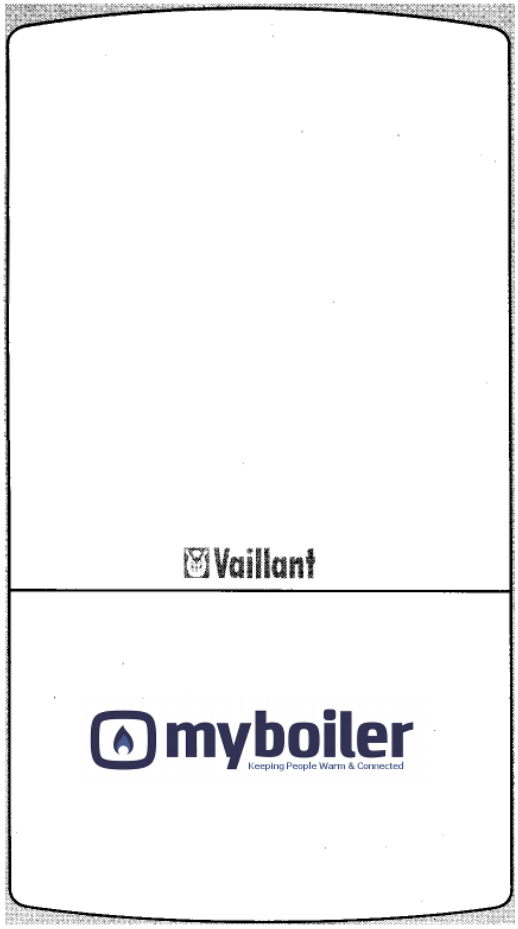
INSTRUCTIONS FOR INSTALLATION AND SERVICING

THERMOcompact VU 142/1 E
THERMOcompact VU 182/1 E
THERMOcompact VU 242/1 E
THERMOcompact VU 282/1 E

Wall hung room sealed fan assisted
system boilers



Vaillant

Leave these instructions with the user when the installation is completed.

1. Introduction

Note: This boiler must be installed and serviced by a competent person in accordance with the Gas Safety (Installation and Use) Regulations 1994. In the UK 'CORGI' Registered Installers undertake the work to a safe and satisfactory standard.

The THERMOcompact is a fully automatic, wall mounted, room sealed system boiler for central heating and domestic hot water (where a separate indirect hot water storage cylinder is also incorporated in the system).

The boiler has been designed for use with a sealed central heating system, and comes fully tested and assembled with a built-in circulating pump, bypass and expansion vessel.

CE

THERMOcompact boilers carry 'CE' Mark. This demonstrates that the boilers fulfill the essential requirements of the Gas Appliance Directive (90/396/EEC) and the Gas Appliance (Safety) Regulations 1992.

The 'CE' Mark also demonstrates that the boilers comply with the requirements of the Electromagnetic Compatibility Directive (Directive 89/336/EEC), the Low Voltage Directive (73/23/EEC), the Boiler Efficiency Directive (92/42/EEC) and the Boiler (Efficiency) Regulations 1993.

The THERMOcompact meets the requirements of 'The Boiler (Efficiency) Regulations 1993 and therefore is deemed to meet the requirements of Directive 92/42/EEC on the efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels.

The boiler is easily sited on any internal wall and can be installed with either a horizontal or vertical RSF (Room Sealed Fan assisted) flue. Flue extensions and additional bends and elbows are available for increased siting flexibility. (The boiler is not suitable for external installation).

If desired an inhibitor may be used in the system. Guidance on the use of inhibitors is contained in these instructions.

Natural Gas and LPG versions of the boiler are available.

The THERMOcompact has built-in diagnostic indicator lights which illuminate in sequence, giving information on the boiler status when operating and performance of key components to aid in commissioning and fault finding.

The data badge is fitted on the bottom of the combustion chamber.

See text of General Requirements for Installation Requirements or notes.

2. Boiler specification

2.1 Technical data

	VU 142/1 E	VU 182/1 E	VU 242/1 E	VU 282/1 E	units
Countries of Destination	GB, IE				
Maximum heat input	17.3	22	29.3	34.2	kW
	(59,000)	(75,100)	(100,000)	(116,600)	(Btu/h)
Heat output range	7.2-14.0	7.2-18.0	9.6-24.0	11.2-28.0	kW
	(24,600-47,800)	(24,600-61,400)	(32,800-81,900)	(38,200-95,500)	(Btu/h)
Inlet gas working pressure required (Natural Gas)	20	20	20	20	mbar
Gas supply (G20) Gross C.V. (s.t.)	37,8	37.8	37.8	37.8	MJ/m^3
Gas burner pressure max. rate	6.3	10.2	10.0	10.6	mbar
Gas burner pressure ignition rate	2.0	2.0	2.0	2.0	mbar
Gas rate max (DHW)	1.65	2.09	2.79	3.26	m^3/h
Main burner jet size	12x7/120	12 x 7/120	16 x 7/120	18 x 7/120	no. x size
CH flow temperature range	40-90	40-90	40-90	40-90	°C
Minimum CH water flow (for 20 °C rise)	602	774	1,032	1,204	l/h
Pump pressure available	0.25	0.25	0.25	0.25	bar
12l expansion vessel pre-charge pressure	0.75	0.75	0.75	0.75	bar
Maximum CH system pressure	3.0	3.0	3.0	3.0	bar
Connections					
Heating flow / return	22	22	22	22	mm
Gas inlet	15	15	15	15	mm
Pressure relief discharge pipework (min)	15	15	15	15	mm
Weight	39	42	47	48	kg
Primary water content	0.65	0.65	0.7	0.7	litres
Electrical supply					
Voltage	230/50	230/50	230/50	230/50	V~/Hz
2 x internal fuses	2	2	2	2	A
1 x internal fuse	1.25	1.25	1.25	1.25	A
external fuse	3	3	3	3	A
Power input	130	130	130	130	W

Supplementary LPG information on page 57.

2.2 Dimensions

(All dimensions in mm)

1a Air/flue duct to the rear
1b Air/flue duct to the side
2 Appliance bracket
3 Heating system return (22 mm)
4 Gas connection (15 mm)
5 Heating system flow (22 mm)
6 Pressure relief valve outlet ($^3/_4$ in BSP)

* with standard horizontal flue accessory.
(max. = 2965 mm with 2 extensions)

Note: VU 142/1 E, VU 182/1 E boilers only, may be installed with up to 4 air/flue duct extension accessories giving a maximum flue length of 4935mm.

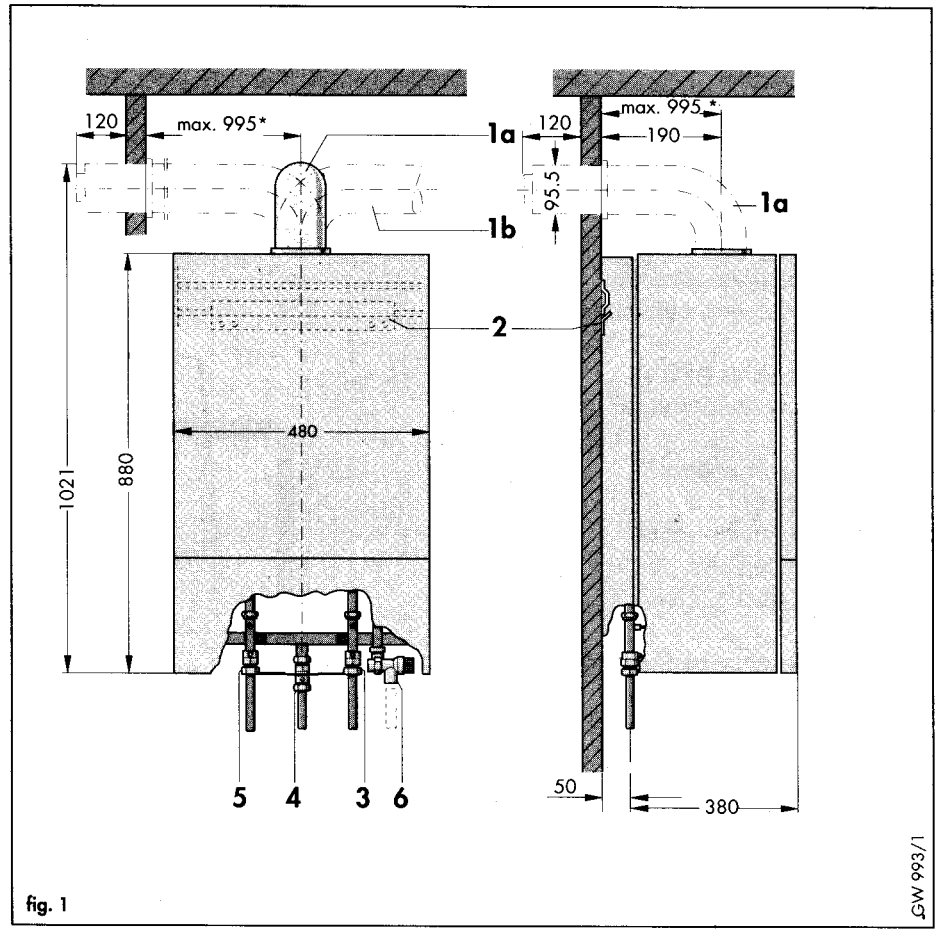


fig. 1

2.3 Boiler connections

1 Compression union (flow of heating system)
2 Service valve (flow of heating system)
3 Compression Union (gas)
4 Gas service valve (supplied with the boiler)
5 Service valve (return of heating system)
6 Compression union (return of heating system)
7 Pressure relief valve

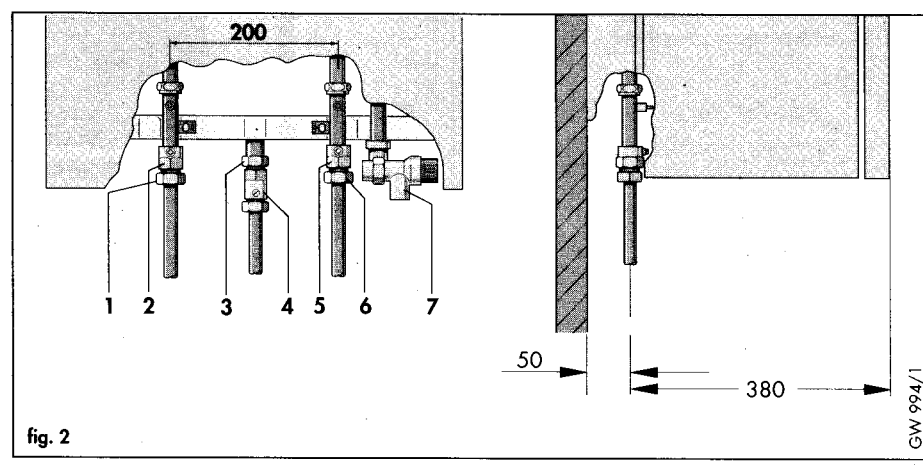


fig. 2

2.4 Function diagram

1 Air duct
2 Air pressure switch
3 Combustion chamber
4 Temperature sensor (NTC)
5 Ignition electrodes
6 Modulating burner
7 Overheat thermostat
8 Fully modulating automatic gas valve
9 Indicator lights (LED's)
10 Boiler flow temperature control
11 Main on/off control
12 Reset control
13 CH flow service valve
14 Gas service valve
15 Flue gas duct
16 Fan
17 High efficiency heat exchanger
18 Flame sensing electrode
19 Differential pressure switch
20 Expansion vessel charging valve
21 Expansion vessel
22 Automatic air vent
23 Circulating pump
24 Temperature and Pressure gauge
25 Automatic bypass valve
26 Pressure relief valve
27 CH return service valve

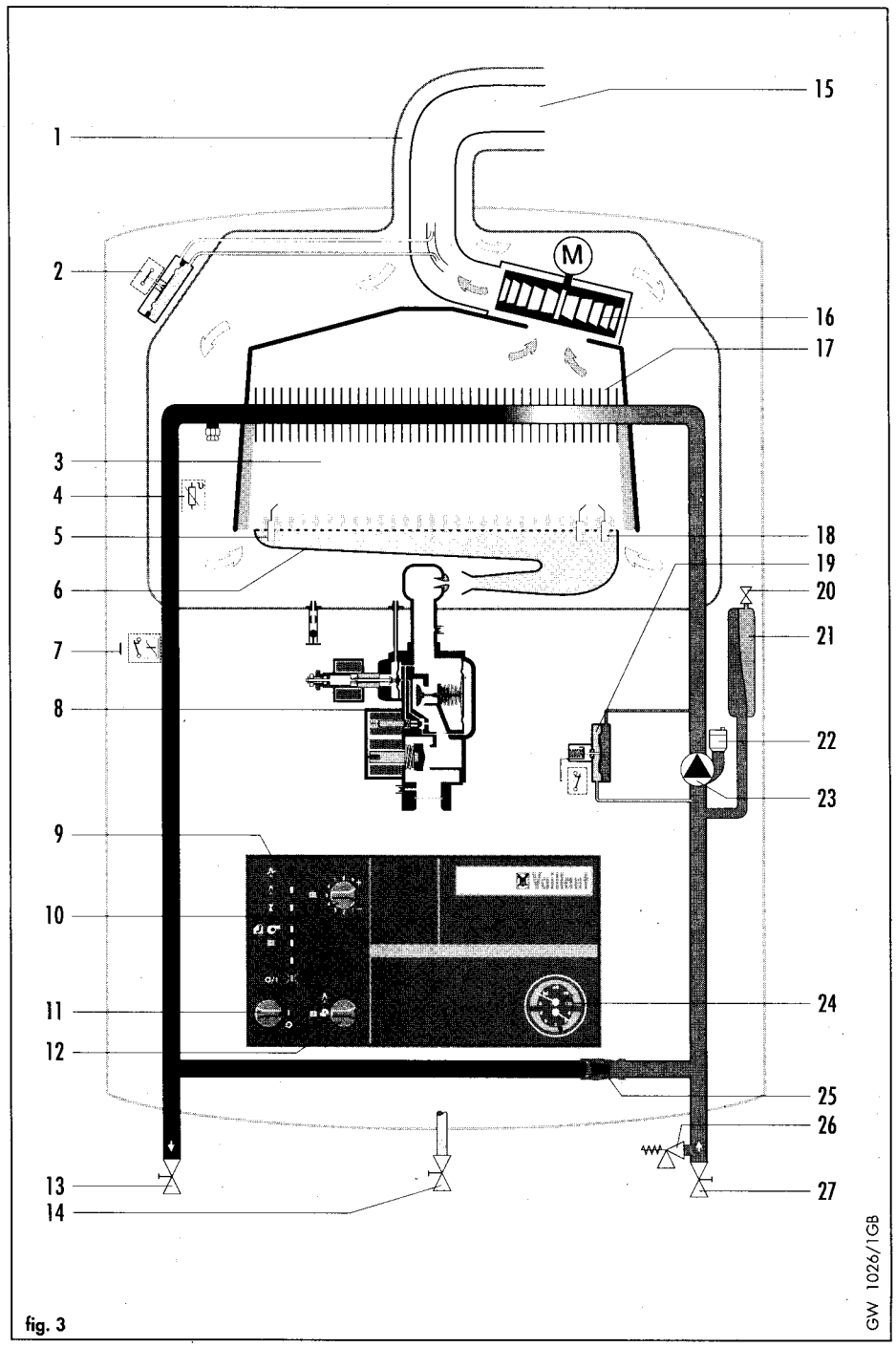


fig. 3

3. General requirements

3.1 Related documents

The installation of the boiler must be in accordance with the relevant requirements of Gas Safety (Installation and Use) Regulations 1994, Health and Safety Document No. 635 (The Electricity at Work Regulations 1989), BS7671 (IEE Wiring Regulations) and the byelaws of the local Water Undertaking. It should also be in accordance with the relevant requirements of the Local Authority, Building Regulations, Building Standards (Scotland) Regulations and the relevant recommendations of the following British Standards:-

BS 5440: Flues and ventilation of gas fired boilers not exceeding 60 kW:
- Part 1: Flues
- Part 2: Ventilation

BS 5449: Specification for forced circulation hot water for domestic premises.

BS 5546: Specification for gas hot water supplies for domestic premises.

BS 6700: Services supplying water for domestic use within buildings and their curtilages.

BS 6798: Specification for installation of gas fired boilers not exceeding 60 kW input.

BS 6891: Specification for installation of low pressure gas pipework up to 28 mm (R1) in domestic premises (2nd family gas).

BS 7593: Treatment of water in domestic hot water central heating systems.

BRITISH GAS PUBLICATION DM2: Guide for Installation in Timber Framed Housing

Important

The appliance must be installed and serviced by a competent person as stated in the Gas Safety (Installation and Use) Regulations 1994

3.2 Boiler location

The location chosen for the boiler must permit the provision of a satisfactory flue termination. The location must also provide adequate space for servicing and air circulation around the boiler. The boiler may be installed in any room, although particular attention is drawn to the requirements of BS7671 (I.E.E. Regulations) and, in Scotland, the electrical provisions of the Building Standards (Scotland) Regulations, in respect of the installation of a boiler in a room containing a bath or shower.

(Note: Where a room sealed boiler is installed in a room containing a bath or shower, any electrical switch or boiler control utilising mains electricity should be so situated that it cannot be touched by a person using the bath or shower).

Where the installation of the boiler will be in an unusual location, special procedures may be necessary and BS 5546 and BS 6798 give detailed guidance on this aspect.

The boiler must be mounted on a flat, vertical wall, which must be sufficiently robust to take the weight of the boiler. The boiler may be installed on a combustible wall, subject to the requirements of the Local Authorities and Building Regulations.

A compartment used to enclose the boiler must be designed and constructed specifically for this purpose. (An existing cupboard or compartment may be used provided that it is modified for the purpose). Details of essential features of cupboard/compartment design including airing cupboard installations are given in BS 6798.

If the boiler is to be fitted in a timber framed building, it should be fitted in accordance with British Gas Publication DM2 'Guide for Gas Installations in Timber Framed Housing'.

3.3 Gas supply

The gas supplier should ensure the availability of an adequate supply of gas.

A gas meter may only be connected to the service pipe by the supplier of gas or their contractor.

An existing meter should be checked to ensure that it is capable of passing the rate of gas supply required.

Installation pipes should be fitted in accordance with BS 6891.

Pipework from the meter to the boiler must be of an adequate size. Do not use pipes of a smaller size than the boiler gas connection (15mm).

The complete installation must be tested for soundness and purged as described in BS 6891.

3.4 Flue system

The standard horizontal flue system (Art. No. 300 807) is suitable for installations up to 995 mm measured from the centre of the boiler flue outlet to the outside face of the wall (A, fig. 4). Flue extensions (Art. No. 300 802) are available to extend this length up to 2965 mm.

Note: VU 142/1 E, VU 182/1 E boilers only, may be installed with upto 4 air/flue duct extension accessories, giving a maximum flue length (A, fig. 4) of 4935mm.

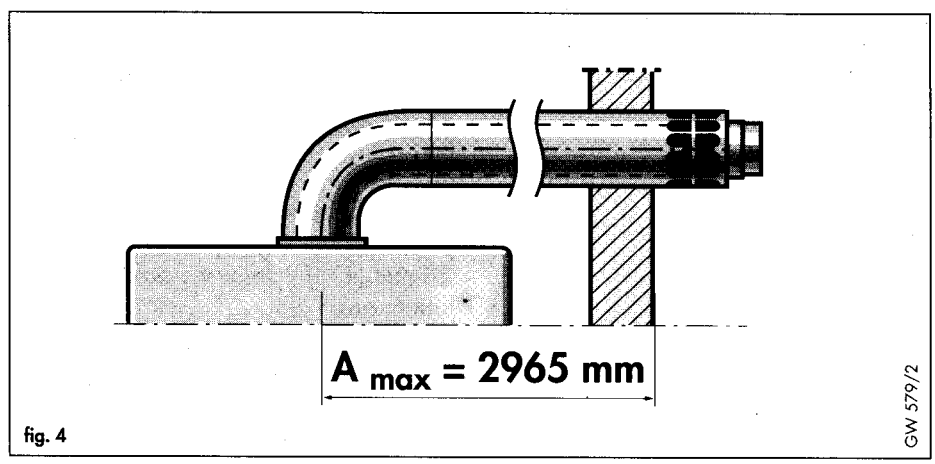


fig. 4

Both 90° elbows (Art. No. 300 808) and 45° bends (Art. No. 300 809) are also available to increase siting flexibility.

A vertical flue system is also available (Art. No. 300 800).

THERMOcompact boilers may also be used in SE- duct applications (SE- duct flue kit available Art. No. 300810)

Refer to the flue installation instructions for full details.

3.4.1 Flue Termination

1. The terminal must be positioned such that the combustion products can disperse freely at all times.

2. In certain weather conditions a plume of water vapour may be visible from the flue terminal. Positions where this could be a nuisance should be avoided.

3. If the terminal is fitted less than 2m above a balcony, above ground or above a flat roof to which people have access, then a suitable guard must be provided and fitted (available from Tower Flue Components, Tonbridge, TN9 1TB: reference TFC type K3).

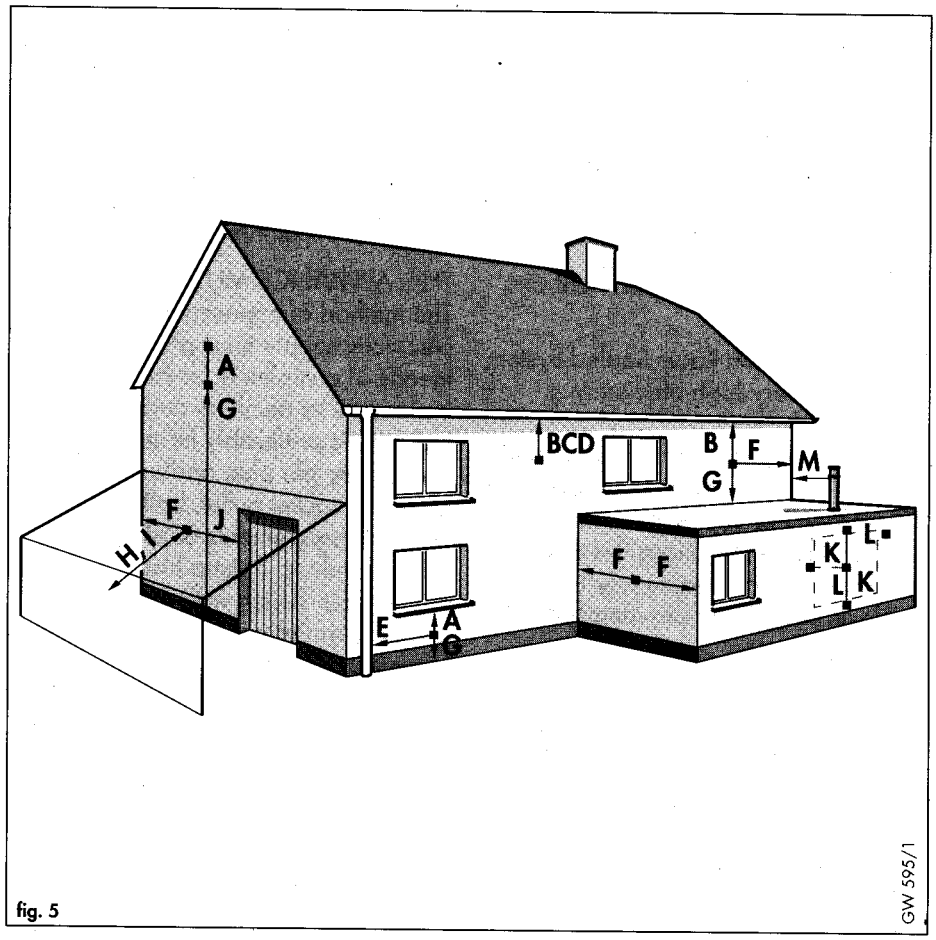


fig. 5

Table 1:
Terminal position for fan-assisted flue (minimum distance - see fig. 5)

	mm
A- Directly below an openable window or other opening (e.g. air brick)	300
B- Below gutters, soil pipes or drain pipes	25
C- Below eaves	25
D- Below balconies	25
(below car port roof	200)
E- From vertical drain pipes and soil pipes	25
F- From internal or external corners	25
G- Above ground or balcony level	300
H- From a surface facing a terminal	600
I- From a terminal facing a terminal	1200
J- From an opening in a car port (e.g. door, window) into a dwelling	1200
K- Vertically from a terminal on the same wall	1500
L- Horizontally from a terminal on the same wall	300
M- Distance from adjacent wall for Vertical Flue	500

Note: Vertical flues must not terminate within 600 mm of an openable window, air vent or any other ventilation opening.

Where a terminal is fitted less than 1m below a plastic gutter or less than 0.5m below painted eaves or any other painted surface then a suitable shield at least 1m long should be fitted to protect the surface.

3.5 Air supply

Detailed recommendations for air supply are given in BS 5440: Part 2.

It is not necessary to have an air vent in the room or internal space in which the boiler is installed.

3.5.1 Cupboard or compartment air supply

THERMOcompact Room Sealed System Boilers are very high efficiency appliances.
As a consequence the heat loss from the appliance casing during operation is very low. For cupboard and compartment installations it is therefore not necessary to provide any high or low level permanent air vents for cooling purposes.

3.6 Electricity supply

A 230 V~ 50Hz single phase electricity supply fused to 3 amps must be provided in accordance with the latest edition of BS7671 (I.E.E. Wiring Regulations) and any other local regulations that may apply.

THIS APPLIANCE MUST BE EARTHED. The method of connection to the mains electricity supply must provide a means of completely isolating the boiler and its ancillary controls. Isolation is preferably by the use of a fused three pin plug and unswitched shuttered socket outlet, both complying with the requirements of BS 1363. Alternatively, a 3 Amp fused double-pole switch with a 3mm contact separation on both poles may be used.

3.7 Guide to system requirements

3.7.1 Water circulation system

Detailed recommendations for the water circulation system are given in BS 6798 and BS 5449: Part 1 (for small bore and micro bore central heating systems).

Pipework not forming part of the useful heating surface should be insulated to help prevent heat loss and possible freezing, particularly where pipes are run through roof spaces and ventilated underfloor spaces.

Draining taps must be located in accessible positions which permit the draining of the whole system including the boiler and the hot water system. Draining taps should be at least 1/2 in. BSP nominal size and be in accordance with BS 2879.

The boiler is suitable for use with minibore or microbore systems. Copper tubing to BS 2871: Part 1 should be used for water carrying pipework. All capillary joints in the DHW pipework must be made with lead free solder.

Particularly where a new boiler is to be fitted to an existing system, it is good practice that the system is thoroughly cleansed. This cleasing should take place prior to the fitting of the new boiler and be in accordance with BS 7593.

For advice on the application of system cleansers contact Sentinel, Betz Dearborn Ltd, Widnes, Cheshire, WA8 8UD.
Tel: 0151 4951861.

3.7.2 Filling and make up

The system should be filled with water via a separate filling point fitted at a convenient position on the heating circuit. Where local Water Authority Regulation allows, a temporary connection to the mains may be used (fig. 6). The connection must be removed when filling is completed. Where local Water Authority Regulation does not allow temporary connection, a sealed system filler pump with break tank must be used.

(Alternative methods of filling sealed systems are given in BS 5449).

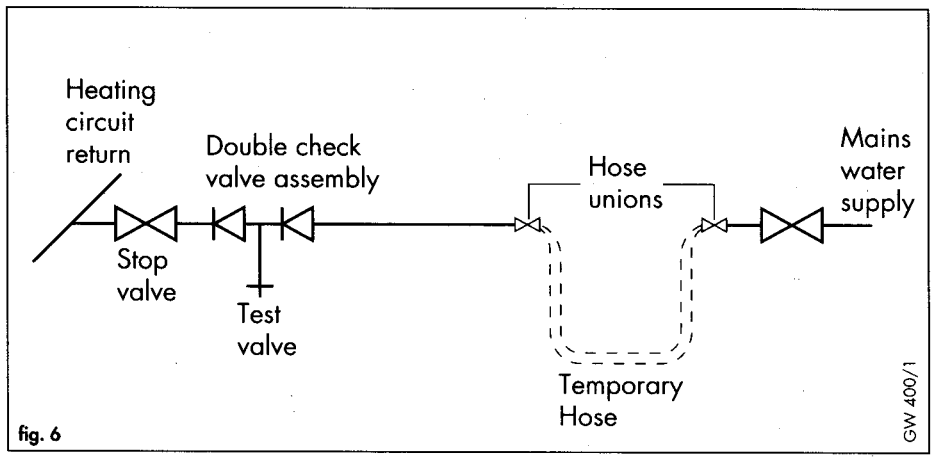


fig. 6

3.7.3 Pressure relief valve

A pressure relief valve is provided ready assembled within the boiler (6, fig. 7). This safety device is required on all sealed C.H. systems and is pre-set at 3 bar and provided with a 3/4 in. BSP connection for a discharge pipe, which must be of no less than 15mm diameter.

3.7.4 Pressure and temperature gauge

This is factory fitted to the boiler and indicates the primary circuit pressure to facilitate filling and testing, as well as showing the temperature of the central heating system water.

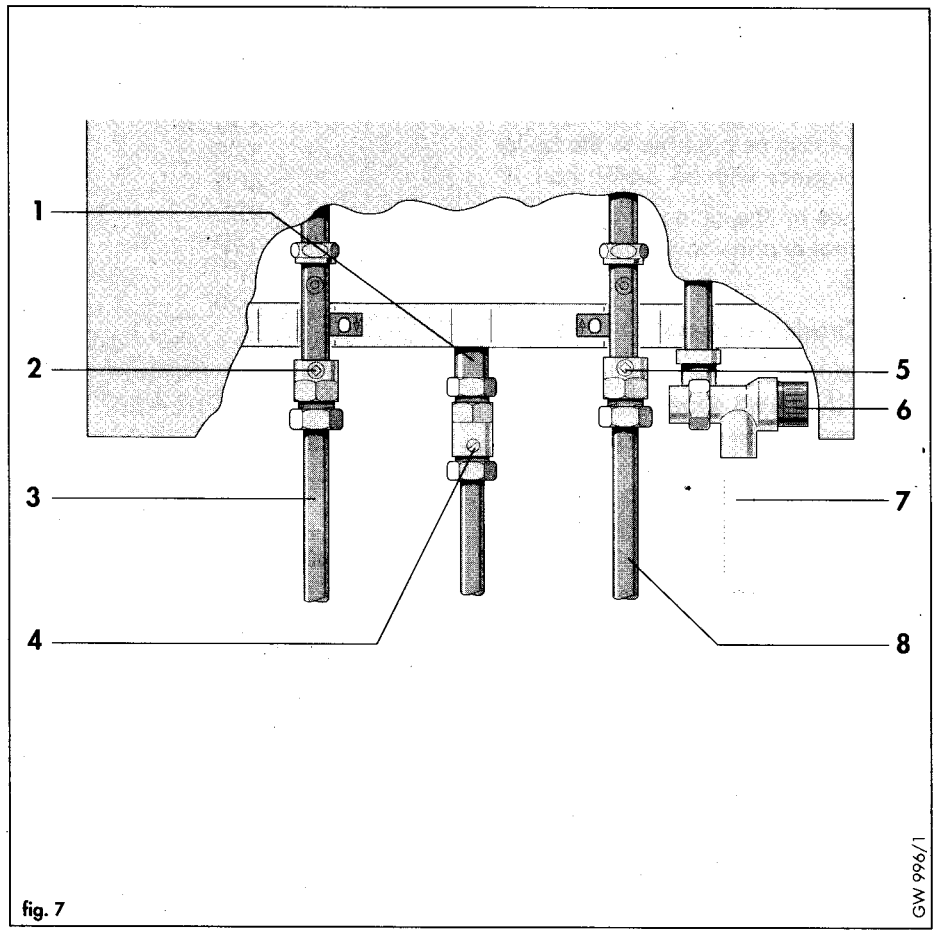


fig. 7

3.7.5 Expansion vessel

An expansion vessel is incorporated into the boiler. The expansion vessel supplied with VU 142/1 E is suitable for a sealed heating system with a maximum water content of 100 litres. The expansion vessel supplied with VU 182/1 E, VU 242/1 E, VU 282/1 E is suitable for a sealed heating system with a maximum water content of 135 litres.

If the nominal capacity of the built in expansion vessel is not sufficient for the heating system (for instance in case of modernisation of old open systems) an additional expansion vessel can be installed external to the boiler. It should be fitted in the return pipe as close as possible to the boiler in accordance with BS 5449: Part 1.

Guidance on the sizing of an additional expansion vessel is given in Table 2.

3.7.6 Circulating pump

The circulating pump is included in the boiler. The pump head available for the heating system is shown in fig. 8.

3.7.7 System by-pass

An automatic system by-pass is included within the boiler. The boiler is suitable for use in systems with thermostatic radiator valves and no additional by-pass is required.

3.7.8 Venting

The boiler is fitted with an automatic air vent. Additional provision should be made to enable the heating system to be vented during filling and commissioning either by automatic air vents or manually.

Table 2: Sizing of Additional Expansion Vessel

Safety valve setting (bar)	3.0	
Initial system pressure (bar)	1.0	1.5
Total water content of system	**VESSEL VOLUME (L)**	
litres		
25	2.7	3.9
50	5.4	7.8
100	10.9	15.6
125	13.6	19.5
150	16.3	23.4
175	19.1	27.3
200	21.8	31.2
225	24.5	35.1
250	27.2	39.0
275	30.0	42.9
300	32.7	46.8
325	35.7	50.7
350	38.1	54.6
375	40.9	58.5
400	43.6	62.4
425	46.3	66.3
450	49.0	70.2
475	51.8	74.1
500	54.5	78.0
For system volumes other than those given above, multiply the system volume by the factor across	0.109	0.156

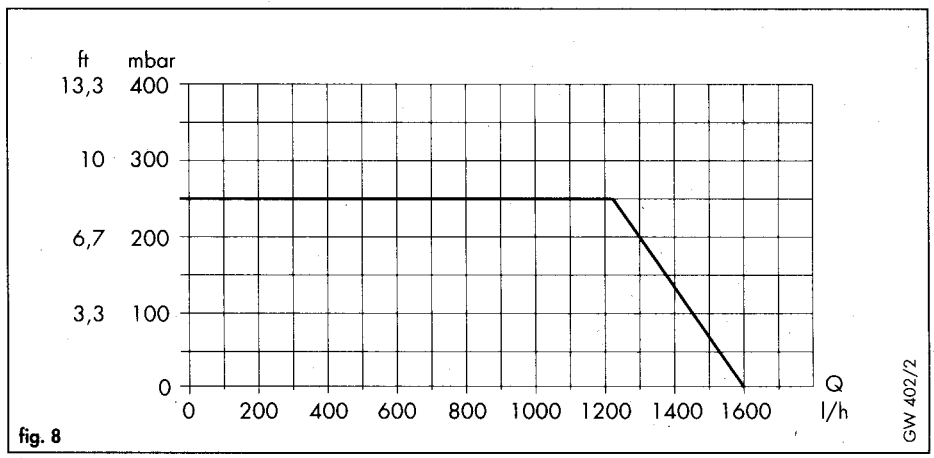


fig. 8

4. Boiler installation sequence

4.1 General

The boiler should be mounted on a flat and vertical area of wall of sufficient area for the boiler plus the required minimum clearances for installation and servicing (fig. 9). These are shown on the installation template supplied with the boiler and are:

5 mm either side of the boiler
100 mm below the boiler*
165 mm on top of the boiler
500 mm in front of the boiler **

* 150 mm where optional pre-installation connecting group (Art. no. 8016) is used.

** This clearance is only required to enable easier access to the boiler for servicing and may be provided by an openable door, etc.

Note: If the boiler is to be fitted in a timber framed building, it should be fitted in accordance with British Gas publication reference DM2 'Guide for gas installations in timber framed housing.'

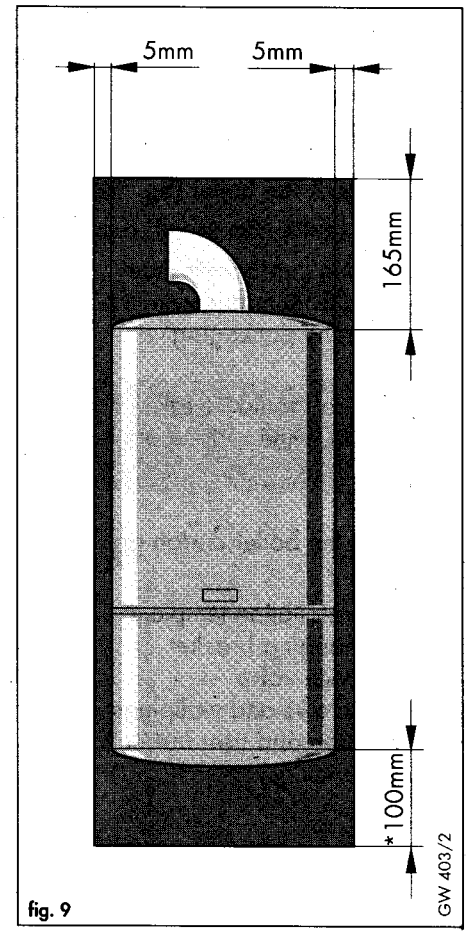


fig. 9

4.2 Boiler delivery

The THERMOcompact is delivered in two packs:

a. the carton containing the boiler
b. separately boxed flue accessory, either:
- 1m horizontal flue accessory (Art. No. 300 807); or
- vertical flue accessory (Art. No. 300 800)

4.2.1 Installation accessories

Table 3 lists the accessories which are available for the THERMOcompact system boilers.

4.2.2 Unpack the boiler (fig. 10)

Open the boiler carton and remove:

a. protective cardboard sheet
b. top and bottom decorative panels
c. polystyrene packaging

Note: Care should be taken not to scratch the white surface of the boiler casing.

Packed in the boiler carton are the following:

- boiler installation template
- boiler hanging bracket
- gas service valve
- fixing screws and wallplugs
- installation and user instructions
- flue restrictor(s)

Table 3: Installation Accessories

Accessories available	Art. No.
1. Horizontal air/flue duct and terminal accessory	300 807
2. Vertical air / flue duct (including terminal)	300 800
3. Pitched roof adjustable roof tile (for use with vertical air/flue duct)	9076
4. Flat roof penetration collar (for use with vertical air/flue duct)	9056
5. 1 m air /flue duct extension	300 802
6. 2 m air / flue duct extension	300 803
7. Additional 90° elbow for air / flue duct	300 808
8. Additional 45° bends (pair) for air / flue duct	300 809
9. Additional air / flue duct joint clamps (pair)	300 806
10. Se- duct flue kit	300 810
11. Internal flue fixing kit	8098
12. Pre - installation connecting group	8016
13. Vaillant boiler replacement connection accessory	300 813
14. Pipe cover accessory	8099
15. Plug in 7 day programmer.	300 727

4.3 Preparation of boiler location

4.3.1 Select position of boiler.

Refer to Section 3.2 'Boiler Location' for information regarding siting the boiler. In general the boiler must be positioned such that:

- there is adequate space around the boiler for service and maintenance
- the boiler can be correctly flued, i.e. the flue terminal position is sited in accordance with Section 3.4.1 and the air / flue duct can be installed in accordance with the flue installation instructions supplied.
- all necessary pipework can be connected, including the pressure relief valve discharge pipe.

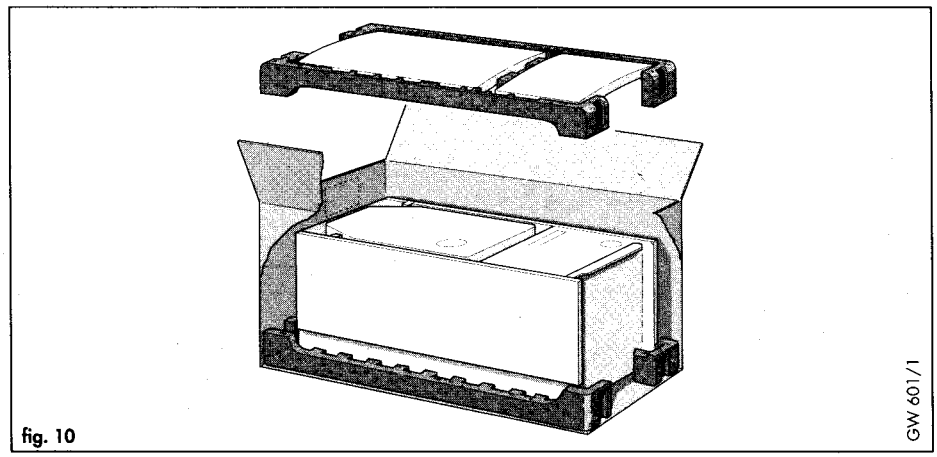


fig. 10

GW 601/1

4.3.2 Using the boiler template (fig. 11)

4.3.2.1 Once a suitable location has been chosen, fix the paper installation template on the wall ensuring that the centerline of the template is vertical using a spirit level or plumb line.

The template shows the positions of the fixing holes for the boiler hanging bracket (2) and the optional pre-installation connection group (3). The template also shows the position of the flue exit hole, for use where the air flue duct is to be installed directly to the rear of the boiler, e.g. where the boiler is installed on an outside wall and the flue terminates directly behind.

4.3.2.2 A Pre - installation connection group (Art. No. 8016) is available as an optional accessory. It is used to allow the installation of the central heating pipework without the need to have the boiler in position. Where an old existing Vaillant boiler is to be replaced, the boiler replacement accessory (Art. No. 300 813) can be used to allow easy connection of the new boiler to the existing connecting group. Refer to the instructions supplied separately with these accessories.

4.3.2.3 Mark on the wall the positions of the hanging bracket fixing holes (2). Drill two holes Ø 10 mm for the hanging bracket. (Note: Use the alternative fixing holes where necessary).

4.3.2.4 Rear exit flue.
Mark the position of the centre of the flue duct and its circumference, e.g. by drilling through the template (1, fig. 11).

4.3.2.5 Other flue options.
Refer to the installation instructions supplied with the flue accessory for detailed instructions on other flue options such as vertical RSF flues, flue runs to the side of the boiler and the use of additional flue elbows and bends etc.

4.3.2.6 Remove the template from the wall and plug the drilled holes using the wallplugs supplied.

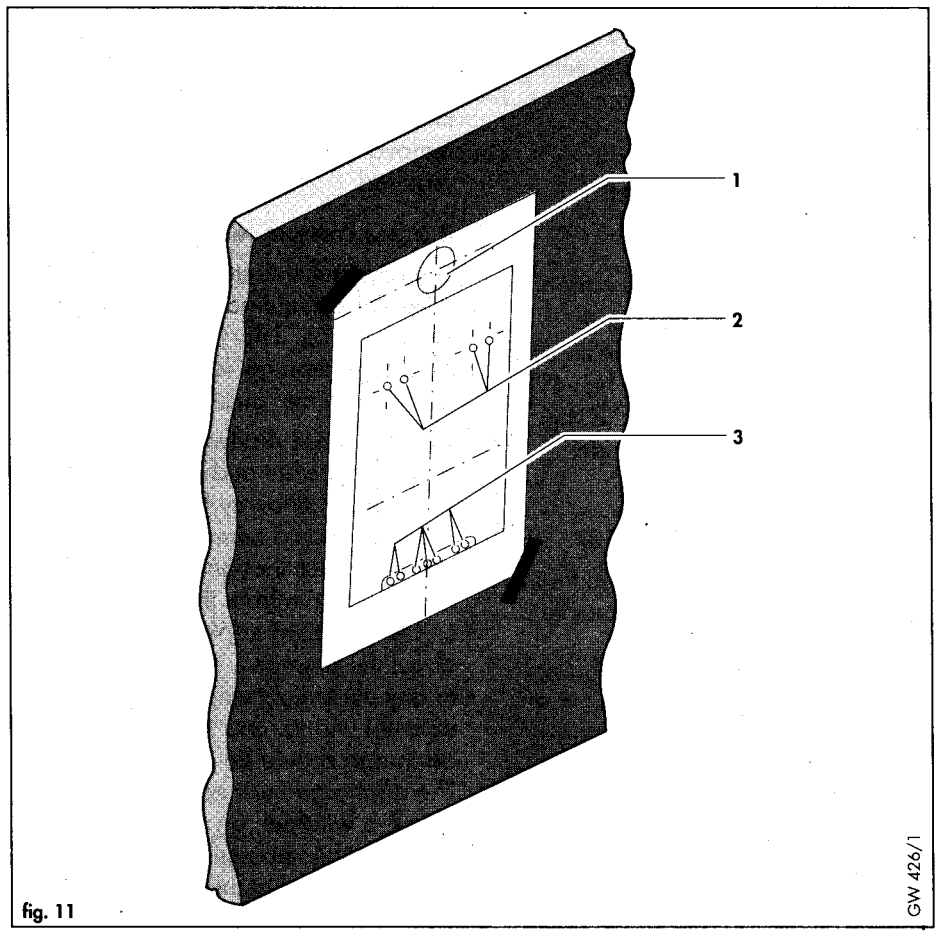


fig. 11

4.3.3 Fitting the boiler hanging bracket.

Secure the hanging bracket to the wall using the screws supplied. (If the condition of the wall is poor it may be necessary to use additional or alternative fixings to ensure adequate support).

NOTE: If the boiler is to be fitted in a timber framed building ensure that the brackets are secured to a substantial part of the timber frame capable of taking the weight of the boiler.

4.4 Installing the flue system

At this stage install the flue system (refer to separate installation instructions supplied).

4.5 Mounting the boiler

4.5.1 Preparation

Remove the boiler from the carton.

Lay the boiler on the floor and remove the white boiler bottom cover by removing two screws (l, fig. 49) and slackening two screws (2, fig. 49). Do not remove boiler side panels.

4.5.2 Fitting the boiler (fig. 13)

Lift the boiler up to the wall so that it is slightly above the hanging bracket.

Note: Lift the boiler from under the front edge of the side panels. Do not lift the boiler by the control box. Do not attempt to lift the boiler without the side panels fitted.

Lower the boiler slowly onto the hanging bracket so that the cross member at the top rear of the boiler fully engages into the hanging bracket.

4.5.3 Pipework connections (fig. 14)

Figure 14 shows the central heating, (2,5) gas (1)and pressure relief valve (6) connections.

4.5.3.1 Central heating flow and return

Before connecting the heating circuit to the appliance, all pipework and radiators must be thoroughly flushed to remove any installation debris.

Connect the flow and return pipes to the central heating service valves (2) and (5) on the appliance using the 22mm compression connections.

4.5.3.1.1 Top pipework connection

If it is desired to run heating pipework to above the boiler, the purpose provided voids in the left and right sides of the boiler casing may be used (see fig. 15).

Note: To allow fitting of the bottom boiler cover, the left hand tab (2, fig. 15) should be folded upwards where pipes are fitted in the left hand void.

Where pipes are installed in these voids, a method of disconnection e.g. a compression connector (1, fig. 15) must be provided to allow easy removal of the boiler from the wall, if required.

4.5.3.2 Pressure relief valve discharge

The appliance contains the pressure relief valve required for a sealed system (6, fig. 14). Connect a discharge pipe not less than 15 mm diameter to the outlet of this valve.

This discharge pipework should be as short as possible and installed with a continuous fall away from the boiler. The pipe should terminate in a position which ensures that any discharge of water or steam from the valve cannot create a hazard to persons in or about the premises, or cause damage to any electrical components or external wiring, and the point of discharge should be clearly visible. The discharge must not terminate above a window, an entrance or any type of public access. The installer must consider that the pipe could discharge boiling water.

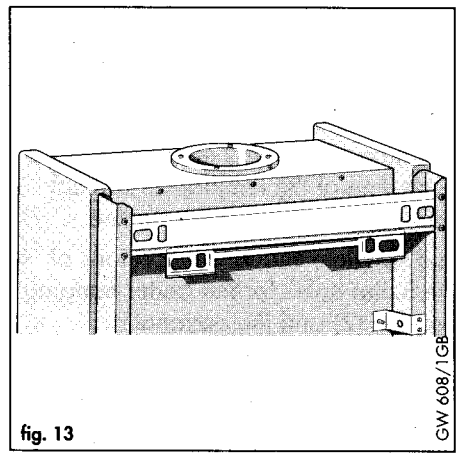


fig. 13

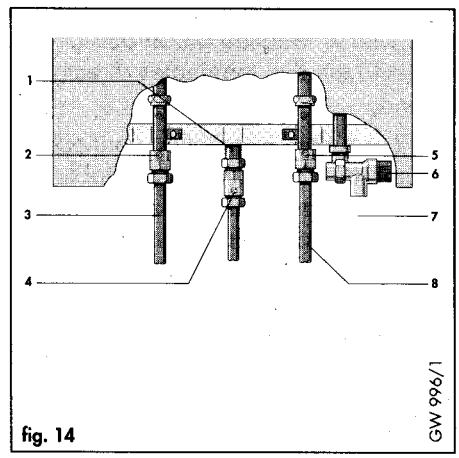


fig. 14

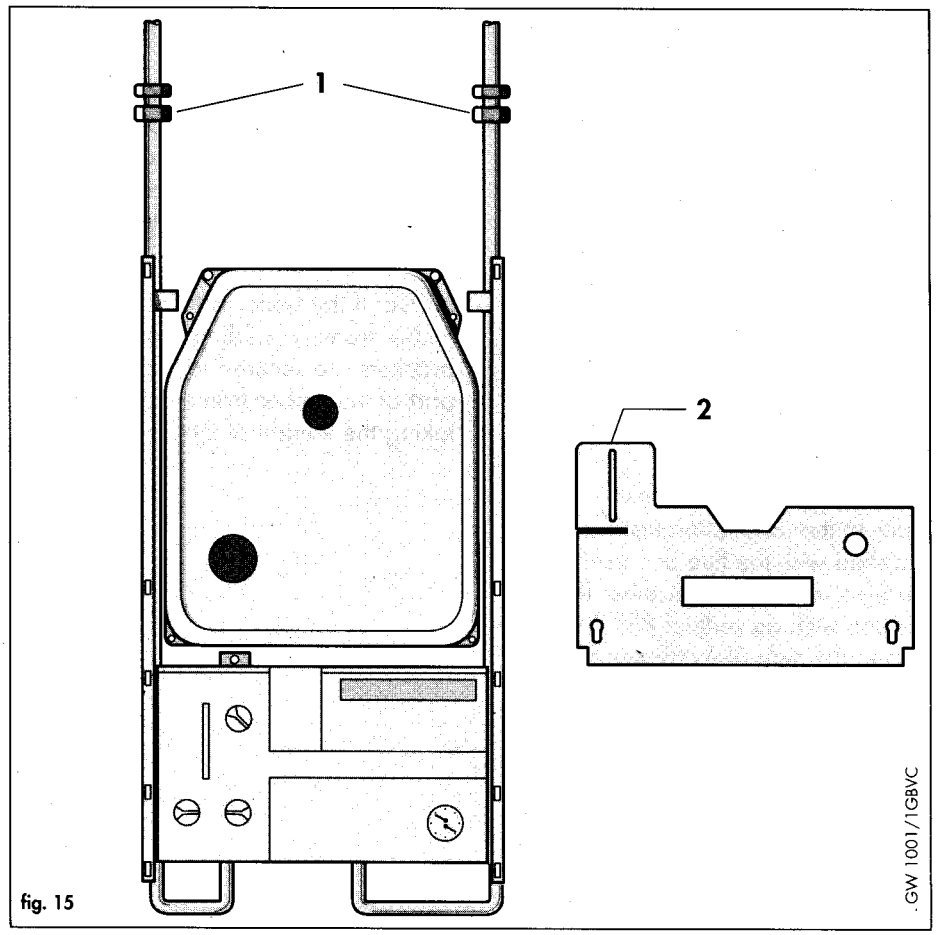


fig. 15

4.5.3.3 Gas supply

The boiler is supplied with a 20 x 15 mm gas service valve (4, fig. 14). Fit the 20 mm compression fitting to the boiler gas inlet (1, fig. 14) and tighten. Install a gas supply pipe not less than 15 mm diameter and connect to the gas service valve. (Ensure the gas supply pipework is adequately sized such that a 20 mbar - (8" w.g.) - gas pressure is available at the boiler inlet at full flow rate). Tighten all union connections.

