter reads other than infinity (∞) there is a fault which should be isolated.

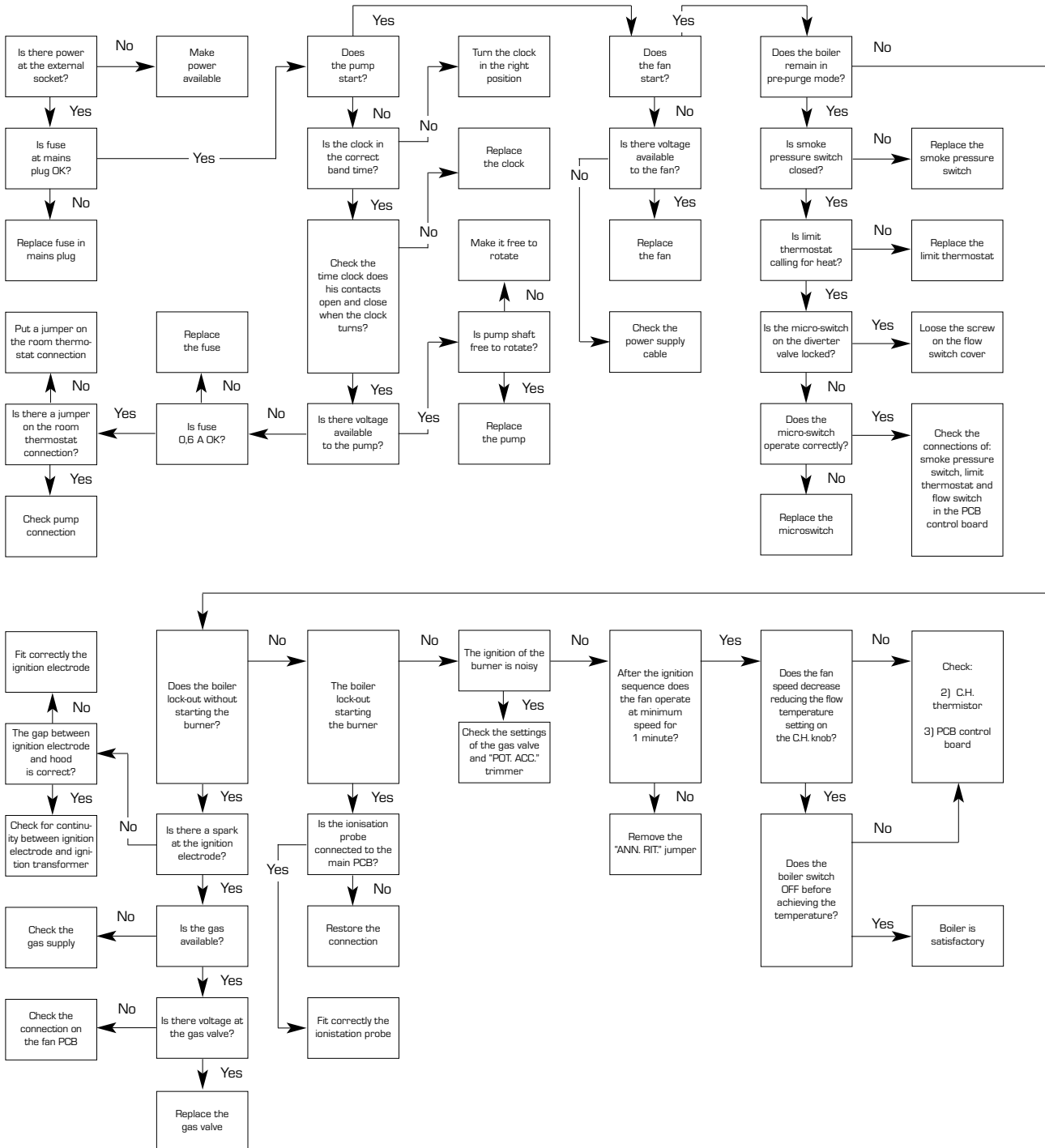
A detailed continuity check is required to trace the faulty component.