4.6 Connecting the flue assembly to the boiler

Note: A flue restrictor ring, marked **F1** is packed with the users and installation instructions (an additional ring is supplied with a VU 142/1 E, 182/1 E boilers, marked **FII**). The restrictor should be fitted to the flue outlet of the boiler as shown in figure 18, for the flue installations shown in table 4 below:

Table 4	Horizontal flue lengths		
boiler type	up to 1m	from 1m to 3m	over 3m
VU 142/1 E	use FII	use FI	Do not use restrictor.
VU 182/1 E	use FII	use FI	
VU 242/1 E	use FI	Do not use restrictor.	
VU 282/1 E	use FI		

	Vertical flue lengths*	
boiler type	up to 1m	over 1m
VU 142/1 E	use FII	Do not use restrictor.
VU 182/1 E	use FII	
VU 242/1 E	use FI	
VU 282/1 E	use FI	

* Vertical flue lengths quoted are measured from the flue outlet on top of the boiler to the bottom of the vertical air/flue duct and terminal assembly (Art. No. 300 800).

(**Note**: Refer to the air/flue duct installation instructions for full details of installation of the air flue duct. This Section is included for further reference only, e.g. in case the boiler has to be removed from the wall.)

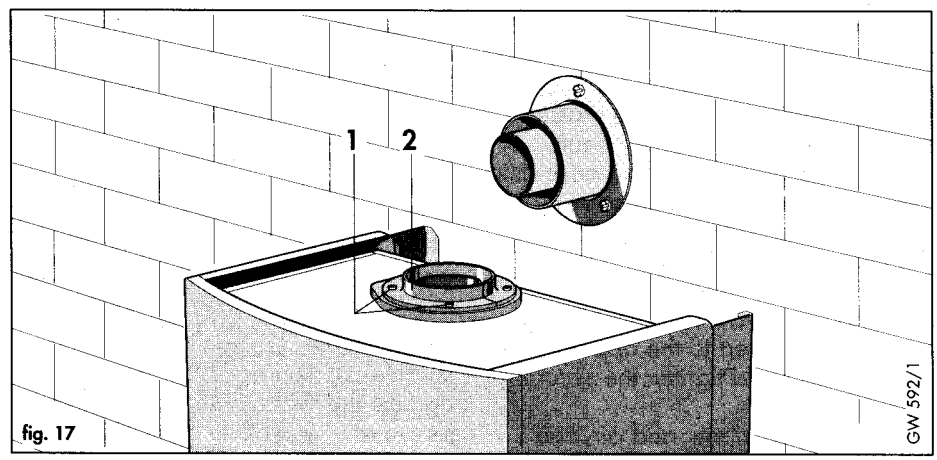


fig. 17

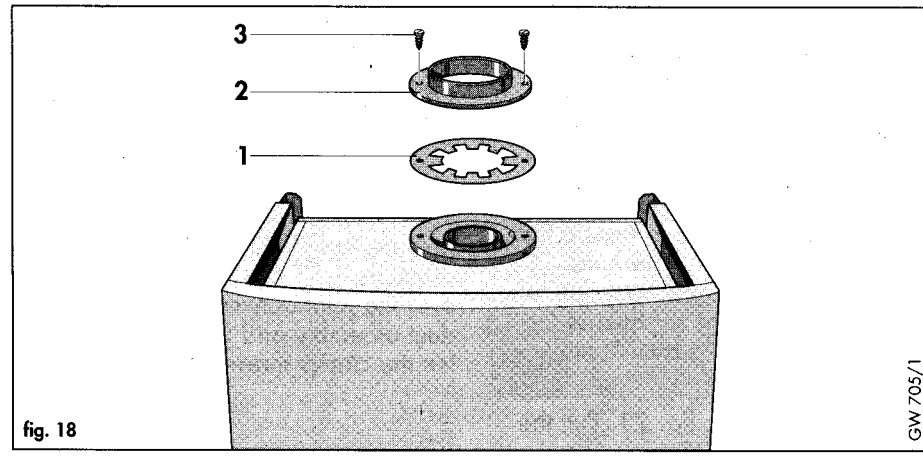


fig. 18

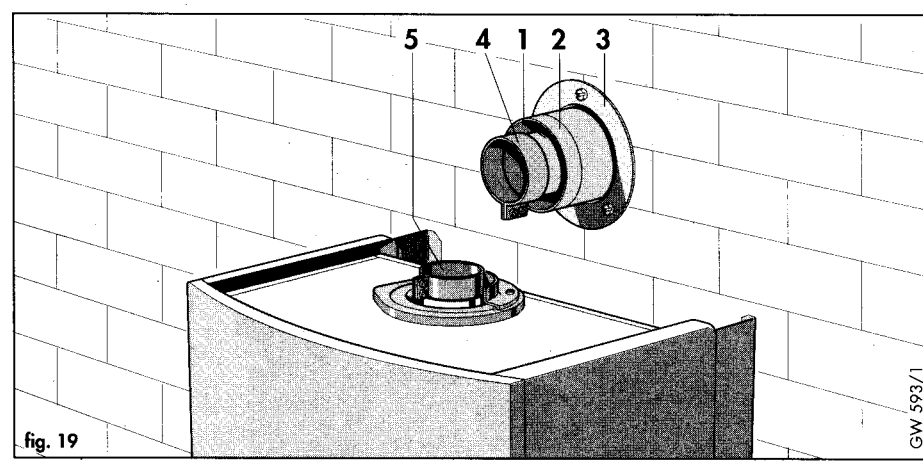


fig. 19

4.6.1 Horizontal Flue

Remove two screws (1, fig. 17) and take off one half ring (2, fig. 17). If necessary, fit the flue restrictor ring (Note : It will be necessary to remove both half rings if the flue restrictor ring is to be fitted. The flue restrictor ring should be placed on top of flue outlet directly below the two half rings see fig. 18. One half ring should be replaced immediately).

Place a 63mm diameter x 35 mm wide flue duct clamp (4, fig. 19) loosely over the flue duct (1, fig. 19). Place the 63 mm diameter x 25 mm wide flue duct clamp (5, fig. 19) over the flue gas connection on the boiler.

Loosen screws on the 95 mm diameter x 55 mm wide clamp (6, fig. 21) and push over the air duct.
Remove screws and sealing washer on the 95 mm diameter x 25 mm wide clamp (3, fig. 21) and push onto the flue elbow on the side to be connected to the appliance. Ensure the clamp is clear of the end of the elbow.
Push the flue elbow into the clamp (2, fig. 20) connected to the appliance flue gas duct and tighten the securing screws lightly.
Ensure that the elbow and air/flue duct line up and are closely butted together. Pull the clamp (4, fig. 20) over the joint between the flue gas duct and flue elbow. Ensure that the air/flue duct and terminal are correctly positioned. Tighten the securing screws on both clamps.

Note : Excessive tightening of these screws is not necessary. Ensure that the air / flue duct and terminal assembly is not displaced though the wall. Check that the air duct of the terminal still projects by 90 mm through the wall.

Refit the half ring 2, fig. 21. Pull the 95 mm diameter x 25 mm wide clamp (3, fig. 21) over the joint between the flue elbow and half rings. Refit the screws and sealing washer and tighten lightly.
Pull the 95 mm diameter x 55 mm wide clamp (6, fig. 21) over the joint between the flue elbow and air/flue duct. Tighten the securing screws on both clamps.
Drill two holes, 3 mm diameter through both air duct clamps into the air ducts at the most convenient positions (5, fig. 21). Take care not to penetrate the inner flue duct. Screw the clamps to the air ducts using the self tapping screws provided.

4.6.2 Vertical Flue

Remove the two half rings (2, fig. 17) and, if necessary, fit the flue restrictor ring.
(Note: It will be necessary to remove both half rings if the flue restrictor ring is to be fitted. The flue restrictor ring should be placed on top of flue outlet directly below the two half rings (see fig. 18). One half ring should be replaced immediately).
Fit the 63 mm diameter x 68 mm wide flue duct sleeve (2, fig. 22) over the flue gas duct of the air/flue duct assembly.

Loosen the screws of the 95 mm diameter x 55 mm wide clamp (1, fig. 22) and push over the air duct of the air/flue duct assembly.

Lower the flue assembly until a gap of about 25 mm exists between the air duct of the air/flue duct and terminal assembly and the half rings on the appliance. The two ducts must not butt together.

Pull the sleeve (2, fig. 22) down over the flue connection of the appliance against the stop. Align the holes in the sleeve and boiler flue gas connector and secure with a self tapping screw (1, fig.23).

Note : The sleeve must not be screwed to the bottom of the flue gas duct of the air/flue duct assembly. This duct must be able to slide in order to absorb small movements of the roof structure.

Refit the two half rings. Pull the 95 mm diameter x 55 mm wide clamp down over the joint between the air/flue duct assembly and the half rings. Tighten the clamp screws (1, fig.24).

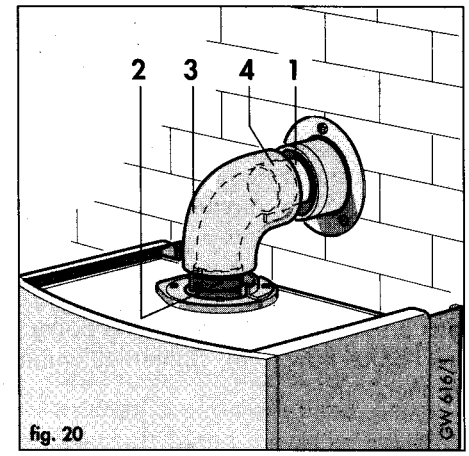


fig. 20

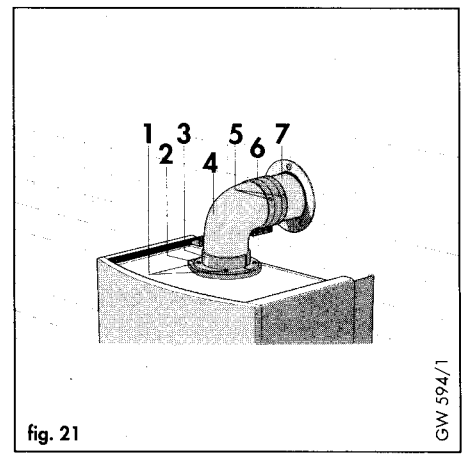


fig. 21

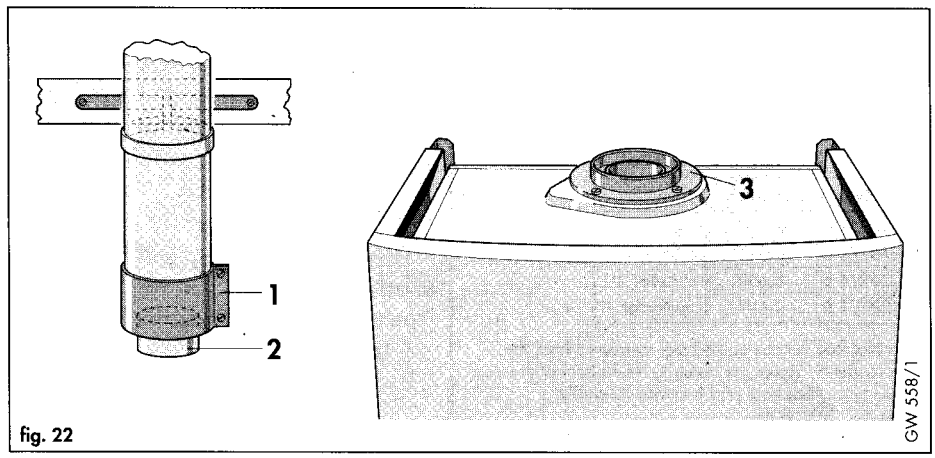


fig. 22

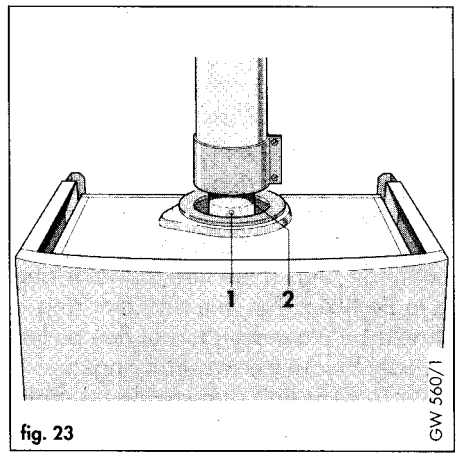


fig. 23

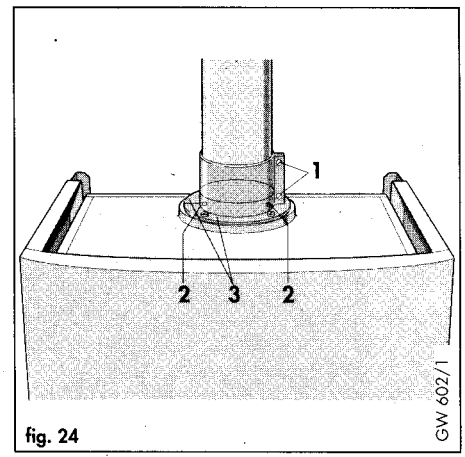


fig. 24

Drill two holes 3 mm diameter through the air duct clamp (2. Fig 24) ensuring that the drill does not penetrate the flue duct. Screw the clamp to the boiler half ring using the self tapping screws provided.

Note: The air duct clamp must not be screwed to the bottom of the air flue duct and terminal assembly. The air/flue duct and terminal assembly must be able to slide in the air duct clamp to absorb any slight movements in the roof structure.

4.7 Electrical installation

4.7.1 General electrical requirements

All electrical work shall be carried out by a competent person and shall comply with BS7671 (IEE Regulations).

The boiler is supplied for connection to a 230V~ 50Hz supply fused at 3A rating. Connection to the mains supply should be made via a fused 3 pin plug to an unswitched, shuttered socket, both complying with the requirements of BS1363. (Alternatively, connection may be made via a 3 Amp fused double pole isolator having a contact separation of at least 3mm in all poles and supplying the boiler and controls only).

The point of connection to the mains must allow complete electrical isolation of the boiler and its ancillary controls. It should be readily accessible and adjacent to the boiler. A 3 core flexible cord according to BS6500 tables 6, 8 or 16 (3x0.75 to 3x1.5 mm^2) should be used.

Warning: This appliance must be earthed

4.7.2 Connecting to mains supply

Slacken front panel fixing screw (1, fig. 25) and lower front panel. Remove terminal box cover by undoing screw (1, fig. 26)

Connect the power supply cord as follows (see fig. 27):-

green / yellow (earth) wire.... boiler terminal ⏚

Blue (neutral) wire..... boiler terminal N

Brown (live) wire..... boiler terminal L

Note: Do not use boiler terminal connections 7-8-9

IMPORTANT Ensure that all cords pass through the terminal box entrance grommets and are securely fixed by the cable clamps. Ensure that the power supply cord is connected such that the current carrying conductors become taut before the earthing conductor should the supply cord slip from the cable clamp.

Refit the terminal box cover after completion of all electrical connection.

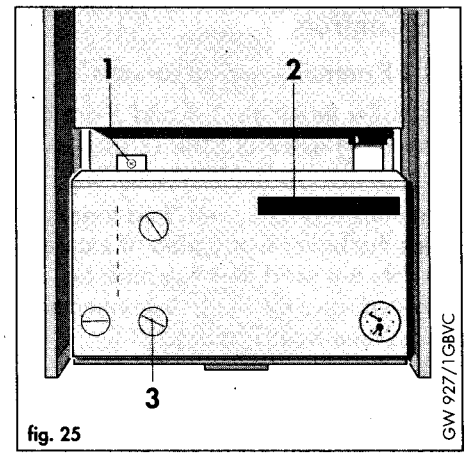


fig. 25

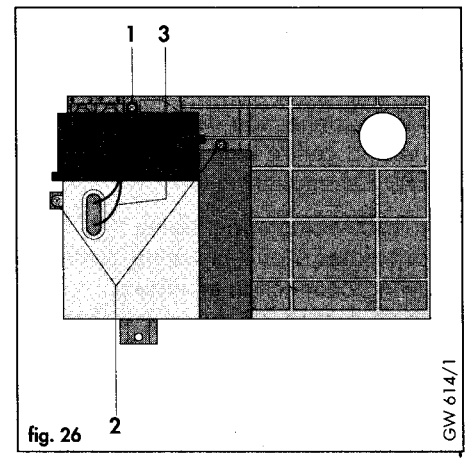


fig. 26

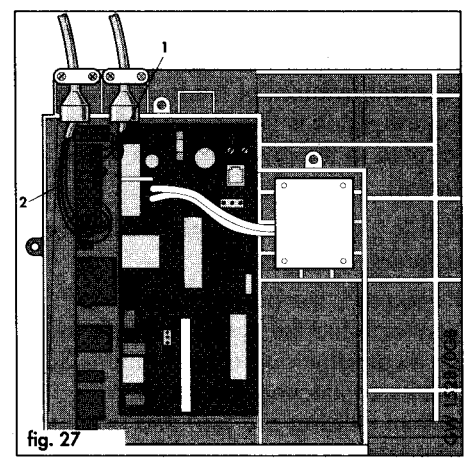


fig. 27

The cable clamp (1, fig. 28) is only meant as a mounting aid. A possible damage caused when mounting or removing it will not cause any malfunction of the appliance.

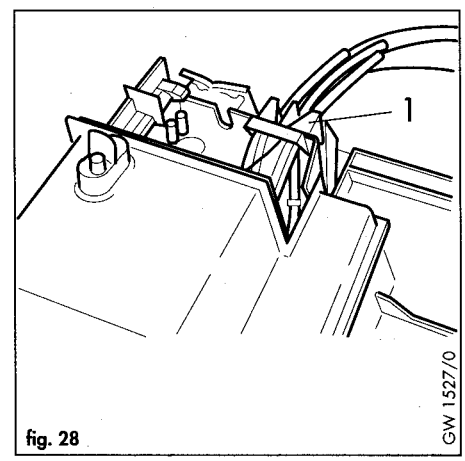


fig. 28

4.8 Controls

4.8.1 External electrical controls

The boiler terminals 3,4 and 5 are for connecting external controls such as a programmer, room thermostat, etc.

Terminals 3 and 4 are linked together when the boiler is supplied. If external controls are used, this link must be removed, and the controls connected across terminals 3 and 4.

Terminal 5 is an additional neutral connection for external controls.

Refer to Section 4.8.2 for full connection details.

4.8.2 Connection of external electrical controls

4.8.2.1 Connection details using the wiring centre built in to the THERMOcompact boiler.

The THERMOcompact boiler incorporates a built-in wiring centre allowing connection of system controls. Figure 29 shows connection details for a system utilising a 3 port mid position motorised valve, Figure 29A shows the connection details for a system utilising two 2 port motorised valves connected via the built-in wiring centre. (Important: the arrowed numbers indicate connection into the relevant terminal of the built in wiring centre which is the separate box located at the lower left side of the boiler).

4.8.2.2 Connection details using an external wiring centre.

If required, the boiler can be connected to the system controls using an external wiring centre. Figure 30 shows connection details for a system utilising a 3 port mid position motorised valve, Figure 30A shows the connection details for a system utilising two 2 port motorised valves connected via an external wiring centre. (Important: the arrowed numbers indicate connection into the relevant terminal of the external wiring centre).

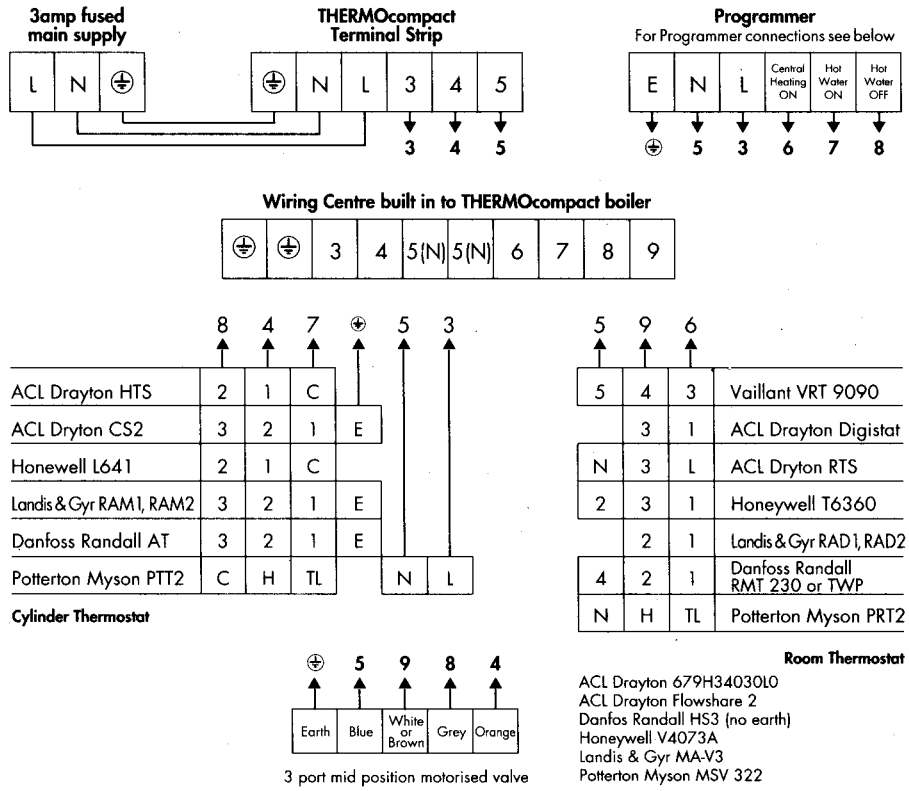
4.8.2.3 Connection details for optional plug in 2 channel central heating programmer (Art. No. 300 727)

Refer to the separate installation instructions supplied with the 2 channel programmer for connection details.

Fig. 29

Connections details for control systems utilising 3 port motorized valve, connected via built-in wiring centre on THERMOcompact boiler

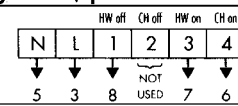
Diagram only applies to the specific controls mentioned



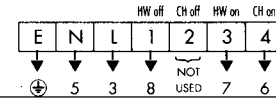
ACL Drayton 679H34030L0
ACL Drayton Flowshare 2
Danfos Randall HS3 (no earth)
Honeywell V4073A
Landis & Gyr MA-V3
Potterton Myson MSV 322

Connection details between programmer and built-in wiring centre (3port motorized valve systems)

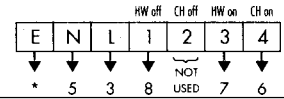
ACL Drayton LP 241, LP 522, LP 722



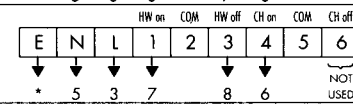
ACL Drayton Tempus 3, Tempus 4, Tempus 6, Tempus 7



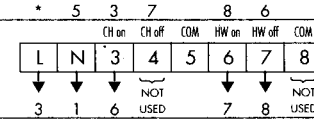
Danfoss Randall FP 15, FP 75
* Earth not required



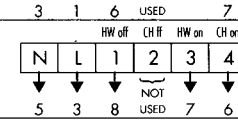
Danfoss Randall Set 3E, Set 4E
Please Note Link L-2 2-5
* Earth not required



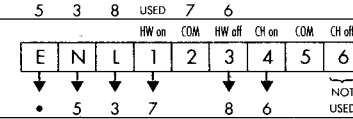
Honeywell ST 699, ST 799A
Please Note Link L to 5 and 8



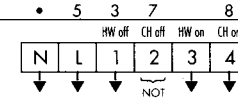
Honeywell ST 6200, ST 6300, ST 6400



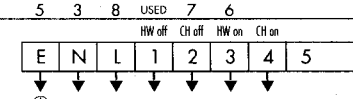
Horstmann 525, 527, Chanel Plus H21, H27, H121, H272
Please Note Link L-2 2-5
* Earth not required



Landis & Gyr RWB 2, RWB XP, RWB 200, RWB 252, RWB 270



Potterton Myson EP 2002, EP 3002, EP 6002
Please Note: Link L-5



4.8.3 Thermostatic radiator valves

The boiler has a built-in automatic bypass valve making it ideal for use in systems with thermostatic radiator valves (no separate system bypass is required).

4.8.4 Circulating pump

The boiler incorporates a built-in circulating pump that is fully pre-wired. (No additional wiring is necessary). The pump incorporates an automatic overrun period after the boiler switches off.

4.8.5 Anti-cycling 'economiser' control

The boiler incorporates a built in anti-cycling control to ensure that energy wasteful short cycling of the boiler cannot occur. This control prevents the burner from re-igniting for a pre-set period of 5 minutes after boiler operation.

Note: To temporarily override the anti-cycling control, turn the main on/off control to the "off" position (0), and then back to the "on" position (I) after a few seconds.

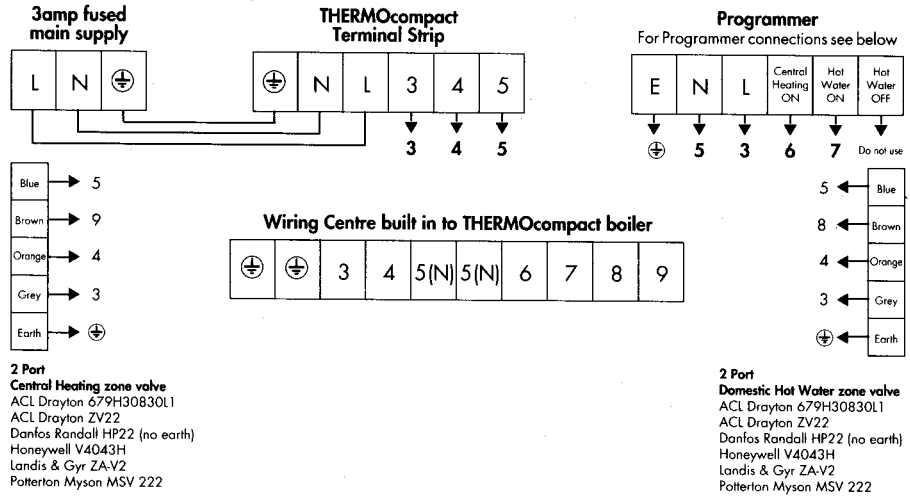
4.8.6 Frost protection

The boiler has an internal frost thermostat which is designed for protection of the boiler.
To protect remote or exposed parts of the heating system or property additional frost protection measures must be taken such as the installation of an external frost thermostat. This frost thermostat should be connected across the boiler terminals 3 and 4, in parallel with any external heating controls.

Fig. 29A:

Connections details for control systems utilising two 2 port motorized valves, connected via built-in wiring centre on THERMOcompact boiler

Diagram only applies to the specific controls mentioned



2 Port
Central Heating zone valve
ACL Drayton 679H30830L1
ACL Drayton ZV22
Danfos Randall HP22 (no earth)
Honeywell V4043H
Landis & Gyr ZA-V2
Potterton Myson MSV 222

2 Port
Domestic Hot Water zone valve
ACL Drayton 679H30830L1
ACL Drayton ZV22
Danfos Randall HP22 (no earth)
Honeywell V4043H
Landis & Gyr ZA-V2
Potterton Myson MSV 222

	6	9	5
Vaillant VRT 9090	3	4	5
ACL Drayton Digistat	1	3	
ACL Dryton RTS	L	3	N
Honeywell T6360	1	3	2
Landis & Gyr RAD1, RAD2	1	2	
Danfoss Randall RMT 230 or TWP	1	2	4
Potterton Myson PRT2	TL	H	N

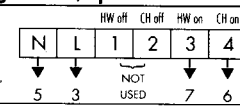
Room Thermostat

3	5		7	8				
			C	1	2	ACL Drayton HTS
		E	1	2	3	ACL Drayton CS2
			C	1	2	Honewell L641
		E	1	2	3	Landis & Gyr RAM1, RAM2
		E	1	2	3	Danfoss Randall AT
L	N		TL	H	C	Potterton Myson PTT2

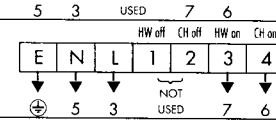
Cylinder Thermostat

Connection details between programmer and built-in wiring centre (2 port motorized valve systems)

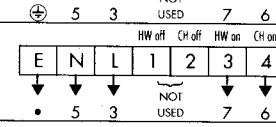
ACL Drayton LP 241, LP 522, LP 722



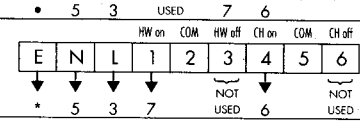
ACL Drayton Tempus 3, Tempus 4, Tempus 6, Tempus 7



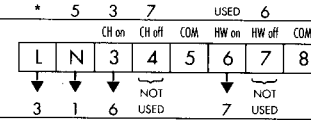
Danfoss Randall FP 15, FP 75
Please Note: Earth not required



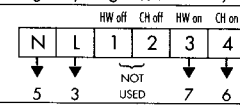
Danfoss Randall Set 2E, Set 3E
Please Note: Link L-2 2-5 (Set 2E) or L-2, 1-5 (Set 3E)
* Earth not required



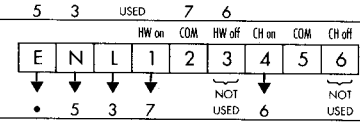
Honeywell ST 699, ST 799A
Please Note: Link L to 5 and 8



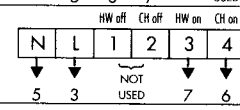
Honeywell ST 6200, ST 6300, ST 6400, ST 6450B



Horstmann 525, 527, Chanel Plus H21, H27, H121, H272
Please Note: Link L-2 2-5
* Please Note: Earth not required



Landis & Gyr RWB 2, RWB XP, RWB 200, RWB 252, RWB 270



Potterton Myson EP 2002, EP 3002, EP 6002
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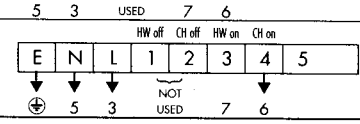


Figure 30:

Connections details for control systems utilising 3 port motorized valve, connected via external wiring centre

Diagram only applies to the specific controls mentioned

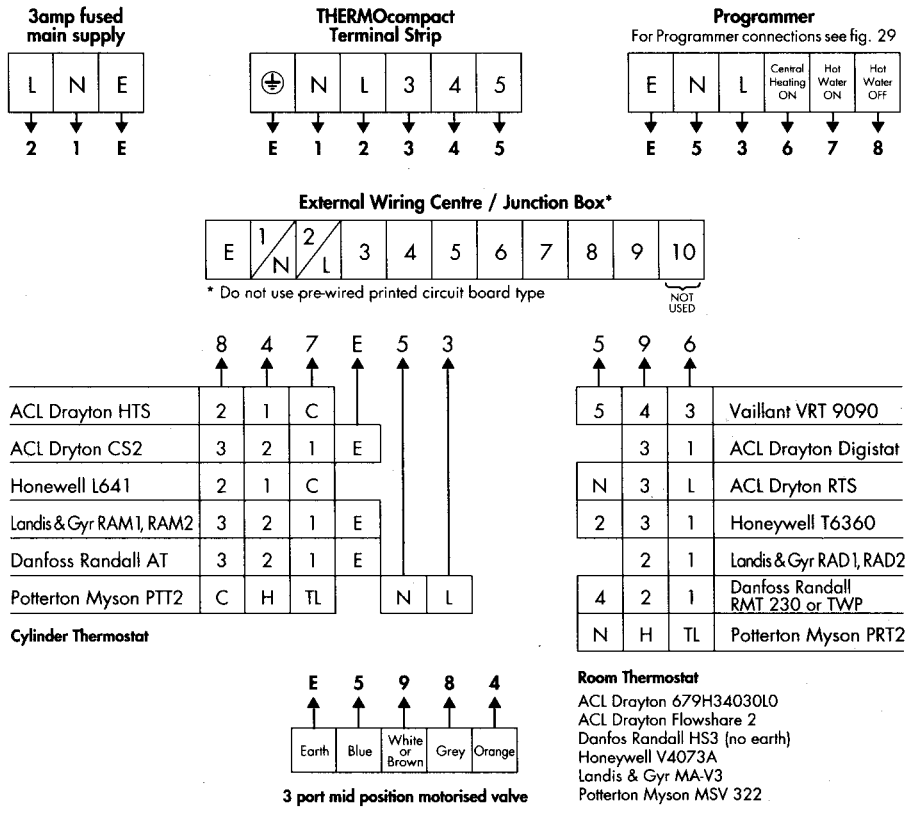
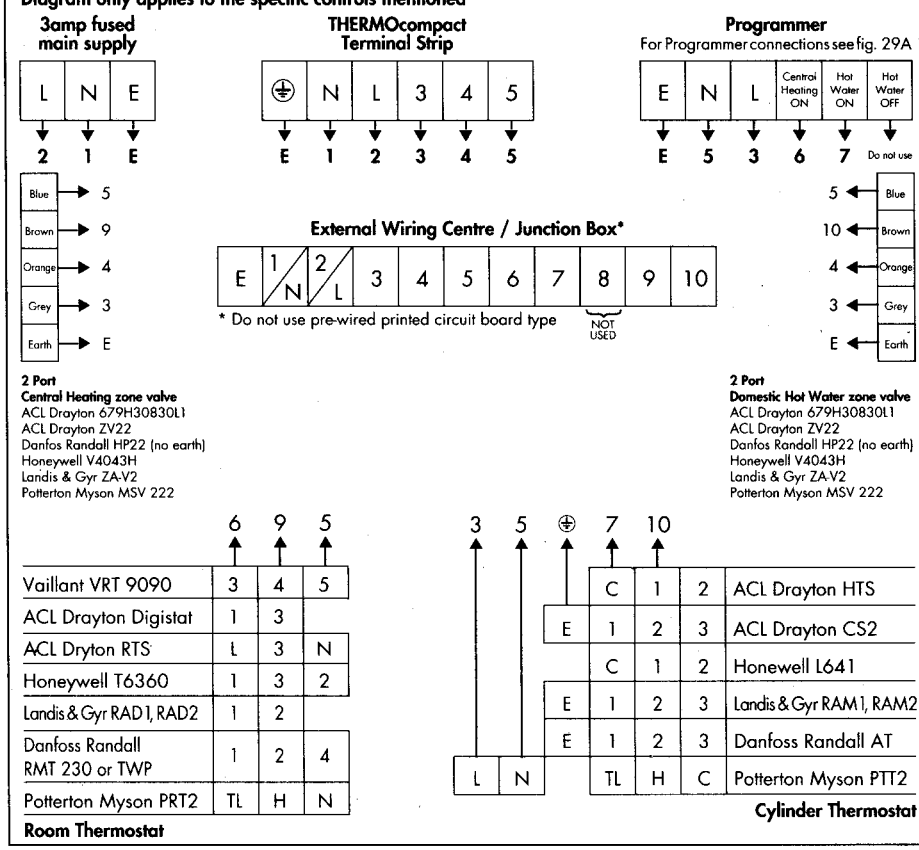


Figure 30A:

Connections details for control systems utilising two 2 port motorized valves, connected via external wiring centre

Diagram only applies to the specific controls mentioned



5. Commissioning

5.1 Preliminary electrical checks

Check the electrical installation by carrying out short circuit, earth continuity and resistance to earth tests and a check for correct polarity.

5.2 Gas supply

The complete gas installation including the gas meter must be inspected, tested for soundness and purged in accordance with BS 6891.

The gas supply to the boiler can be purged by slackening the gas service valve beneath the boiler (1, fig. 31). Ensure that there is adequate ventilation, extinguish naked flames and do not smoke whilst purging.

After purging, the gas service valve connection must be re-tightened and tested for soundness.
(The boiler itself does not require purging as this will be done by the automatic burner sequence control).

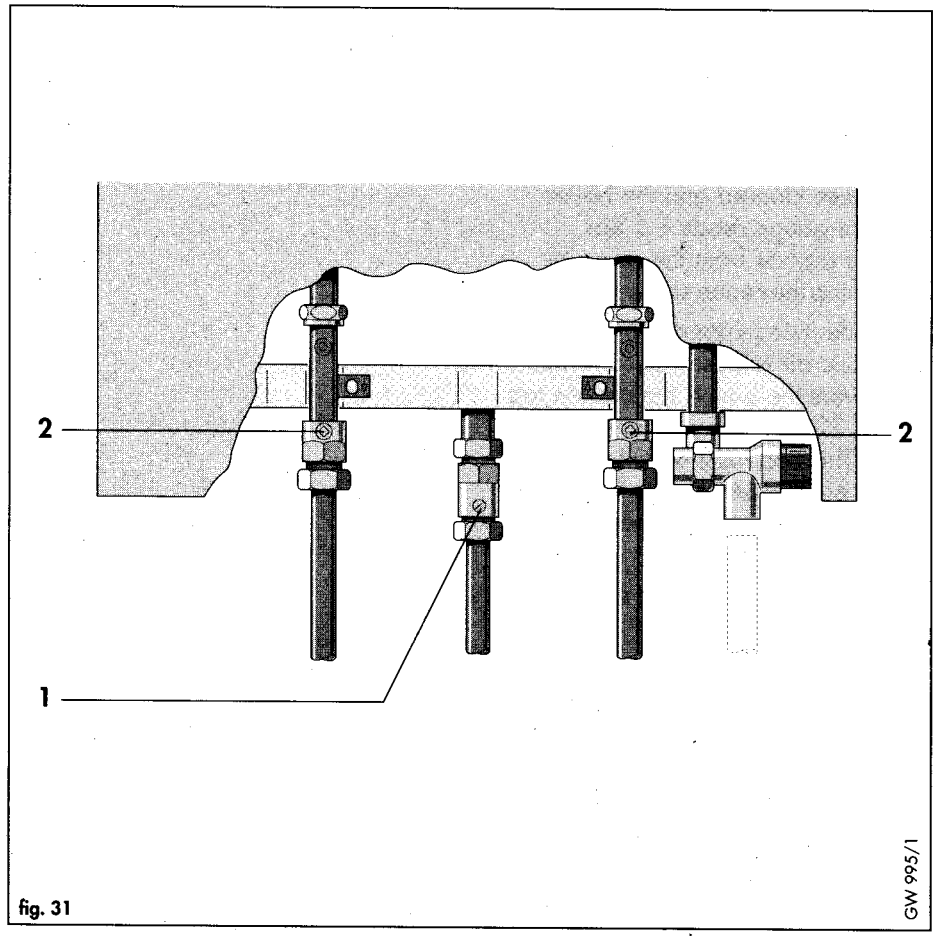


fig. 31

5.3 Filling the heating system

The boiler and the heating system should be filled using a filling method as described in Section 3.7.2.

Ensure that the boiler CH service valves (2, fig. 31) are open.

Partially open the filling valve and allow water to enter the system. Starting with the lowest radiator, open the radiator air release until water (clear of bubbles) is emitted.

Repeat this at all radiators until the complete system is full, all air locks have been cleared and the boiler pressure gauge reads 1.5 Bar. Release any air from the pump by slackening the centre screw (1, fig. 32).

The boiler is equipped with an automatic air release valve. To allow this to vent the boiler, the cap on top (2, fig. 32) must be slackened by 1-2 turns. (This cap must be left slackened during boiler operation to ensure any residual air or system gases are released).

Check the heating system and boiler connections are sound.

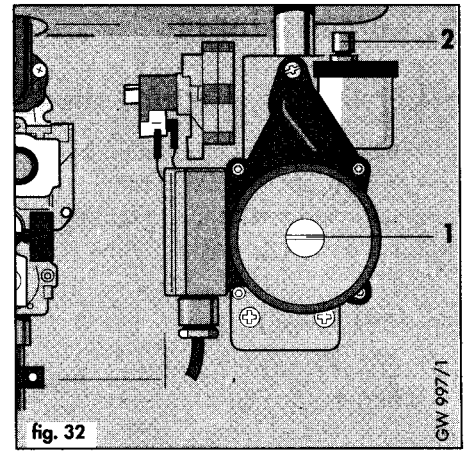


fig. 32

5.4 Initial system flush ('cold')

The whole of the heating system must be flushed out at least twice: once cold, and once hot as instructed later in Section 5.11.

Open all radiator or heating valves and boiler CH service valves (2, fig. 31) and drain the heating system and boiler completely from the lowest points of the system via 1/2in. BSP drain taps (opened full bore to remove any installation debris prior to lighting the boiler).

Refill the heating system as described in Section 5.3: Filling the heating system.

Check the operation of the pressure relief valve by rotating the knob on the valve.

5.5 Initial lighting

- Check that the boiler combustion chamber (5, fig. 33) is correctly fitted.
- Open the gas service valve (1, fig. 31)
- Check that the CH service valves (2, fig. 31) are open.
- Check that all external heating controls are calling for heat.
- Switch on the electricity supply to the boiler.
- Set the boiler flow temperature control (3, fig. 33) to '9'.
- Turn the boiler on/off control (1, fig. 33) to the "on" position (**I**).

The boiler will now operate. Allow the boiler to run for a few minutes to clear any air remaining in the primary circuit.

(If the boiler should fail to light after the second ignition attempt the 'lock out' indicator will illuminate - see fig. 39. This usually means that the gas supply is turned off, or is not purged of air. Check gas supply, and turn the reset control to the reset position - ( ) - and repeat lighting procedure).

- Turn the boiler on/off control to the 'off' position (**O**).

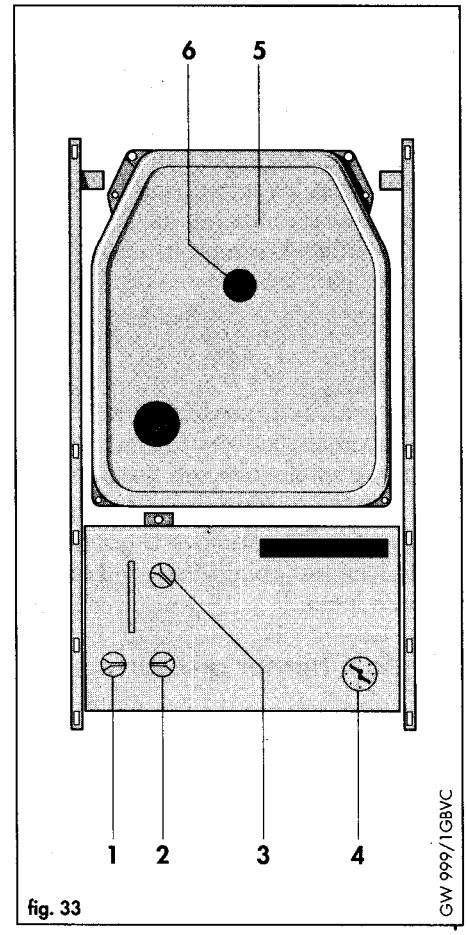


fig. 33

5.6 Gas inlet working pressure

Check the gas inlet working pressure by slackening the sealing screw and attaching a U gauge to the test point (3, fig. 34) on the inlet to the gas valve. Fire the boiler by turning the boiler on/off control to the 'on' position (I). Check that the U gauge is reading 20 mbar (natural gas).

(If the pressure is not 20mbar this should be investigated before continuing with the commissioning procedure. Lower pressures than 20mbar are indicative of an incorrectly sized or partially blocked gas supply).

Turn the boiler on/off control to the 'off' position (O). Remove U gauge. Tighten the test point screw and test for soundness.

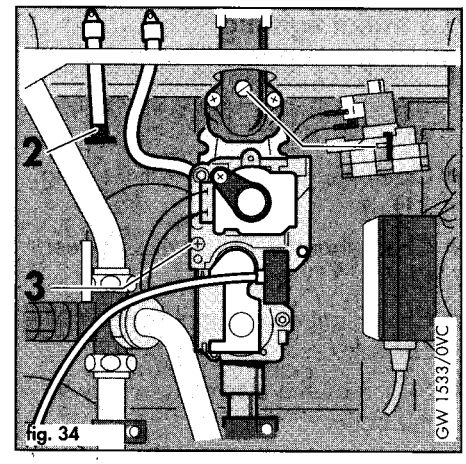


fig. 34

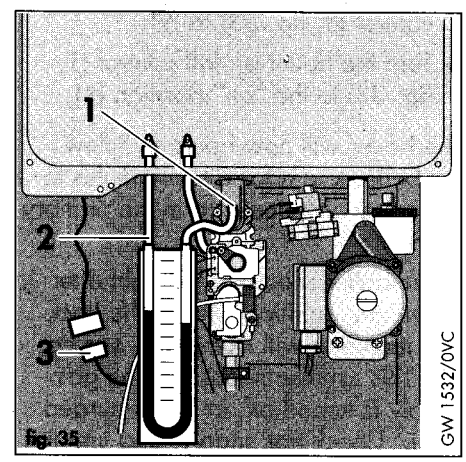


fig. 35

5.7 Main burner pressure

The burner pressure on this boiler has been factory set and does not require adjustment. The main burner pressure may be checked in the following way:

- Slacken the sealing screws and attach one arm of a U gauge to the burner test point (1, fig. 35). Remove plastic sealing plug and connect the other arm to the combustion chamber sensing tube (2, fig. 35).
- Ensure the boiler flow temperature control (3, fig. 33) is set to '9'and all external controls are calling for heat.
- Turn the boiler on/off control to the 'on' position (I).
  Break the in line connector to the NTC temperature sensor (3, fig. 35).
- Check that the burner pressure is as shown in Table 5. (If the burner pressure is not correct within the tolerance shown, contact Vaillant Ltd. Technical Department).
- Turn the boiler on/off control to the 'off' position (O).
- Remove U gauge. Tighten the sealing screw (1, fig. 34)and test for soundness. Reconnect NTC sensor (3, fig. 35). Refit plastic plug in chamber sensing tube (2, fig. 34).
- Reset the boiler flow temperature control to the required setting (see Section 5.13).
- Raise control box and secure in position using screw (1, fig. 25).

Table 5: Burner Pressure & Gas Rate

	VU 142/1 E	VU 182/1 E	VU 242/1 E	VU 282/1 E
Maximum Burner Pressure (DHW)	6.3 mb (±0.6 mb)	10.2 mb (±1.0 mb)	10.0 mb (±1.0 mb)	10.6 mb (±1.0 mb)
Maximum Gas Rate	1.65 m^3/h (58.3 ft^3/h)	2.09 m^3/h (73.9 ft^3/h)	2.79 m^3/h (98.5 ft^3/h)	3.26 m^3/h (115.1 ft^3/h)

5.8 Adjusting the central heating output (range rating)

The THERMOcompact is fully modulating and it is therefore not necessary to range rate the boiler. However, if desired, it is possible to range rate the boiler, as follows:

- Remove screw (1, fig. 36) and lower control panel.
- Slacken the sealing screw and attach one arm of a U gauge to the burner pressure test point (1, fig.35). Remove plastic sealing plug and connect the other arm to the combustion chamber sensing tube (2, fig.35).
- Remove screw (1, fig. 37) and remove terminal box cover to access the range rating potentiometer (2, fig. 38) beneath.
- Operate the boiler by turning the on/off control to the 'on' position (I) ensuring that the external controls are calling for heat and the boiler flow temperature control is set to 9.
- The boiler output can now be altered by inserting an electricians screwdriver into the potentiometer (2, fig. 38)
- Turn the potentiometer fully anticlockwise to the stop.
- Slowly turn the potentiometer clockwise, whilst observing the U gauge.
- Stop turning the potentiometer when the burner pressure is at the correct setting for the output required (see table 6).
- Turn the boiler off.
- Remove U gauge. Tighten the sealing screw, (1, fig. 34) and test for soundness.
- Refit plastic plug in chamber sensing tube.
- After setting, refit cover screw (1, fig. 37) and re-secure control panel (1, fig. 36).

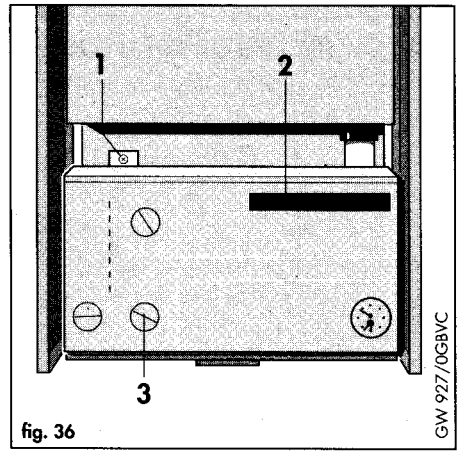


fig. 36

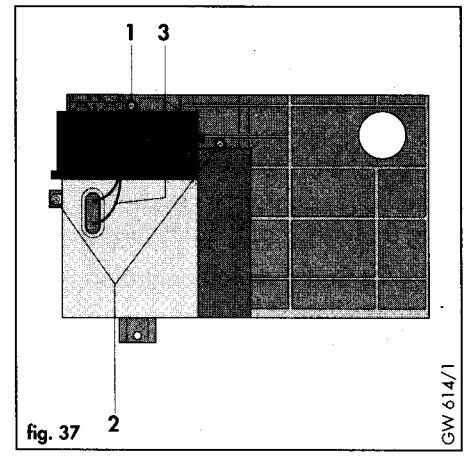


fig. 37

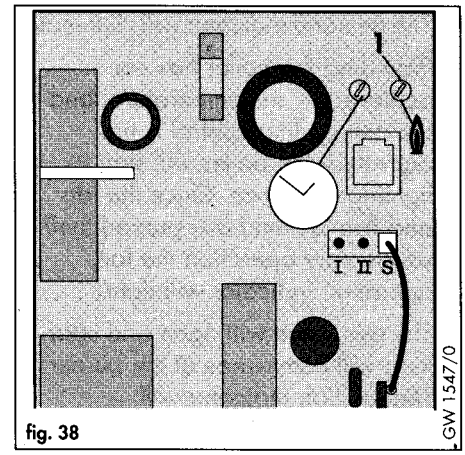


fig. 38

Table 6: Central Heating Output (Range Rating)

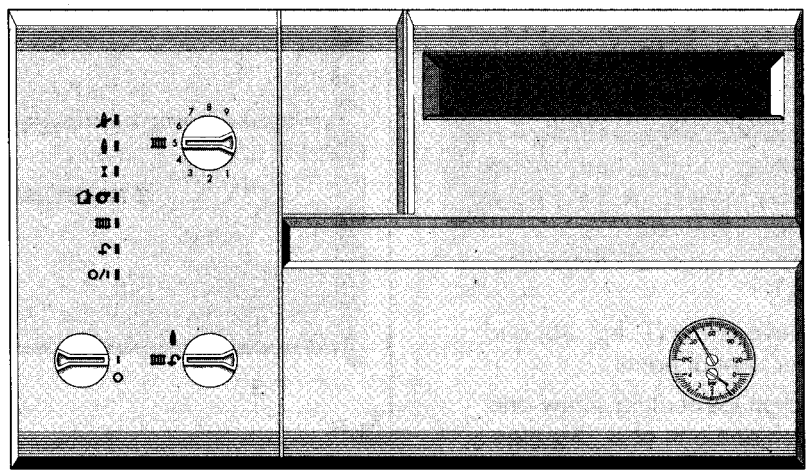
Output to central Heating kW (Btu/h)	Range rating mbar			
	VU 142/1 E	VU 182/1 E	VU 242/1 E	VU 282/1 E
28.0 (95.560)	–	–	–	10.6
24.0 (81.900)	–	–	10.0	8.0
21.0 (71.700)	–	–	8.0	6.3
18.0 (61.500)	–	10.2	6.1	4.8
15.0 (51.200)	–	7.5	4.5	3.4
14.0 (47.800)	6.3	6.3	4.0	3.0
12.0 (41.000)	5.0	5.0	3.1	2.2
9.0 (30.700)	2.9	2.9	–	–
min 7.2 (24.570)	2,0	2.0	–	–
min. 9.6 (32.800)	–	–	2.0	–
min. 11.2 (38.240)	–	–	–	2.0

5.9 Functional Checks

The Vaillant THERMOcompact is equipped with a set of diagnostic indicator lights to show the operational status of the boiler. A functional check of the boiler operation can be made using these indicator lights (fig. 39).

- Set the boiler on/off control to the 'on' position (I).
- The power on indicator will illuminate.
- Ensure external controls are calling for heat.
- The demand indicator will illuminate.
- Providing the boiler has not achieved its set temperature, and the anti cycling control is not activated, the boiler will start its lighting sequence. Once the fan and flue system have proved their satisfactory operation the fan operation indicator will light.
- The gas valve will open and sparking will commence at the burner. The ignition indicator will illuminate.
- As soon as the burner has ignited and the flame has been sensed the flame indicator will illuminate.
- By illuminating in this sequence the indicator lights have demonstrated correct operation of the boiler.

Note : Should the boiler fail to light it will attempt re-ignition after an approximate delay of 10 second, if the boiler fails to light at the 2nd attempt the burner lock out indicator will illuminate. This usually means that the gas supply is turned off or has not been purged of air. Check the gas supply, turn the control to the reset position ( ) and repeat the lighting procedure.



Burner lock out indicator
Flame indicator
Ignition indicator
Fan operation indicator
Demand indicator
This indicator is not applicable for THERMOcompact boilers
O/I Power on indicator

GW 849/1GBVC

fig. 39

5.10 Checking flame supervision device

Operate the boiler and turn off the gas supply at the boiler gas service valve. The boiler should attempt to re-light (sparking at ignition electrode visible through viewing window) for approximately 10 seconds, if ignition does not occur the boiler will re-attempt ignition after a further 10 second delay before shutting down. The lockout indicator light will illuminate. Open the gas service valve and turn the reset control (2, fig. 33) to the reset position ( ). The boiler should now re-light.

5.11 Final system flush ('hot')

Allow the boiler and system to reach maximum temperature and check that the heating system is watertight. Turn the boiler off and rapidly drain both boiler and system while still hot.

Refill the system and release all air as described in Section 5.3. Release water from the system until the system design pressure of 1.2 bar is attained.

(The actual reading on the pressure gauge - (4, fig. 33) - should ideally be 0.5 Bar plus an additional pressure corresponding to the highest point of the system above the base of the boiler - 10 m head equals an additional 1 Bar reading on the pressure gauge. The minimum pressure should not be less than 1 Bar in any installation).

If the system is to be treated with an inhibitor it should be applied at this stage. Sentinel X 100 is suitable for this purpose and it should be applied in accordance with the manufacturers instructions.

Further information can be obtained from Sentinel, Betz Dearborn Ltd, Tel: 0151 4951861.

Disconnect the temporary filling connection.

5.12 Fitting case

Attach top door panel by slotting side clips (1, fig. 40) into holes in side panel and sliding panel down to secure. Attach bottom door panel by locating onto top hinge pin (2, fig. 41) and insert bottom hinge screw (1, fig. 41).

5.12.1 Door hinged at left hand side

If required the appliance lower door can be altered to hinge on the lefthand side.

Remove screws from bottom hinge pin (1, fig. 41) and transfer to left hand side panel.

Lift bottom of top hinge pin (2, fig. 41)away from casing to release retaining lug. Rotate top hinge through 90° to remove. Refit to left hand side casing.

Attach bottom door panel by locating onto top hinge pin (2, fig. 41) and insert bottom hinge screw (1, fig. 41) so that it locates into the door.

5.12.2 Fit bottom cover

Attach bottom cover to boiler by locating over front screws (2, fig. 49) and secure with rear screws (1, fig. 49).

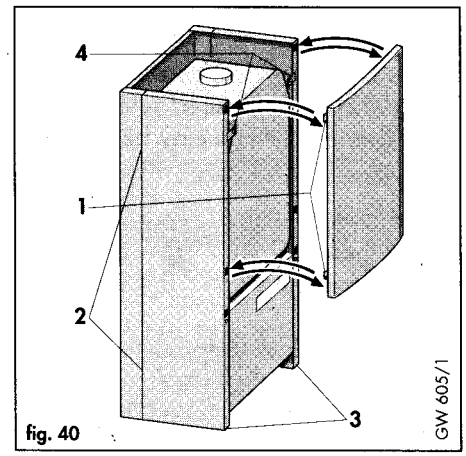


fig. 40

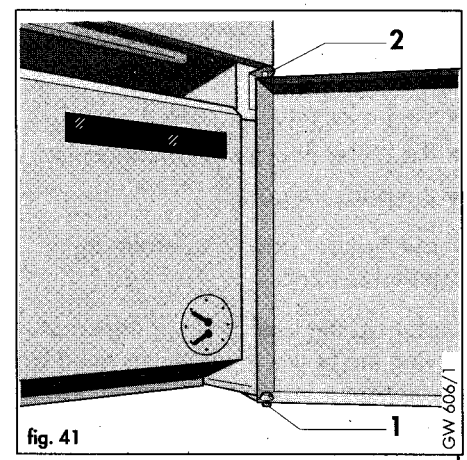


fig. 41

5.13 Hand over to user

Set the boiler flow temperature control (3, fig. 42) to the desired setting. The following settings may be used as a guide:

Spring and Autumn	6 – 7
Winter (normal)	7 – 8
Winter (severe)	8 – 9

Note: Boiler flow temperature control settings below 6 will result in reduced domestic hot water temperatures.

Instruct the user in the safe and efficient operation of the boiler, in particular the function of:-

- the boiler on / off control
- the boiler flow temperature control
- the pressure gauge.

Show the user how to operate any external controls.

Explain to the user the importance of having the boiler regularly serviced by a competent servicing company. To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Vaillant Service Solutions (tel: 0870 6060 777) for further details.

Leave the user instructions in the purpose provided pocket on the front of the control panel (2, fig 36).

Leave the installation and service instructions with the user.

6. Servicing

To ensure the continued safe and efficient operation of the boiler it is recommended that it is checked and serviced as necessary at regular intervals. The frequency of servicing will depend upon the particular installation conditions and usage, but in general once per year should be adequate. It is law that all servicing work is carried out by a competent person (CORGI registered).

IMPORTANT:

Before starting any maintenance work:

- Isolate the mains electricity supply by disconnecting the plug at the socket outlet (if there is an isolating switch only remove the fuse from the switch).
- Turn OFF the gas supply at the gas service valve fitted to the boiler.
- Always test for gas soundness and always carry out functional checks after any service work and after exchanging any gas carrying component.
- Always check earth continuity, polarity and resistance to earth with a multi-meter after any service work and after exchanging any electrical component.

Note: The boiler is fitted with a combustion analysis test point (6, fig. 42). A suitable combustion analyser can be connected to this point to establish the combustion performance of the boiler.

6.1 Initial Inspection

Before commencing any servicing or maintenance work, carry out an initial inspection of the system as follows:-

Inspect the flue, pipework and electrical connections for indications of damage or deterioration.

Inspect the air supply and ventilation arrangements of the installation, ensuring that the requirements of Section 3.5 are met.

Operate the boiler by turning on all external controls and turning the on/off control (1, fig. 42) to the 'on' position (I). Inspect the burner operation through the viewing window. Check that the flames are burning evenly over the full surface of the burner. Inspect for signs of excessive lifting or sooting.

Check the heating system, in particular the condition of the radiator valves and for evidence of leakage from the heating system pipework.

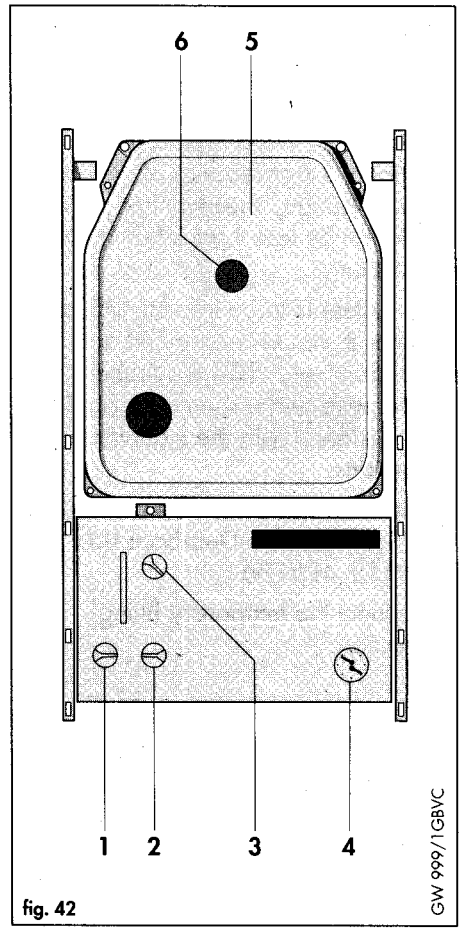


fig. 42

6.2 Routine maintenance

6.2.1 Remove front case

Remove bottom hinge pin screw (1, fig. 44) and pull door forward and down to release it from the top hinge pin (2, fig. 44).

Slide the top panel up to release retaining clips (1, fig. 45). Lift off top panel.

- Remove boiler bottom cover by undoing two screws (1, fig. 49) and slackening two screws (2, Fig. 49).

6.2.2 Turn off the boiler (fig. 43)

- Isolate the electrical supply to the boiler
- Turn off the gas service valve (2)
- Turn off boiler CH service valves (1 and 4)

6.2.3 Remove combustion chamber front cover (5, fig. 42)

Remove four screws (2, fig. 52) securing combustion chamber front cover

Lift combustion chamber clear of top retaining lugs and pull forward.

Remove combustion chamber cover by first bringing the left side forward to clear boiler casing.

6.2.4 Inspect main heat exchanger

Remove five screws securing heat exchanger front panel (1 and 3, fig. 46) and remove by gently pulling down and forward.

Inspect main heat exchanger and remove any deposits with a soft brush.

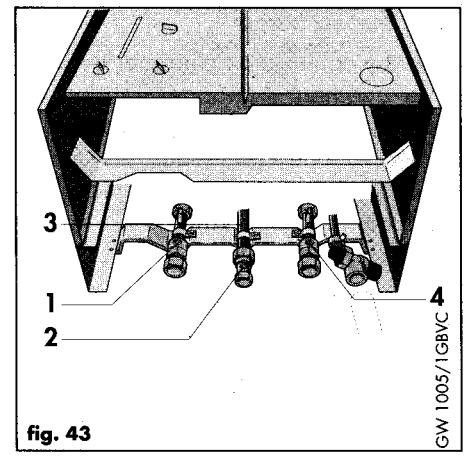


fig. 43

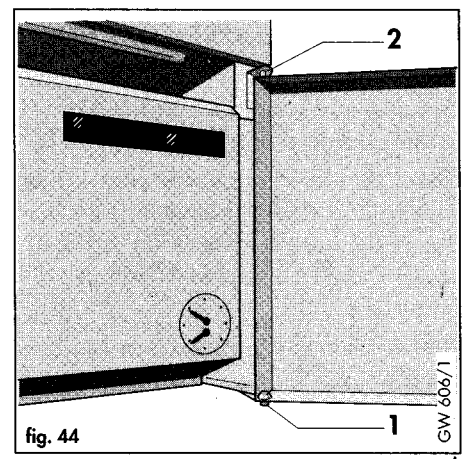


fig. 44

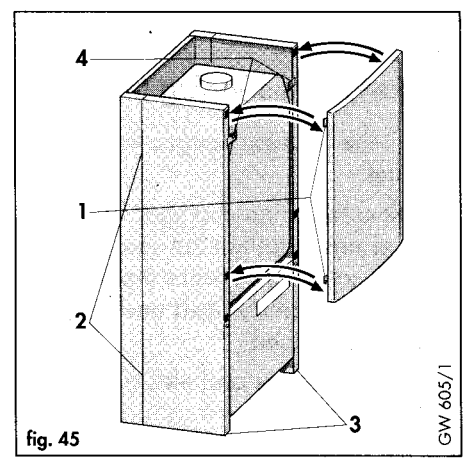


fig. 45

6.2.5 Inspect burner

With the combustion chamber front cover and heat exchanger front panel removed it is possible to inspect the burner. Any deposits should be removed with a soft brush. Check the condition of the ignition and monitoring electrodes.

6.2.6. Check expansion vessel

Note: It is not necessary to carry out this check every year - a check every three years should be sufficient.

Release the pressure from the boiler as described in section 7.1.2.

Remove valve cap from expansion vessel charge point (2, fig. 47a or b).

Check that internal charge pressure of expansion vessel is between 0.7 - 0.9 Bar. If pressure is lower than this the vessel should be re-pressurised using an air pump.

Refit valve cap (2, fig. 47a or b).

Open boiler service valves and re-pressurised the boiler and heating system if necessary (see section 5.3).

6.3 Re-commissioning the boiler

- Refit the heat exchanger front panel.
- Refit combustion chamber front cover ensuring that the seal is in good condition. Ensure that the cover is correctly fitted and a good seal is obtained.
- Turn on the gas and electricity supplies.
- Check soundness of internal gas connections.
- Carry out electrical safety checks (see section 5.1)
- Check water soundness
- Operate burner and check flame picture.
- Check for correct function of the boiler (see section 5.9).
- Check burner pressure as described in section 5.7 and boiler gas flow rate.
- Refit case (see Section 5.12)

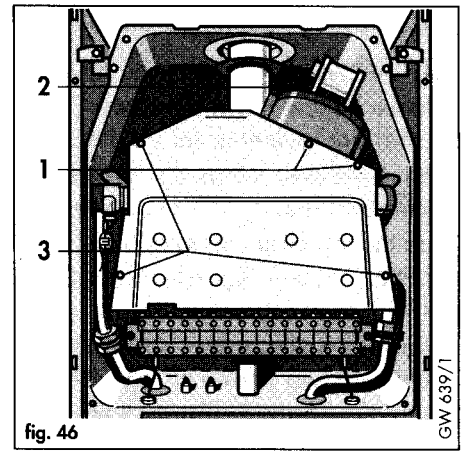


fig. 46

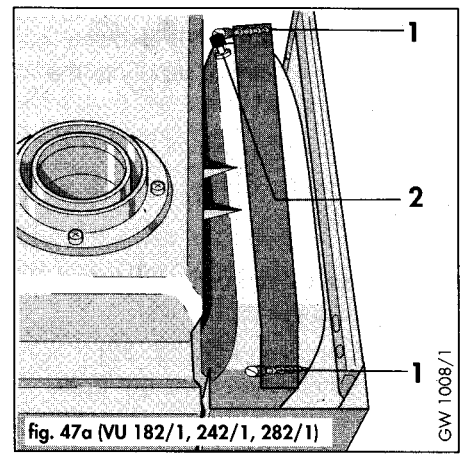


fig. 47a (VU 182/1, 242/1, 282/1)

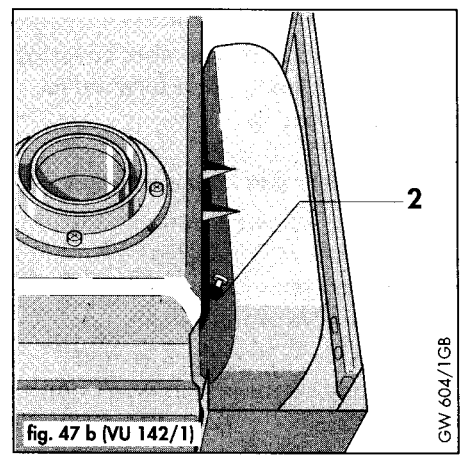


fig. 47 b (VU 142/1)

7. Parts replacement

IMPORTANT:
Before starting any maintenance work:

- Isolate the mains electricity supply by disconnecting the plug at the socket outlet (if there is an isolating switch only, remove the fuse from the switch).
- When removing any water carrying components ensure that the control box cover and terminal box cover are in position and water is kept away from all electrical components.
- Turn OFF the gas supply at the gas service valve fitted to the boiler.
- Always test for gas soundness and always carry out functional checks after any service work and after exchanging any gas carrying component.
- Always check earth continuity, polarity and resistance to earth with a multimeter after any service work and after exchanging any electrical component.

7.1 Initial preparation

(These initial preparation procedures need only be carried out where specifically mentioned in the individual component replacement procedures).

7.1.1 Turning off the boiler (fig. 48)

- Isolate the electrical supply to the boiler
- Turn off the gas service valve (1)
- Turn off boiler CH service valves (2)

7.1.2 Releasing system water pressure and draining the boiler (fig. 48)

- Isolate electrical supply to boiler.
- Remove combustion chamber cover as in section 7.1.5.
- Turn off boiler CH service valves (2).
- Attach a length of rubber tube to draining points (3), and drain the water from the boiler into a suitable container by undoing the drain points one turn.
- When pressure gauge reads zero, open main heat exchanger air vent (5, fig. 55) to allow complete draining of the boiler. Close air vent before refilling the boiler.

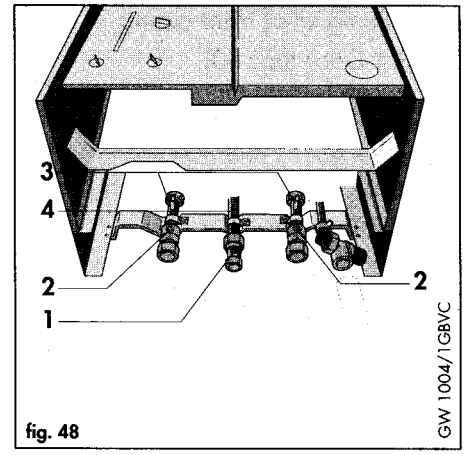


fig. 48

7.1.3 Removal of front casing

7.1.3.1 Door (fig. 50)

- Remove bottom hinge pin screw (1) and pull the bottom door panel forwards and down to release it from top hinge pin (2).

7.1.3.2 Top panel (fig. 51)

- Slide top panel upwards to release retaining clips (1).

7.1.3.3 Bottom cover plate (fig. 49)

- Remove two screws (1) and slacken two screws (2).
- Slide cover forwards and drop down to remove

7.1.3.4 Reassembly

- Reassemble in reverse order.

7.1.4 Removal of side casings

- Remove front casing as in section 7.1.3.
- Remove screws (3, fig. 51)
- Remove screws (4, fig. 51) and retaining brackets.
- Slide side case panel upwards to release retaining clips (2, fig. 51) and lift off.
- Reassemble in reverse order

7.1.5 Removal of combustion chamber cover (fig. 52).

- Remove front casing as in section 7.1.3,
- Remove four screws (2) securing combustion chamber front cover
- Lift combustion chamber cover clear of top retaining lugs and pull forward
- Remove combustion chamber cover by first bringing the left side forward to clear boiler casing.
- Check condition of case seal and if necessary replace before refitting
- Reassemble in reverse order, ensuring that the combustion chamber front cover is correctly fitted and a good seal obtained.

7.1.6 Lower front control panel (fig. 52)

- Remove front casing as in section 7.1.3,
- Undo screw (1) and lower control box forward from top.

7.1.7 Removal of heat exchanger front panel.

- Remove the five screws (1 and 3, fig. 46) securing the heat exchanger and remove the panel by gently pulling down and forward.

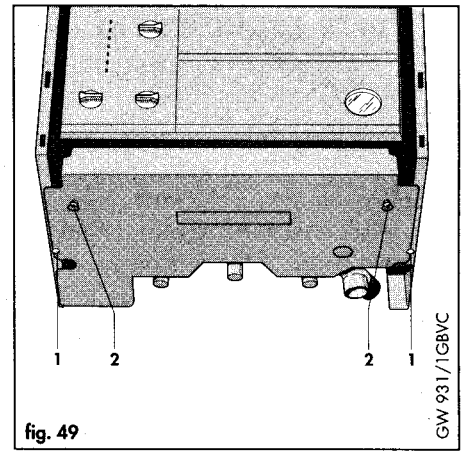


fig. 49

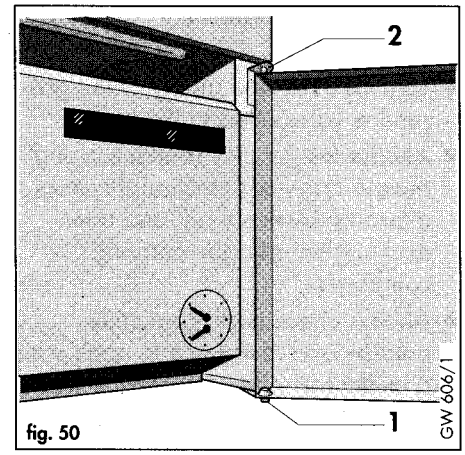


fig. 50

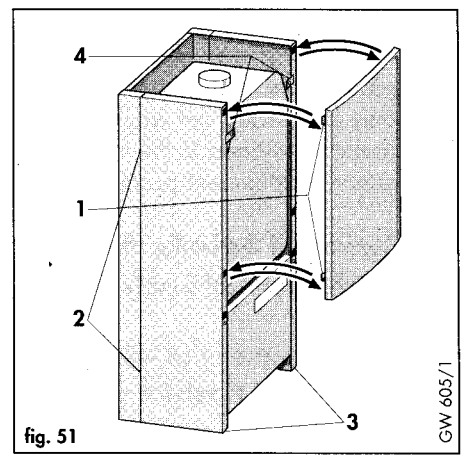


fig. 51

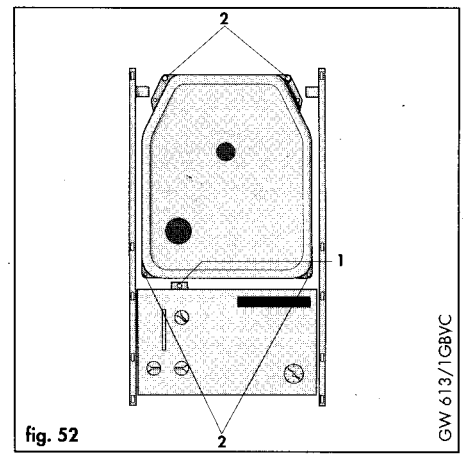


fig. 52

7.2 Replacement of fan (fig. 53)

- Isolate the boiler from the electrical supply.
- Remove front casing as in section 7.1.3, and remove combustion chamber cover as in section 7.1.5.
- Disconnect the electrical connections from the fan.
- Remove the 2 fan securing screws (4) and remove fan.
- Reassemble in reverse order.
- Re-fit combustion chamber and front casing.
- Carry out electrical checks (see section 5.1).

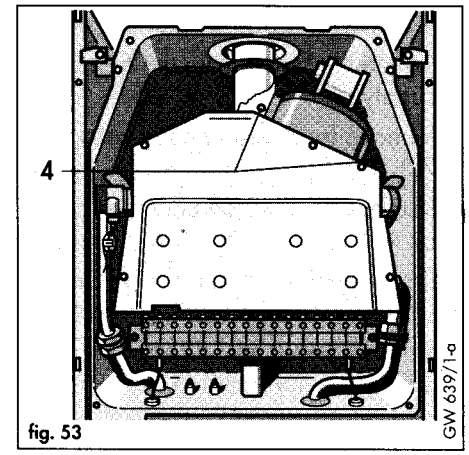


fig. 53

7.3 Replacement of air pressure switch (fig. 54)

- Isolate the boiler from the electrical supply.
- Remove front casing as in section 7.1.3.
- Disconnect electrical connections to pressure switch
- Remove screw (1) and lift out pressure switch.
- Disconnect air tubes (2) from switch.
- Reassemble in reverse order.
- Carry out electrical checks (see section 5.1).

Note: Air tubes should be reconnected
P1 to white tube.
P2 to blue tube.
(P1 and P2 are marked on air pressure switch).

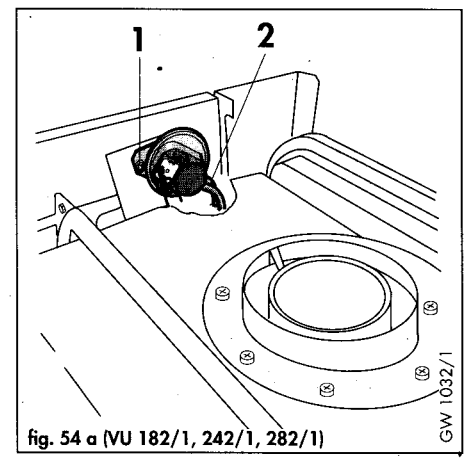


fig. 54 a (VU 182/1, 242/1, 282/1)

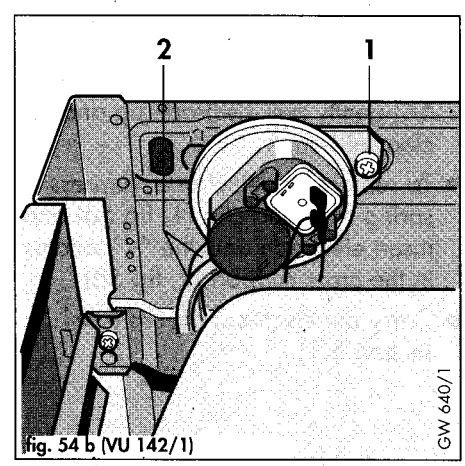
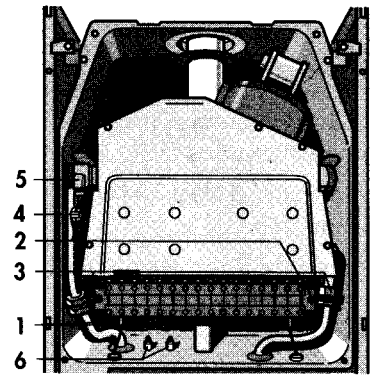


fig. 54 b (VU 142/1)

7.4 Replacement of burner

- Isolate the boiler from the electrical supply.
- Remove front casing as in section 7.1.3.
- Remove combustion chamber cover as in section 7.1.5
- Disconnect the ignition and flame sensing electrode leads (1, fig. 55).
- Remove two screws (2, fig 55) and pull burner forwards to remove.
- Reassemble in reverse order.
- Carry out electrical checks (see section 5.1) and check burner pressure (see section 5.7) and gas rate.

fig. 55



7.5 Replacement of electrodes

- Isolate the boiler from the electrical supply.
- Remove front casing as in section 7.1.3, and remove combustion chamber cover as in section 7.1.5
- Remove heat exchanger front panel as in section 7.1.7
- Pull off HT lead (ignition electrode) or sensing wire (flame sensing electrode) (1, fig 55)
- Depress spring retaining clip (1, fig 56) gently pull electrode up and clear of burner.
- To replace the electrode, depress spring retaining clip (1, fig 56) and insert electrode until the "V" locates in the cross support (2, fig 56)
- Carry out electrical checks (see section 5.1).

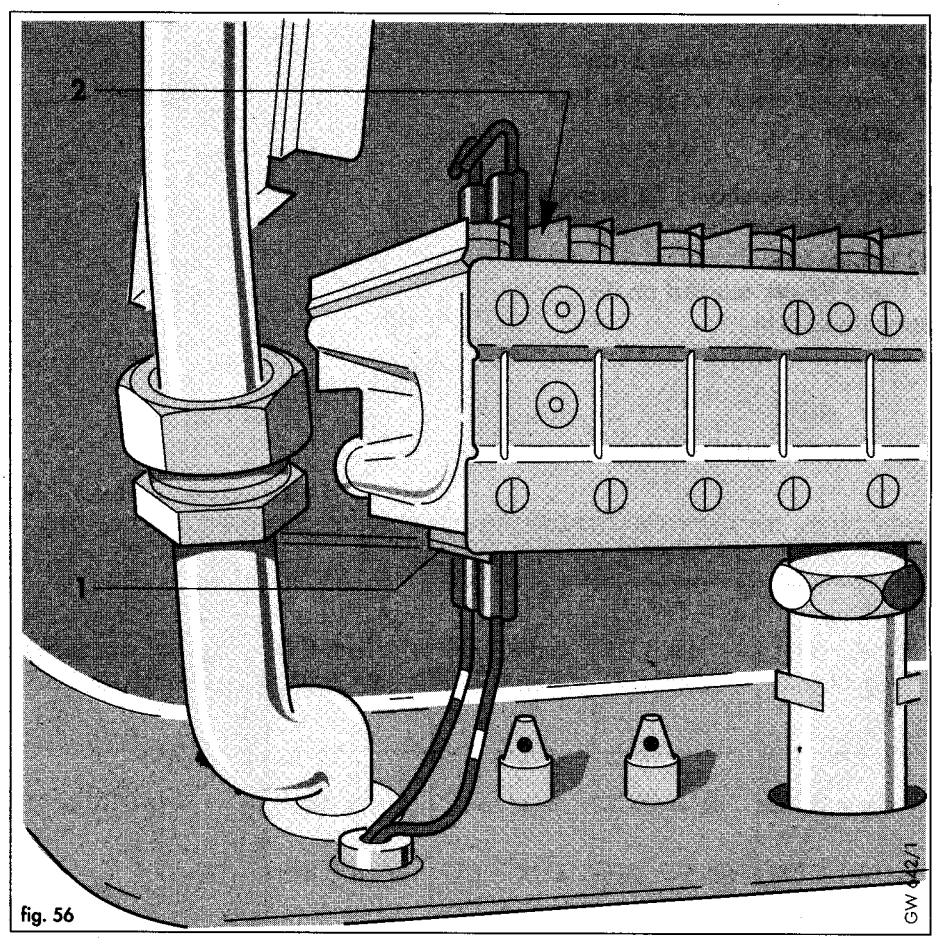


fig. 56

7.6 Replacement of NTC temperature sensor

Note: The NTC temperature sensor is an extremely reliable component and as such is unlikely to fail. Before changing the NTC please check that it is defective - see section 8 - fault finding.

- Disconnect boiler from electricity supply.
- Remove front casing as in section 7.1.3 and remove combustion chamber cover as in section 7.1.5
- Pull off connecting wire to sensor.
- Unscrew NTC sensor. (4, fig 60)
- Reassemble in reverse order.
- Carry out electrical checks (see section 5.1).

7.7 Replacement of gas valve

- Isolate the boiler from the electrical supply
- Remove the front casing as in section 7.1.3
- Lower front control panel as in section 7.1.6
- Turn off the gas service valve (1, fig. 48)
- Loosen screw (1, fig. 57) and pull off rectifier plug (2, fig. 57) from the gas operator.
- Pull off modulating coil wires (3, fig. 57).
- Disconnect air tube from gas operator (4, fig. 57).
- Remove two screws (5, fig. 57) at burner inlet connection.
- Remove screw (6, fig. 57) from gas valve inlet connection.
- Rotate gas valve to left and then lift to remove.
- Remove both inlet and outlet connections from the gas valve (1, fig. 58) by removing the eight securing screws (2, fig. 58) and refit to new gas valve using new seals provided.
- Reassemble in reverse order.
- Set burner pressure in accordance with instructions supplied with spare part.
- Carry out electrical checks (see section 5.1) and test all gas joints for soundness.

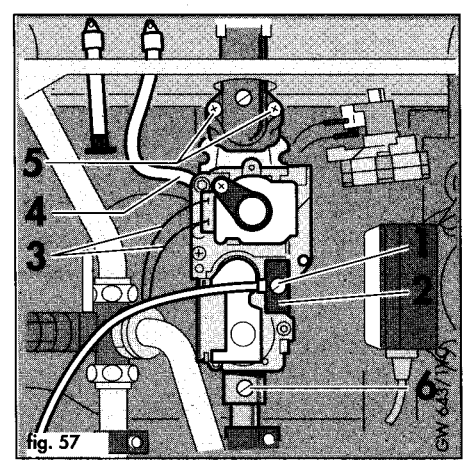


fig. 57

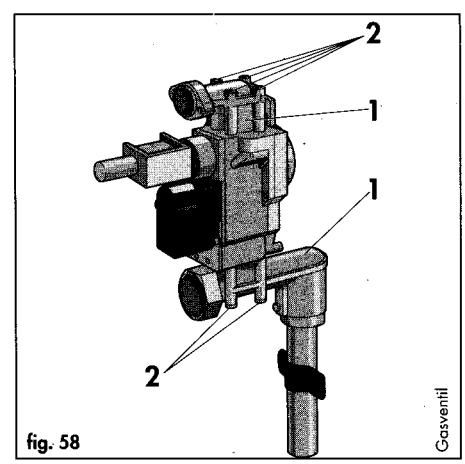


fig. 58

7.7.1 Replacement of modulating regulator

- Isolate the boiler from the electrical supply.
- Remove front casing as in section 7.1.3 .
- Lower front control panel as in section 7.1.6
- Turn off the gas service valve (1, fig. 48).
- Loosen screw (1, fig. 59) and pull off rectifier plug (2, fig. 59) from the gas operator.
- Pull off modulating coil wires (4, fig. 59).
- Remove modulating regulator by removing 2 screws (3, fig. 59) and pull regulator from gas valve body.
- Reassemble in reverse order.
- Set burner pressure in accordance with instructions supplied with spare parts.
- Carry out electrical checks (see section 5.1) and test all gas joints for soundness.

7.8 Replacement of main heat exchanger

- Turn off the boiler as in section 7.1.1.
- Remove front casing as in section 7.1.3 and remove combustion chamber cover as in section 7.1.5
- Remove heat exchanger front panel as in section 7.1.7
- Release CH water pressure and drain boiler as in section 7.1.2.
- Remove burner assembly as in section 7.4.
- Pull off wire from NTC (4, fig. 60)
- Disconnect flow and return connections (3, fig 60)
- Slide the heat exchanger forward to remove.
- Disconnect flow and return pipes from the heat exchanger by rotating at joints (bayonet fix)
- Reassemble in reverse order.
- Recommission boiler (see section 5).

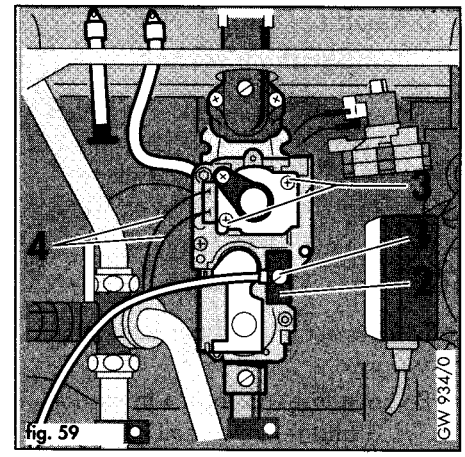
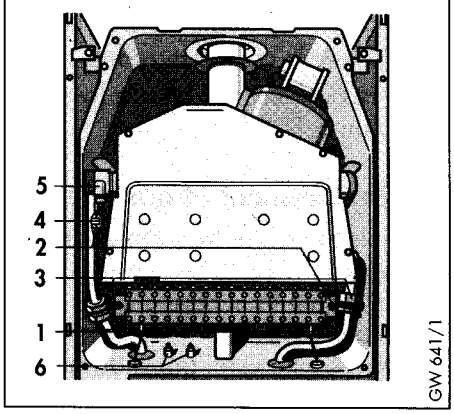


fig. 59

fig. 60



7.9 Replacement of expansion vessel

In the unlikely event of a failure of the expansion vessel follow procedure 7.9.1 or 7.9.2 depending upon the installation circumstances.

7.9.1. Boiler installed with air/flue duct to left/right hand side, or vertical flue installation (where 600mm vertical clearance exists above the boiler).

- Remove front casing as in section 7.1.3
- Turn off the boiler as in section 7.1.1.
- Release CH water pressure and drain boiler as in section 7.1.2.
- Remove combustion chamber cover as in section 7.1.5
- Remove 2 screws (1, fig 47).
- Remove screw (1, fig. 54 b) to release air pressure switch - **VU 142/1 E only.**
- Slide expansion vessel upwards and out of boiler casing.
- Refit new expansion vessel ensuring that it correctly locates onto lower push fit spigot on boiler.
- Refill and repressurise the boiler (see section 5.4).

7.9.2 Boiler installed with air flue duct to the rear, or vertical flue installation (where less than 600mm vertical clearance exists above the boiler)

EITHER

Remove the boiler from the wall as follows:

- Remove front casing as in section 7.1.3
- Turn off the boiler as in section 7.1.1.
- Release system water pressure and drain boiler as in section 7.1.2.
- Lower front control panel as in section 7.1.6
- Disconnect external wiring from boiler wiring terminal box.
- Disconnect flow and return connections at compression connection above boiler service valves (1, fig. 62).and remove two screws securing retaining lug to appliance chassis (2, fig. 62)
- Disconnect gas connection at compression joint on top of gas service valve (3, fig. 62).
- Disconnect pressure relief valve discharge pipework from boiler.
- Disconnect the flue from the top of boiler as described in section 4.6.
- Remove boiler from wall.
- Remove screw (1, fig. 54 b) to release air pressure switch - **VU 142/1 E only.**
- Remove two screws (1, fig. 47) and slide expansion vessel upwards and out of boiler casing.
- Re-mount the boiler (see section 4.5 and 4.6).
- Re-commission the boiler (see section 5).

OR

A suitable replacement expansion vessel can be fitted externally to the boiler as described in Section 3.7.5 (if possible on the central heating return in an accessible position). In these circumstances, the replacement expansion vessel must be correctly sized ignoring the original expansion vessel which can be left in position on the boiler.

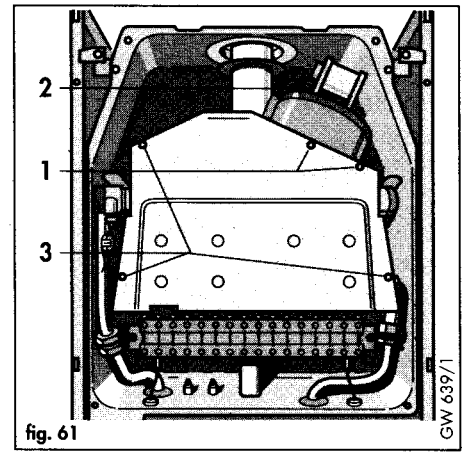


fig. 61

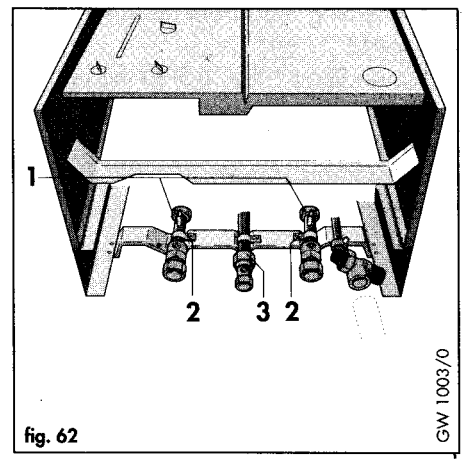


fig. 62

7.10 Replacement of transformer

- Isolate boiler from the electricity supply.
- Remove front casing as in section 7.1.3
- Lower front control panel as in section 7.1.6.
- Disconnect ignition leads (3, fig. 63) from rear of control box.
- Remove back of control box by undoing the 3 screws (1 and 2, fig. 63).
- Unplug transformer (4, fig 65) connecting lead from main switch board.
  Move clips (3, fig. 65) to the left and remove transformer from control box.
- Reassemble in reverse order.
- Carry out electrical checks (see section 5.1).

7.11 Replacement of overheat thermostat

- Isolate the boiler from the electricity supply.
- Remove front casing as in section 7.1.3.
- Lower front panel as in section 7.1.6.
- Pull wires off overheat thermostat (2, fig 64).
- Unscrew overheat thermostat to remove.
- Reassemble in reverse order.
- Carry out electrical checks (see section 5.1).

7.12 Replacement of pump

- Remove front casing as in section 7.1.3.
- Turn boiler off as in section 7.1.1.
- Release pressure and drain boiler as in section 7.1.2.
- Lower front control panel as in section 7.1.6.
- Disconnect ignition leads (3, fig. 63) from rear of control box.
- Remove back of control box by undoing the 3 screws (1 and 2, fig. 63).
- Unplug pump wire from main switchboard, and remove earth lead from earth strip.
- Undo the 3 pump screws (1, fig. 66).
- Pull pump forward to remove.
- Fit new '0' rings (supplied with pump) to pump connections.
- Re-assemble in reverse order.

Note: The pump screws are of two sizes. The longer screws must be fitted into the two lower holes, the shorter screw must be fitted into the top hole.

- Carry out electrical checks (see section 5.1).

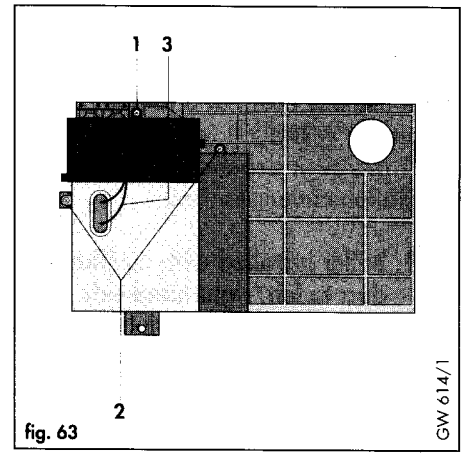


fig. 63

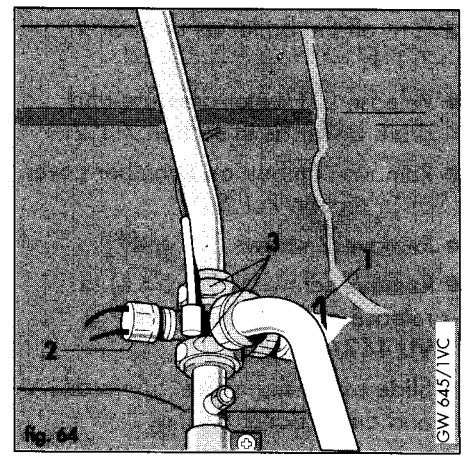


fig. 64

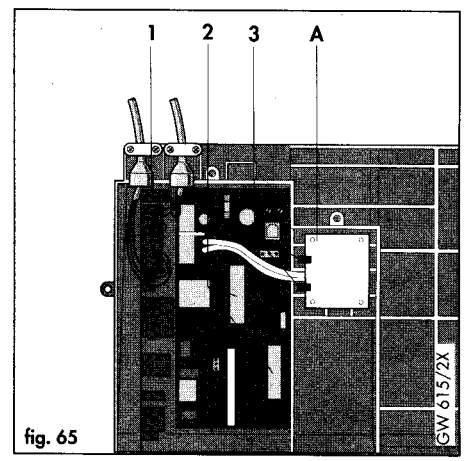


fig. 65

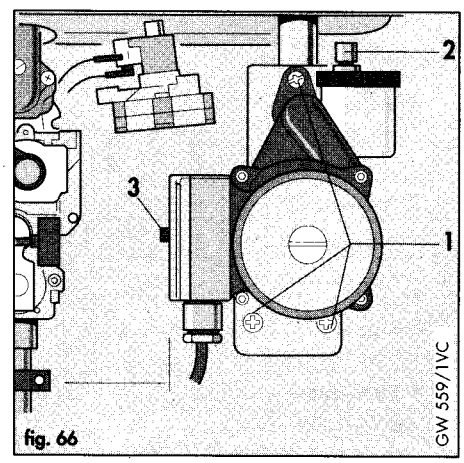


fig. 66

7.13 Replacement of automatic air release

- Turn off boiler as in section 7.1.1.
- Remove front casing as in section 7.1.3.
- Release CH water pressure and drain boiler as in section 7.1.2.
- Lower front control panel as in section 7.1.6.
- Unscrew cap (2, fig. 66) of auto air release and remove inner components.
- Replace with new inner components and reassemble in reverse order.
- Refill and repressurise the boiler (see section 5.3).

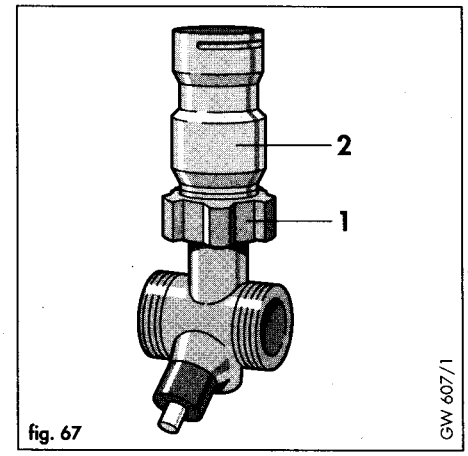


fig. 67

7.14 Replacement of automatic bypass

- Turn off boiler as in section 7.1.1.
- Remove front casing as in section 7.1.3.
- Release CH water pressure and drain boiler as in section 7.1.2.
- Lower front control panel as in section 7.1.6.
- Remove spring clip (1, fig. 64).
- Disconnect wires from overheat thermostat (2, fig. 64).
- Remove temperature gauge phial from primary flow pipe.
- Undo unions (3, fig. 64). Remove bypass/connecting pipe.
- Undo union (1, fig. 67) to remove bypass (2, fig. 67).
- Reassemble in reverse order using sealing washers supplied.
- Refill and repressurise the boiler (see section 5.3).

7.15 Replacement of pressure and temperature gauge

- Turn off boiler as in section 7.1.1.
- Remove front casing as in section 7.1.3.
- Release CH water pressure and drain boiler as in section 7.1.2.
- Lower front control panel as in section 7.1.6.
- Undo union (4, fig 66) to release pressure gauge tube.
- Remove temperature gauge phial from pocket on primary flow pipe.
- Press spring clips on side of gauge to remove from front panel.
- Replace in reverse order.
- Refill and repressurise the boiler (see section 5.3).

7.16 Replacement of differential pressure switch

- Turn off boiler as in section 7.1.1.
- Remove front casing as in section 7.1.3.
- Release CH water pressure and drain boiler as in section 7.1.2.
- Lower front control panel as in section 7.1.6.
- Remove clip at rear of switch by pulling it to the left.
- Disconnect wires from switch (1, fig. 68).
- Pull pressure differential switch forward to remove.
- Reassemble in reverse order.
- Carry out electrical checks (see section 5.1).
- Refill and repressurise the boiler (see section 5.3).

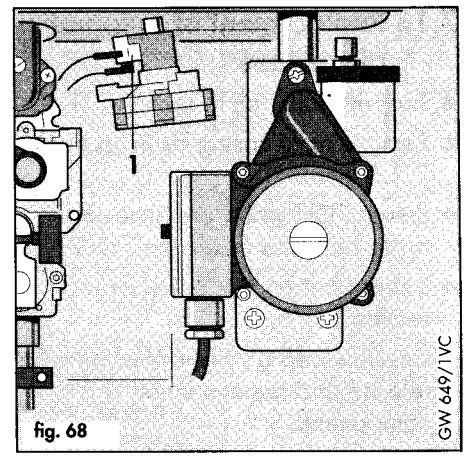


fig. 68

7.17 Removal of printed circuit boards (PCBs)

Before commencing work on PCB replacements carry out the following:-

Diagnose that the boards require changing using the fault finding guide (see section 8: Fault finding).

- Turn off the boiler as in section 7.1.1.
- Remove front casing as in section 7.1.3.
- Lower front control panel as in section 7.1.6.
- Disconnect ignition leads from the rear of control box.
- Remove back of control box by undoing the 3 screws (1 and 2, fig. 63).