IMPORTANT:

These series of checks are the first electrical checks to be carried out during a fault finding procedure. On completion of the service/fault finding task which has required the breaking and remaking of electrical connections then the checks 5.1 Earth continuity, 5.3 Polarity and 5.4 Resistance to earth must be repeated.

5.5 C.H. MODE - FAULT FINDING

Start from cold
 Rotary switch set to WINTER position.
 Room thermostat (if fitted) calling for heat and all D.H.W. taps off.
 C.H. thermostat set to maximum position.
 Clock in the on position (if fitted).

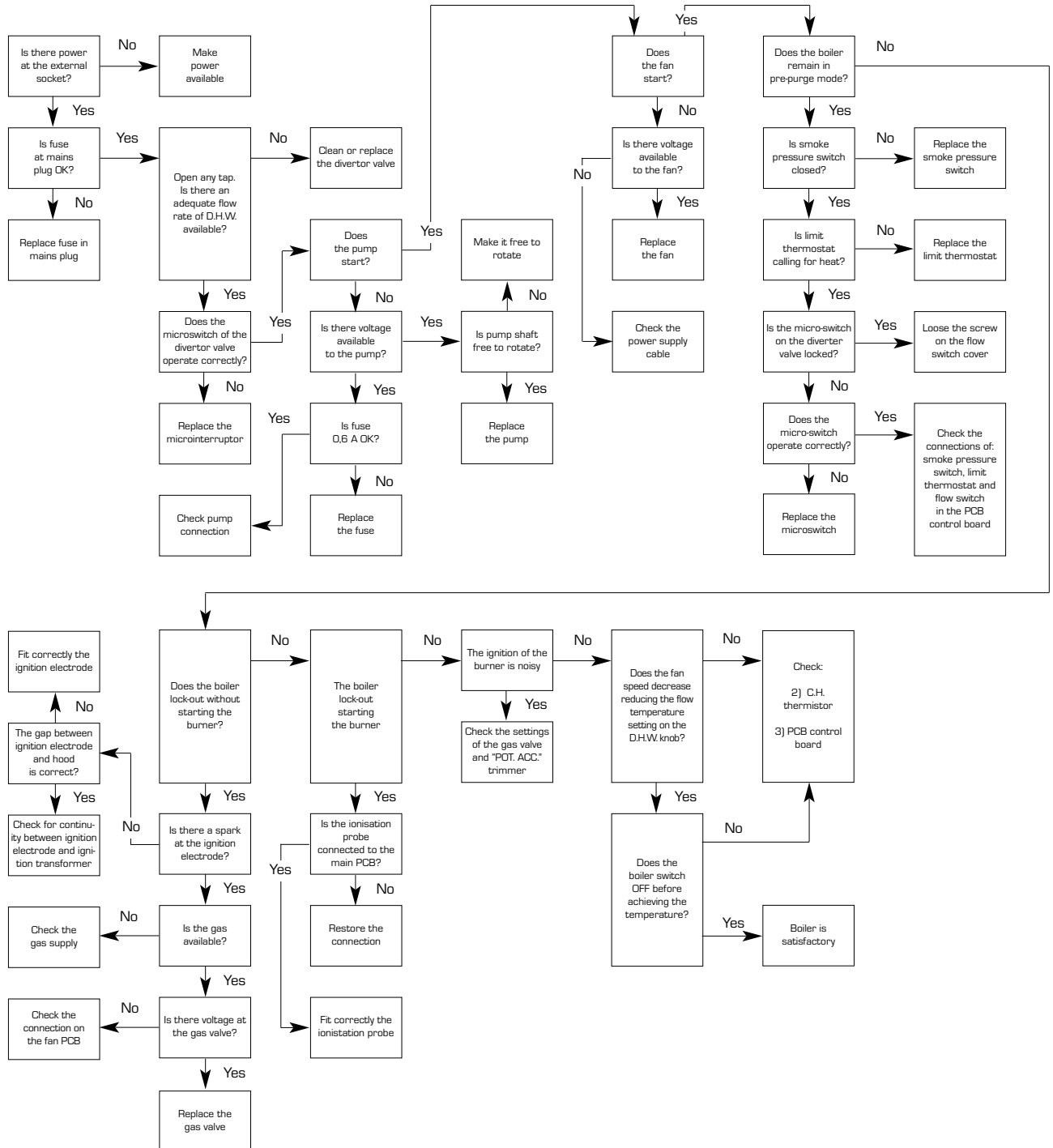


NOTE:

After completing fault finding reset the room thermostat (if fitted) to the required setting. If the appliance will not function check the wiring to the clock and if necessary, replace the clock.

5.6 D.H.W. MODE - FAULT FINDING

Start from cold - rotary switch set to SUMMER position, D.H.W. thermostat set to maximum, and all D.H.W. taps OFF.



NOTE:

When commissioning the boiler, please check the polarity in case the pump and the fan are running but the burner does not fire.

6 SHORT LIST OF PARTS

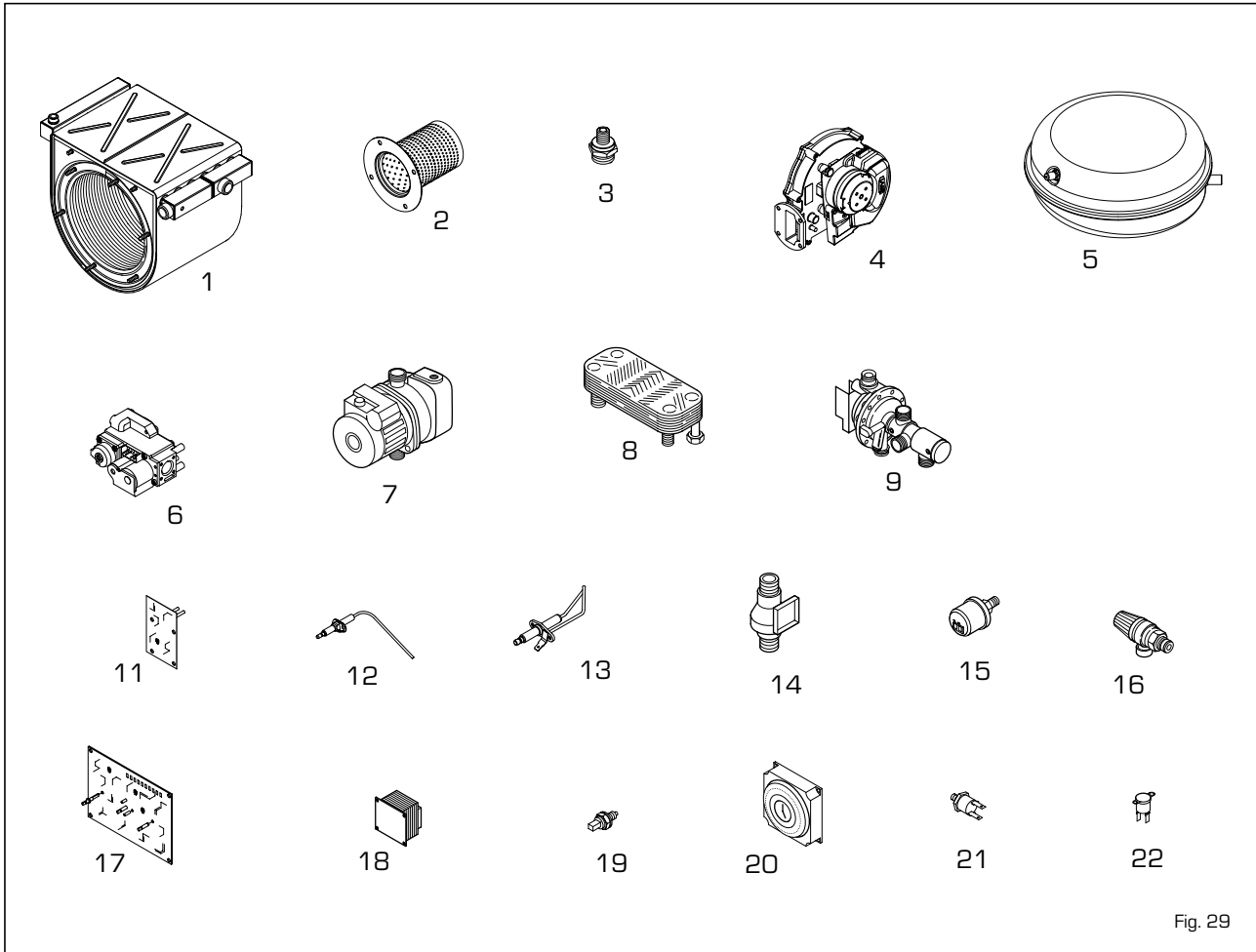


Fig. 29

KEY	DESCRIPTION	MAKER'S PT NO	KEY	DESCRIPTION	MAKER'S PT NO
1	Water/gas heat exchanger ("90 A" version)	6278990	12	Sensing electrode	6221617
1	Water/gas heat exchanger ("110 A" version)	6278991	13	Ignition electrode	6221616
2	Burner ("90 A" version)	6278301	14	Flow switch	6149304
2	Burner ("110 A" version)	6278303	15	Water pressure transducer	6273601
3	Main injector ø 6.50 ("90 A" version)	6274100	16	Safety valve	6040201
3	Main injector ø 6.00 ("110 A" version)	6274105	17	Main driver PCB ("90 A" version)	6230681
4	Fan	6261401	17	Main driver PCB ("110 A" version)	6230683
5	C.H. expansion vessel	5112210	18	Transformer ("90 A" version)	6240702
6	Honeywell gas valve VK8115V	6243809	18	Transformer ("110 A" version)	6240703
7	Circulating pump	6124806	19	Thermistor	6231351
8	D.H.W. heat exchanger	6265600	20	Time clock	6197708
9	Divertor valve	6102806	21	Limit thermostat	6146713