7.17.1 Replacement of switch and control boards

- Disconnect external wiring from boiler terminal strip.
- Unplug ribbon cable from control board (2, fig. 69).
- Unplug all leads from the both boards (1, fig. 69).
- Pull off switchboard board support.
- Pull switchboard carefully out of control box.
- Push four spring retaining clips (5, fig. 70) out, and gently lift control board out of control box.
- Reassemble in reverse order.

Note: When refitting the control board, ensure that the user control spindles (3, fig. 69) are aligned with the potentiometer and control switch holes (5, fig. 69) and that the locating rib of the potentiometer/switch correctly engages in the groove of the control knob spindle. Also ensure that when refitting the main switchboard the on/off control knob spindle (3, fig. 69) engages correctly into the on/off switch (5, fig. 69) mounted on the board.

- Carry out electrical checks (see section 5.1)

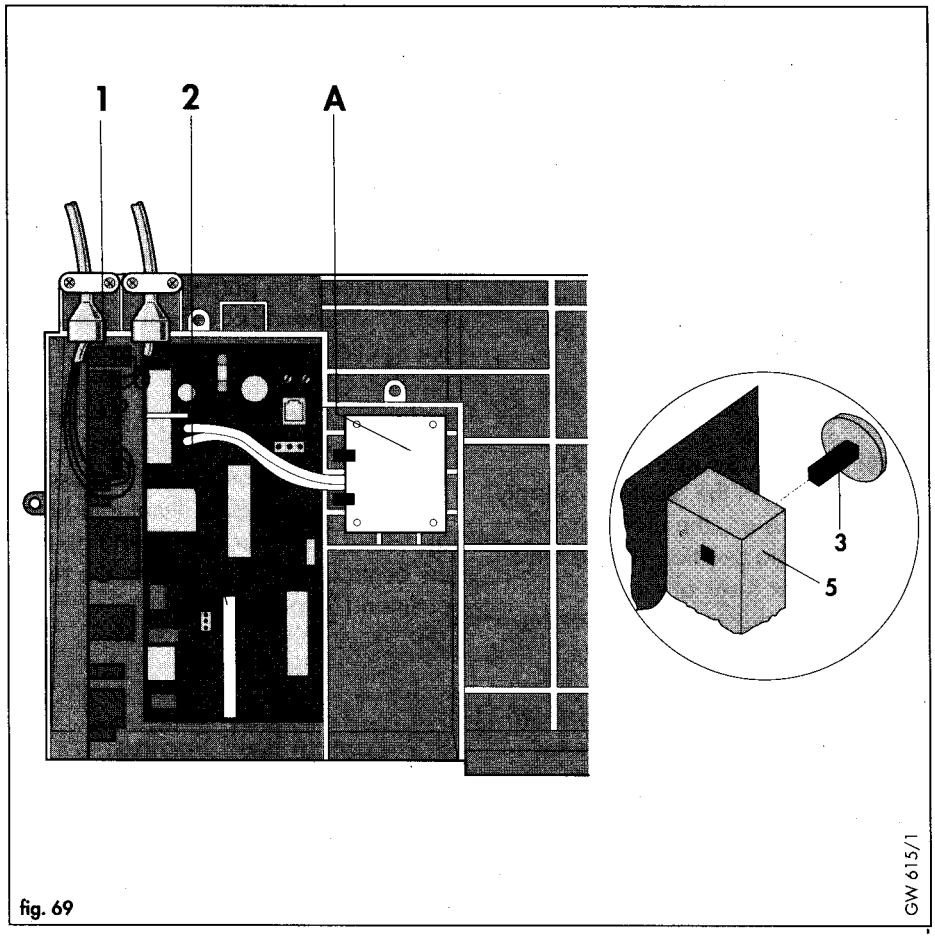


fig. 69

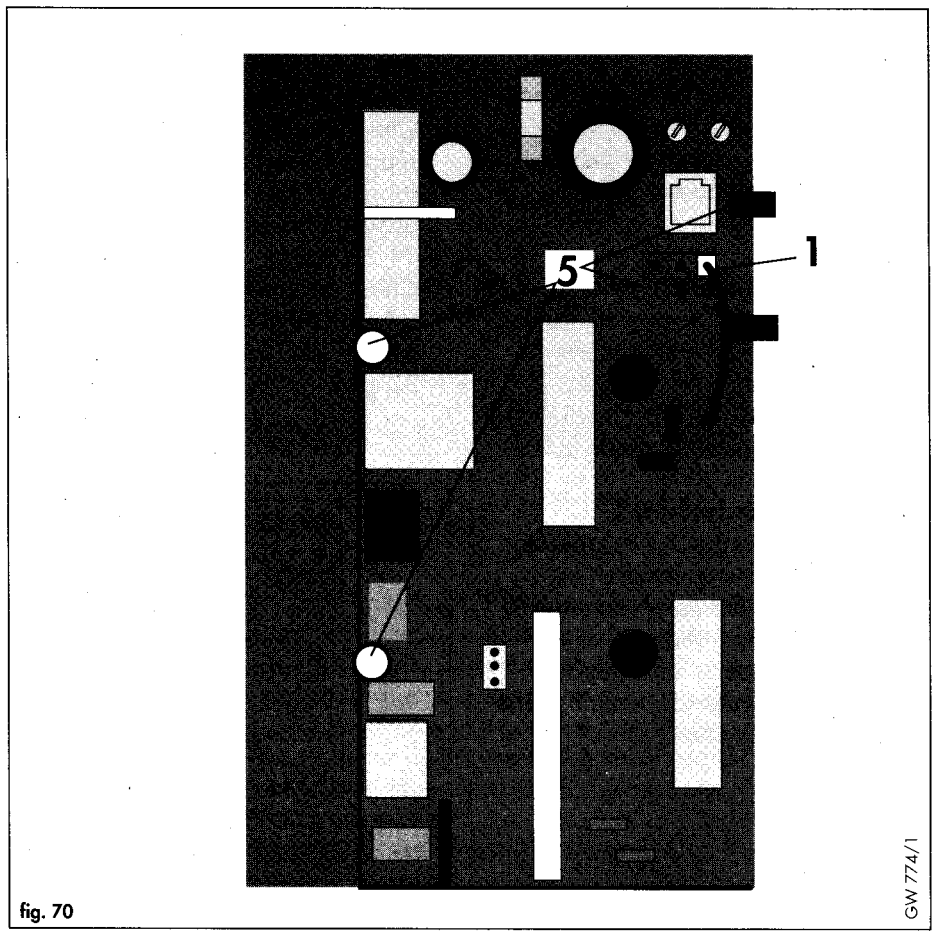


fig. 70

8. Fault finding

8.1 Introduction

The THERMOcompact has built in diagnostic indicator lights (fig. 72) to assist you with fault finding in the unlikely event of a boiler malfunction. The lights will illuminate in sequence, indicating the operational status of the boiler. Should a fault develop in the boiler the indicators may flash highlighting the possible fault e.g.

Power on indicator (green) O/I
Illuminates when the electricity supply to the boiler is on, the main on/off control is set to position (I) and the internal boiler fuses are o.k.
(A flashing indicator shows that the overheat thermostat has cut out.)

Hot water demand indicator (yellow)
This indicator is not applicable for THERMOcompact boilers.

Demand indicator (yellow)
Illuminates whenever there is a demand for the boiler to fire i.e. the external heating controls are calling for heat.

Note: If the external controls are not calling for heat (i.e. the room thermostat has reached temperature) this indicator will go out. This is perfectly normal.

Fan operation indicator (yellow)
Illuminates to indicate that the fan is operating and has been checked by the fan pressure switch.
(A flashing indicator shows that the air pressure switch has not made.)

Ignition indicator (yellow) I
Illuminates when gas valve, operator and ignition transformer are energised. This indicator remains on during burner operation.
(A flashing indicator shows lack of water or poor water circulation in the central heating system.)

Flame indicator (yellow)
Illuminates when flame is recognised by the flame monitoring system.
(A flashing indicator shows that the NTC sensor is broken, not connected or shorted to earth.)

Burner lockout indicator (red)
Illuminates if the burner fails to light within 10 seconds of illumination of the ignition indicator after the 2nd ignition cycle.
(A flashing indicator shows a failure in the electronic boards.)
To reset the appliance after a lockout (either burner lockout illuminated or any other indicator light flashing), turn the central heating control to the reset position ( ) and release.

8.2 Logical fault finding procedure

8.2.1 Preliminary Checks

These checks must be carried out before attempting to use the fault finding guide:-

1) Carry out electrical safety checks (see Section 5.1: Preliminary electrical checks).
2) Check that the external electricity supply to the boiler is on, and a supply of 230 V~ is present between boiler terminals 'L' and 'N'.
3) Check that gas supply to the boiler is on and that it has been correctly purged (see Section 5.2: Gas Supply).
4) Ensure the heating system is full of water and charged to approx. 1 bar. If not refill the system and vent (see section 5.3: Filling the heating system). Ensure boiler flow and return service valves are open.
5) Check that boiler main on/off control is set to position (I)
6) Ensure that the boiler flow temperature is set to position '9'.
7) Check that all the external controls are on and calling for heat (if no external controls are fitted, boiler terminals 3 and 4 must be linked). Check that boiler anti-cycling 'economiser' control is not engaged (see Section 4.8.5).

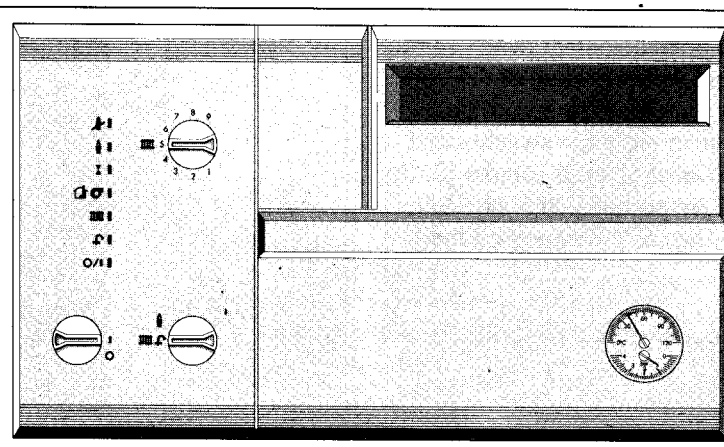
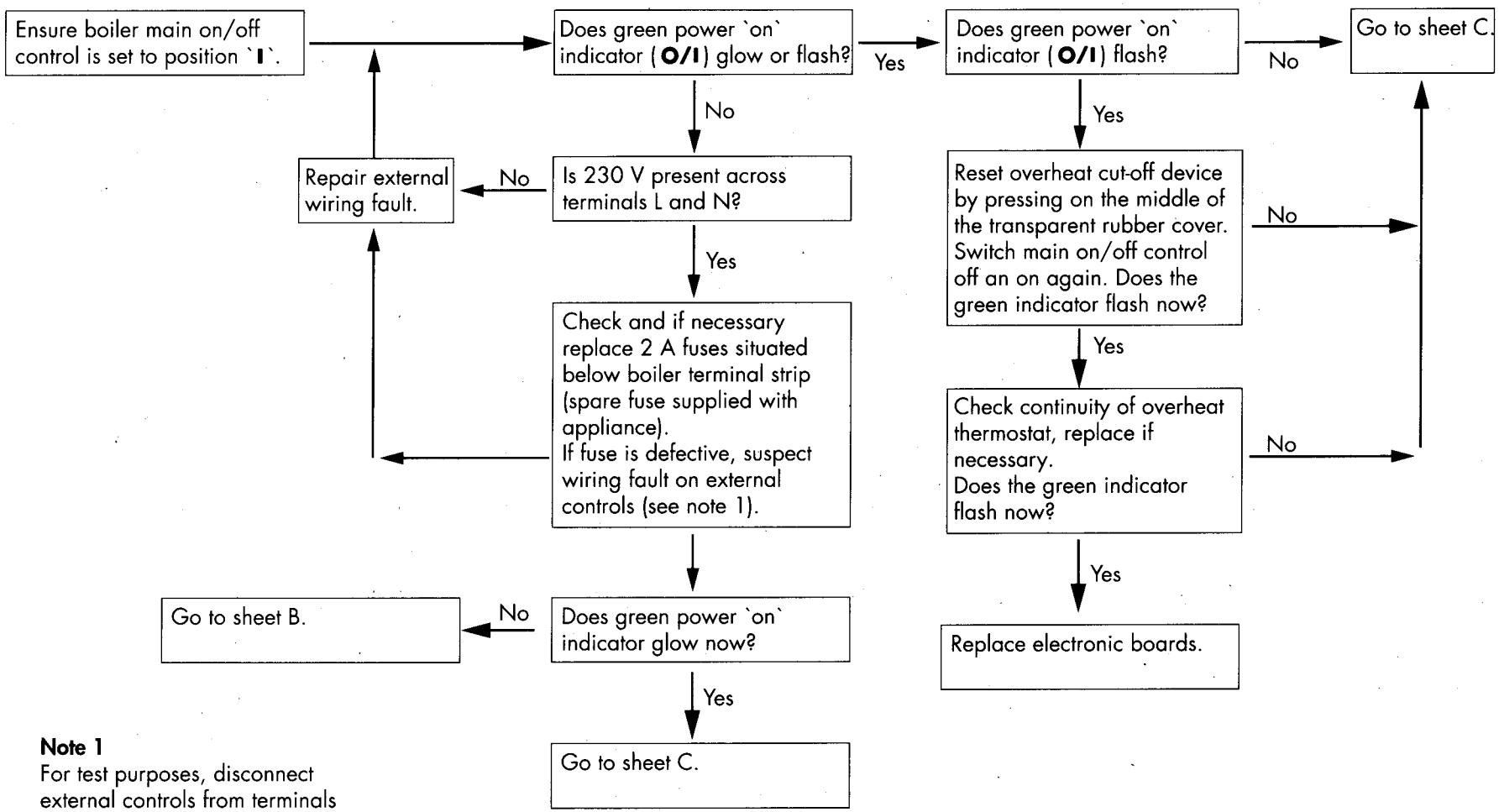


fig. 72

Sheet A

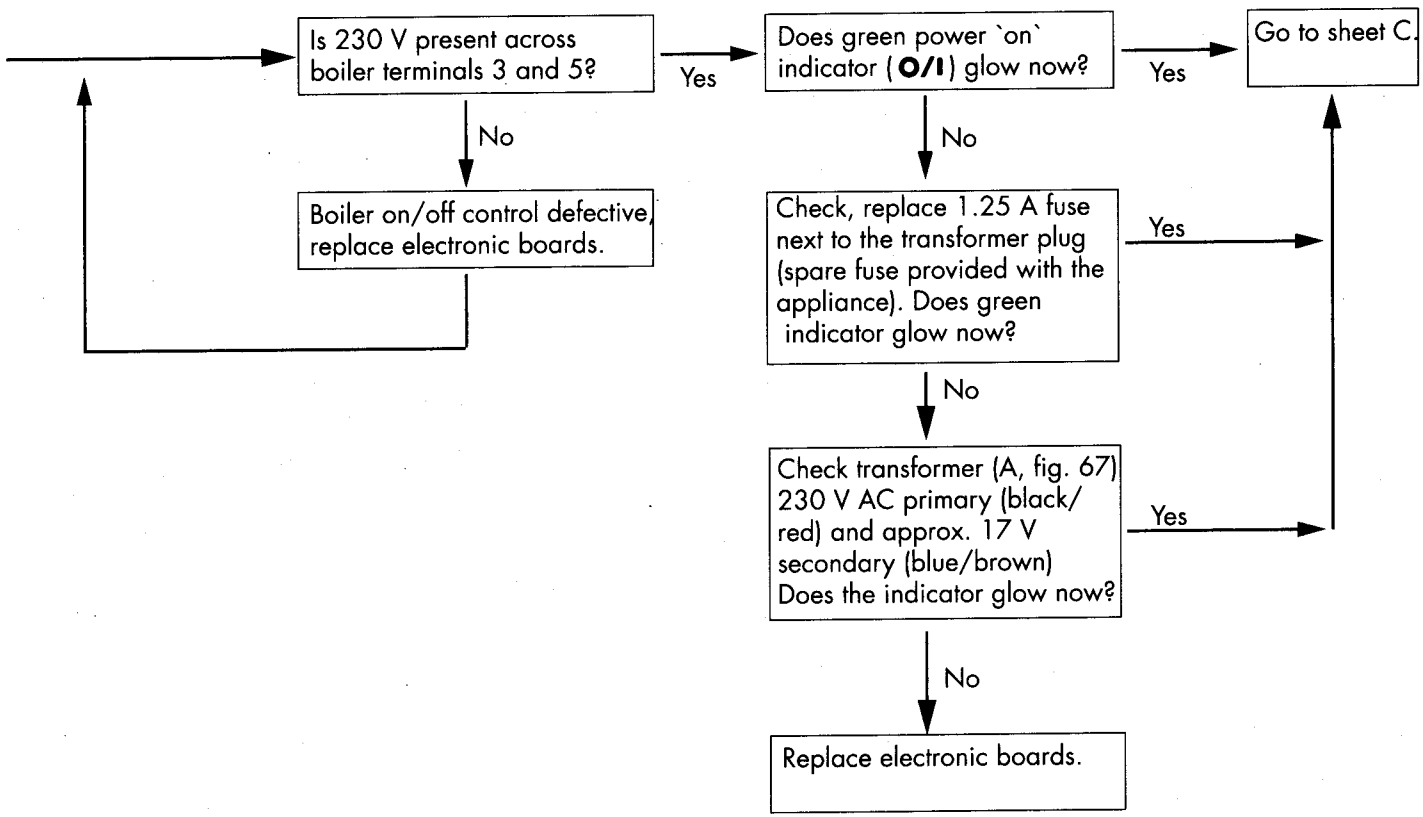
Check electrical supply and appliance fuses



Note 1
For test purposes, disconnect external controls from terminals 3 - 4 and replace with a bridge between these terminals. If appliance then operates, the fault is with the external controls.

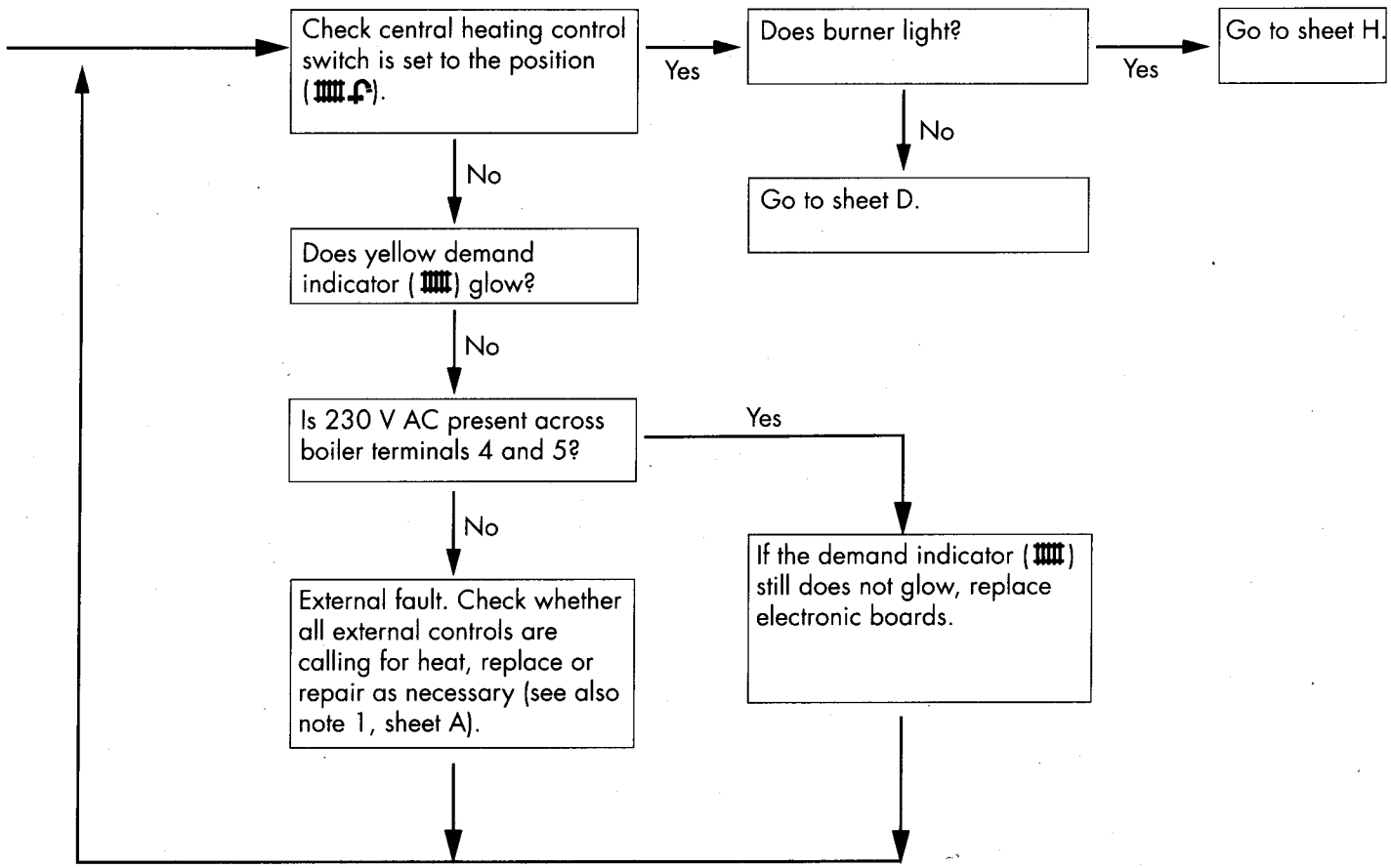
Sheet B

Check main on/off control, overheat thermostat and anti-surge fuse



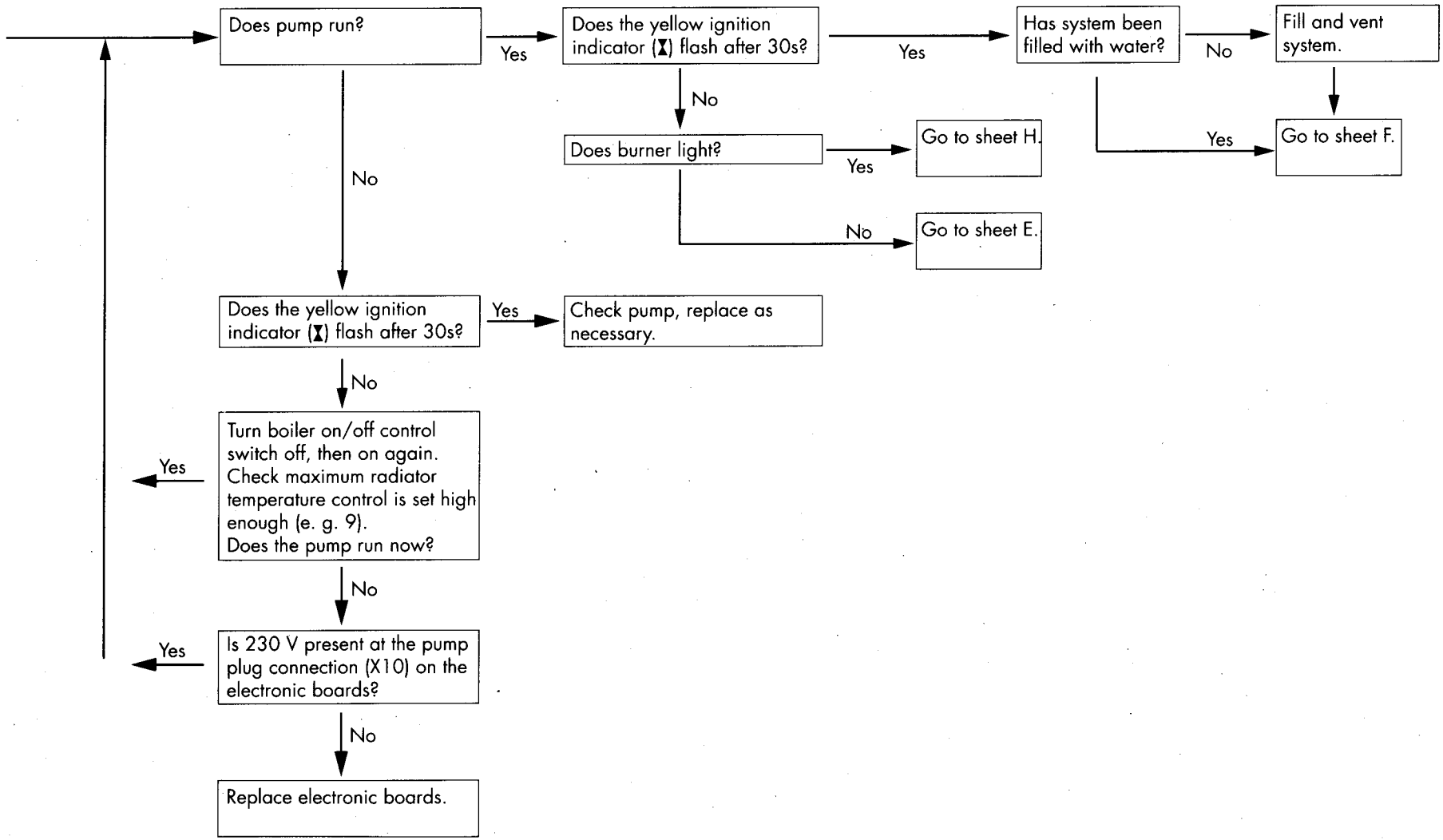
Sheet C

Check Central Heating control and external controls



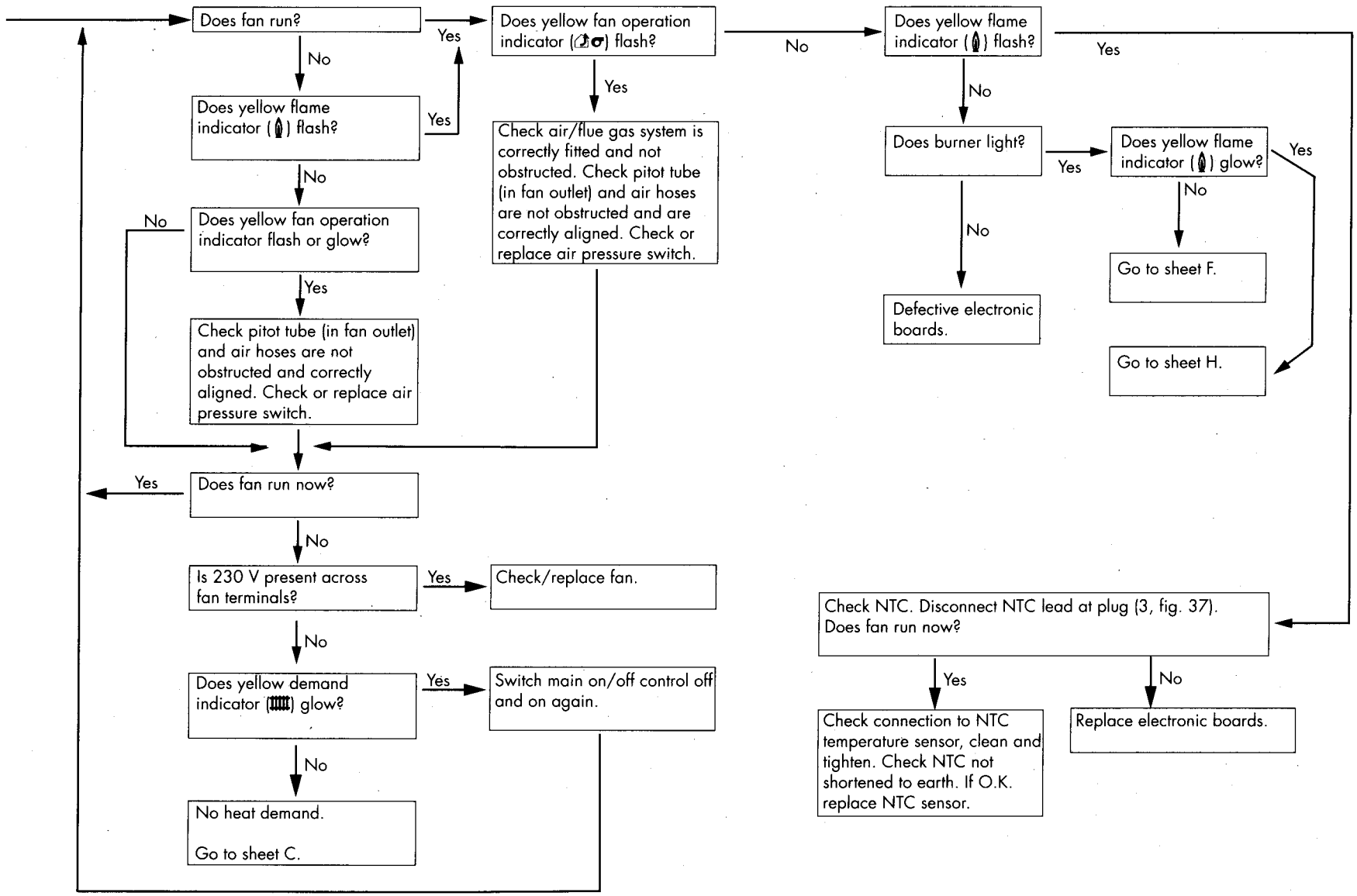
Sheet D

Check operation of pump



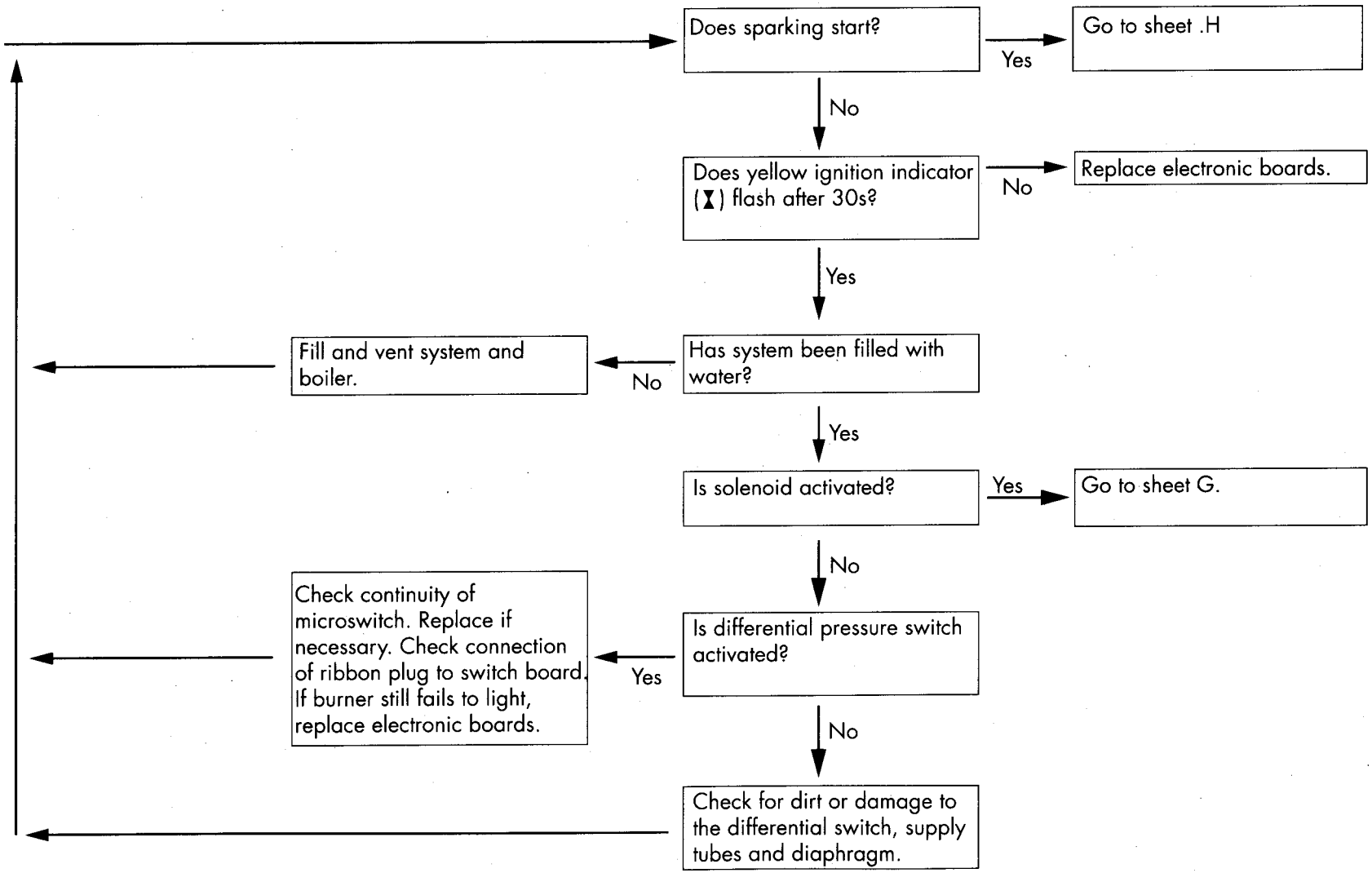
Sheet E

Check fan/flue gas system



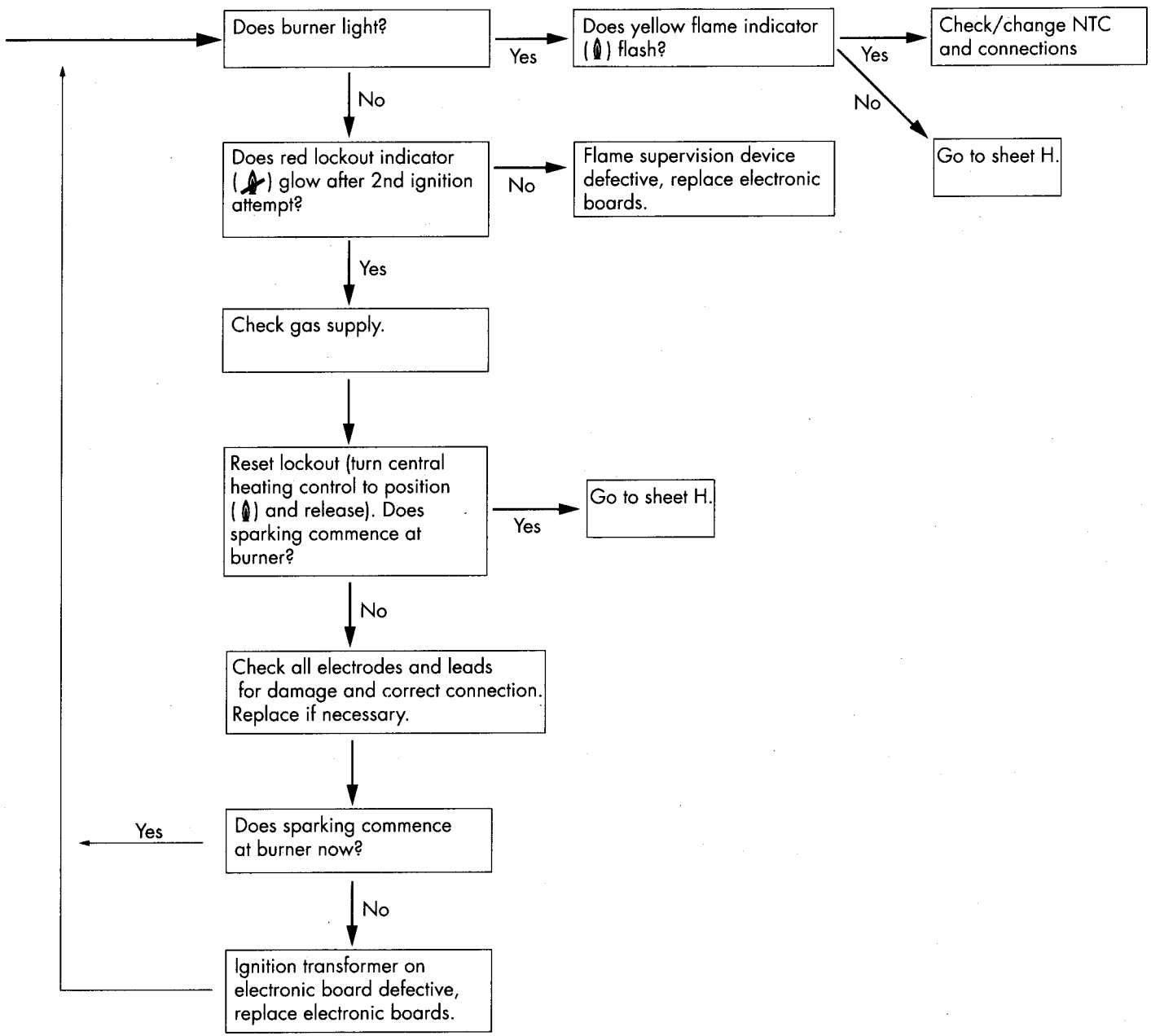
Sheet F

Check operation of differential pressure switch



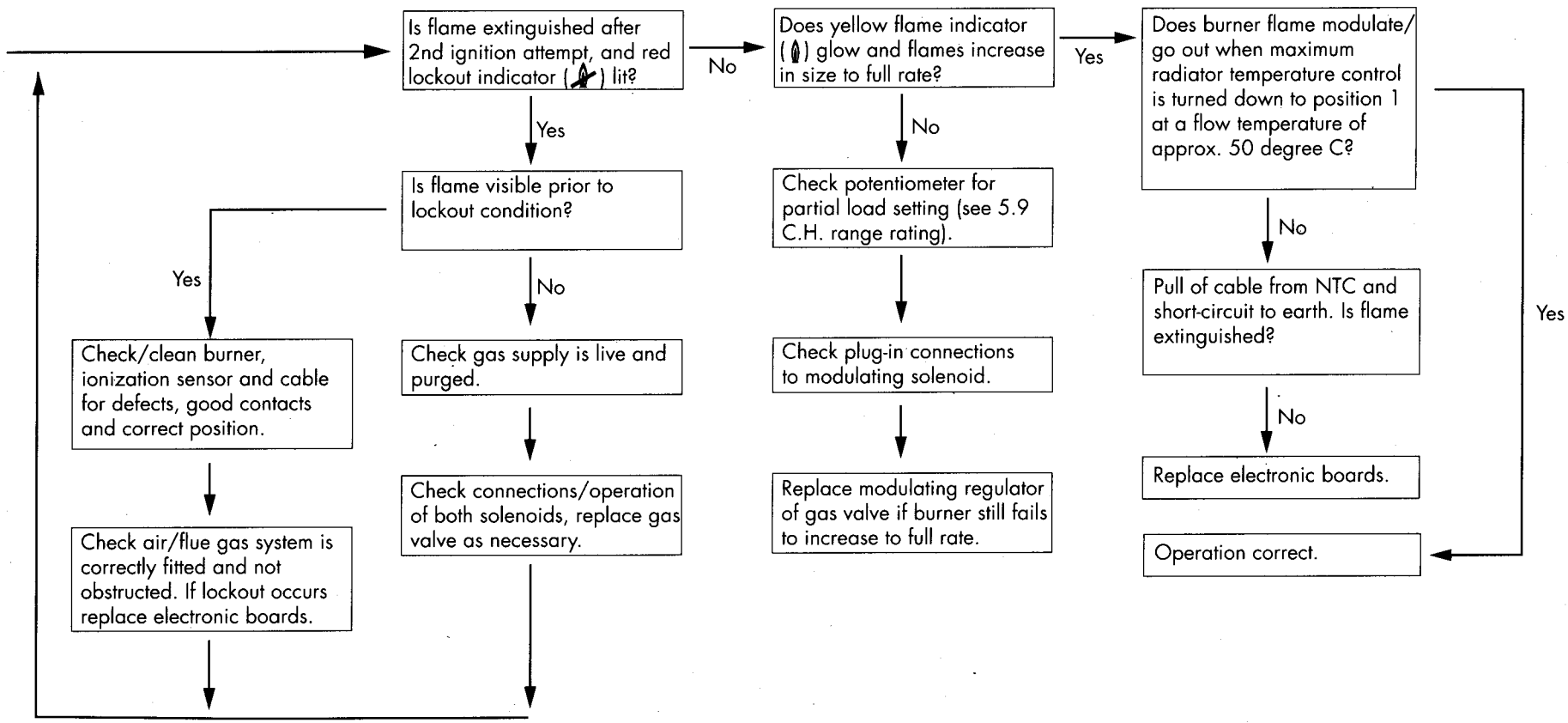
Sheet G

Check ignition system and gas section



Sheet H

Check operation of burner and modulation



9 Electrical diagrams

9.1 Functional Flow diagram: THERMOcompact VU 142/1 E, 182/1 E, 242/1 E, 282/1 E

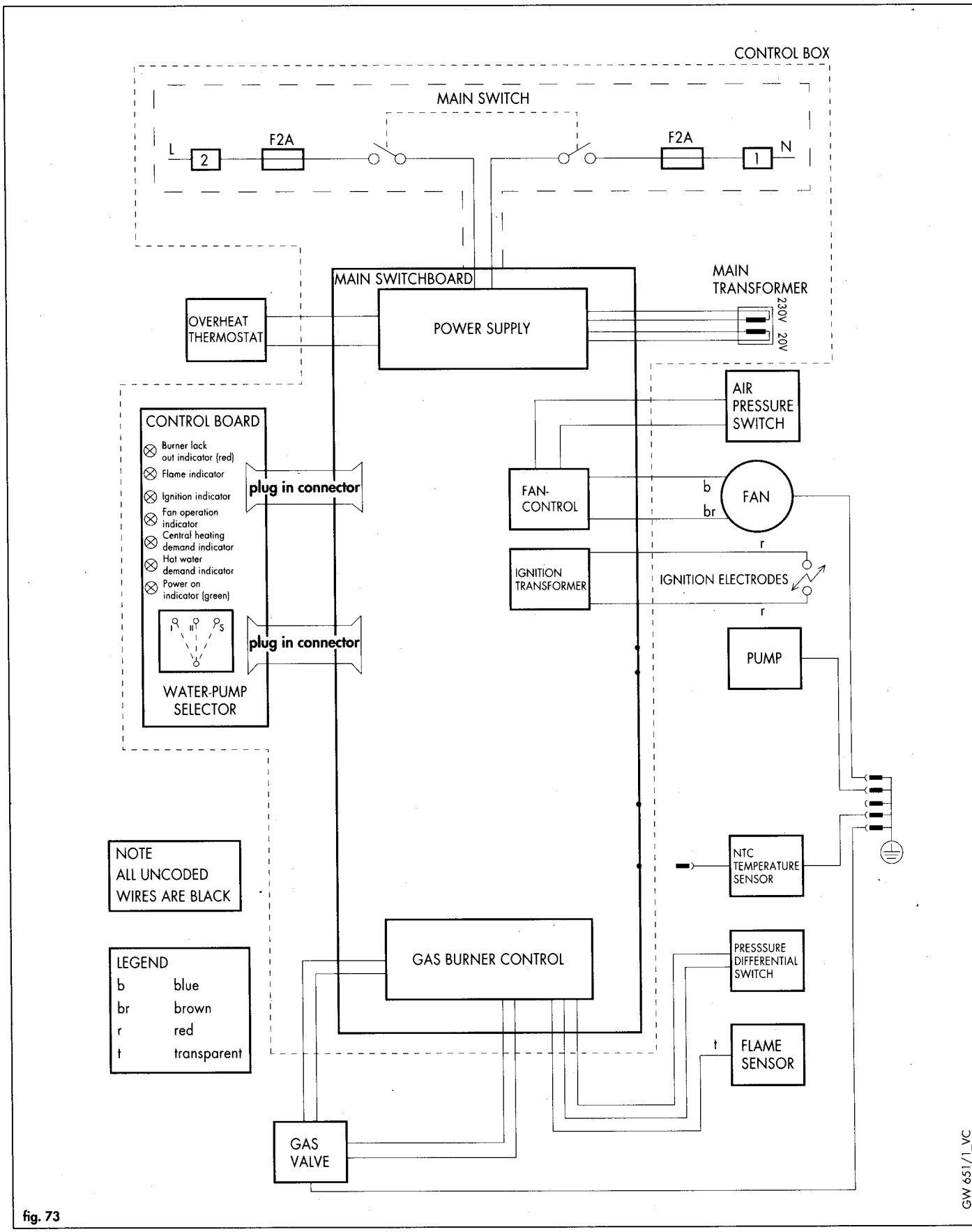


fig. 73

9.2 Wiring diagram: THERMOcompact VU 142/1 E, 182/1 E, 242/1 E, 282/1 E

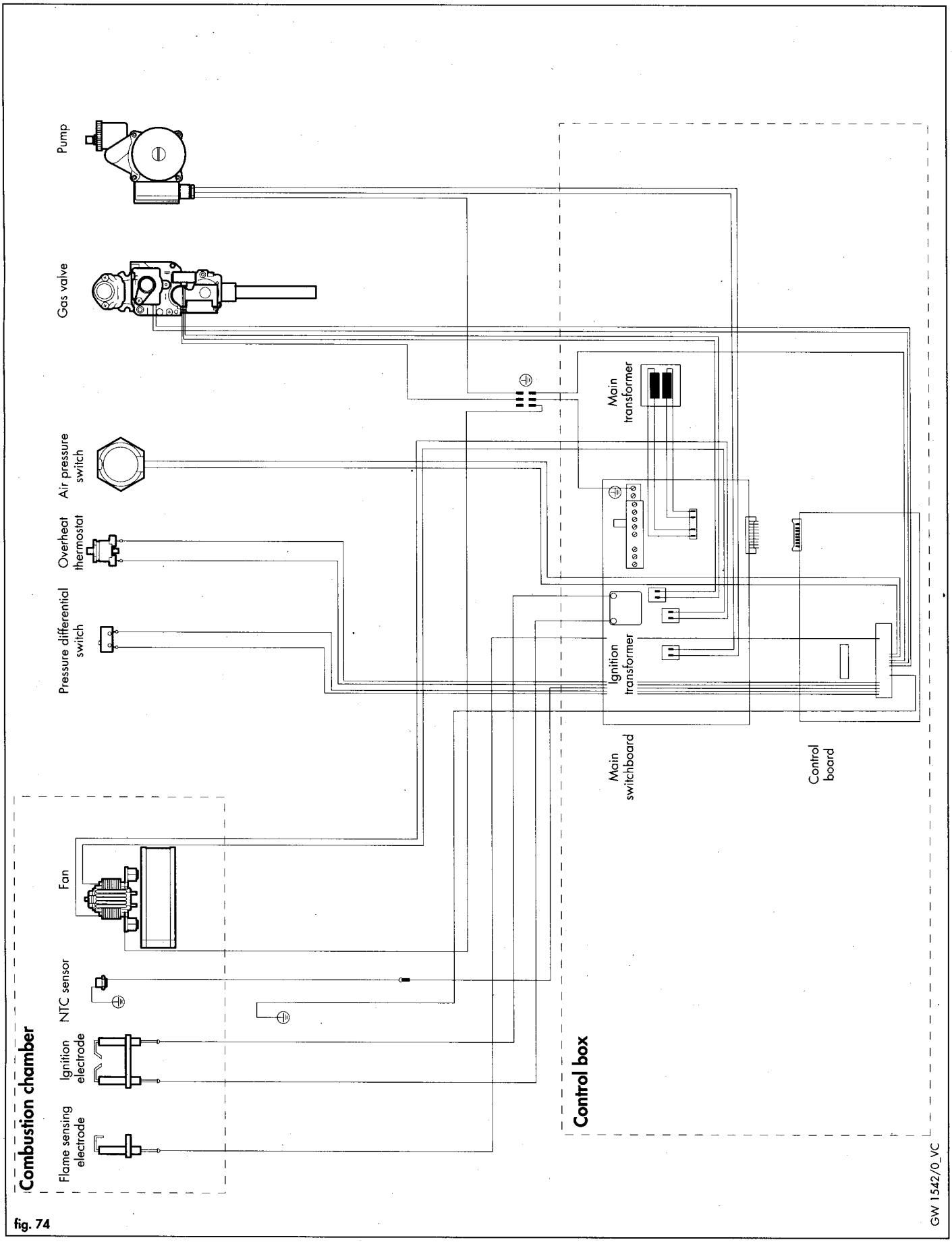


fig. 74

9.3 Schematic appliance circuit diagram: VU 142/1 E, 182/1 E, 242/1 E, 282/1 E

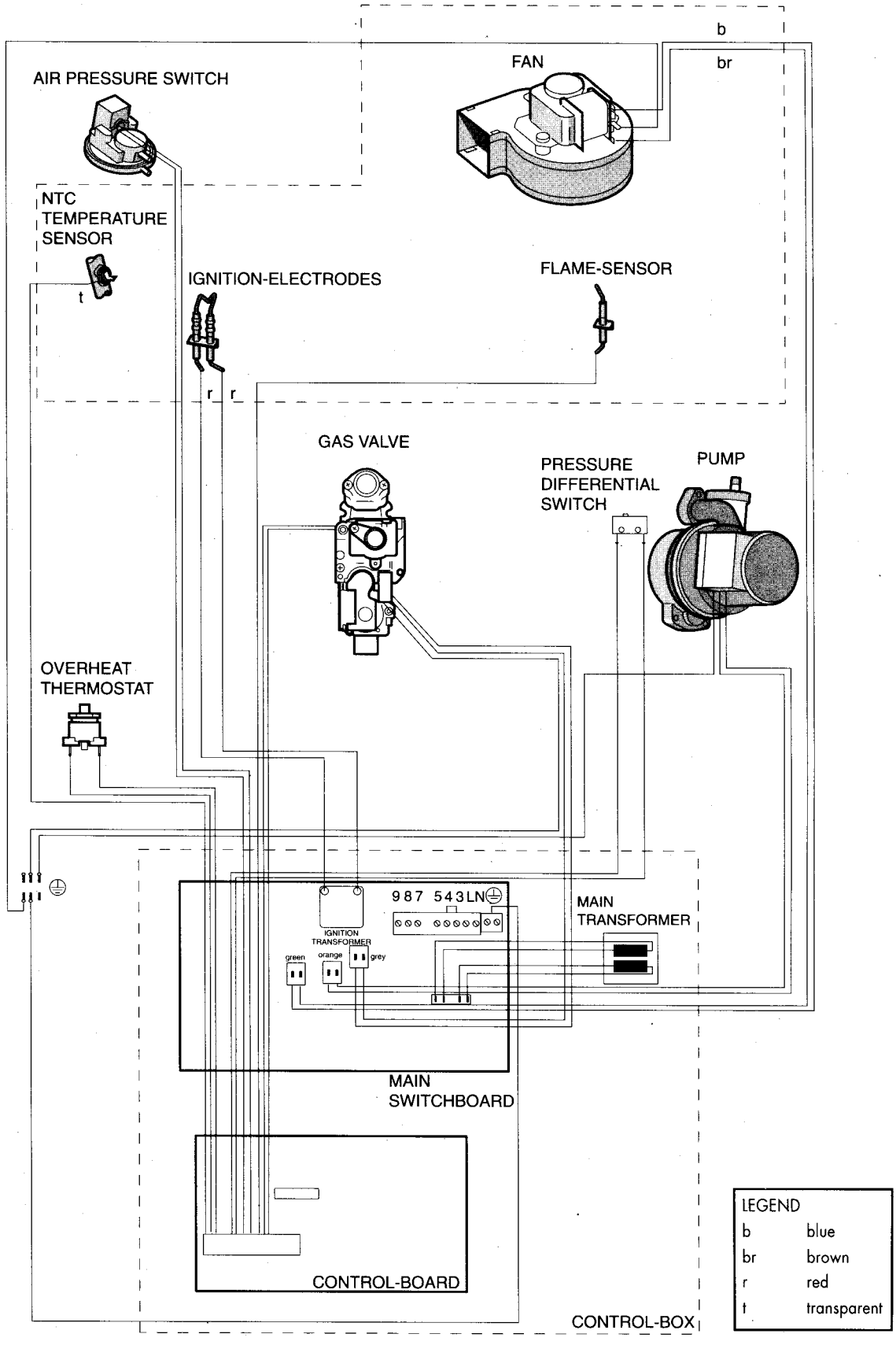


fig. 75

10. Short parts list

Key No.	Description	Part No.	GC No.
01	Fan	19 0162	
02	Air pressure switch	05 0557	
03	Main heat exchanger		
	VU 142/1, 182/1	06 5009	
04	Main heat exchanger VU 242/1	06 4951	
05	Main heat exchanger VU 282/1	06 4952	
06	Burner		
	VU 142/1, 182/1	04 1981	
07	Burner VU 242/1	04 1960	
08	Burner VU 282/1	04 1961	
09	Ignition electrode	09 0562	
10	Flame sensing electrode	09 0563	
11	HT lead (ignition electrode)	09 1534	
12	Expansion vessel		
	VU 142/1	18 1045	
	VU 182/1, 242/1, 283/1	18 1022	
13	Pump	16 1111	
14	Gas valve (natural gas)	05 3369	
15	Modulating regulator (natural gas)	17 0376	
16	Switch and Control board	13 0438	
17	Main transformer	28 7442	
18	NTC temperature sensor	25 2805	
19	Temperature and pressure gauge	10 1558	

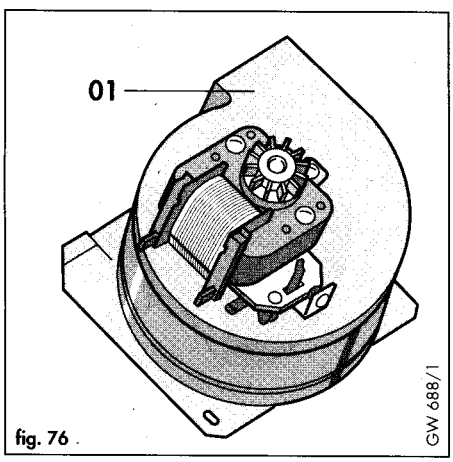


fig. 76

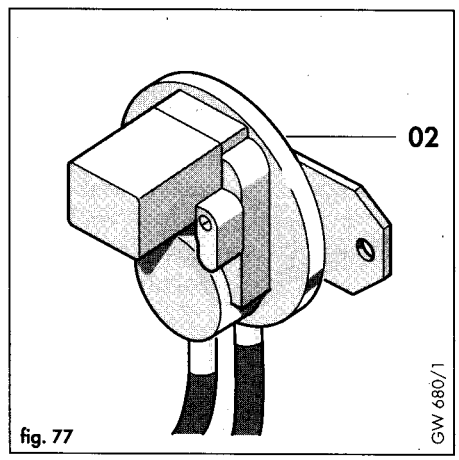


fig. 77

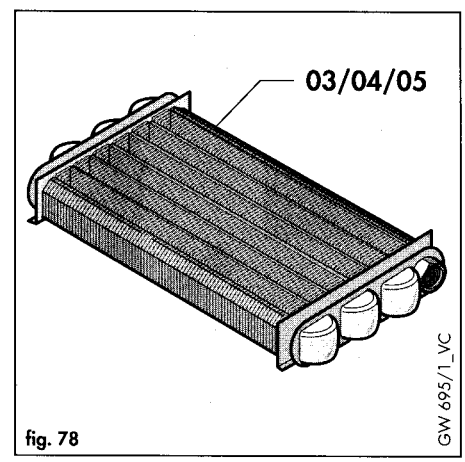


fig. 78

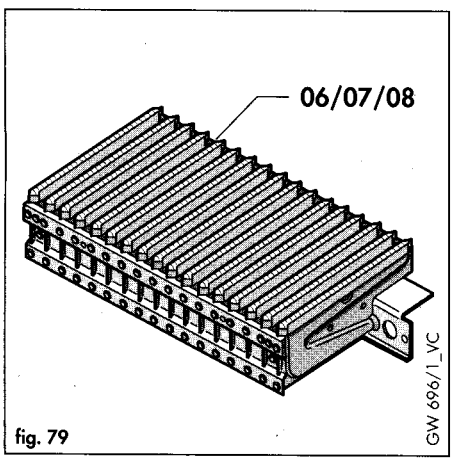


fig. 79

1. Introduction

Note: This boiler must be installed and serviced by a competent person in accordance with the Gas Safety (Installation and Use) Regulations 1994. In the UK 'CORGI' Registered Installers undertake the work to a safe and satisfactory standard.

The THERMOcompact is a fully automatic, wall mounted, room sealed system boiler for central heating and domestic hot water (where a separate indirect hot water storage cylinder is also incorporated in the system).

The boiler has been designed for use with a sealed central heating system, and comes fully tested and assembled with a built-in circulating pump, bypass and expansion vessel.

CE

THERMOcompact boilers carry 'CE' Mark. This demonstrates that the boilers fulfill the essential requirements of the Gas Appliance Directive (90/396/EEC) and the Gas Appliance (Safety) Regulations 1992.

The 'CE' Mark also demonstrates that the boilers comply with the requirements of the Electromagnetic Compatibility Directive (Directive 89/336/EEC), the Low Voltage Directive (73/23/EEC), the Boiler Efficiency Directive (92/42/EEC) and the Boiler (Efficiency) Regulations 1993.

The THERMOcompact meets the requirements of 'The Boiler (Efficiency) Regulations 1993 and therefore is deemed to meet the requirements of Directive 92/42/EEC on the efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels.

The boiler is easily sited on any internal wall and can be installed with either a horizontal or vertical RSF (Room Sealed Fan assisted) flue. Flue extensions and additional bends and elbows are available for increased siting flexibility. (The boiler is not suitable for external installation).

If desired an inhibitor may be used in the system. Guidance on the use of inhibitors is contained in these instructions.

Natural Gas and LPG versions of the boiler are available.

The THERMOcompact has built-in diagnostic indicator lights which illuminate in sequence, giving information on the boiler status when operating and performance of key components to aid in commissioning and fault finding.

The data badge is fitted on the bottom of the combustion chamber.

See text of General Requirements for Installation Requirements or notes.

11. Supplementary information for THERMOcompact

VU 142/1 EB
VU 182/1 EB
VU 242/1 EB
VU 282/1 EB

L.P.G. Appliances:

The appliance delivered is designed for use with LPG.
Please read the instructions for installation therefore as follows:

Related documents to be supplemented by:

BS 5482: CP for domestic butane and propane gas burning installations

Part 1: Installations in permanent dwellings

Inlet pressure: Propane 37 mbar (14.6 in W.G.)

Technical Data

Type	VU 142/1 E B	VU 182/1 E B	VU 242/1 E B	VU 282/1 E B	
Main burner jet size	12 x 7/075	12 x 7/075	16 x 7/075	18 x 7/075	number x mark.
Burner setting pressure	17.1 (6.7) Propane	23.9 (9.4) Propane	25.1 (9.9) Propan	26.6 (10.5) Propane	mbar (in W.G.)
Restrictor	2 * 203	2 * 300	2 * 350	2 * 375	marking
Delivered gas Propane Gross C.V. (s.t.)	G 31 95.65				MJ/m³
Gas consumption (s.t.)	0.63	0.81	1.08	1.25	m³/h

83 30 51 GB/IE

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VAILLANT
SPARE PART CATALOGUE

Wall-hung heating boilers

THERMOcompact, COMBIcompact

VC 110,180,240 T,XT, VCW 240,280 T,XT

(conventional flue)

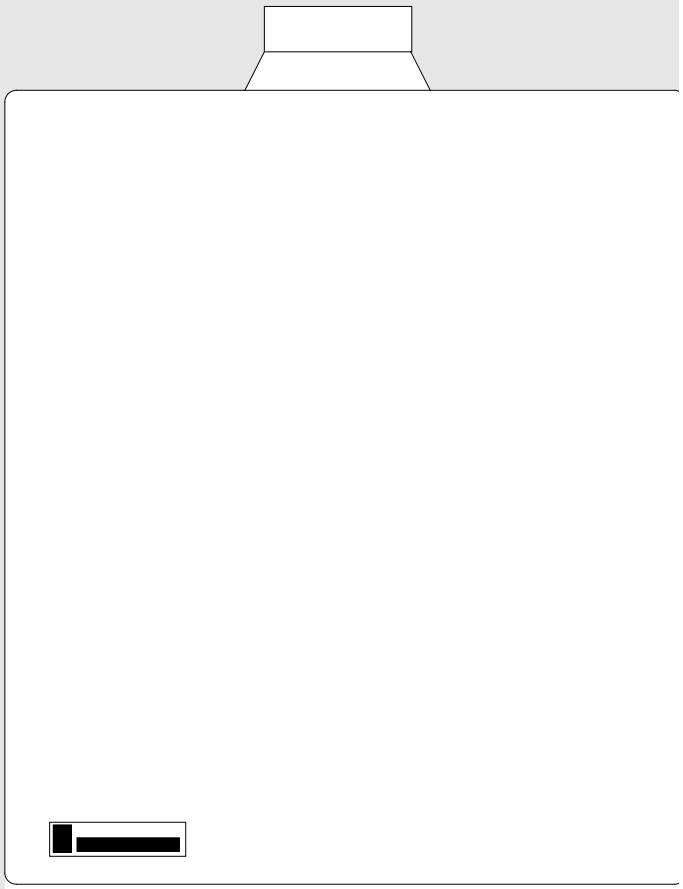
VC-VCW 221 T

(balanced flue)

VC 112,142,182,242,282 E

VCW 242,282 E

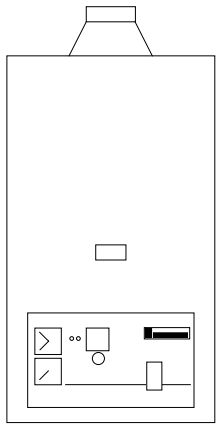
(room-sealed fan-assisted)



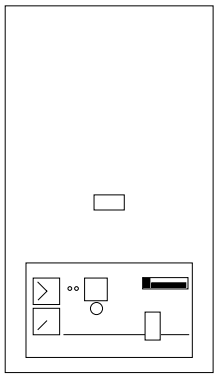
8025 39 GB 09/96

Vaillant

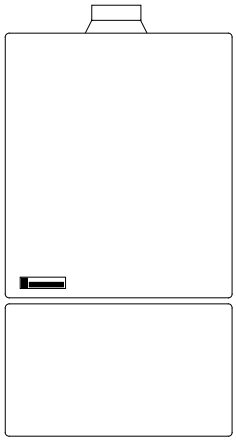
View of appliances



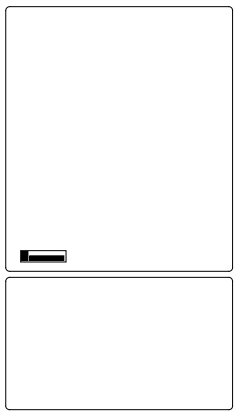
VC 110 T
VC 110 XT



VC 112 E
VC 142 E



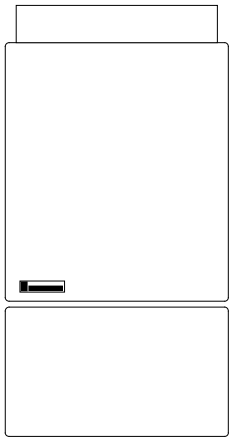
VC 180,240 T
VC 180,240 XT
VCW 240,280 T
VCW 240,280 XT



VC 182,242,282 E
VCW 242,282 E

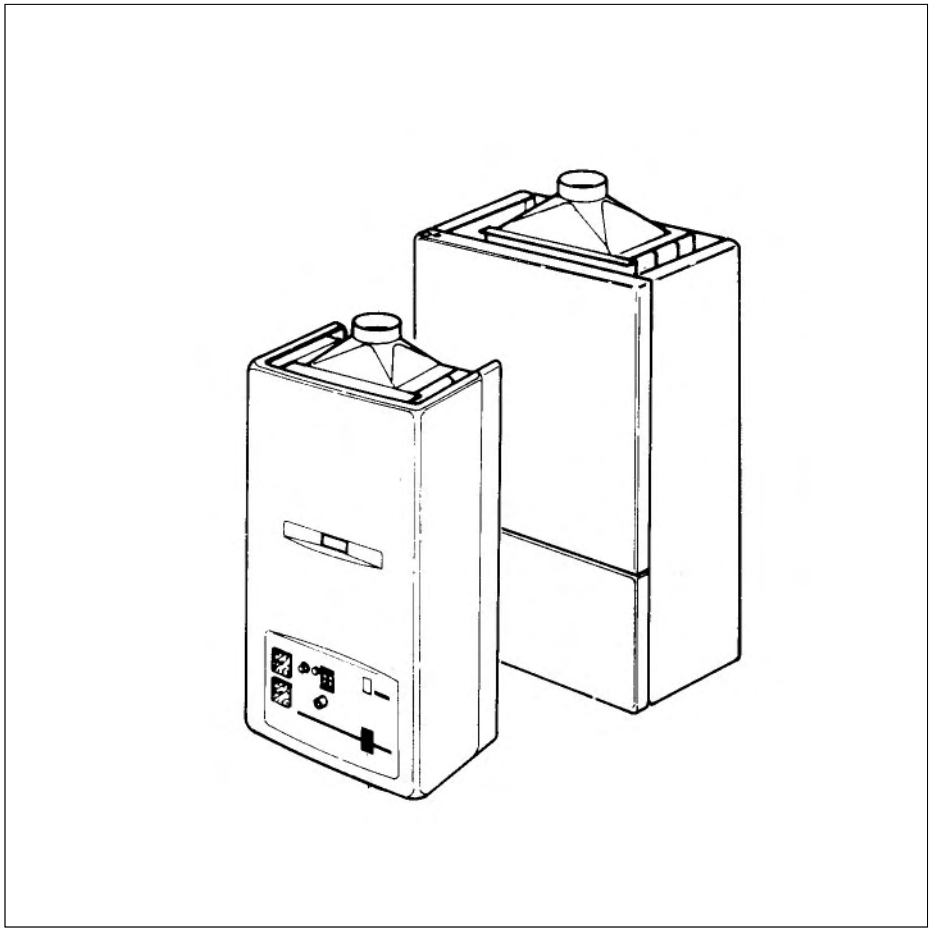
Content

View of appliances

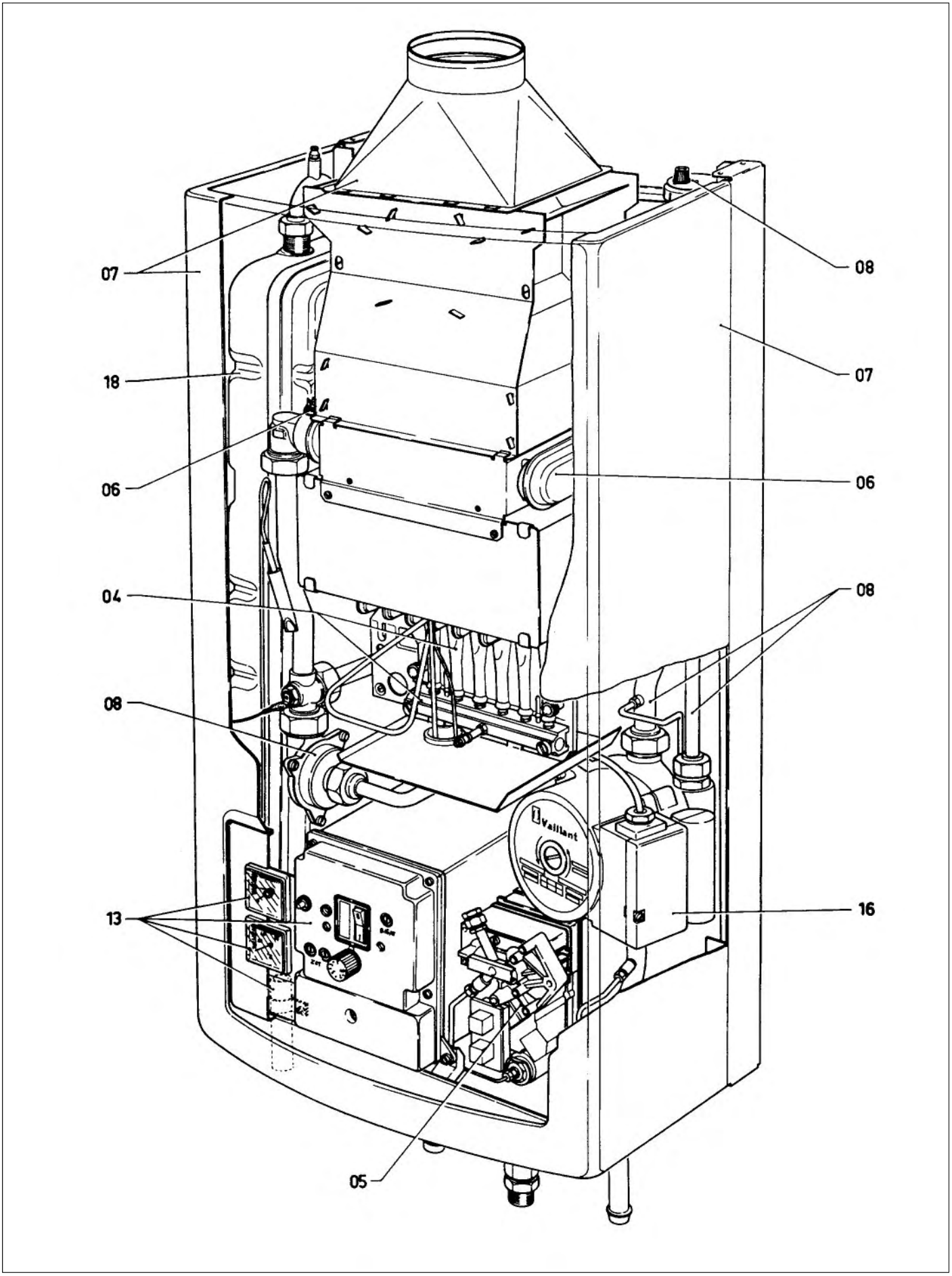


VC-VCW 221 T

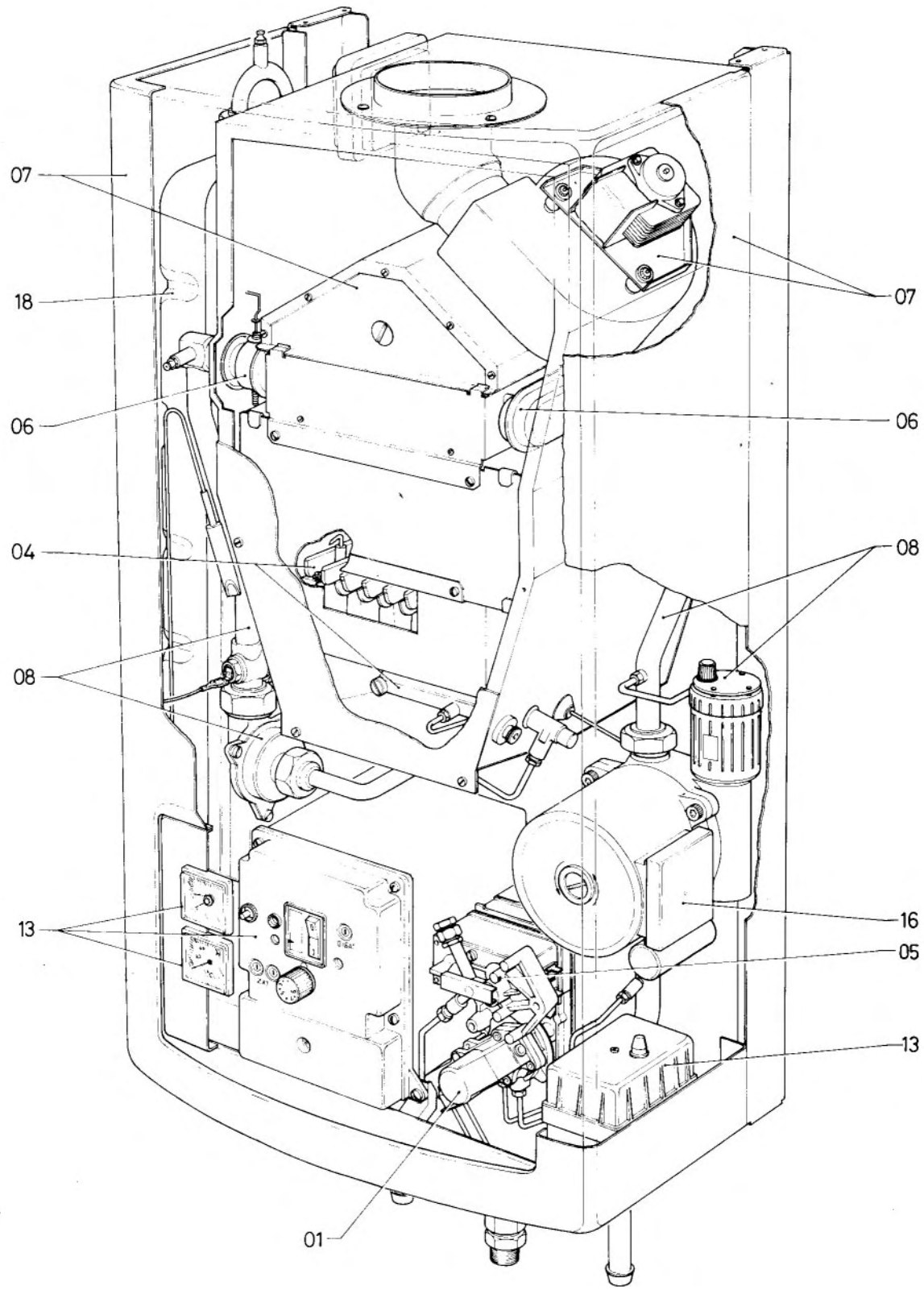
General view sheets



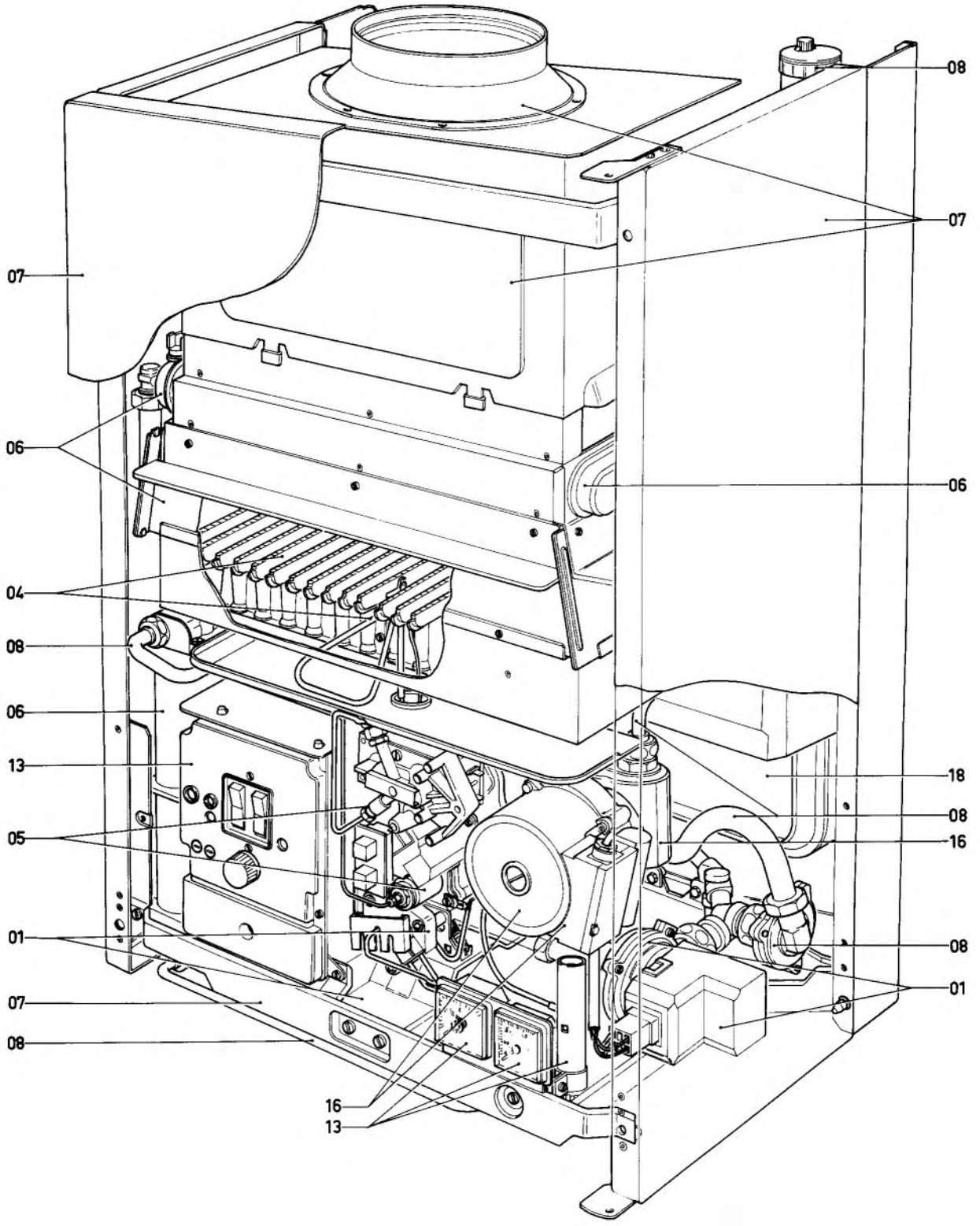
General view sheets VC 110 T, XT



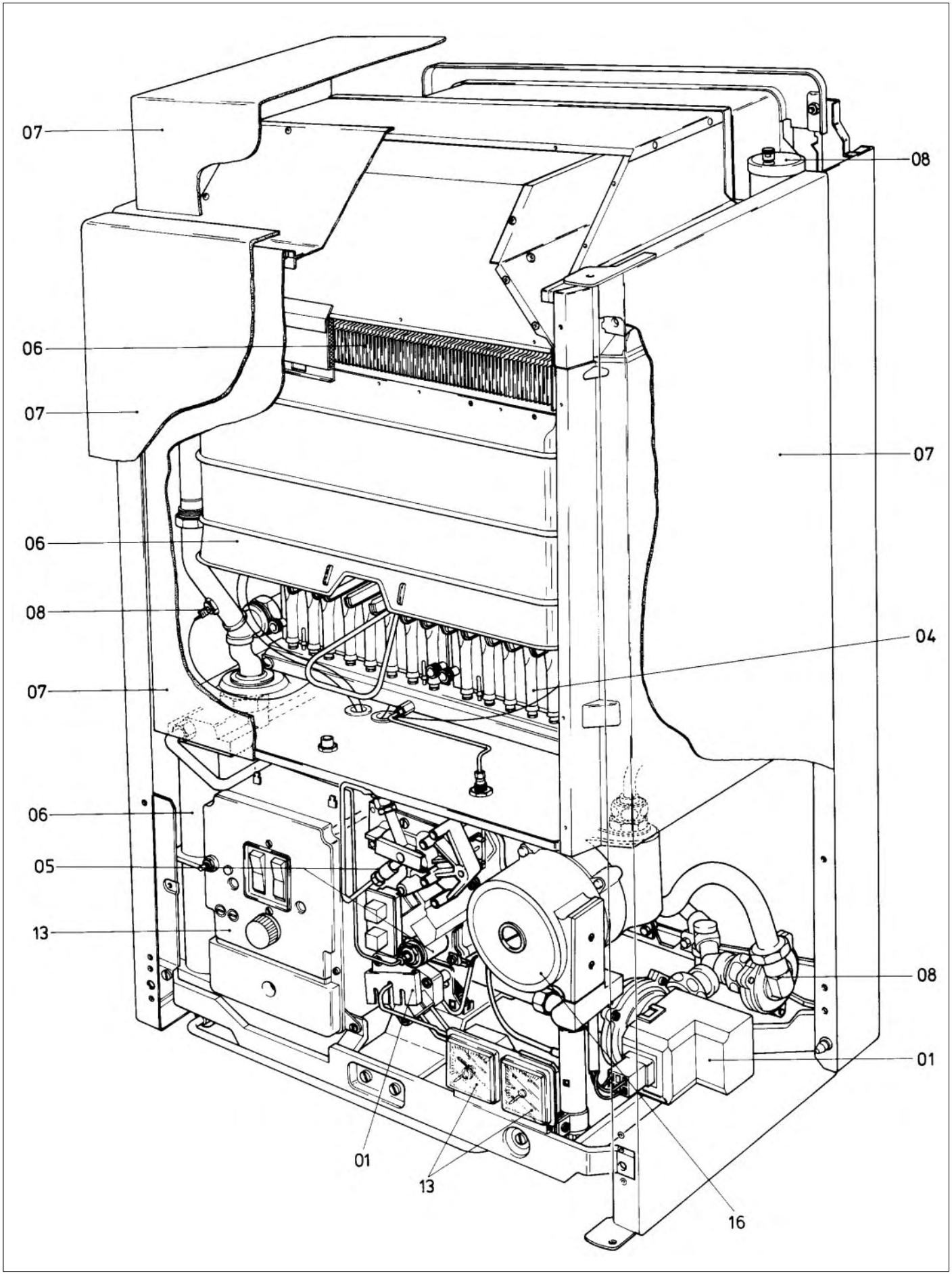
General view sheets VC 112,142 E



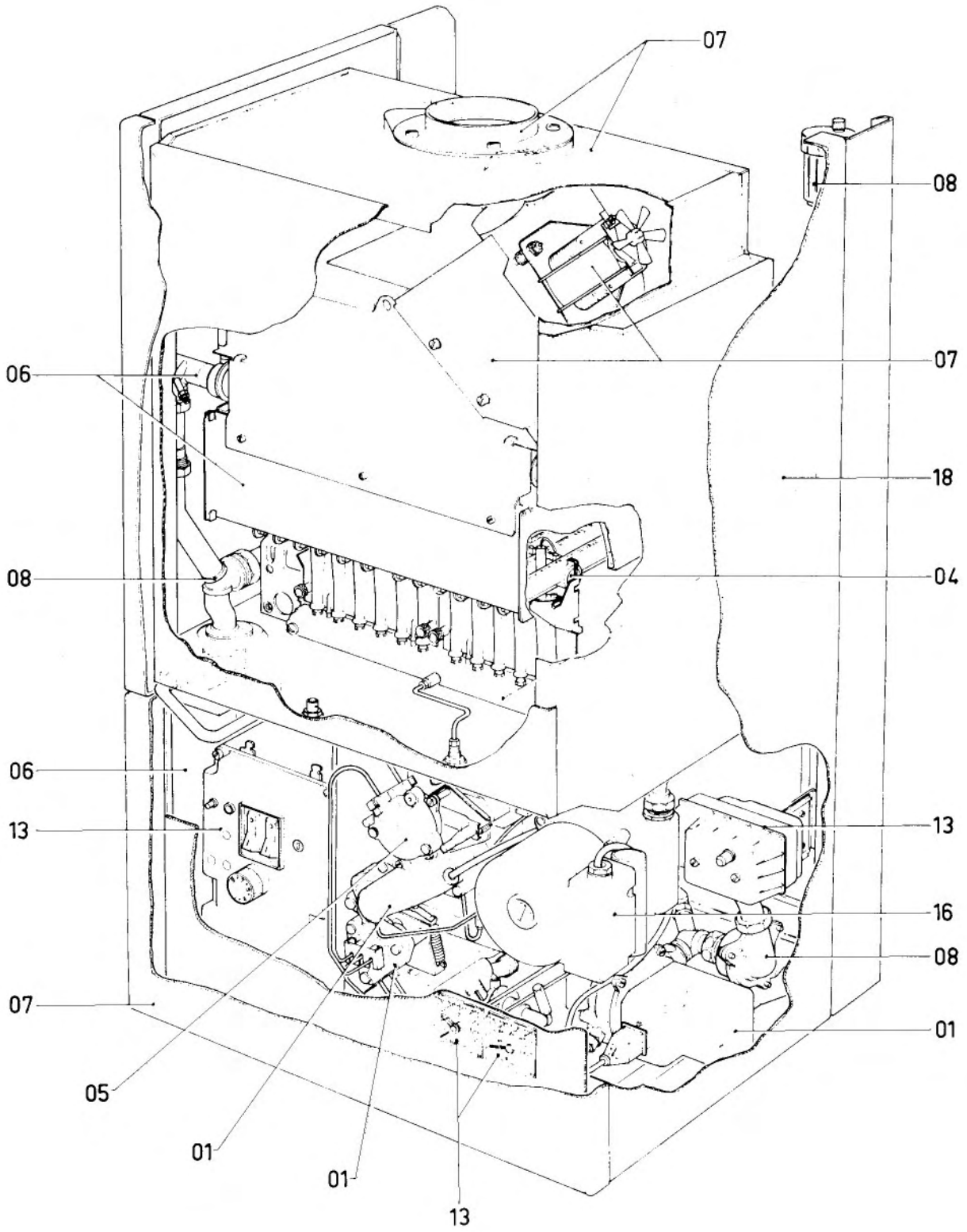
General view sheets VC 180,240 T, VCW 240,280 T, XT



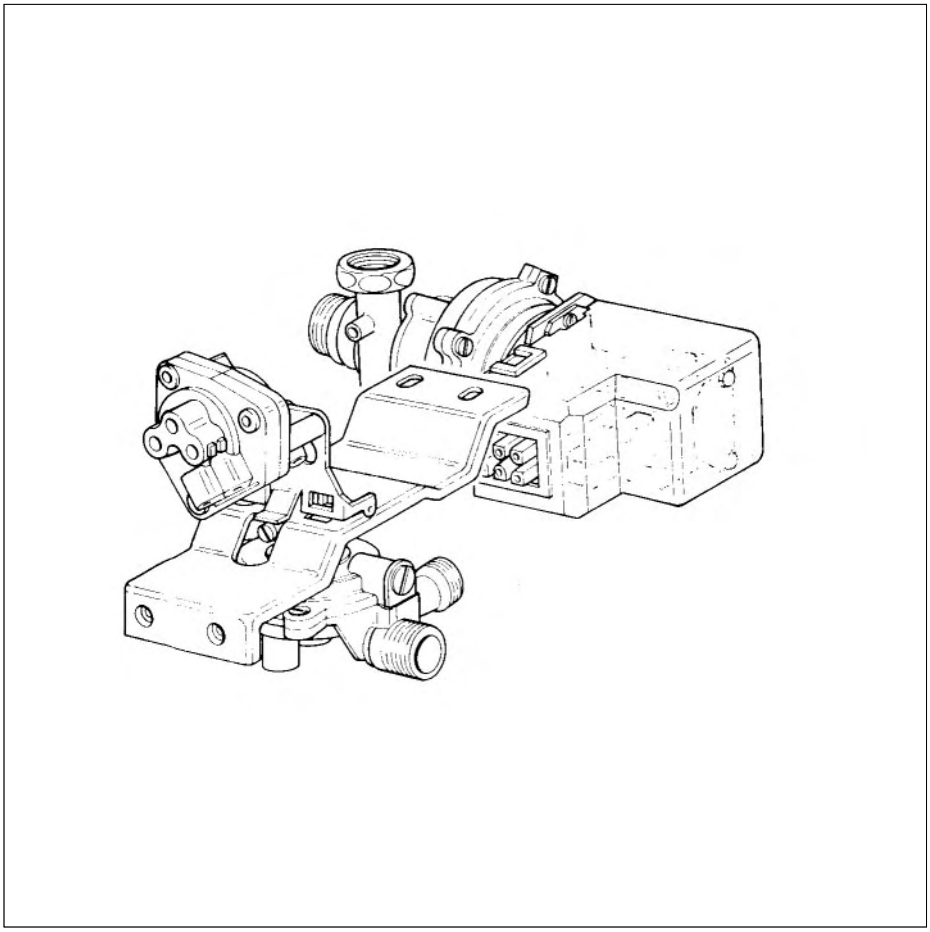
General view sheets VC-VCW 221 T



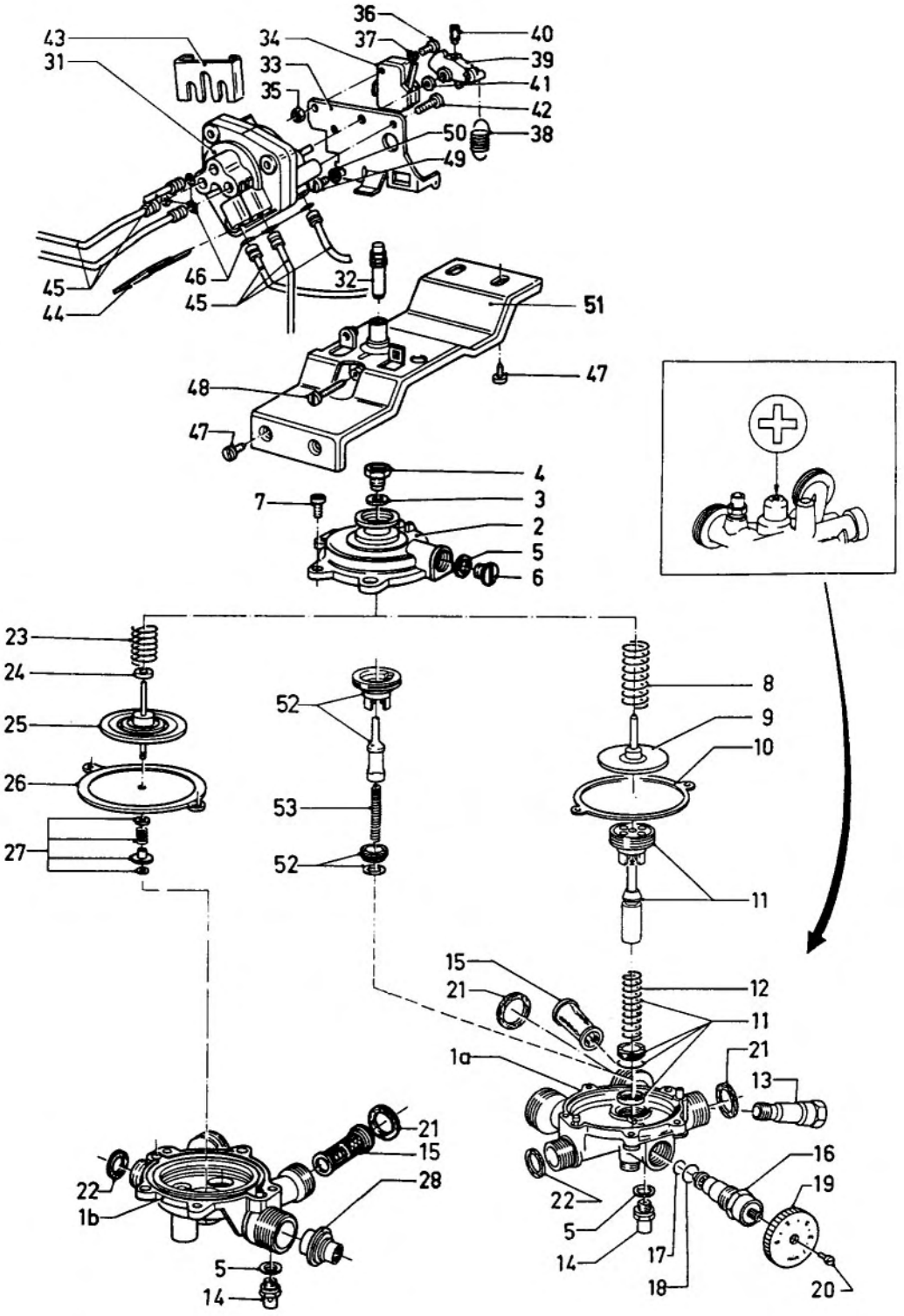
General view sheets VC 182,242,282 E, VCW 242,282 E



Main component 01



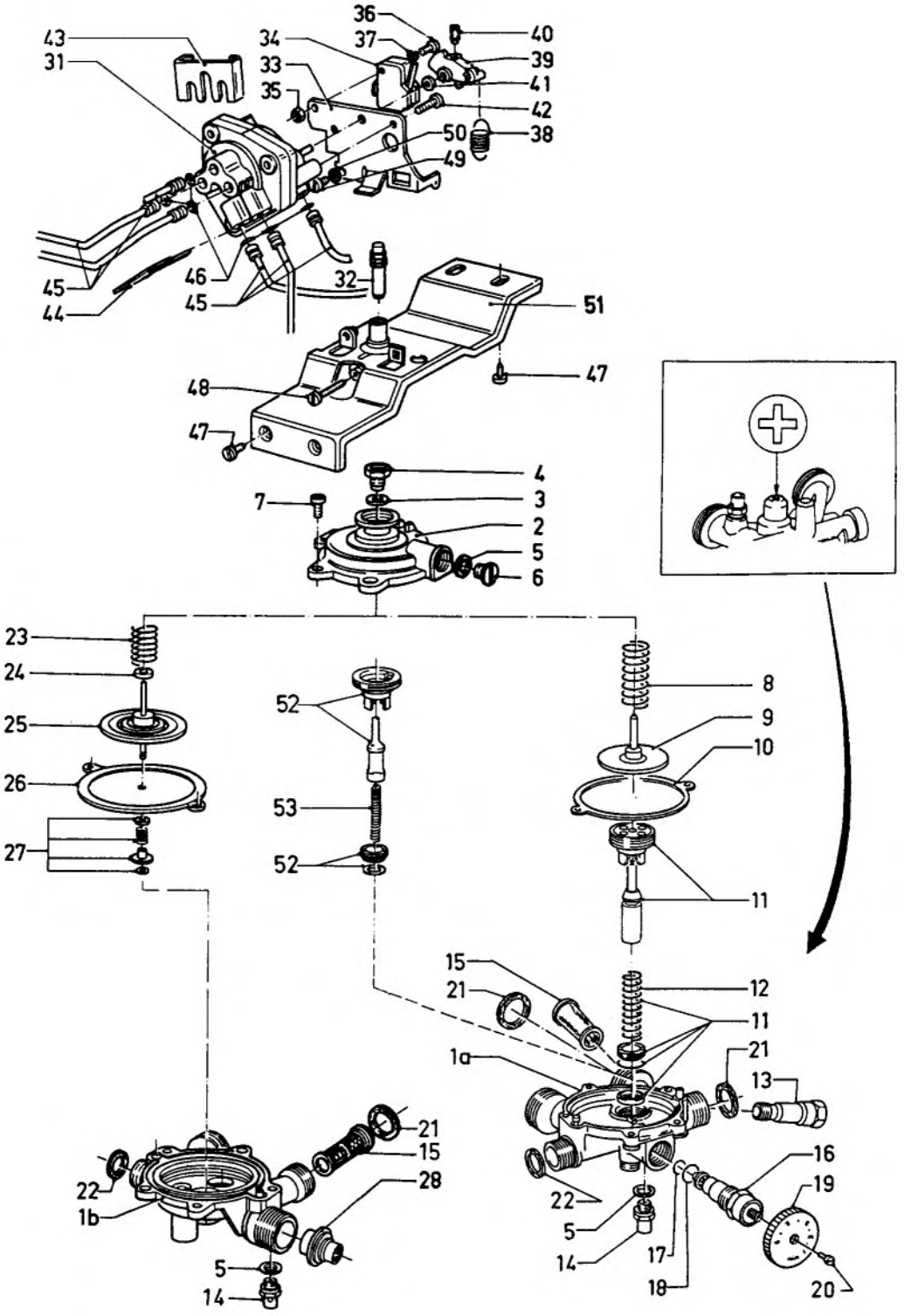
Main component 01 Water valve, Servo control valve (to 04/95)
VCW 221, 240,280 T, 242,282 E



Main component 01 Water valve, Servo control valve (to 04/95)
VCW 221, 240,280 T, 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1a	-	water valve, cpl.		A VCW 221,240,280 T VCW 242 E } see execution from 05/95 page 15
	-	water valve, cpl.		B VCW 280 T, 282 E
1b	01-1156	water valve, cpl.		VCW 242 E (supplied with parts 2-7,14,15,21-27)
2	01-3014	top section		supplied with parts 3,4
3	98-1506	packingring		
4	01-2156	stuffing box		green inset
5	98-1506	packingring		
6	01-0050	screw		
7	01-0003	diaphragm screw		
8	10-4263	spring		
9	01-0007	diaphragm disc		
10	01-0312	diaphragm		
11	01-2944	water quantity regulator		} only for water valves with distinctive
12	10-4267	spring		} mark " + " upon underside of part (see inset diagram)
13	01-0020	venturi	ø 3,32	for type A
	01-0021	venturi	ø 3,53	for type B
14	01-2629	overpressure valve		
15	01-0053	water filter		
16	01-2533	temperature selector		for type A } supplied with parts 17,18
	01-2534	temperature selector		for type B }
17	98-0305	packingring		
18	98-0149	o-ring		
19	12-5117	handle		
20	10-5744	screw		
21	98-1511	packingring		
22	98-1755	packingring		
23	01-0009	spring		
24	19-1367	disc		
25	01-0426	diaphragm disc		
26	01-0318	diaphragm		
27	08-8617	fastening set		
28	01-2938	water quantity regulator		only for type 1b

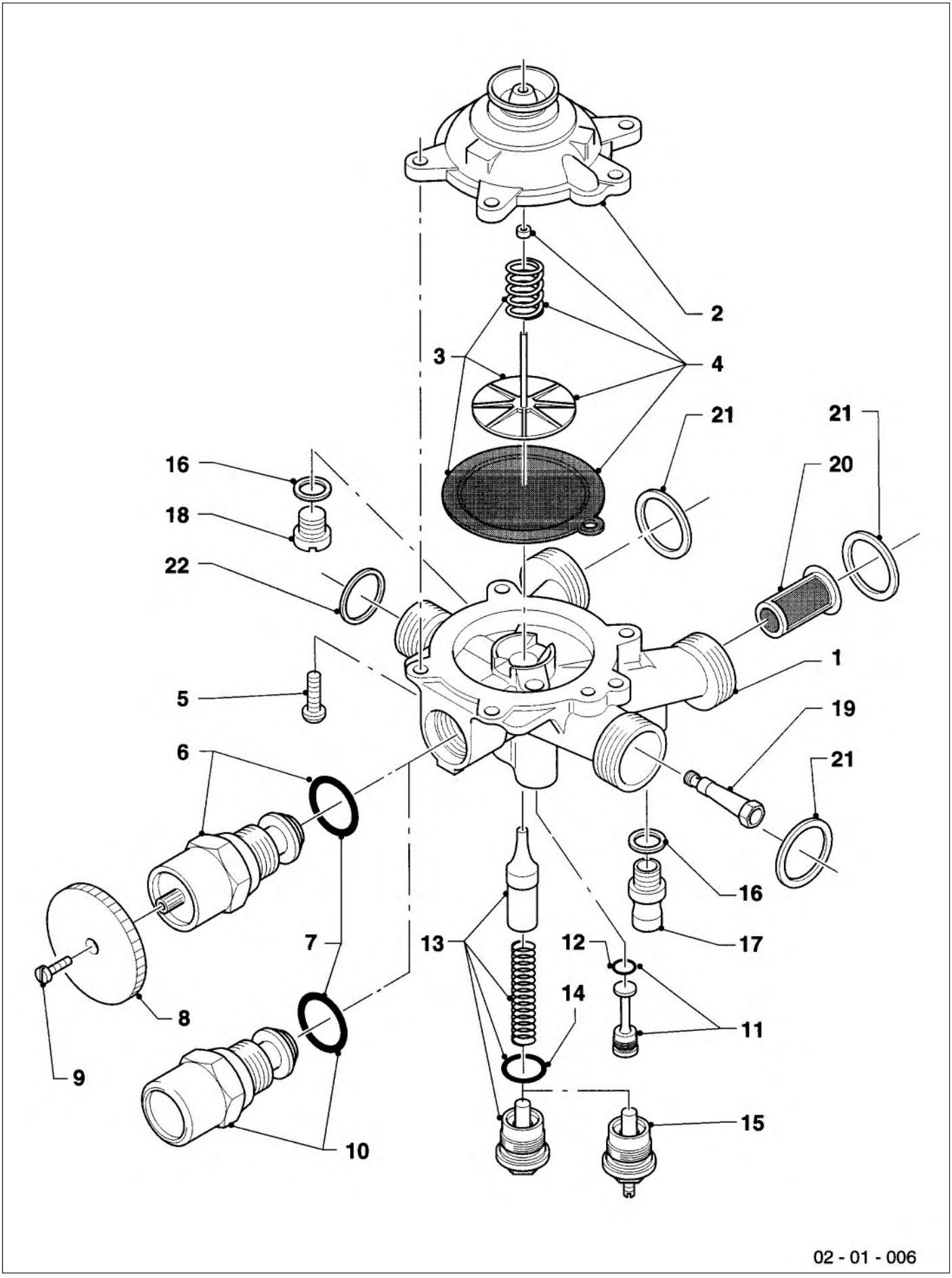
Main component 01 Water valve, Servo control valve (to 04/95)
VCW 221, 240,280 T, 242,282 E