11	Fan Driver PCB	6260501	22	Overheat thermostat	6146701

7 STANDARD SETTINGS OF THE “LOGICA REMOTE CONTROL”

C.H. WITHOUT ZONE				MULTI-ZONE C.H.			
WITH EXTERNAL TEMPERAT. SENSOR		WITHOUT EXTERNAL TEMPERAT. SENSOR		WITH EXTERNAL TEMPERAT. SENSOR		WITHOUT EXTERNAL TEMPERAT. SENSOR	
Function	Value	Function	Value	Function	Value	Function	Value
15	20 - 25°C	-	-	15	20 - 22°C	-	-
51	5 - 6°C	51	5 - 6°C	51	5 - 6°C	51	5 - 6°C
52	15 - 16°C	52	15 - 16°C	52	15 - 16°C	52	15 - 16°C
53	0	53	0	53	1	53	1
54	14 - 15	54	14 - 15	54	0	54	0
55	70 - 80°C	55	70 - 80°C	55	70 - 80°C	55	70 - 80°C
56	7,5°C/min.	56	7,5°C/min.	56	7,5°C/min.	56	7,5°C/min.
57	1	57	0	57	1	57	0
58	0	58	0	58	0	58	0
59	0	59	0	59	0	59	0
60	0	60	0	60	0	60	0
61	indifferent	61	indifferent	61	indifferent	61	indifferent
62	0	62	0	62	0	62	0
63	0	63	0	63	0	63	0
64	1	64	1	64	1	64	1
65	0 0 0	65	0 0 0	65	0 0 0	65	0 0 0
66	indifferent	66	indifferent	66	indifferent	66	indifferent



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