Main component 01 Water valve, Servo control valve (to 04/95)
VCW 221, 240,280 T, 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
31	01-2646	servo control valve		supplied with parts 32-42
32	01-0727	spindle		
33	-			single delivery not possible, with spare part 01-2646
34	12-6223	micro-switch		
35	15-0014	nut		
36	15-0008	screw		
37	28-0715	disc		
38	28-4406	spring		
39-40	21-3515	lever		
41	19-1420	disc		
42	11-8947	screw		
43	15-4132	bracket		
44	07-8407	clip		
45	-	connection piping		see main component 08
46	98-2490	packingring		
47	23-5727	screw		
48	10-5716	screw		
49	20-2622	screw		
50	09-0034	safety disc		
51	08-6462	support		with nylon bush (not available as spare part)
52	01-2947	water quantity regulator		
53	01-0081	spring		

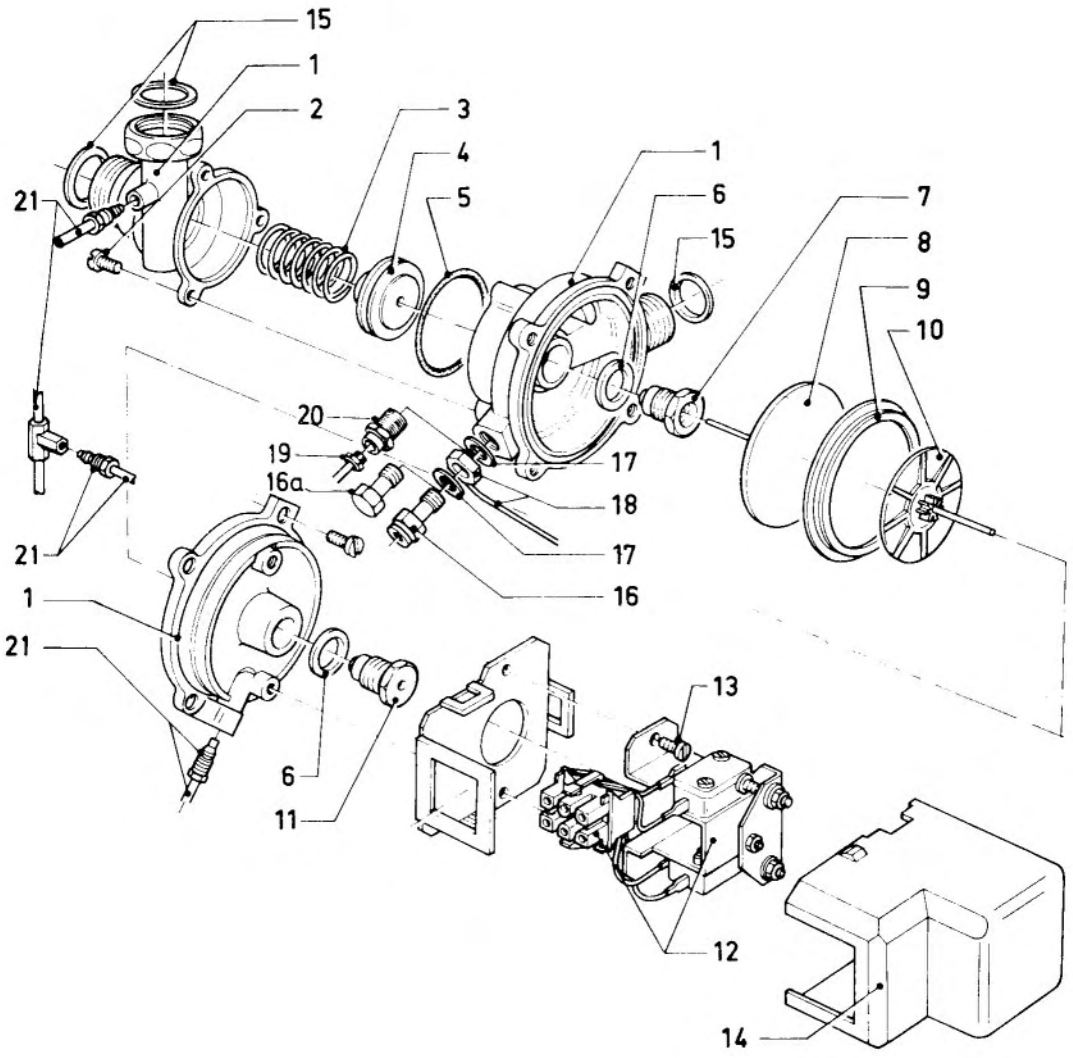
Main component 01 Water valve, Servo control valve (from 05/95)
VCW 221, 240,280 T, 242,282 E



Main component 01 Water valve, Servo control valve (from 05/95)
VCW 221, 240,280 T, 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	01-1267	water valve		221,240 T,242 E (with parts 2-9,11-14,16-22)
	01-1251	water valve		280 T,282 E (with parts 2-9,11-14,16-22)
2	01-3056	upper part		
3	01-0359	diaphragm set		with part 5 (5 x pieces)
4	-	not necessary for british execution		
5	11-8959	screw		
6	01-2553	temperature selector		221,240,242
	01-2554	temperature selector		280,282
7	98-2497	packingring		
8	12-5117	handle		
9	10-5744	screw		
10	-	not necessary for british execution		
11	10-9918	plug		
12	98-2484	packingring		
13	01-2954	water quantity regulator		
14	98-0287	packingring		
15	-	not necessary for british execution		
16	98-1506	packingring		
17	01-2629	overpressure valve		
18	01-0050	screw		
19	01-2854	venturi	ø 2,10	221,240,242
	01-2819	venturi	ø 2,80	280,282
20	12-8516	water filter		
21	98-0197	packingring		
22	98-0186	packingring		

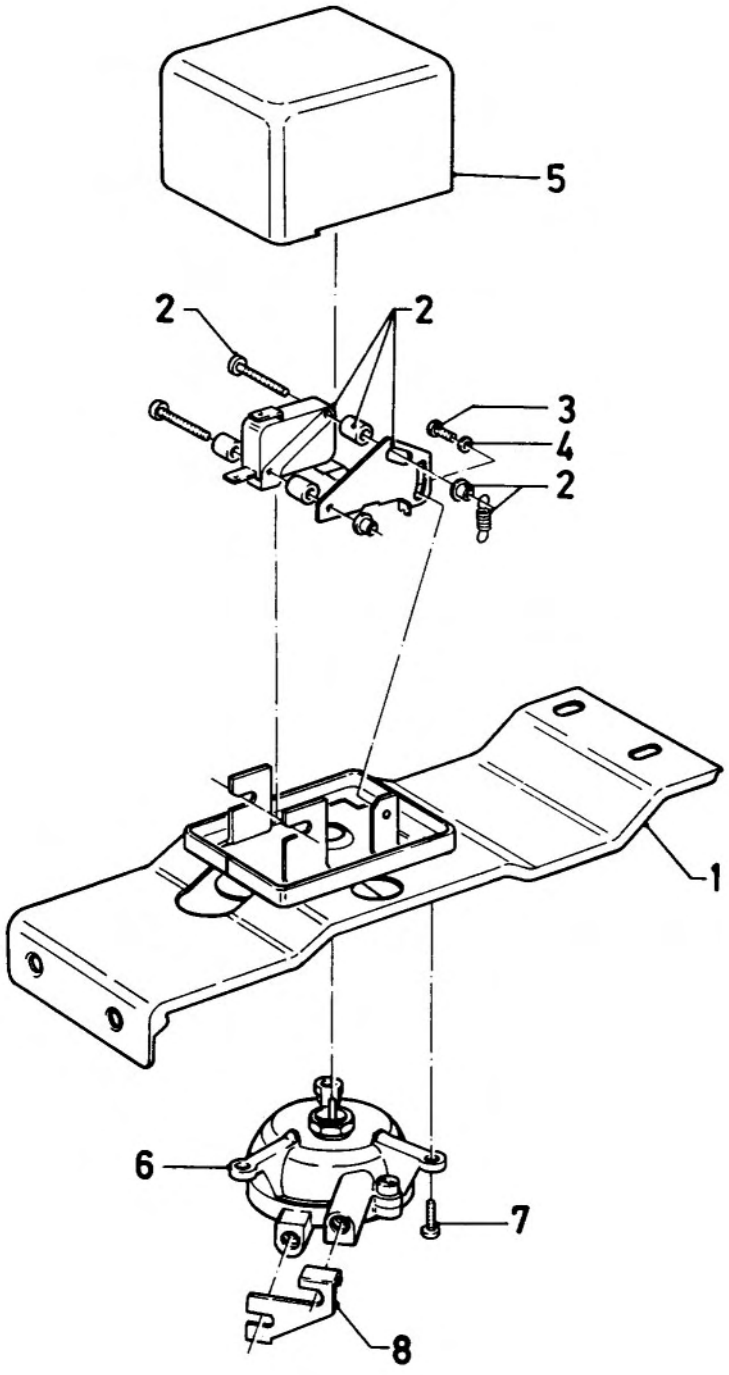
Main component 01 Hydraulically controlled diverter valve VCW 221, 240,280 T, 242,282 E



Main component 01 Hydraulically controlled diverter valve VCW 221, 240,280 T, 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	01-2684	diverter valve		supplied with parts 2-15,17
2	01-0003	diaphragm screw		
3	10-4244	spring		
4	02-0630	valve disc		
5	98-2488	packingring		
6	98-1518	packingring		
7	01-2140	stuffing box		
8	01-0457	diaphragm disc		
9	01-0337	diaphragm		
10	01-0421	diaphragm disc		
11	01-2141	stuffing box		
12	12-6233	micro-switch		
13	10-5760	screw		
14	20-5521	cap		
15	98-1511	packingring		
16-16a	15-5614	screw		
17	98-1898	packingring		
18	08-4245	flow switch connection		
19	08-8940	flow switch connection		
20	13-6313	nipple		
21	-	connection piping		see main component 08
22	-	bracket		single delivery not possible, with spare part 01-2684
23	-	microswitch bracket		single delivery not possible, with spare part 12-6233

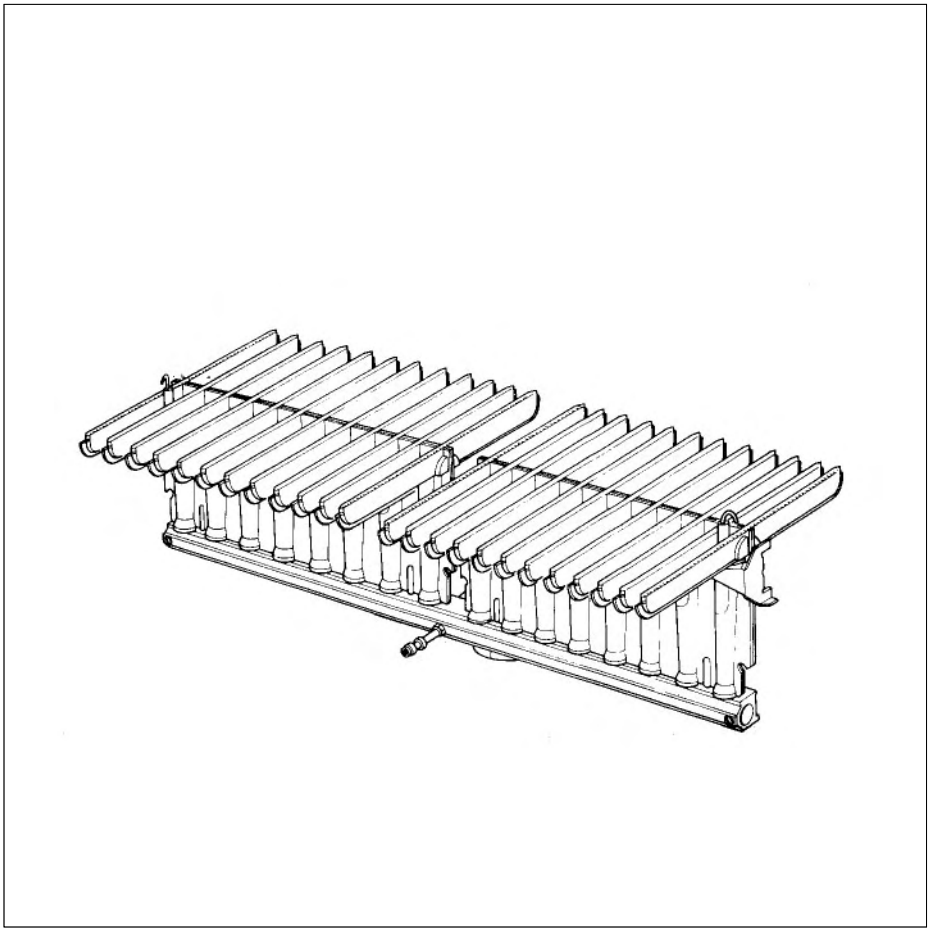
Main component 01 Flow switch
VC 110,180,221,240 T



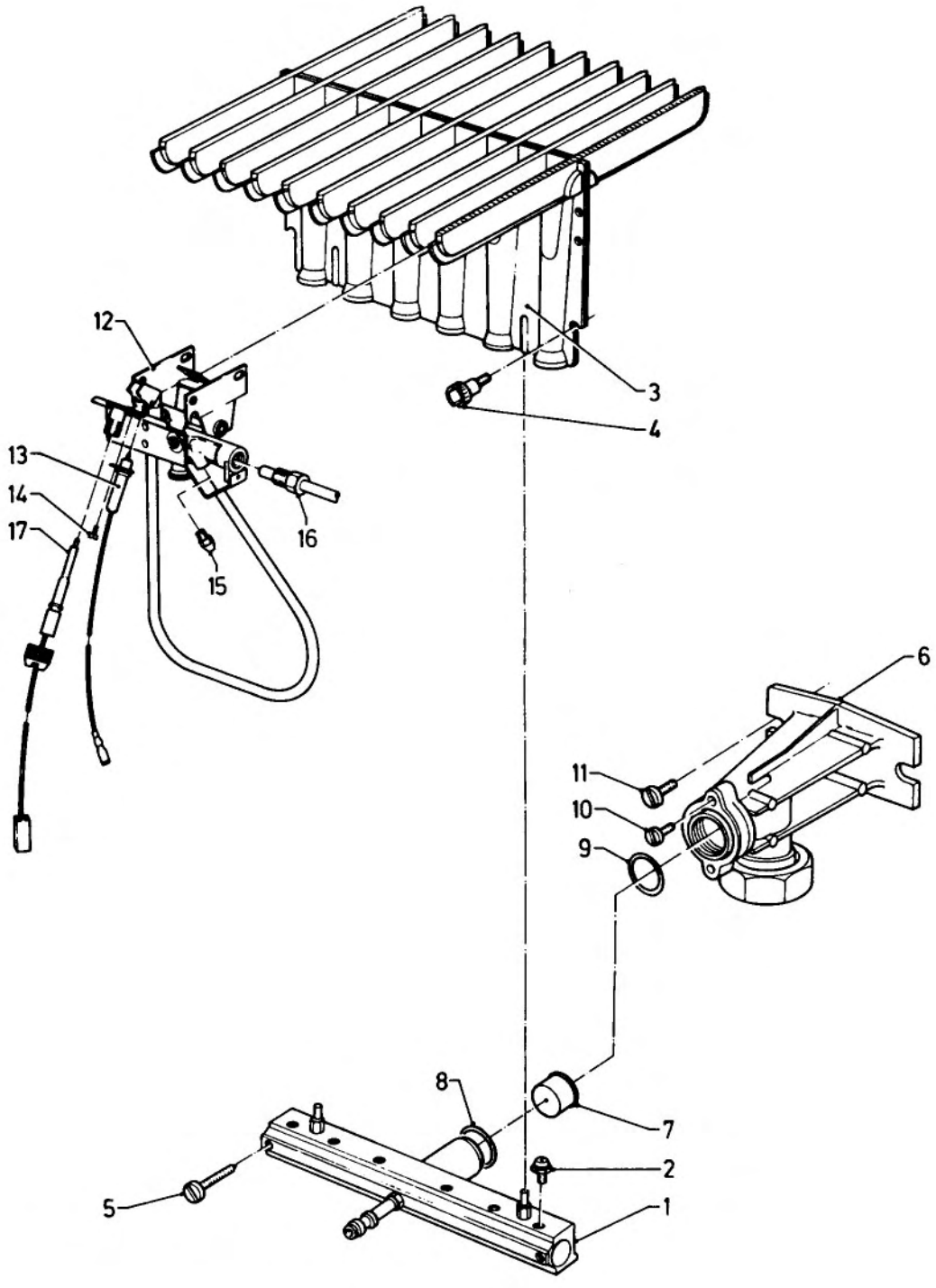
Main component 01 Flow switch
VC 110,180,221,240 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	-	support		not available as a spare part
2	12-6235	micro-switch		
3	14-0012	screw		
4	28-0715	disc		
5	20-4049	cap		
6	15-1027	flow switch		
7	13-0005	screw		
8	15-4133	bow		

Main component 04



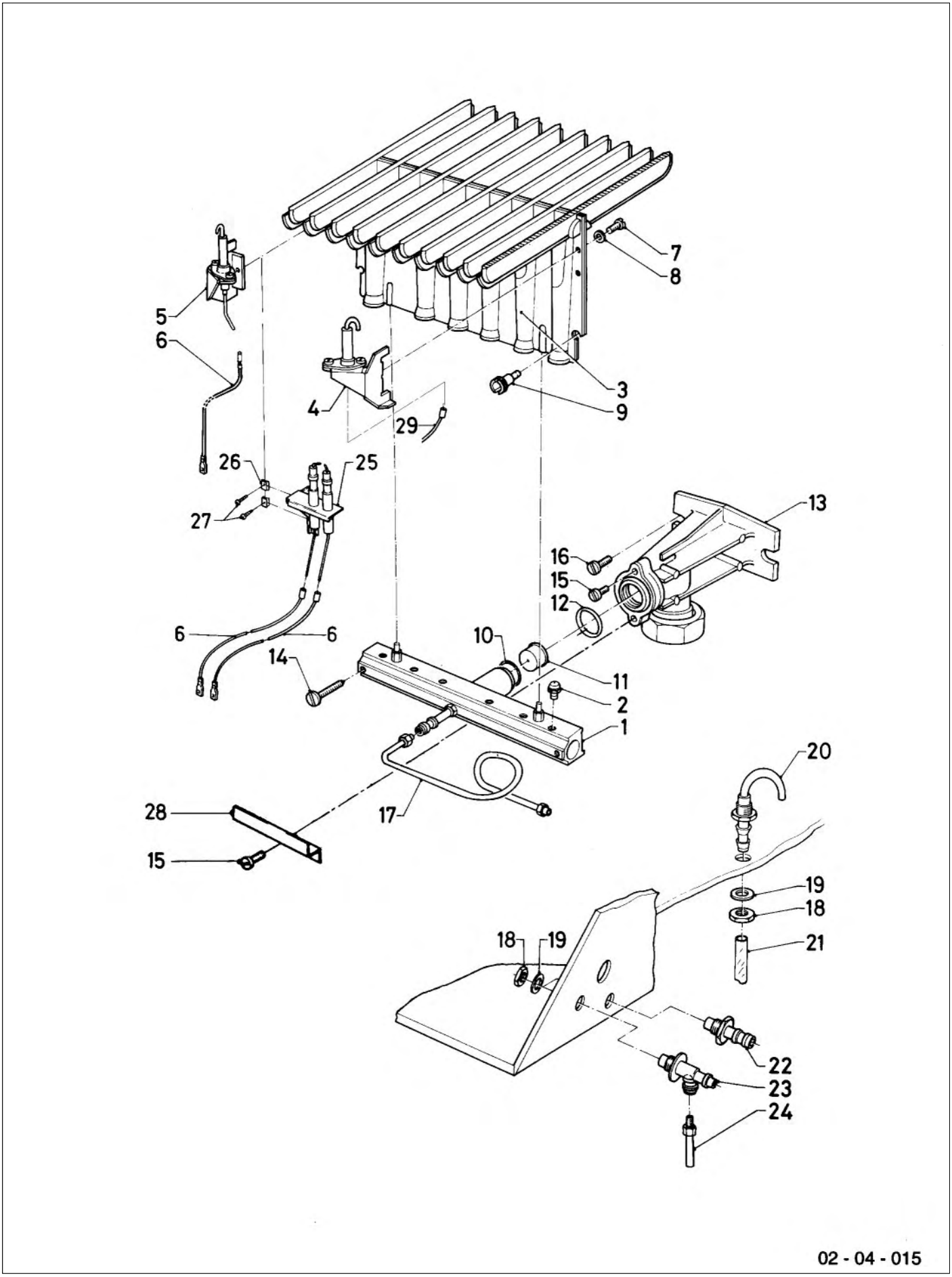
Main component 04 Burner, Pilotburner
VC 110 T H,B



Main component 04 Burner, Pilotburner
VC 110 T H,B

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
				H = Natural gas, B = LP-gas
1	18-3971	distributor tube		
2	24-7150	burner nozzle	ø 1,50	H
	24-7080	burner nozzle	ø 0,80	B
3	04-0467	burner chamber group		
4	13-3936	screw		
5	23-5728	screw		
6	-	-		see main component 08
7	04-9601	throttle jet	ø 3,05	B
8	98-2481	packingring		B
9	98-2495	packingring		
10	10-5758	screw		
11	23-5728	screw		
12	04-2959	pilot burner support		supplied with parts 13,14
13	09-0658	ignition electrode		
14	13-9201	screw		
15	04-2864	pilot burner nozzle	ø 0,30	H
	04-2874	pilot burner nozzle	ø 0,18	B
16	04-3936	pilot burner tube		
17	17-1169	thermo-couple		

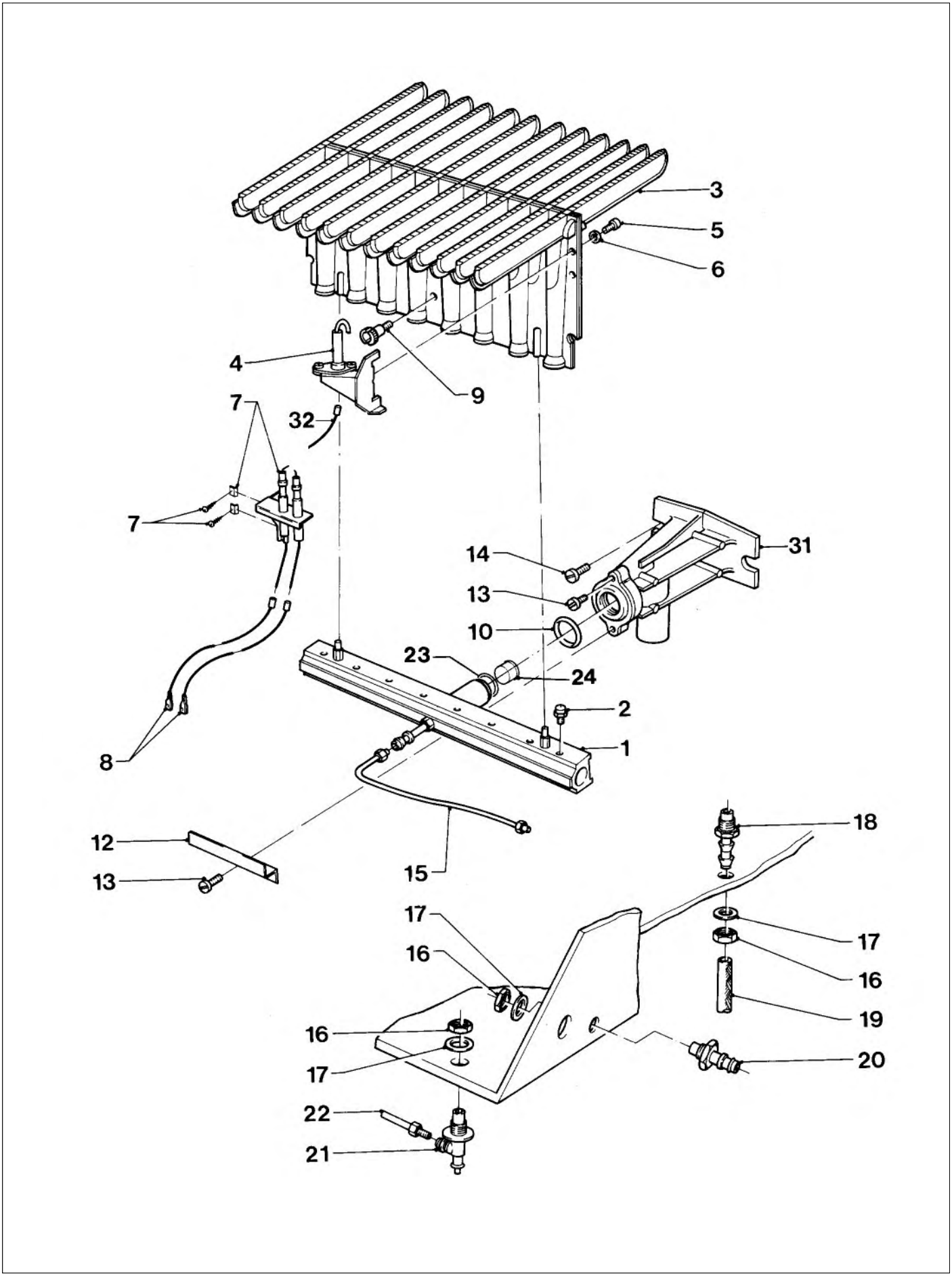
Main component 04 Burner
VC 112 E H,B



Main component 04 Burner
VC 112 E H,B

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
				H = Natural gas, B = LP-gas
1	18-3974	distributor tube		supplied with part 28
2	24-7140	burner nozzle	Ø 1,40	H
	24-7078	burner nozzle	Ø 0,78	B
3	04-0467	burner chamber group		
4	09-0649	monitoring electrode		right
5 - ignition electrode replaced pict.-no. 25-27, 09-0673				
6	09-1513	ignition wire		
7	13-9203	screw		
8	09-0034	safety disc		
9	13-3936	screw		
10	98-2481	packingring		B
11	04-9601	throttle jet	Ø 3,05	B
12	98-2495	packingring		
13	-	connection parts		see main component 08
14	23-5728	screw		
15	10-5758	screw		
16	23-5727	screw		
17	08-8932	flow switch connection		
18	04-0364	nut		
19	98-1805	packingring		
20	08-1063	connection		
21	08-0369	hose	250 mm	
22	13-3504	nipple		
23	13-3505	nipple		
24	08-8936	flow switch connection		
25-27	09-0673	ignition electrode		left (supplied with part 6)
28	08-5859	support		
29	25-5928	cable tree		

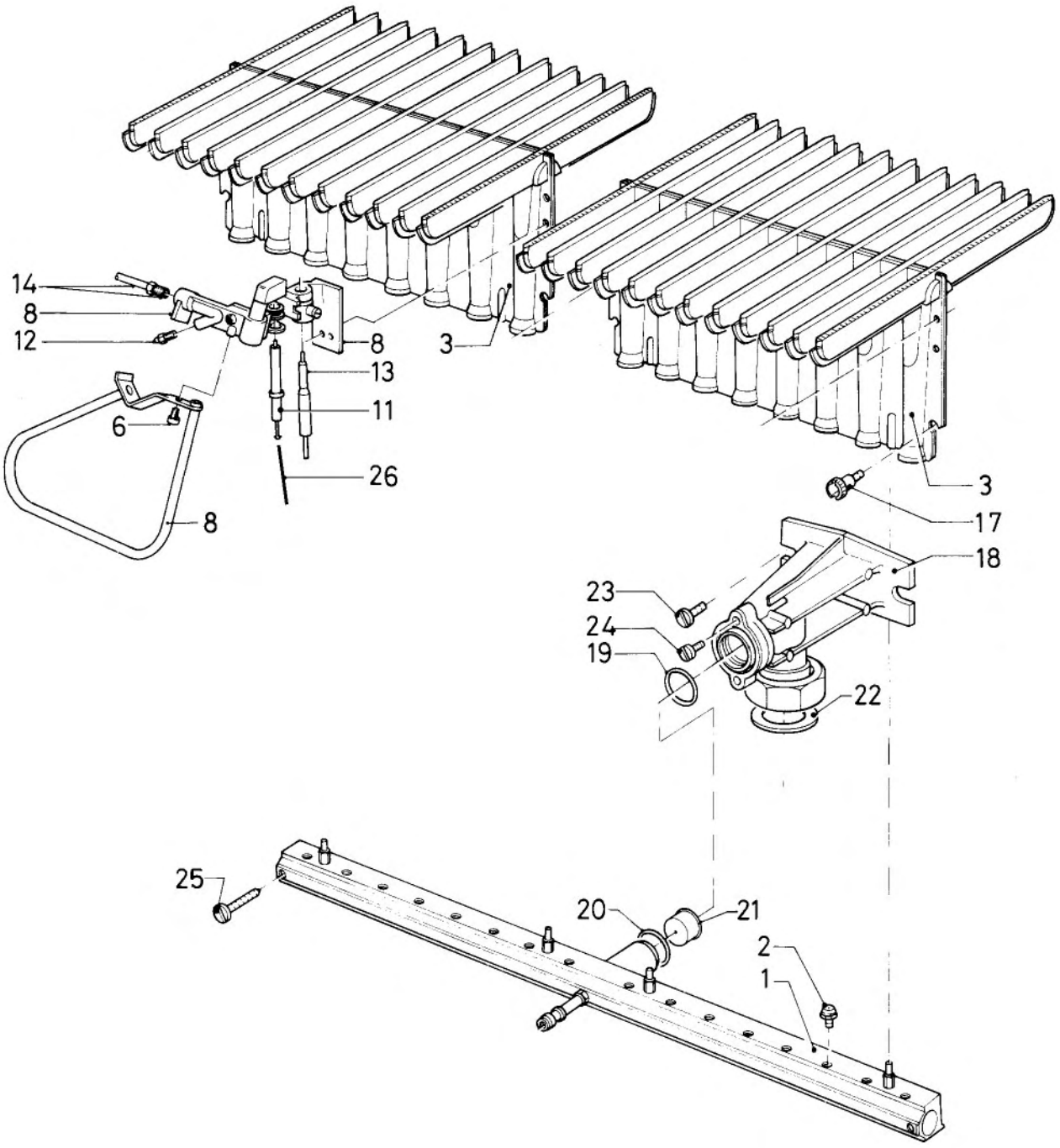
Main component 04 Burner
VC 142 E H,B



Main component 04 Burner
VC 142 E H,B

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
				H = Natural gas, B = LP-gas
1	18-3905	distributor tube		
2	24-7140	burner nozzle	Ø 1,40	H
	24-7078	burner nozzle	Ø 0,78	B
3	04-1920	burner chamber group		
4	09-0649	monitoring electrode		right
5	06-0018	screw		
6	09-0034	safety disc		
7	09-0673	ignition electrode		left (supplied with part 6)
8	09-1513	ignition wire		
9	13-3936	screw		
10	98-2495	packingring		
12	08-5859	support		
13	10-5758	screw		
14	23-5727	screw		
15	08-8946	flow switch connection		
16	04-0364	nut		
17	98-1805	packingring		
18	08-1063	connection		
19	08-0369	hose		
20	13-3504	nipple		
21	13-3505	nipple		
22	08-8947	flow switch connection		
23	98-2481	packingring		B
24	04-9608	throttle jet	Ø 3,25	B
31	08-4945	connection piece		
32	25-5928	cable tree		

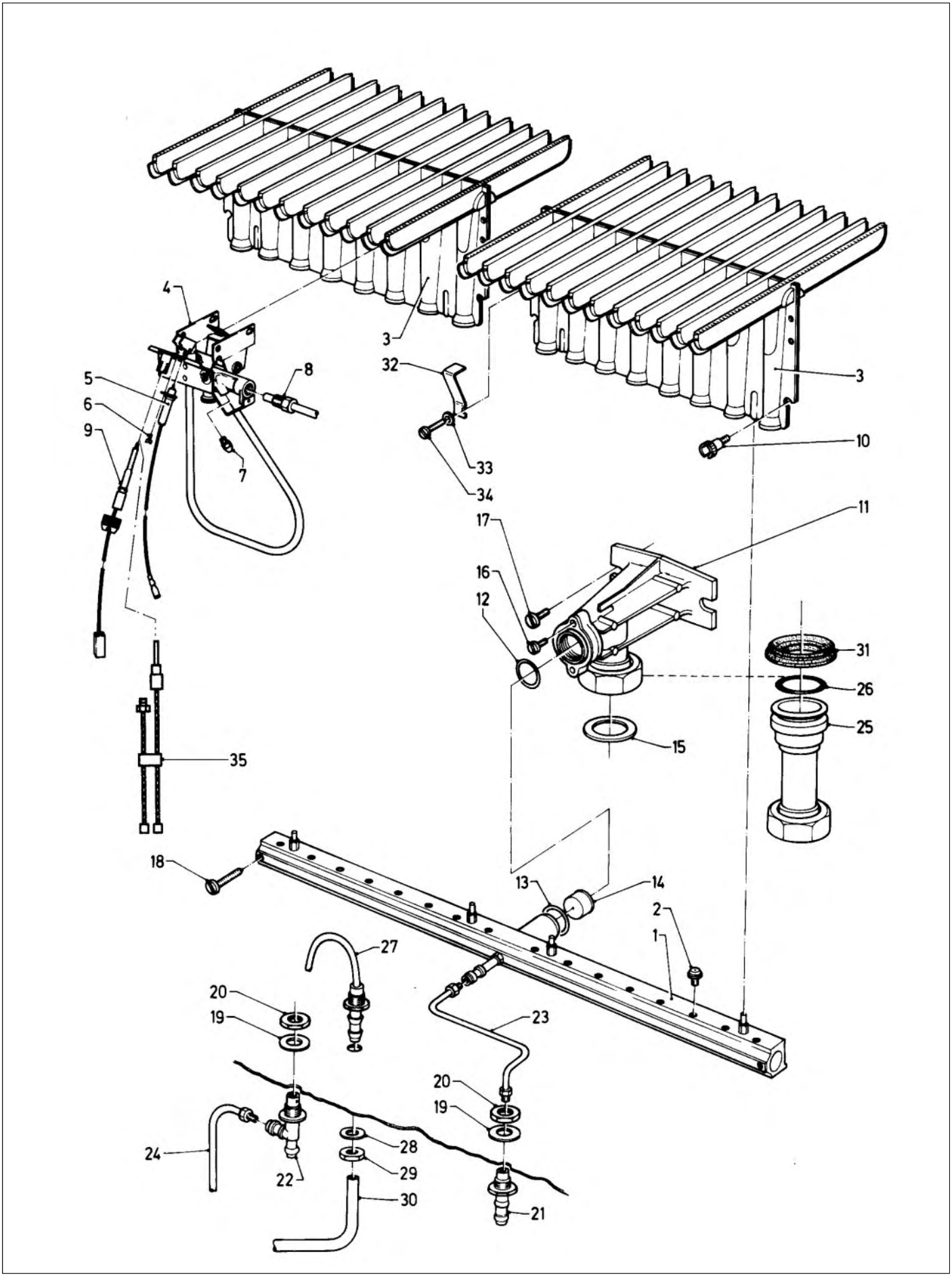
Main component 04 Burner, Pilotburner
VC 180,240 T, VCW 240,280 T H,B



Main component 04 Burner, Pilotburner
VC 180,240 T, VCW 240,280 T H,B

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
				S = town gas, H = Natural gas, B = LP-gas
1	18-3968	distributor tube		180
	18-3969	distributor tube		240,280
2	24-7260	burner nozzle	Ø 2,60	S
	24-7150	burner nozzle	Ø 1,50	H
	24-7080	burner nozzle	Ø 0,80	B
3	04-0467	burner chamber group		180
	04-0468	burner chamber group		240,280
6	06-0018	screw		
8	04-2951	pilot burner support		supplied with parts 6,11
11	09-0643	ignition electrode		
12	04-2876	pilot burner nozzle	Ø 0,45	S
	04-2864	pilot burner nozzle	Ø 0,30	H
	04-2874	pilot burner nozzle	Ø 0,18	B
13	17-1165	thermo-couple		
14	04-3931	pilot burner tube		
17	13-3936	screw		
18	08-4957	connection piece		
19	98-2495	packingring		
20	98-2481	packingring		B
21	04-9604	throttle jet	Ø 3,40	180 B
	04-9603	throttle jet	Ø 4,00	240 B
	04-9612	throttle jet	3 x Ø 3,50	280 B
22	98-1512	packingring		
23	23-5727	screw		
24	10-5758	screw		
25	23-5728	screw		
26	09-1060	piezo ignition		lead attached to piezo ignition unit, not available seperatley

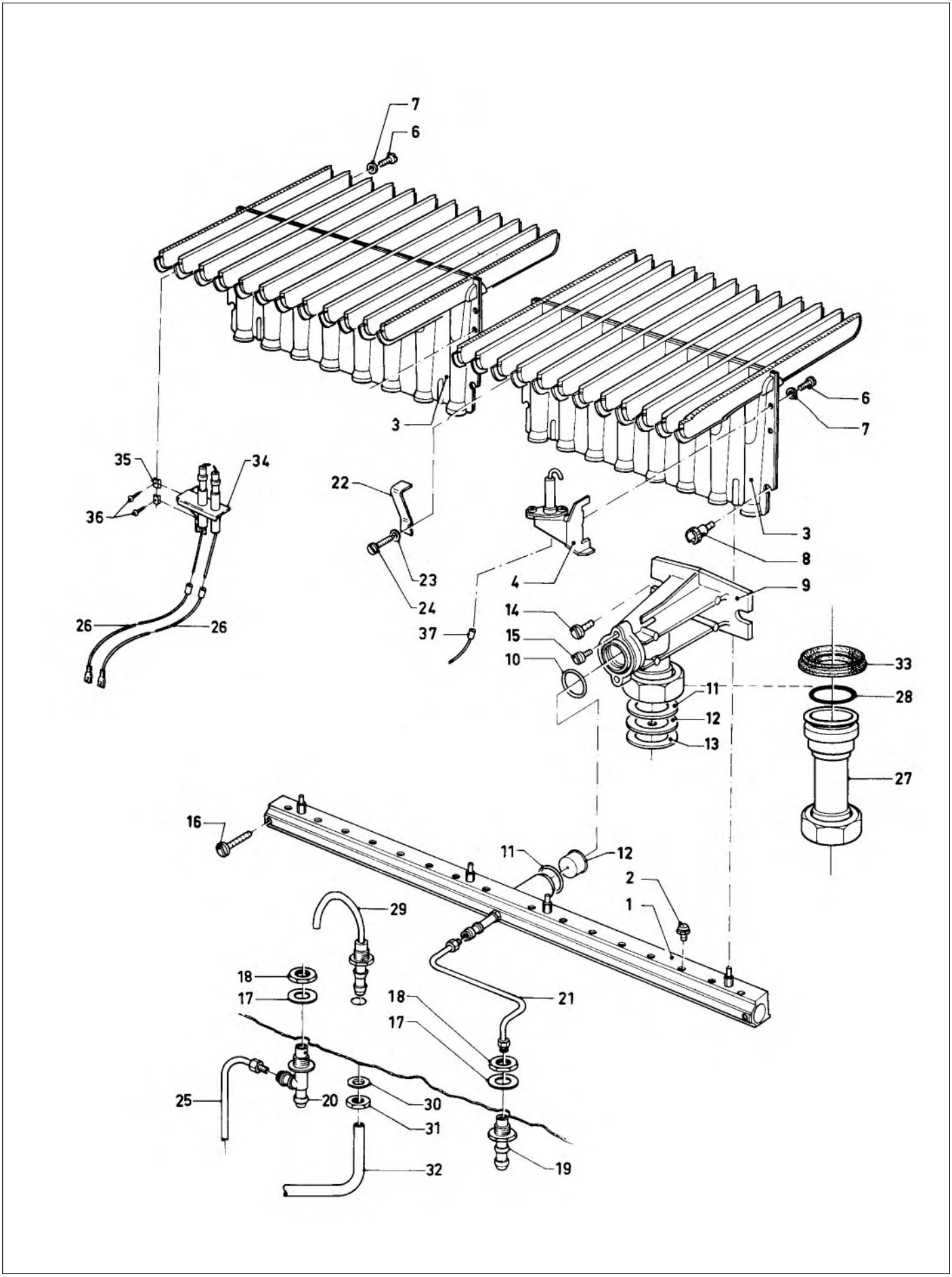
Main component 04 Burner, Pilotburner
VC-VCW 221 T H,B



Main component 04 Burner, Pilotburner
VC-VCW 221 T H,B

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
				S = town gas, H = Natural gas, B = LP-gas
1	18-3973	distributor tube		
2	24-7130	burner nozzle	Ø 1,30	H
	24-7078	burner nozzle	Ø 0,78	B
3	04-0468	burner chamber group		
4	04-2968	pilot burner support		supplied with parts 5,6
5	09-0658	ignition electrode		
6	13-9201	screw		
7	04-2876	pilot burner nozzle	Ø 0,45	S
	04-2864	pilot burner nozzle	Ø 0,30	H
	04-2874	pilot burner nozzle	Ø 0,18	B
8	04-3939	pilot burner tube		
9 - thermo-couple		old execution, see pict.-no. 35 (new) replaced		17-1181
10	13-3936	screw		
11	08-4944	connection piece		
12	98-2495	packingring		
13	98-2481	packingring		B
14	04-9607	throttle jet	Ø 3,70	B
15	98-1512	packingring		
16	10-5758	screw		
17	23-5727	screw		
18	23-5728	screw		
19	98-1805	packingring		
20	04-0364	nut		
21	13-3504	nipple		
22	13-3505	nipple		
23	08-8949	flow switch connection		
24	08-8930	flow switch connection		
25	08-3891	tube		
26	98-2499	packingring		
27	08-1063	connection		
28	98-0202	packingring		
29	11-4848	nut		
30	08-0369	hose	250 mm	diaphragm pump
31	98-0765	packingring		
32	07-0881	cover plate		supplied with parts 33,34
33	06-0021	disc		
34	23-5715	screw		
35	17-1181	thermo-couple		

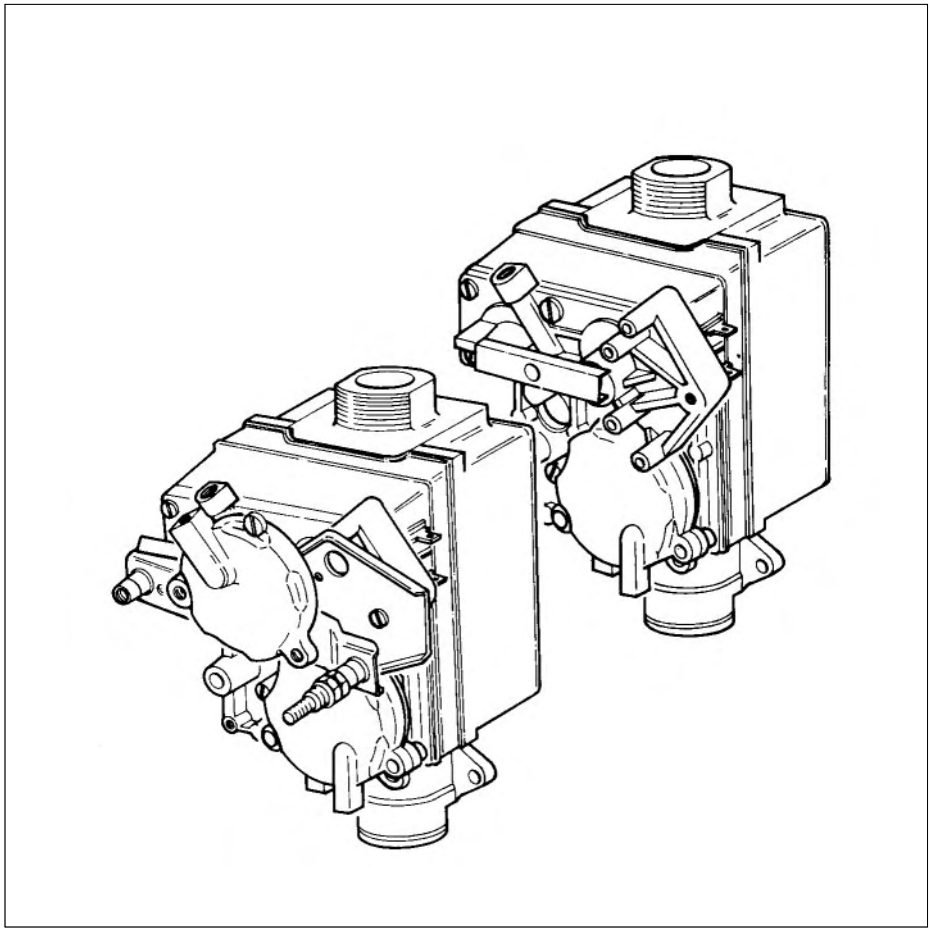
Main component 04 Burner
VC 182,242,282 E, VCW 242,282 E H,B



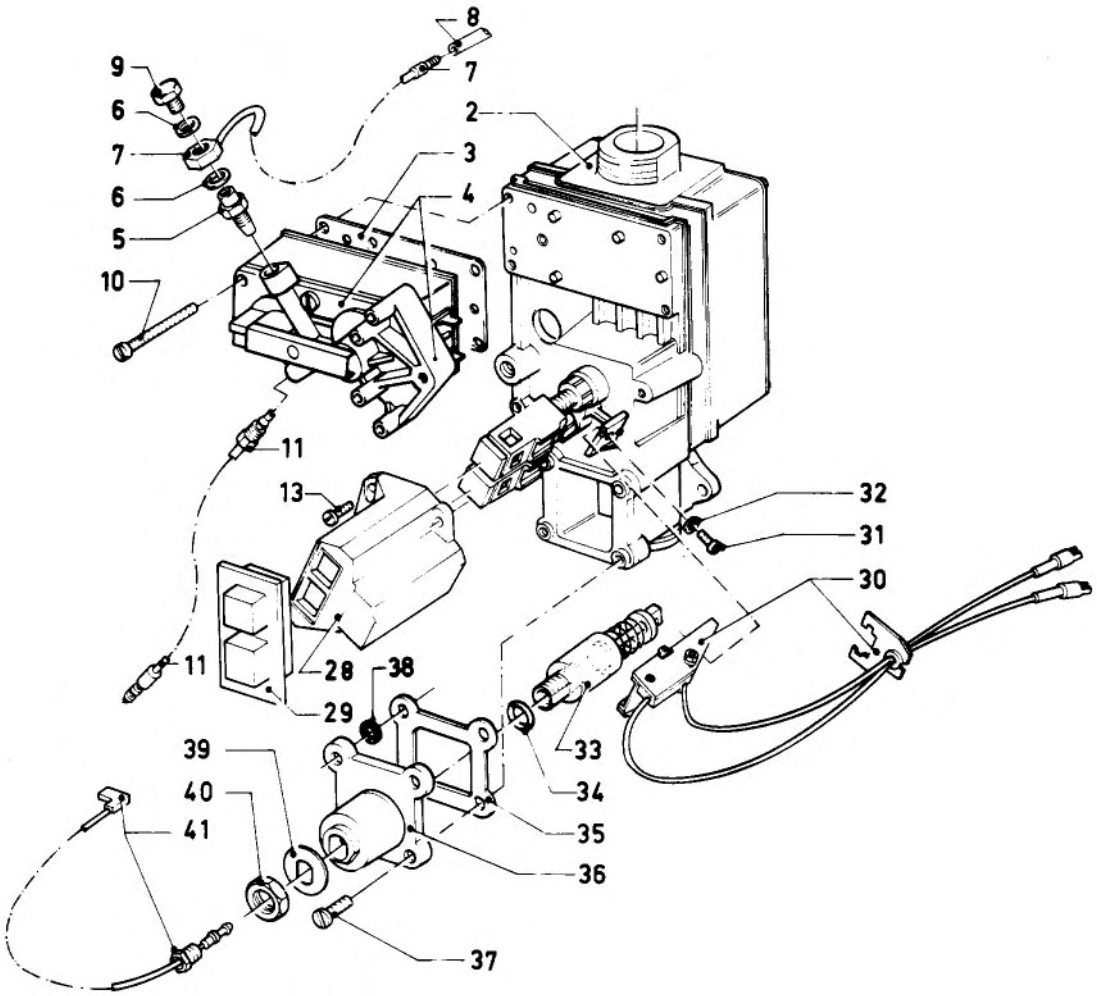
Main component 04 Burner
VC 182,242,282 E, VCW 242,282 E H,B

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
				S = town gas, H = Natural gas, B = LP-gas
1	18-3972	distributor tube		182
	18-3973	distributor tube		242,282
2	24-7260	burner nozzle	Ø 2,60	S
	24-7140	burner nozzle	Ø 1,40	H
	24-7078	burner nozzle	Ø 0,78	B
3	04-0467	burner chamber group		182
	04-0468	burner chamber group		242,282
4	09-0649	monitoring electrode		right
6	13-9203	screw		
7	09-0034	safety disc		
8	13-3936	screw		
9	08-4944	connection piece		supplied with part 10
10	98-2495	packingring		
11	98-2481	packingring		B
12	04-9604	throttle jet	Ø 3,40	182 B
	04-9603	throttle jet	Ø 4,00	242 B
	04-9610	throttle jet	2x Ø 3,10	282 B
13	98-1512	packingring		
14	23-5727	screw		
15	10-5758	screw		
16	23-5728	screw		
17	98-1805	packingring		
18	04-0364	nut		
19	13-3504	nipple		
20	13-3505	nipple		
21	08-8949	flow switch connection		
22	07-0881	cover plate		
23	06-0021	disc		
24	23-5715	screw		
25	08-8930	flow switch connection		
26	09-1513	ignition wire		
27	08-3891	tube		
28	98-2499	packingring		
29	08-1063	connection		
30	98-0202	packingring		
31	11-4848	nut		
32	08-0369	hose	250 mm	
33	98-0765	packingring		
34-36	09-0673	ignition electrode		left (supplied with part 26)
37	25-5928	cable tree		VC...
	25-5929	cable tree		VCW...

Main component 05



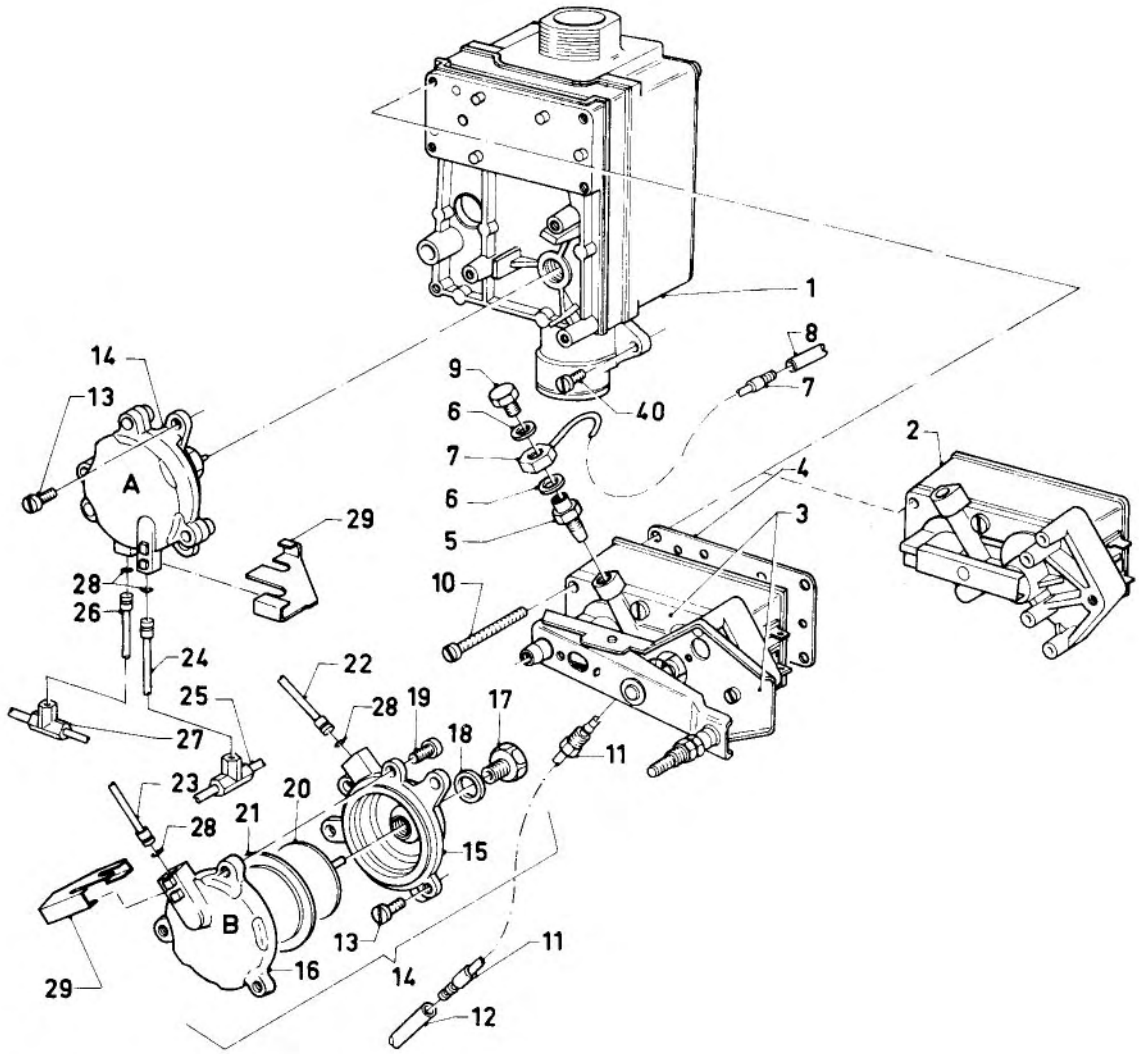
Main component 05 Gas section
VC 110,180,221,240 T, VCW 221,240,280 T H, B



Main component 05 Gas section
VC 110,180,221,240 T, VCW 221,240,280 T H, B

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
				S = town gas, H = Natural gas, B = LP-gas
2	05-3073	gas section		S,H } supplied with parts 3,4,13,28,30-40
	05-3076	gas section		B }
3	98-0831	packingring		
4	05-0224	operator		S,H } supplied with parts 3,6
	05-0167	operator		B }
5	21-9235	operating jet	19 M	110,180 H
	21-9233	operating jet	16 M	S, 180,221,240 H
	21-9232	operating jet		B
6	98-1504	packingring		
7	21-8011	flow switch connection		110
	08-4128	hose connection		180-280
8	08-0357	hose	145 mm	
9	13-3702	screw		
10	10-5782	screw		
11	21-8013	flow switch connection		110
	08-4127	hose connection		180,240,280
	08-8930	flow switch connection		221
12	08-0358	hose	60 mm	110,180,240,280
13	49-2147	screw		
28	20-4038	cap		
29	07-1472	push button		
30	12-6234	micro-switch		
31	06-0018	screw		
32	49-2112	disc		
33	17-0295	magneto		
34	98-2472	packingring		
35	98-0842	packingring		
36	19-5031	magneto housing		
37	10-5758	screw		
38	11-1459	disc		
39	17-0025	locking plate		
40	04-0364	nut		
41	08-9526	connection line		no longer required on VC-VCW 221 only, use part 17-1181

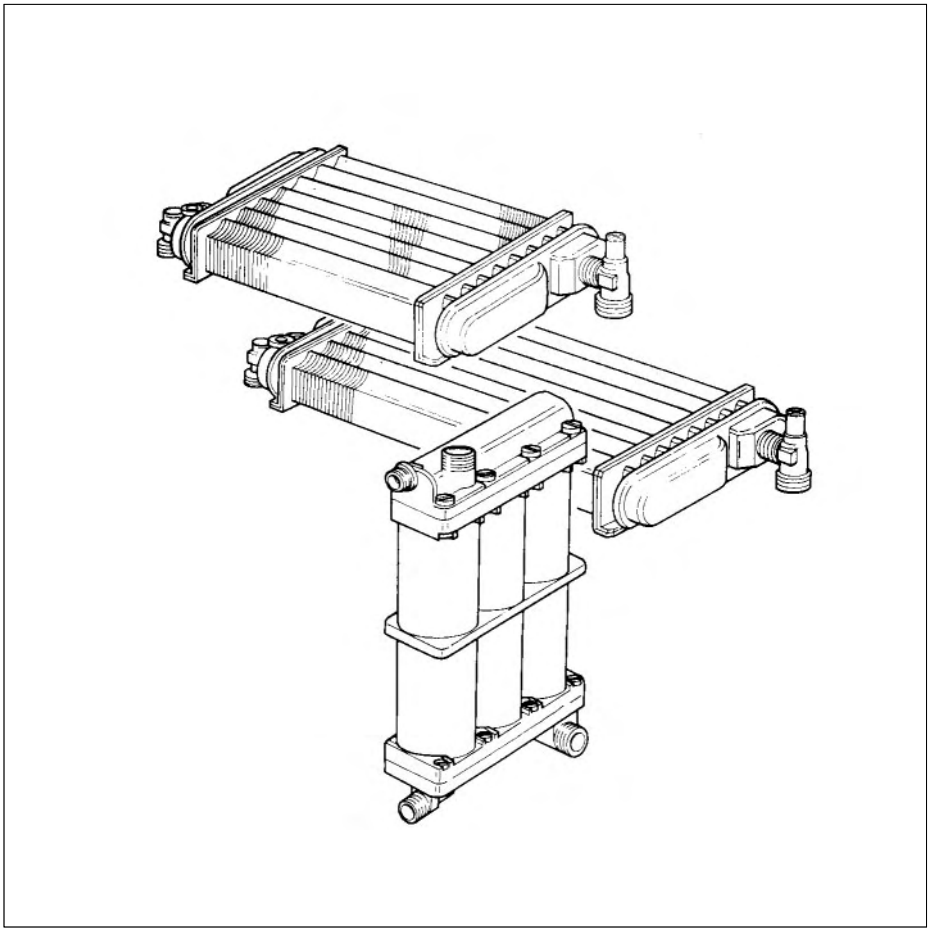
Main component 05 Gas section
VC 112,142,182,242,282 E, VCW 242,282 E H, B



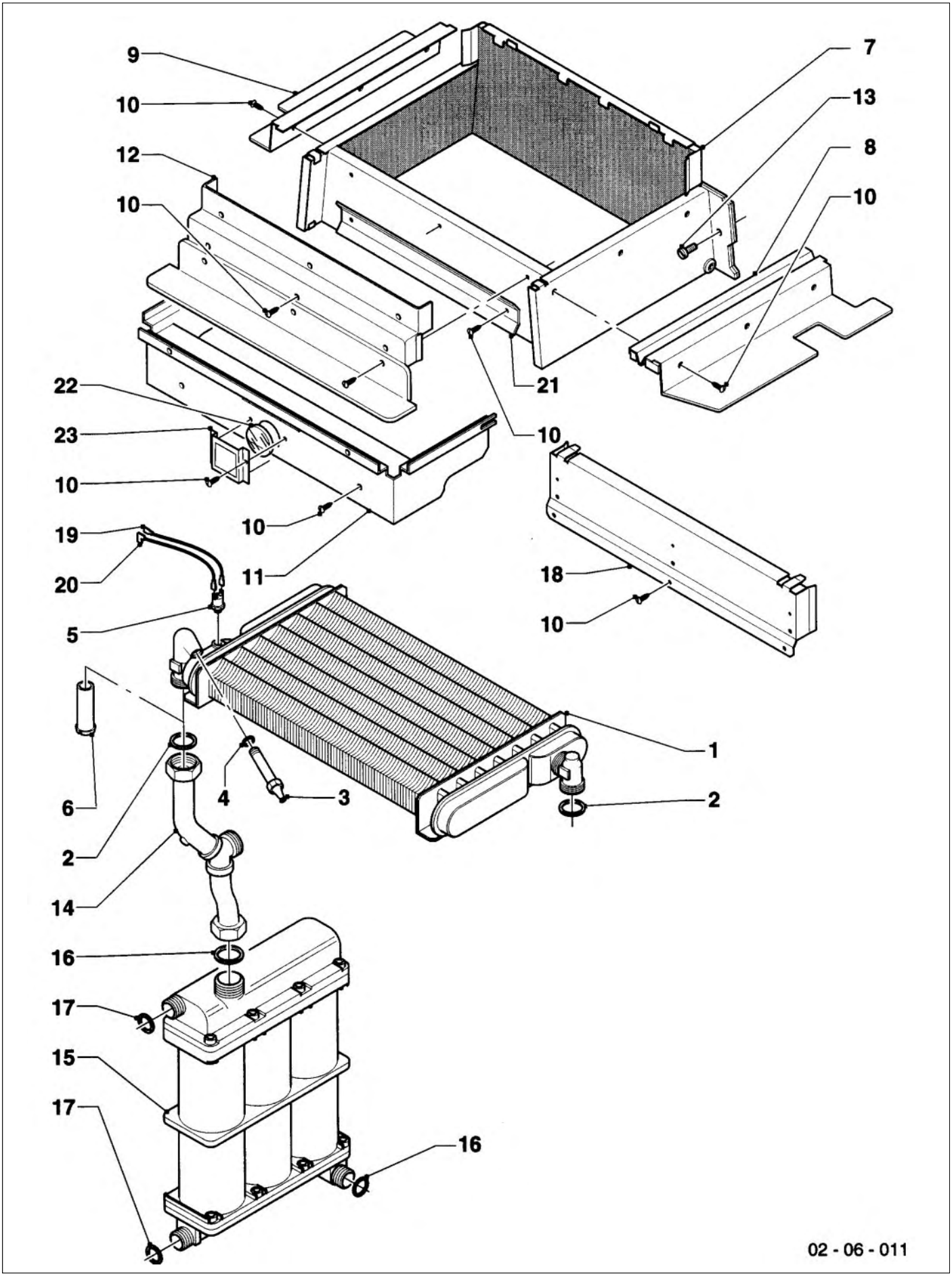
Main component 05 Gas section
VC 112,142,182,242,282 E, VCW 242,282 E H, B

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
				S = town gas, H = Natural gas, B = LP-gas
1	05-3255	gas section		S,H } supplied with parts 2,4,6,10,13-21
	05-3079	gas section		B }
2	05-0224	operator		S,H } supplied with parts 4,6
	05-0167	operator		B }
3	05-0164	operator		H (with part load device)
4	98-0831	packingring		
5	21-9233	operating jet	16 M	S
	21-9235	operating jet	19 M	H
	21-9232	operating jet		B
6	98-0224	packingring		
7	21-8011	flow switch connection		112,142
	08-4128	hose connection		182,242,282
8	08-0357	hose	145 mm	
9	13-3702	screw		
10	10-5782	screw		
11	08-8947	flow switch connection		112,142
	08-8930	flow switch connection		182,242,282
12	08-0358	hose	60 mm	
	08-0369	hose	255 mm	
13	11-8948	screw		
14	15-1017	pressure diff. switch		
15-16	-	-		single delievery not possible, with part 15-1017
17	01-2156	stuffing box		
18	98-0223	packingring		
19	11-8947	screw		
20	-	diaphragm disc		single delievery not possible, with part 15-1017
21	02-0220	diaphragm		
22-27	-	connection		see main component 08
28	98-2490	packingring		
29	15-4133	bow		
40	10-5758	screw		

Main component 06



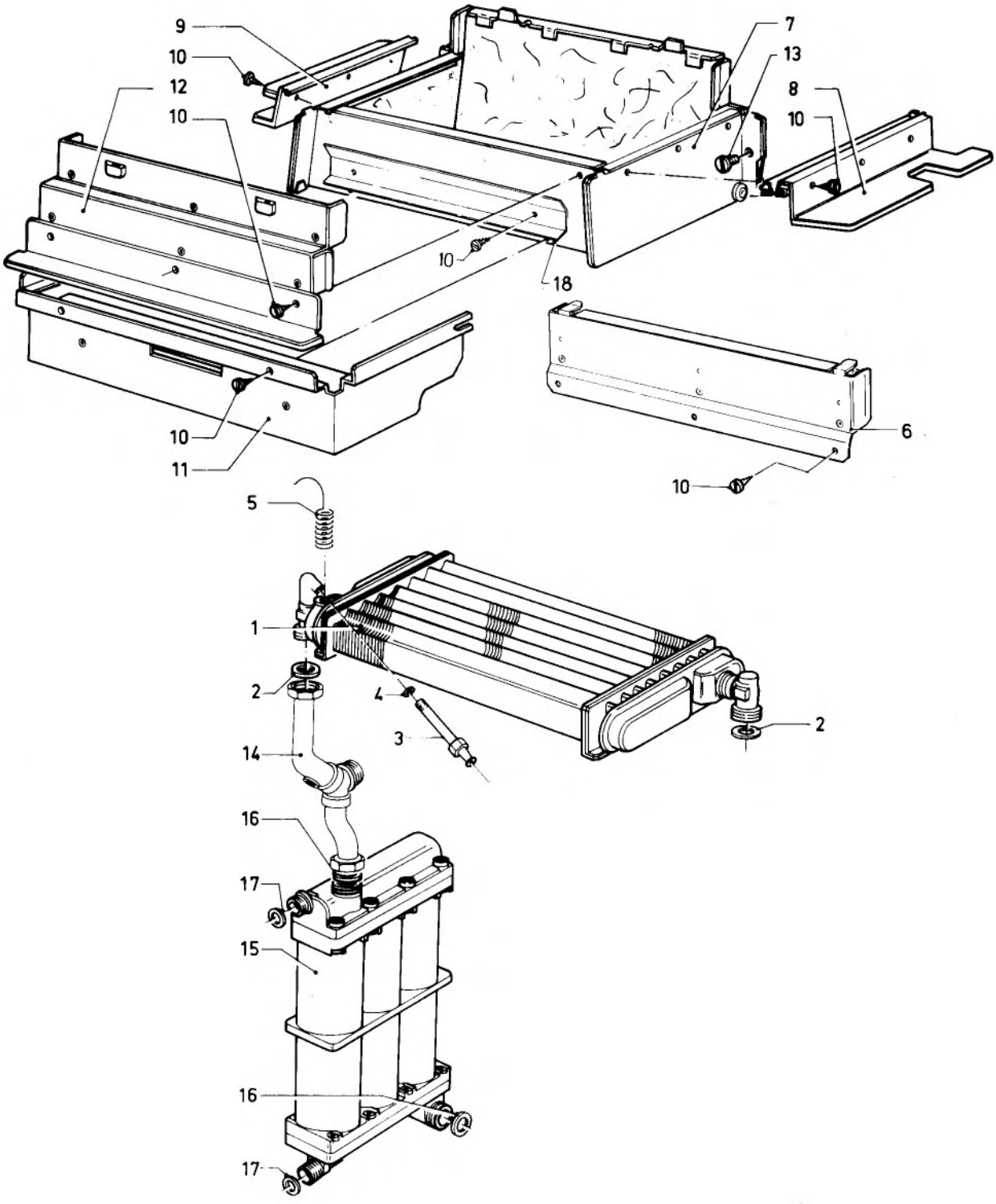
Main component 06 Heat exchanger
VC 110,180,240 T, VCW 240,280 T



Main component 06 Heat exchanger
VC 110,180,240 T, VCW 240,280 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	06-1849	heat exchanger		110 } supplied with parts 2-4
	06-1835	heat exchanger		180
	06-1836	heat exchanger		240
	06-1872	heat exchanger		280
2	98-1511	packingring		
3	17-7511	de-aeration screw		supplied with part 4
4	98-2459	packingring		
5	10-1462	temperature limiter		
6	13-3908	screw		
7	11-8335	combustion chamber		110 } supplied with parts 8,9
	11-8463	combustion chamber		180
	11-8465	combustion chamber		240
	11-8467	combustion chamber		280
8-9	-	single delivery not possible		see pict.-nr. 7
10	08-8624	screw		
11	07-9415	guide plate		110 right
	07-9416	guide plate		110 left
	07-9407	air duct		180
	07-9405	air duct		240,280
12	08-4937	connection piece		180
	08-4936	connection piece		240
	08-4953	connection piece		280
13	23-5727	screw		
14	-	connection		see main component 08
15	-	heat exchanger (DHW)		replaced by, 06-5034 see page 50 + 51 } VCW only
16	98-1602	packingring		
17	98-1609	packingring		
18	08-4939	connection piece		110
19	08-9572	connection line		
20	08-9571	connection line		
21	15-3396	guide plate		only 280
22	16-1225	inspection glass		} only 110
23	13-1813	frame for inspection glass		

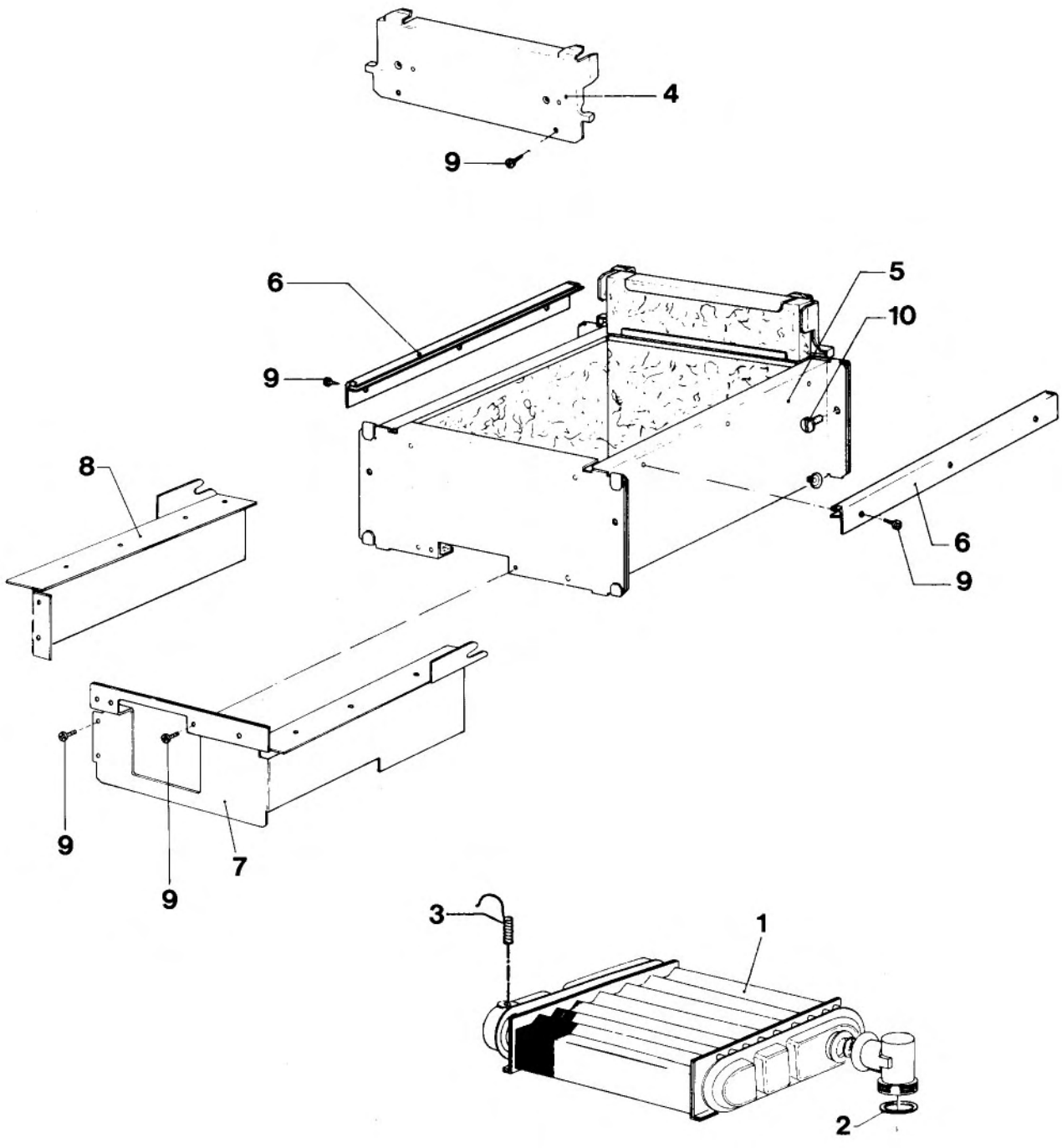
Main component 06 Heat exchanger
VC 112,182,242,282 E, VCW 242,282 E



Main component 06 Heat exchanger
VC 112,182,242,282 E, VCW 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	06-1849	heat exchanger		112 } supplied with parts 2-4
	06-1835	heat exchanger		182
	06-1836	heat exchanger		242
	06-1872	heat exchanger		282
2	-	packingring		see main component 08
3	17-7511	de-aeration screw		supplied with part 4
4	98-2459	packingring		
5	10-1384	temperature limiter		112
	10-1392	temperature limiter		182
	10-1391	temperature limiter		242,282
6	08-4939	connection piece		112
	08-4942	connection piece		182
	08-4941	connection piece		242
	08-4959	connection piece		282
7	11-8335	combustion chamber		112 } supplied with parts 8,9
	11-8464	combustion chamber		182
	11-8466	combustion chamber		242
	11-8468	combustion chamber		282
8-9	-	single delivery not possible		see pict.-nr. 7
10	08-8624	screw		3,5 + 4,8 x 9,5
11	07-9415	guide plate		right } only VC 112
	07-9416	guide plate		left
12	-	not necessary		
13	23-5727	screw		
14	-	connection tube		see main component 08
15 - heat exchanger (DHW) replaced , 06-4953 see page 50 + 51				
16	98-1602	packingring		} VCW only
17	98-1609	packingring		
18	-	not necessary		

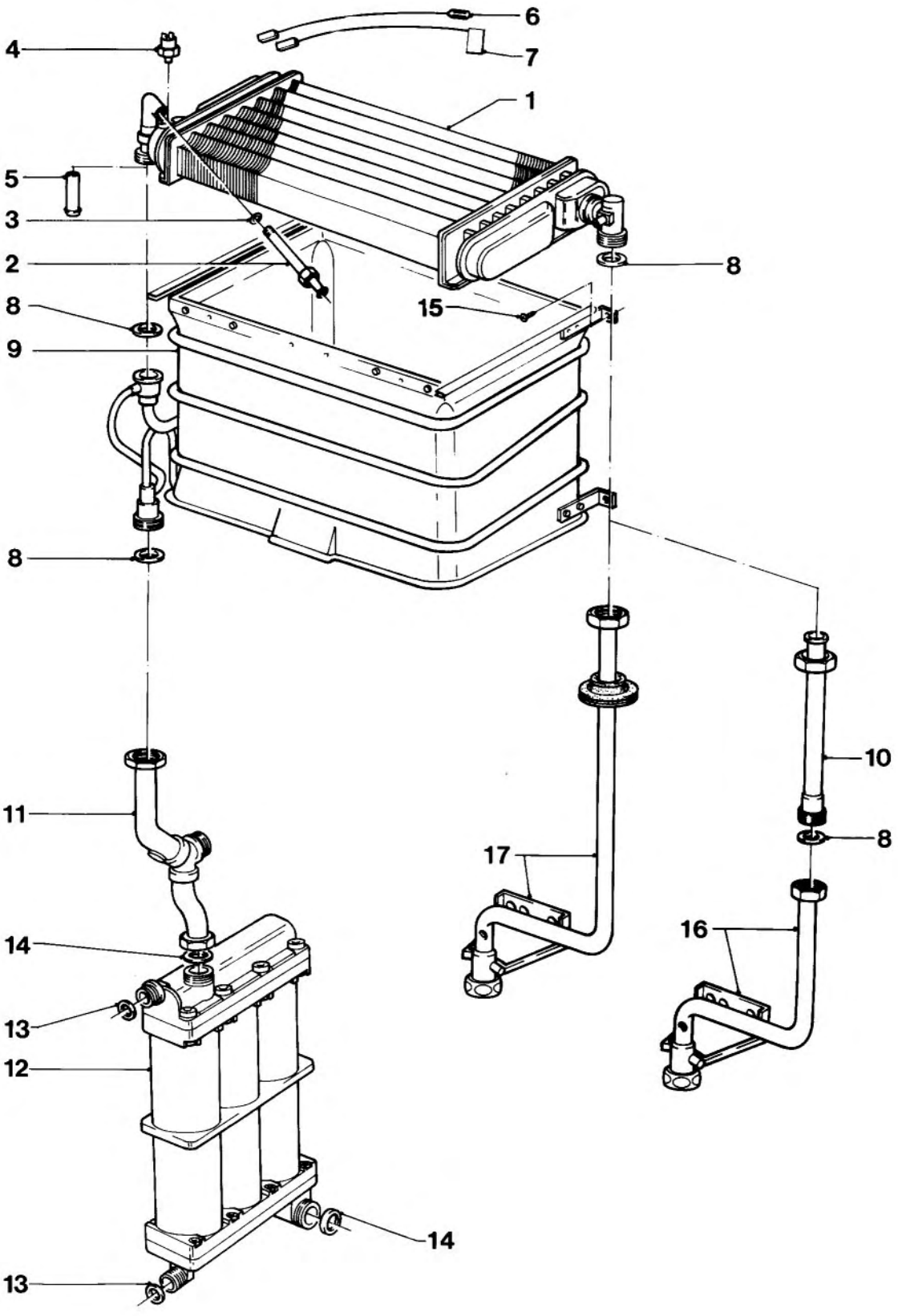
Main component 06 Heat exchanger
VC 142



Main component 06 Heat exchanger
VC 142

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	06-1849	heat exchanger		supplied with part 2
2	-	packingring		see main component 08
3	10-1384	temperature limiter		
4	08-4939	connection piece		
5	11-8334	combustion chamber		
6	15-3338	guide plate		
7	07-9424	guide plate		
8	07-9425	guide plate		
9	08-8624	screw		
10	23-5727	screw		

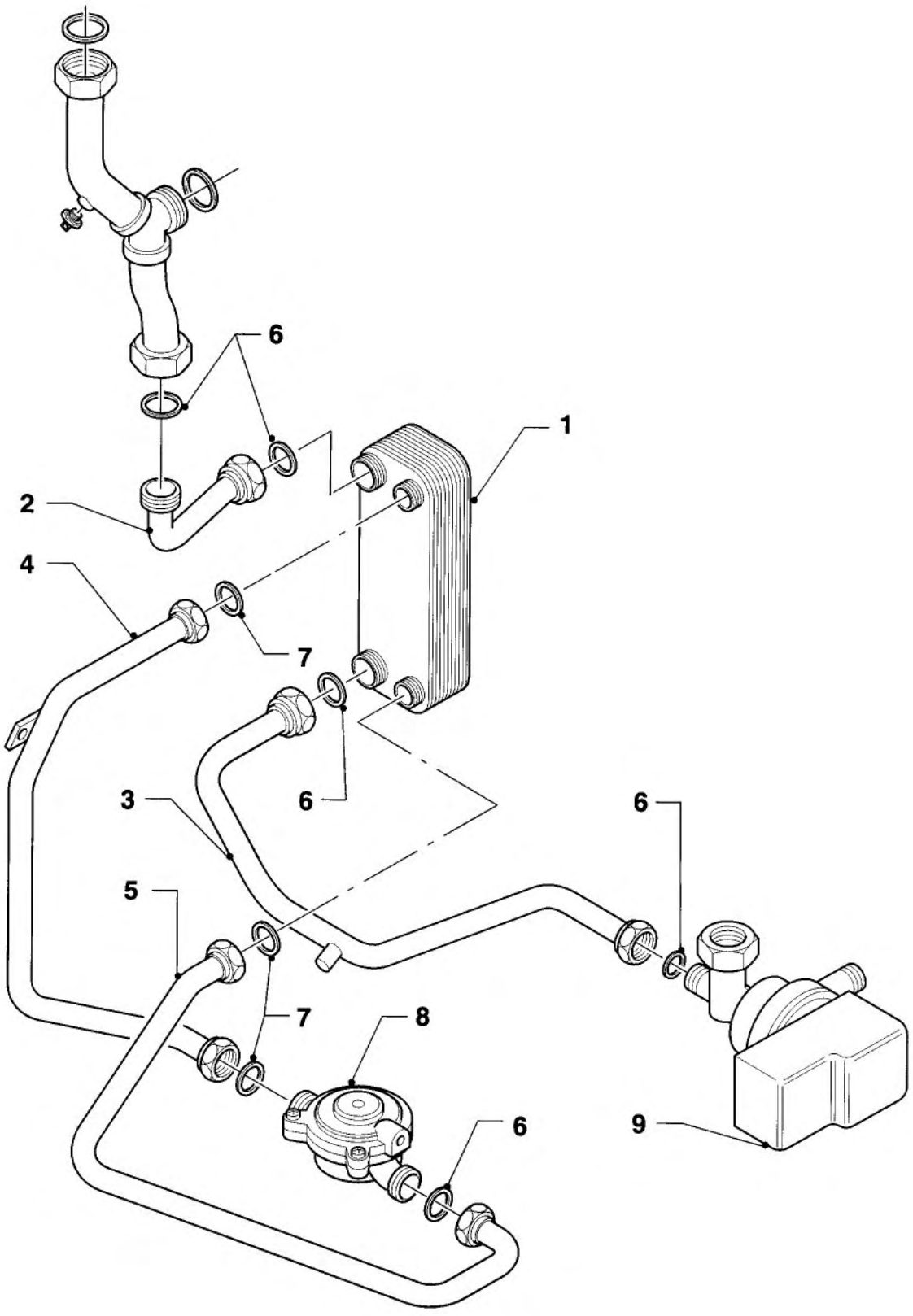
Main component 06 Heat exchanger
VC-VCW 221



Main component 06 Heat exchanger
VC-VCW 221

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	06-1891	heat exchanger		supplied with parts 2,3,8
2	17-7511	de-aeration screw		supplied with part 3
3	98-2459	packingring		
4	10-1462	temperature limiter		
5	13-3908	screw		
6	08-9572	connection line		
7	08-9571	connection line		
8	98-1511	packingring		
9	11-8328	combustion chamber		supplied with part 8
10	08-9134	connection		
11	-	connection tube		see main component 08
12	-	heat exchanger (DHW)		replaced by, 06-5034 see page 50 + 51 } VCW only
13	98-1609	packingring		} VCW only
14	98-1602	packingring		} VCW only
15	23-5715	screw		
16	08-1316	connecting tube		
17	08-9186	connecting tube		

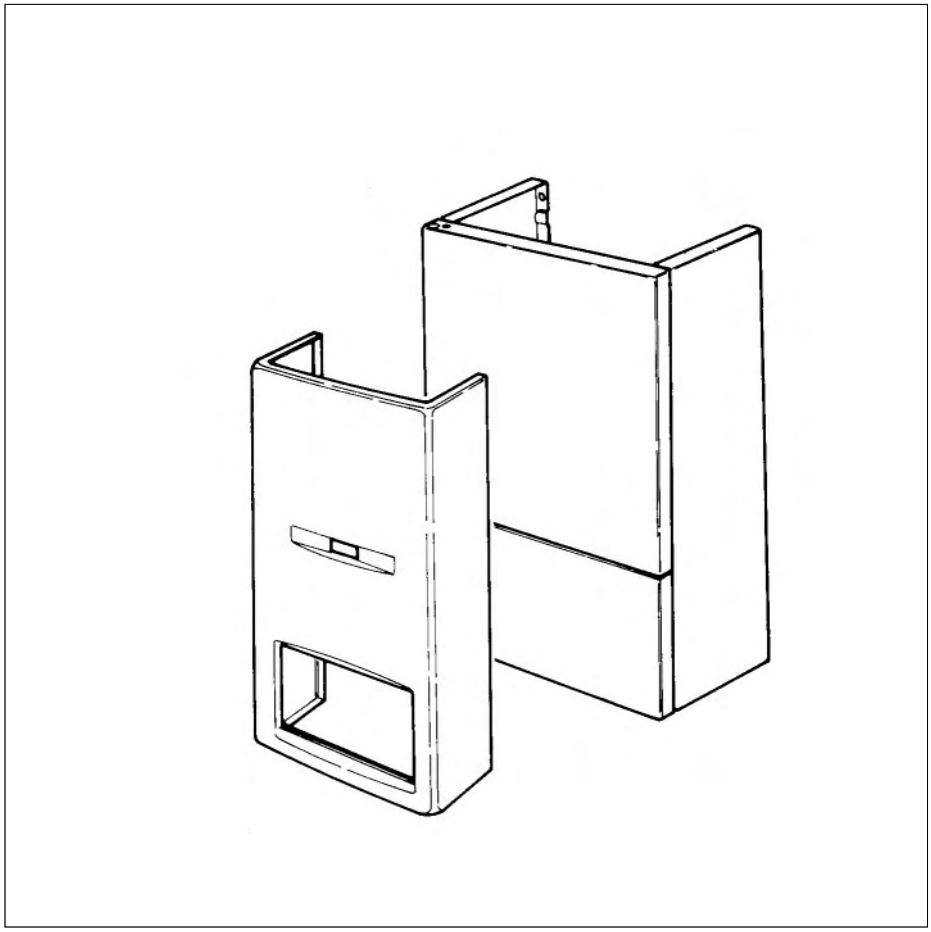
Main component 06 Heat exchanger (DHW)
VCW 180-282 E



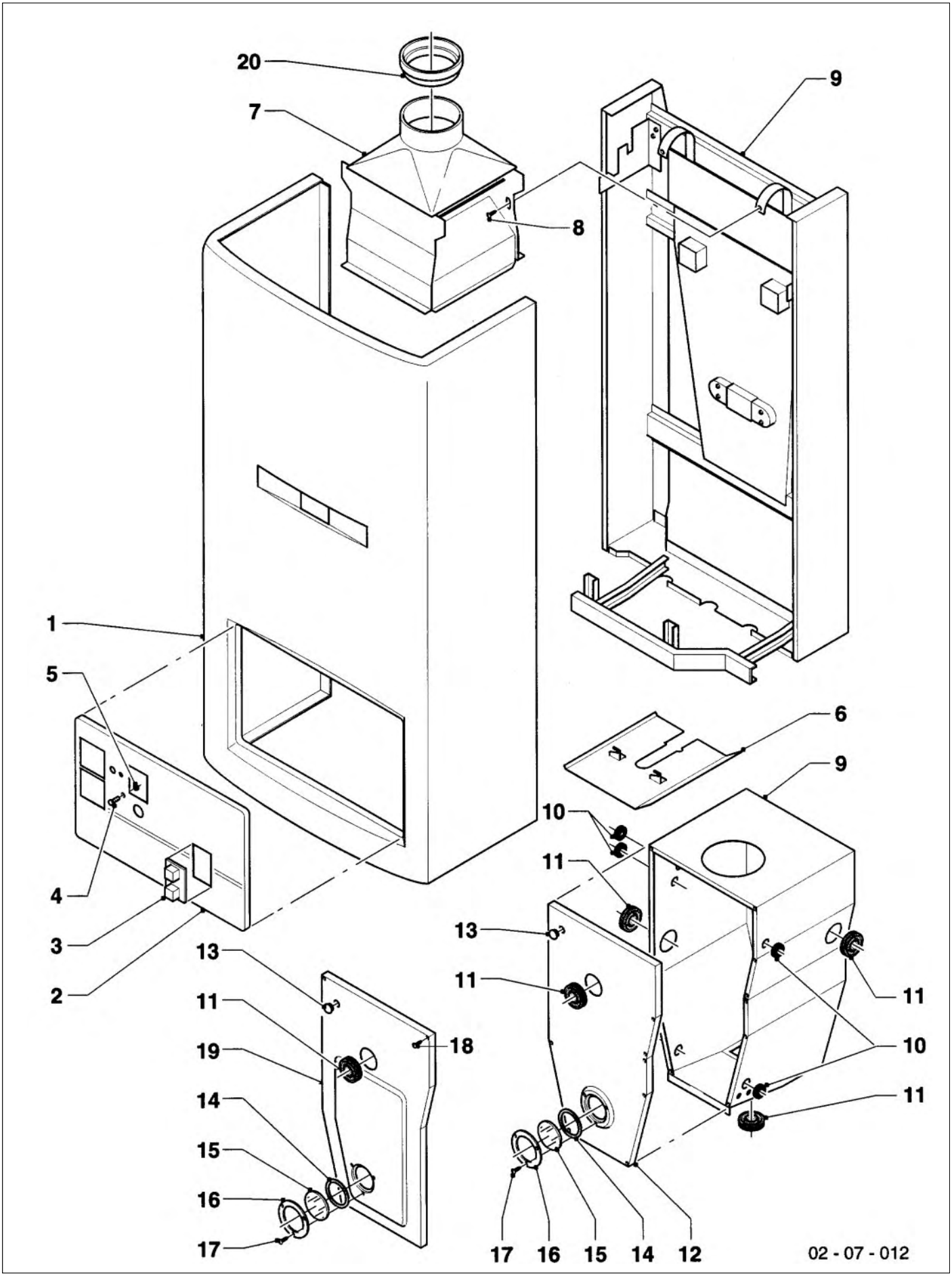
Main component 06 Heat exchanger (DHW)
VCW 180-282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	06-4946	heat exchanger (DHW)		supplied with parts 6,7
	06-5034	heat exchanger set		supplied with parts 2-7,9 replacement for the plastic DHW heat exchanger 06-1834
2	08-9298	connecting tube		
3	08-9094	connecting tube		
4	08-9299	connecting tube		
5	08-9003	cold water tube,cpl.		
6	98-0151	packingring		
7	98-0012	packingring		
8	-	water valve		see main component 01
9	-	Hydraulically controlled diverter valve		see main component 01

Main component 07



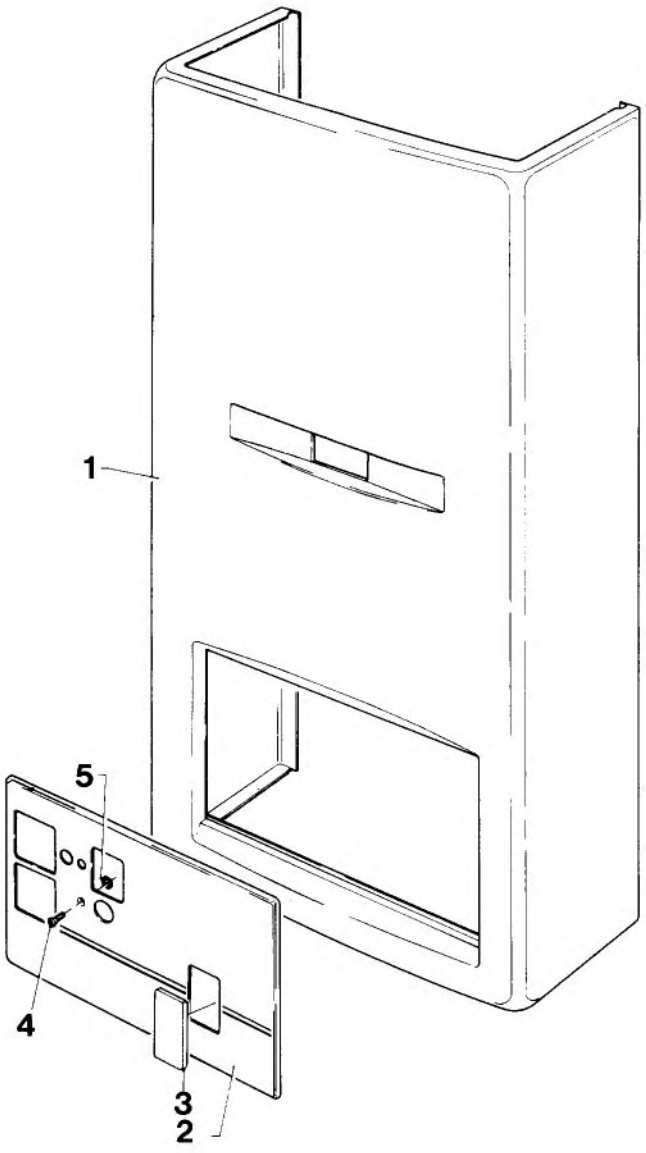
Main component 07 Casing parts
VC 110 T, 112 E

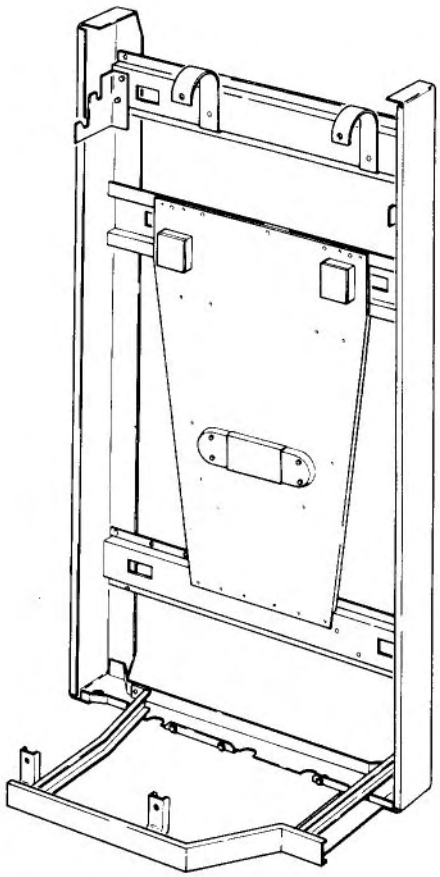


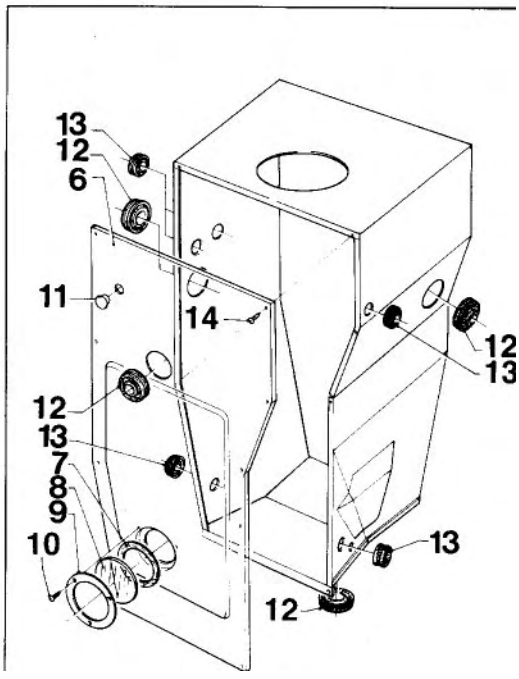
Main component 07 Casing parts
VC 110 T, 112 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	07-2914	cowling		
2	07-5460	covering plate		
3	07-1472	push button		110 T
	20-8672	covering plate		112 E
4	07-0046	screw		
5	04-0186	tension ring		
6	21-3365	back panel		only for 110 T
7	07-4945	draft diverter		
8	23-5727	screw		
9	-	single delivery not possible		
10	98-0766	packingring		
11	98-0765	packingring		
12	07-8257	covering plate		supplied with parts 11,13-17
13	20-4063	cap		
14	98-1746	packingring		only for 112 E
15	16-1225	inspection glass		
16	20-8719	covering plate		
17	08-8624	screw		
18	13-0005	screw		
19	07-8272	covering plate		supplied with parts 11,13-17
20	08-8214	flue adaptor		110 T
		Timer assembly, acc.-no. 2378053		
-	2370101	covering plate		
-	2370099	time clock		black plastic spring clips are seperate — not shown
-	2370100	wiring harness		

Main component 07 Casing parts
VC 142 E



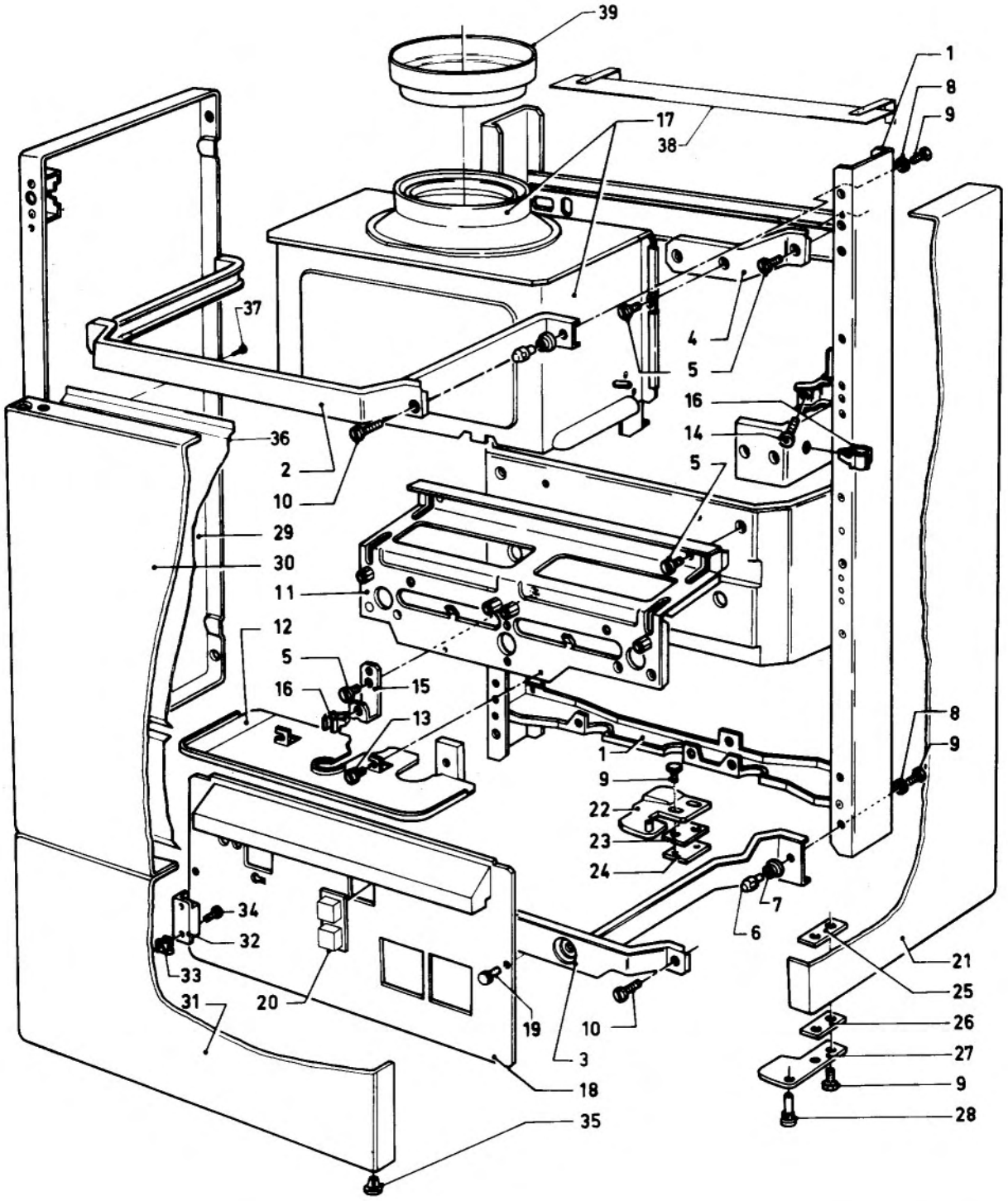




Main component 07 Casing parts
VC 142 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	07-2914	cowling		
2	07-5460	covering plate		supplied with parts 3-5
3	20-8672	covering plate		
4	07-0046	screw		
5	04-0186	tension ring		
6	07-8272	covering plate		supplied with parts 7-12
7	98-1746	packingring		
8	16-1225	inspection glass		
9	20-8719	covering plate		
10	08-8624	screw		
11	20-4063	cap		
12	98-0765	packingring		
13	98-0766	packingring		
14	13-0005	screw		
		Timer assembly, acc.-no. 2378053		
-	2370101	covering plate		black plastic spring clips are seperate, not shown
-	2370099	time clock		
-	2370100	wiring harness		

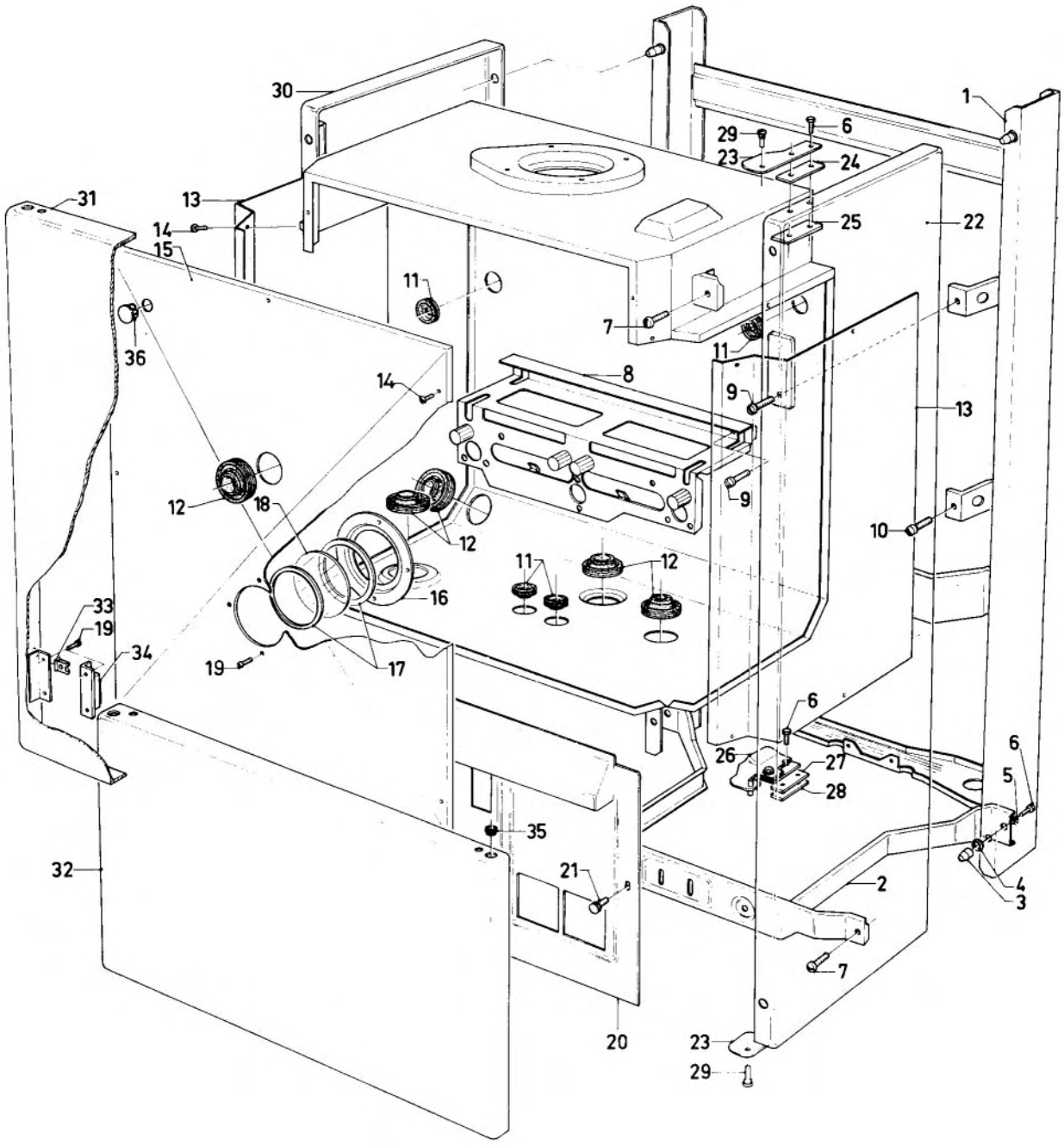
Main component 07 Casing parts
VC 180,240 T, VCW 240,280 T



Main component 07 Casing parts
VC 180,240 T, VCW 240,280 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	-	chassis		not available as a spare part
2	15-4220	bow		
3	15-4227	bow		
4	08-6322	support		
5	23-5727	screw		
6	07-0357	nut		
7	98-0093	packingring		
8	06-0020	disc		
9	07-0350	screw		
10	23-5737	screw		
11	14-9627	support		180
	14-9628	support		240,280
12	21-3362	back panel		
13	13-9203	screw		
14	11-6477	screw		
15	22-1723	support		
16	12-6153	spring		
17	07-4920	draft diverter		180
	07-4921	draft diverter		240
	07-4940	draft diverter		280
18	07-5461	covering plate		
19	13-3799	screw	M 8 x 4	knurled
	23-5715	screw	4,8 x 9,5	sheet metal (from 04/95)
20	07-1472	push button		
21	07-9920	lateral panel	right	supplied with parts 9,22-27
22-27	08-8620	fastening set		supplied with part 28
28	07-0351	screw		
29	07-9921	lateral panel	left	
30	29-4012	top door		180,240 (supplied with parts 32-35)
	29-4030	top door		280 (supplied with parts 32-37)
31	29-4013	bottom door		supplied with parts 32-35
32	17-0356	door magnet		only for 180,240 (slide on version from 04/95)
	07-0355	door magnet		280 (screwed type)
33	15-8207	nut		
34	23-5748	screw		
35	12-4870	bush		
36	21-3377	back panel		} only for 280
37	23-5748	screw		
38	15-3375	guide plate		
39	08-8215	flue adaptor		180
	08-8216	flue adaptor		240
	08-8214	flue adaptor		280
		Timer assembly, acc.-no. 2378054		
-	2370102	covering plate		} not shown
-	2370099	time clock		black plastic spring clips are seperate
-	2370100	wiring harness		

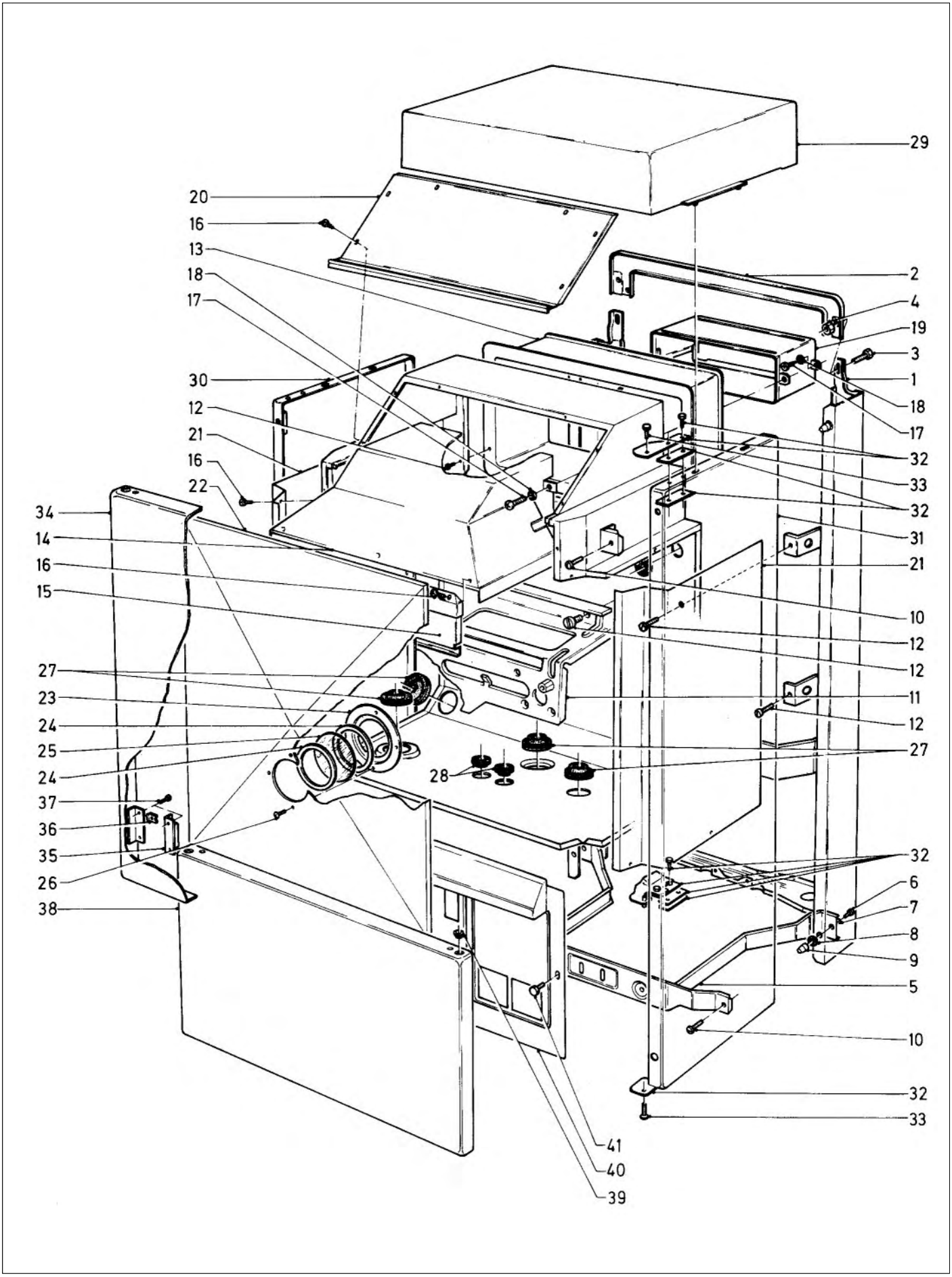
Main component 07 Casing parts
VC 182,242,282 E, VCW 242,282 E



Main component 07 Casing parts
VC 182,242,282 E, VCW 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	-	chassis		not available as a spare part
2	15-4227	bow		
3	07-0357	nut		
4	98-0093	packingring		
5	06-0020	disc		
6	07-0350	screw		
7	23-5737	screw		
8	14-9627	support		182
	14-9628	support		242,282
9	23-5727	screw		
10	11-6477	screw		
11	98-0766	packingring		
12	98-0765	packingring		
13	20-7267	side panel		
14	23-5715	screw		
15	07-8253	front panel		screwed type (supplied with parts 12,16-19,36)
	07-8274	front panel		snapped type (supplied with parts 16-19)
16	28-2249	ring		
17	98-1746	packingring		
18	16-1225	inspection glass		
19	23-5748	screw		
20	07-5461	covering plate		supplied with part 20-8672
	20-8672	covering plate		not shown
21	13-3799	screw	M 8 x 4	knurled
	23-5715	screw	4,8 x 9,5	sheet metal (from 04/95)
22	07-9920	lateral panel	right	supplied with parts 23-28
23-28	08-8620	fastening set		supplied with part 29
29	07-0351	screw		
30	07-9921	lateral panel	left	
31	29-4012	top door		} supplied with parts 19,33-35
32	29-4013	bottom door		
33	15-8207	nut		
34	17-0356	door magnet		slide on version from 04/95
	07-0355	door magnet		screwed type
35	12-4870	bush		
36	20-4063	cap		
		Timer assembly, acc.-no. 2378054		VC 182,242 E, VCW 242 E
		Timer assembly, acc.-no. 2378055		VC-VCW 282 E
-	2370102	covering plate		VC 182,242 E, VCW 242 E
-	2370103	covering plate		VC-VCW 282 E
-	2370099	time clock		black plastic spring clips are seperate } not shown
-	2370100	wiring harness		

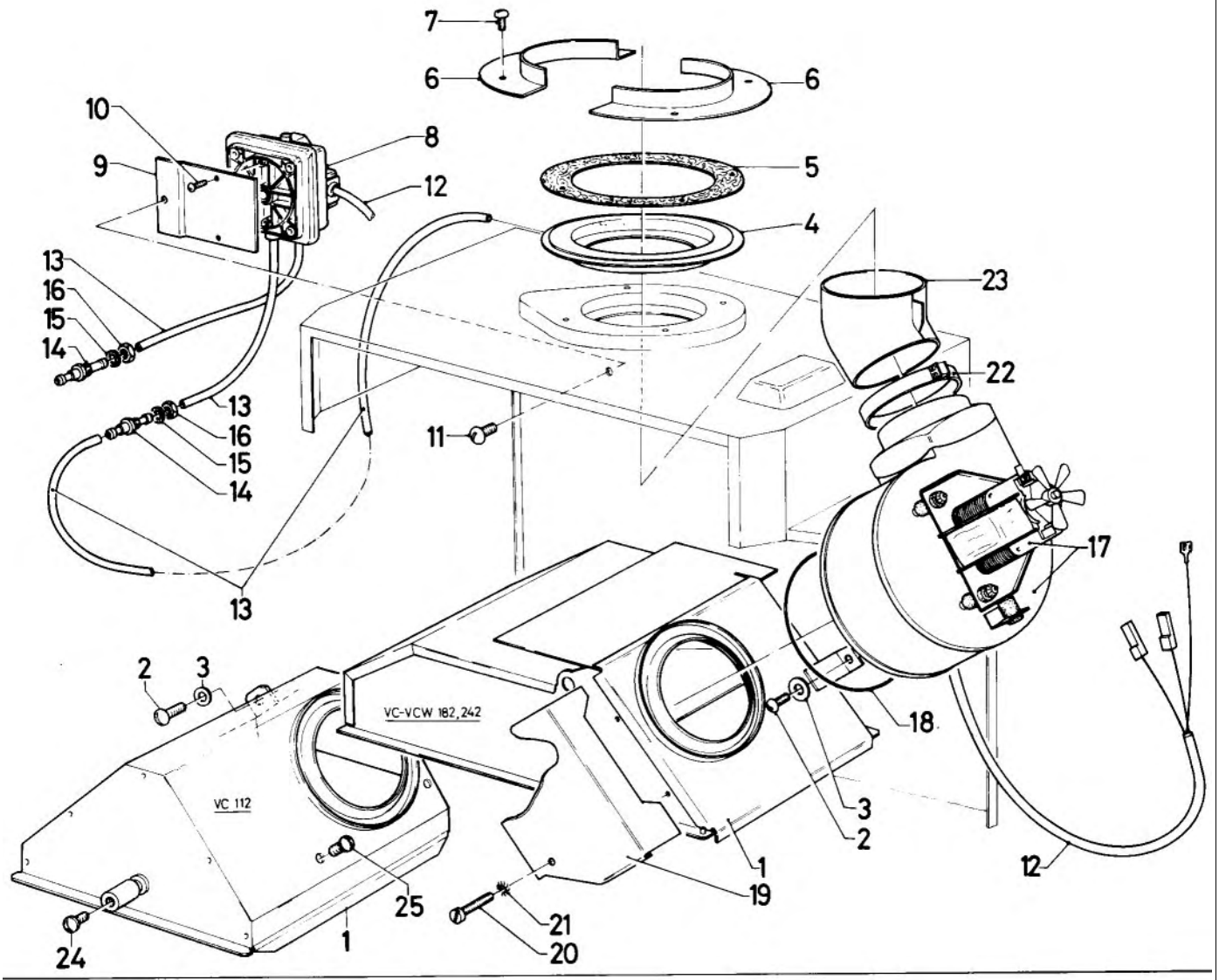
Main component 07 Casing parts
VC-VCW 221 T

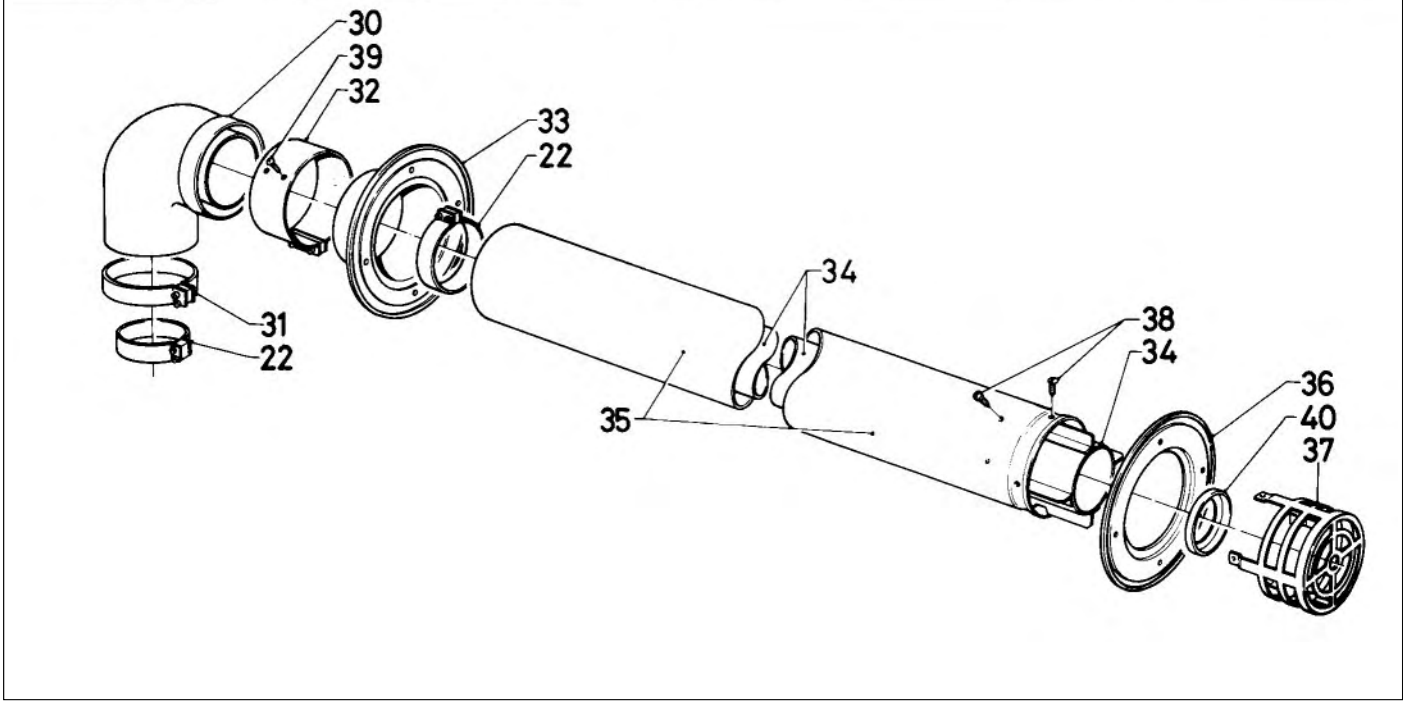


Main component 07 Casing parts
VC-VCW 221 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	-	chassis		not available as a spare part
2	20-8816	support		
3	11-6462	screw		
4	11-4848	nut		
5	15-4227	bow		
6	07-0350	screw		
7	06-0020	disc		
8	98-0093	packingring		
9	07-0357	nut		
10	23-5737	screw		
11	14-9628	support		
12	23-5727	screw		
13	07-3134	inner part of wall case		
14	14-5973	cap		
15	07-0886	cover plate		
16	23-5715	screw		
17	23-5738	screw		
18	49-2032	disc		
19	14-5578	connection duct		
20	07-8262	front panel		
21	20-7267	side panel		
22	07-8274	front panel		supplied with parts 23-26
23	28-2249	ring		
24	98-1746	packingring		
25	16-1225	inspection glass		
26	23-5748	screw		
27	98-0765	packingring		
28	98-0766	packingring		
29	17-8427	cap		
30	07-9921	lateral panel	left	
31	07-9920	lateral panel	right	supplied with part 32
32	08-8620	fastening set		supplied with part 33
33	07-0351	screw		
34	29-4012	top door		supplied with parts 35-37,39
35	17-0356	door magnet		slide on version from 04/95
	07-0355	door magnet		srewed type
36	15-8207	nut		
37	23-5748	screw		
38	29-4013	bottom door		supplied with parts 35-37,39
39	12-4870	bush		
40	07-5461	covering plate		
41	13-3799	screw	M 8 x 4	knurled
	23-5715	screw	4,8 x 9,5	sheet metal (from 04/95)

Main component 07 Air/Flue duct assembly
VC 112,142,182,242,282 E, VCW 242,282 E

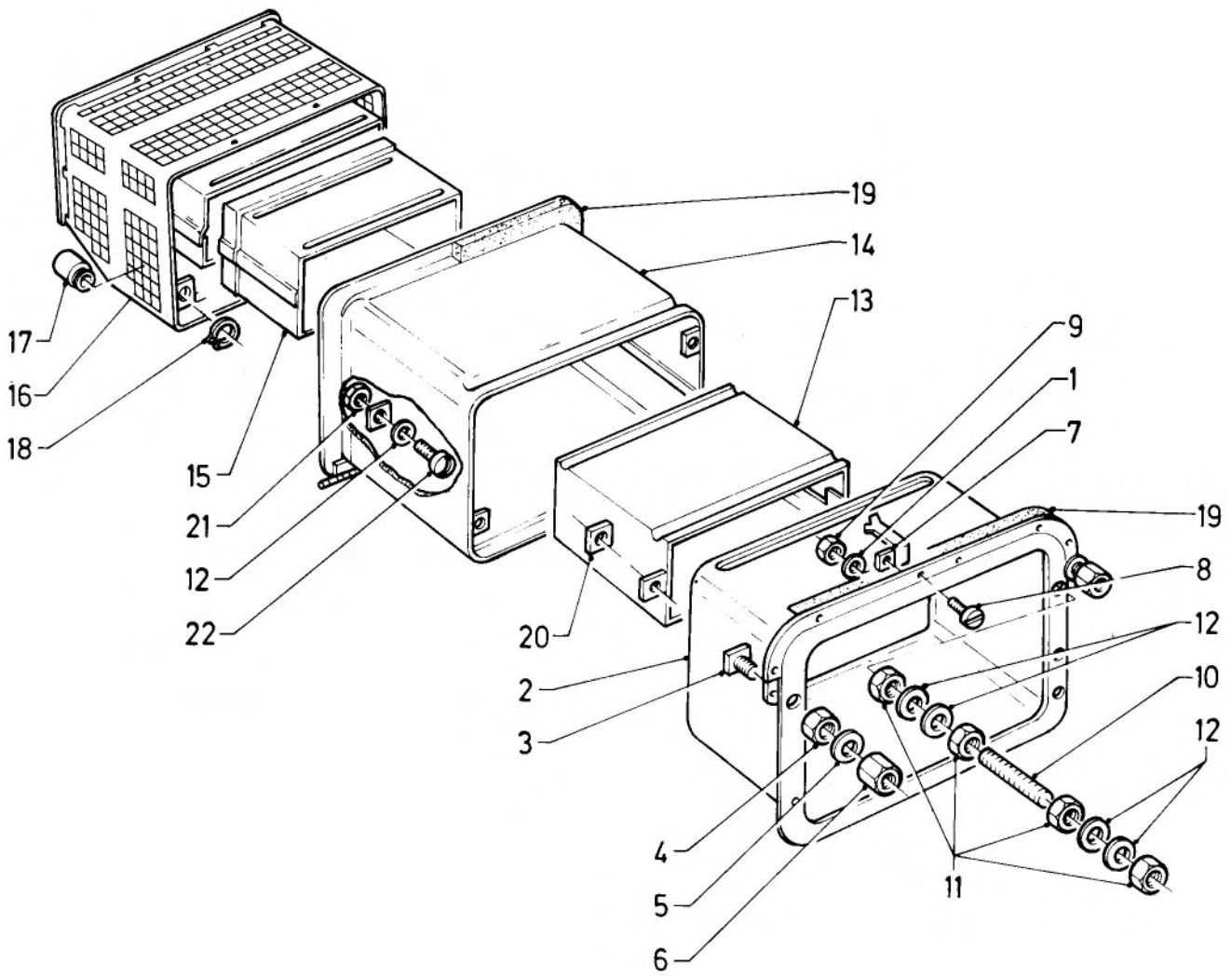




Main component 07 Air/Flue duct assembly
VC 112,142,182,242,282 E, VCW 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	07-2324	cap		112,142 (supplied with part 24)
	07-2341	cap		182
	07-2342	cap		242
	07-2362	cap		282
2	23-5715	screw		
3	07-0338	disc		
4	07-5546	covering plate		112
	07-5547	covering plate		142
	07-5548	covering plate		182
	07-5549	covering plate		242,282
5	98-0883	packingring		
6	29-2208	ring		
7	50-0046	screw		
8	05-0518	fan proving switch		
9	08-6391	support		
10	23-5748	screw		
11	10-5754	screw		112,142 (fan prowing switch fixed from outside)
	23-5727	screw		182,242,282 (fan prowing switch fixed from inside)
12	25-5855	cable tree		
13	08-0369	hose		
14	08-0831	connection		} only for 182,242,282
15	98-0202	packingring		
16	11-4848	nut		
-	98-0766	packingring		tube inlet for 112,142 (not shown)
17	19-0123	flue fan		112,142 (supplied with part 18)
	19-0122	flue fan		182,242,282 (supplied with part 18)
18	98-0891	packingring		112,142
	98-0884	packingring		182,242,282
19	07-8409	clip		} fan bracket for 182,242,282
20	11-8885	screw		
21	06-0014	spring ring		
22	28-2512	collar	Ø 63x22	
23	11-6669	flue connection elbow		
24	01-0082	screw		only for 112,142
25	23-5740	screw		fan bracket for 112,142
26	25-5855	cable tree		
30	28-4841	elbow		
31	28-2515	collar	Ø 95,5x25	
32	28-2513	collar	Ø 95,5x55	
33	14-7022	finishing ring	(internal)	
34	14-5958	flue gas duct		
35	19-2901	tube		
36	14-7024	finishing ring	(external)	
37	07-3647	protection grill		
	07-3666			acc. 9000, storm guard
38	23-5744	screw		
39	50-0046	screw		
40	19-4119	reduction piece		only for 112,182
-	-	safety guard	not shown	acc. 9308

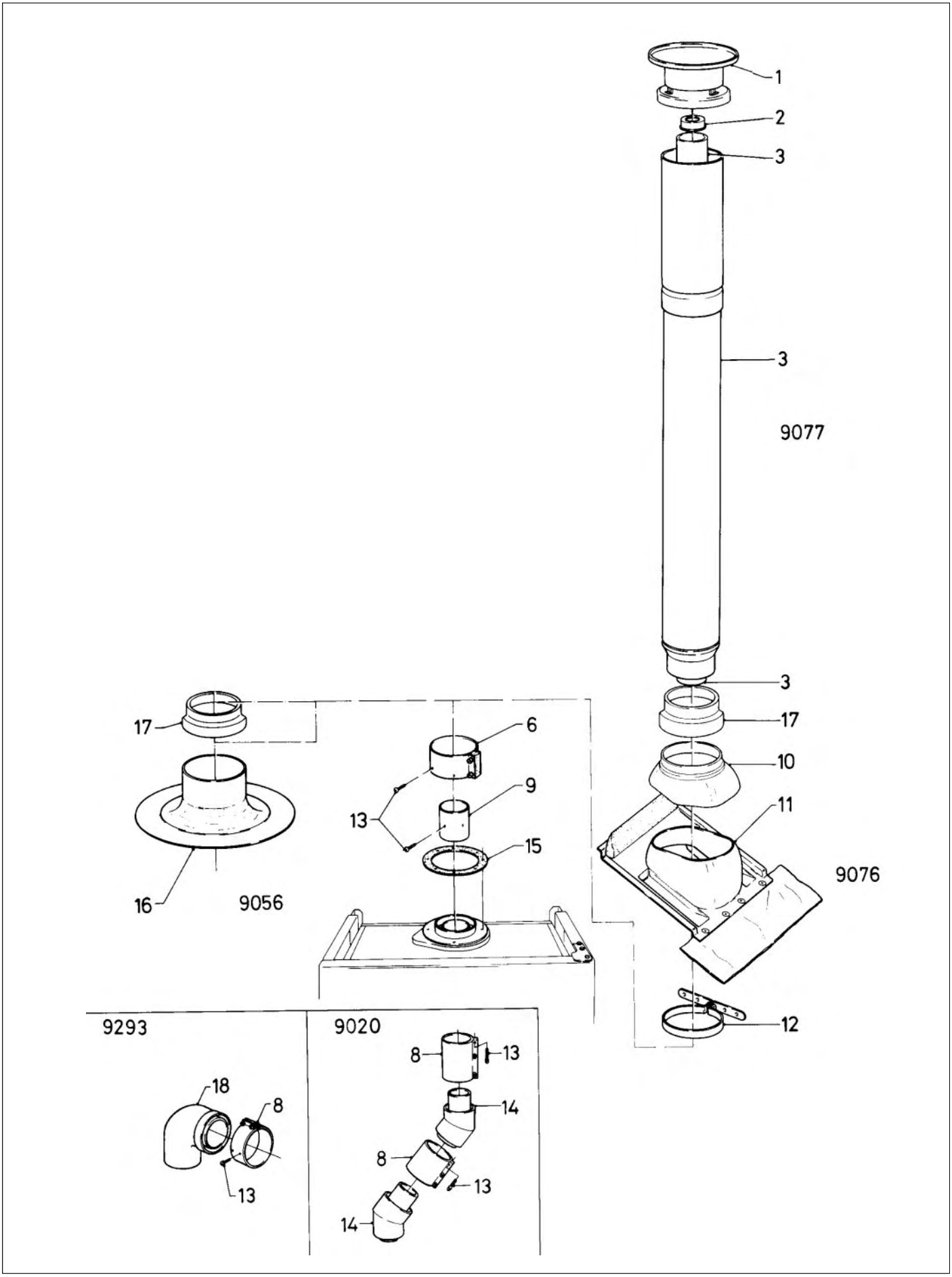
Main component 07 Wallcase
VC-VCW 221 T



Main component 07 Wallcase
VC-VCW 221 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks	
1	49-2032	disc			
2	07-3110	inner part	98 mm	4 inchs	Acc. 251
	07-3112	inner part	131 mm	5 inchs	Acc. 252
	07-3114	inner part	221 mm	8 inchs	Acc. 253
	07-3126	inner part	311 mm	12 inchs (without support)	Acc. 254
	07-3116	inner part	311 mm	12 inchs (with suport)	Acc. 255
3	08-6527	support			
4	11-4848	nut			
5	19-1350	disc			
6	21-2718	nut			
7	08-6103	support			
8	20-2612	screw			
9	95-0237	nut			
10	08-4848	tie rod			
11	95-0237	nut			
12	28-4030	disc			
13	14-5574	duct	95 mm	4 inchs	Acc. 251
	14-5575	duct	140 mm	5 1/2 inchs	Acc. 252
	14-5576	duct	230 mm	9 inchs	Acc. 253
	14-5577	duct	320 mm	12 1/2 inchs	Acc. 254,255
14	07-3019	exterior part	85 mm	3 inchs	Acc. 251
	07-3010	exterior part	130 mm	5 inchs	Acc. 252,253,254
	07-3021	exterior part	310 mm	12 inchs	Acc. 255
15	14-5516	duct	57 mm	2 inchs	Acc. 252,253,254
	14-5518	duct	237 mm	9 inchs	Acc. 255
16	07-3662	protection grill		supplied with parts 17,18	
17	12-4835	bush			
18	11-5520	safety disc			
19	28-2822	sealing profile			
20	15-8209	nut			
21	28-6401	locking nut			
22	07-0340	screw			
-	-	low level safty guard	not shown	acc. 000296 (520 mm)	

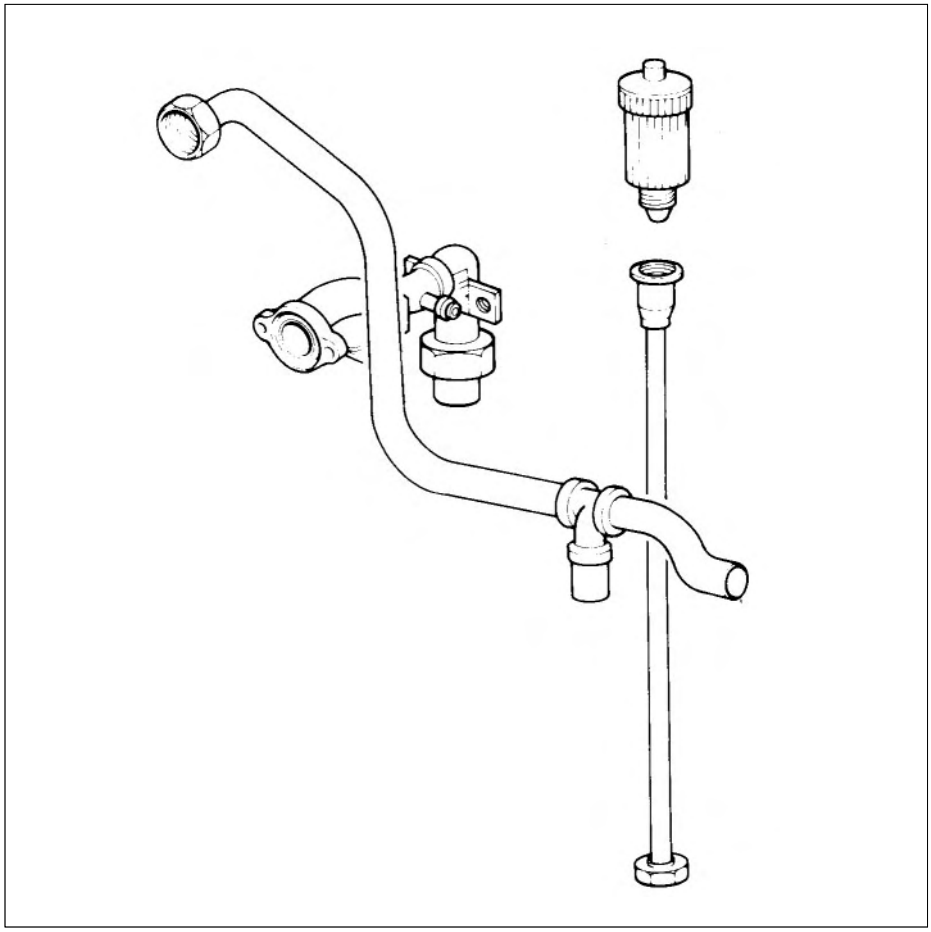
Main component 07 Vertical air/flue duct assembly
VC 112,142,182,242,282 E, VCW 242,282 E
(Acc.-no. 9293,9020,9056,9076,9077)



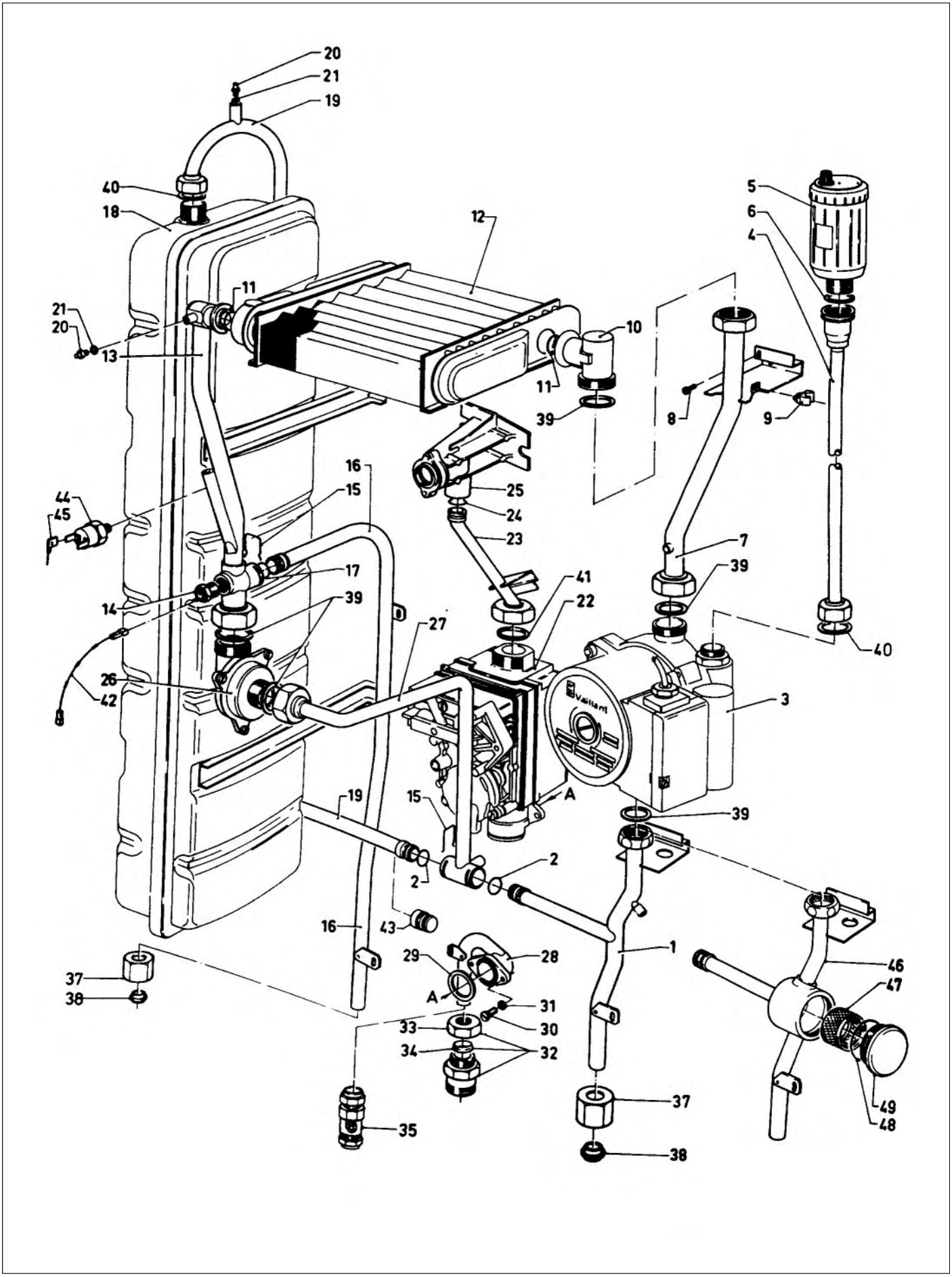
Main component 07 Vertical air/flue duct assembly VC 112,142,182,242,282 E, VCW 242,282 E (Acc.-no. 9293,9020,9056,9076,9077)

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	17-8446	cap		
2	20-8521	reduction piece	Ø 47	
	20-8523	reduction piece	Ø 56,5	
3	-	pipe		only available as part of Acc.-no. 9077
6	28-2516	collar	95,5 Ø x 55	
8	28-2526	collar	95,5 Ø x100	
9	18-8668	bush		
10	25-9955	cap		
11	-	pitched roof tile		only available as part of Acc.-no. 9076
12	15-4146	bow		
13	23-5750	screw		
14	28-4897	elbow		
15	98-0883	packingring		
16	-	flat roof tile		only available as part of Acc.-no. 9056
17	19-4125	reducing piece		only necessary if pos. 10 has a diametre of 133 mm.
18	-	elbow		only available as part of Acc.-no. 9293

Main component 08



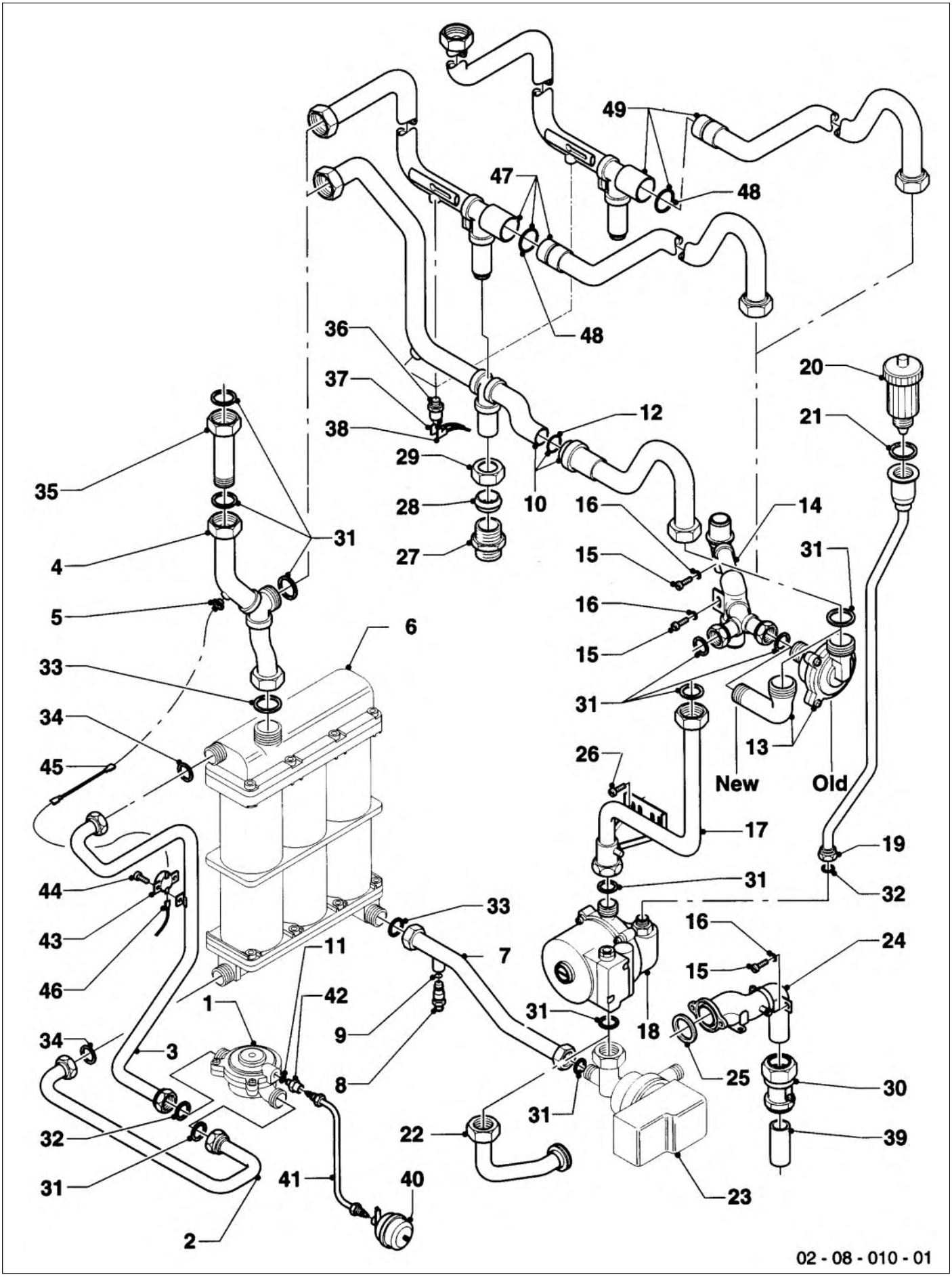
Main component 08 Connection parts
VC 110 T, 112,142 E



Main component 08 Connection parts
VC 110 T, 112,142 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	08-9127	connecting tube		supplied with part 2
2	98-0149	o-ring		
3	-	pump		see main component 08
4	08-9108	connecting tube		only for 110
5	06-1707	automatic de-aerator		supplied with part 6
6	98-0287	packingring		
7	08-9105	connecting tube		
8	10-5760	screw		
9	12-6153	spring		
10	08-1056	connection		supplied with part 11
11	98-2409	packingring		
12	-	heat exchanger		see main component 06
13	08-1054	connection		supplied with part 11
	14-0015	de-aeration screw		supplied with part 21
14	25-2805	ntc-sensor		
15	12-6158	retaining bracket		
16	08-9125	connecting tube		supplied with part 17
17	98-0287	packingring		
18	-	expansion vessel		see main component 18
19	08-9106	connecting tube		
20	14-0015	de-aeration screw		supplied with part 21
21	98-2459	packingring		
22	-	gas section		see main component 05
23	08-9168	connecting tube		
24	98-2497	packingring		
25	08-4945	connection piece		
26	15-0216	spill valve		
27	08-9107	connecting tube		
28	08-2564	gas connection		supplied with part 29
29	98-2489	packingring		
30	07-0361	screw		
31	11-1458	disc		
32	08-3408	connection piece		B (supplied with parts 33,34)
33	11-1328	sleeve nut		
34	98-0410	packingring		
35	08-2741	gas shut-off valve		H
37	11-1214	sleeve nut		
38	98-0471	reducing olive		
39	98-1511	packingring		
40	98-1508	packingring		
41	98-0212	packingring		
42	25-4693	resistance		
43	-	not necessary for british execution		
44	25-1822	safety switch		112,142 E
	25-1851	safety switch		110 T
45	25-5730	cable,cpl.		
46	-	not necessary		see pict.-no. 1, 08-9127
47	12-8515	filter		
48	98-0261	packingring		
49	07-1873	cover		supplied with part 48

Main component 08 Connection parts
VC 180-242,282, VCW 221-282



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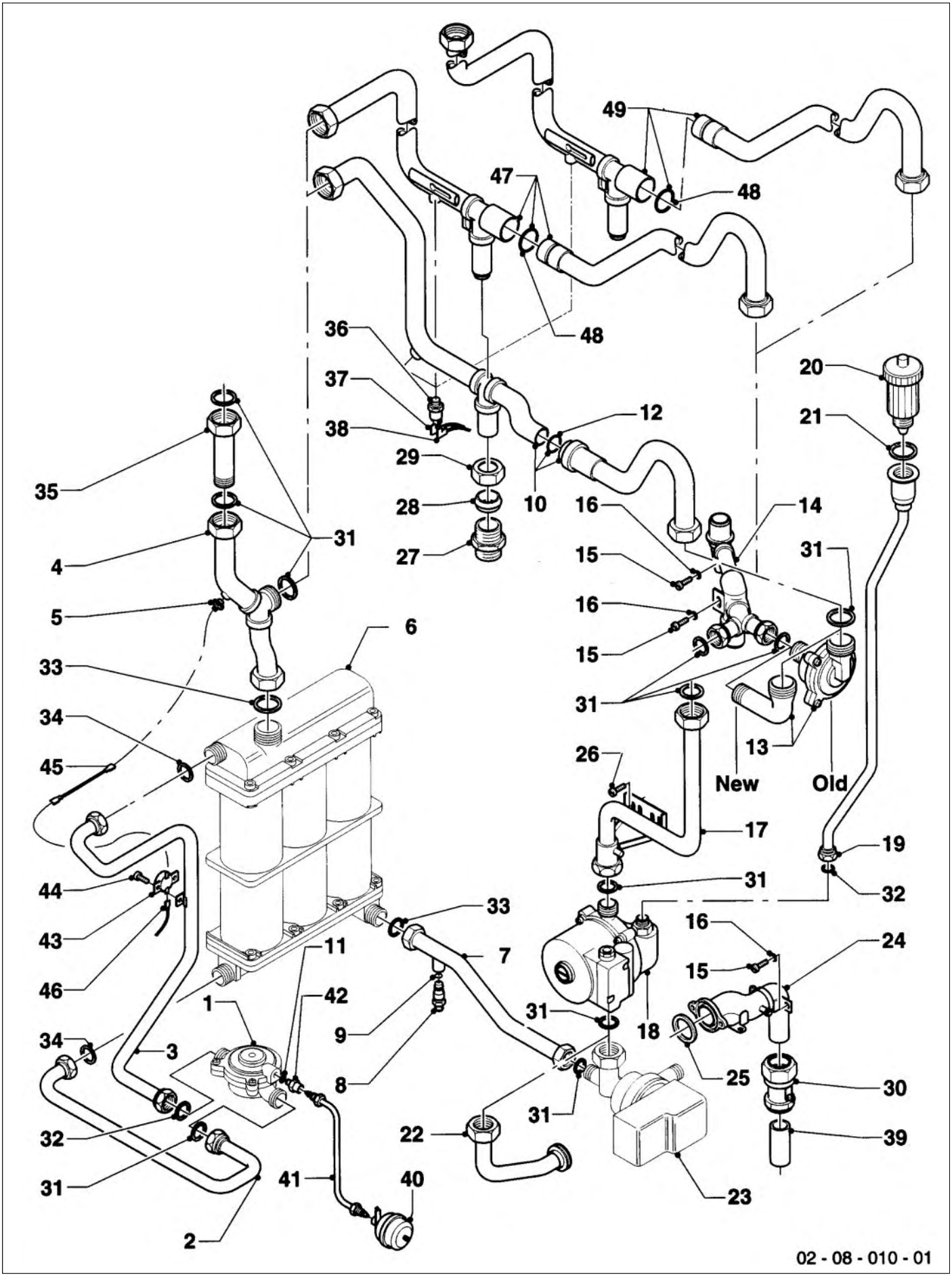
Main component 08 Connection parts
VC 180-242,282, VCW 221-282

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	-	water valve		see main component 01 } VCW...
2	08-3746	cold water tube,cpl.		
3	08-1415	connecting tube		
4	08-1314	connecting tube		VCW 221,240
	08-9156	connecting tube		VCW 242,282 (enlarged with part 35)
	08-9130	connecting tube		VCW 280
5	25-2805	ntc-sensor		
6	-	heat exchanger -d.h.w.		see main component 06 } VCW...
7	08-1315	connecting tube		
8	14-0015	de-aeration screw		supplied with part 9
9	98-2459	packingring		
10	-	connection tube		see pict.-no. 47 (VCW) or. 49 (VC)
11	98-1506	packingring		
12	98-2495	packingring		
13	15-0216	spill valve	2,5 m	180-242,282
	15-0217	spill valve	3,5 m	280
	15-0218	spill valve	1,7 m	special
14	08-1058	connection		return
15	07-0361	screw		
16	11-1458	disc		
17	08-1316	connecting tube		180,240,280 (221 see main component 06)
	08-9155	connecting tube		182,242,282 (extended with part 35)
18	-	pump		see main component 16
19	08-1317	connecting tube		
20	06-1707	automatic de-aerator		supplied with part 21
21	98-0287	packingring		
22	08-1320	connection tube		VC...
23	-	Hydraulically controlled diverter valve		VCW... (see main component 01)
24	08-2557	gas connection		180-242 } supplied with part 25
	08-2556	gas connection		280,282
25	98-2489	packingring		
26	23-5727	screw		
27	08-0074	connection piece		
28	08-0184	brass olive		
29	08-0177	nut		
30	08-2741	gas shut-off valve	15 mm	H (180-242)
	08-2745	gas shut-off valve	22 mm	H (280,282)
31	98-1511	packingring		
32	98-1508	packingring		
33	98-1602	packingring		
34	98-1609	packingring		

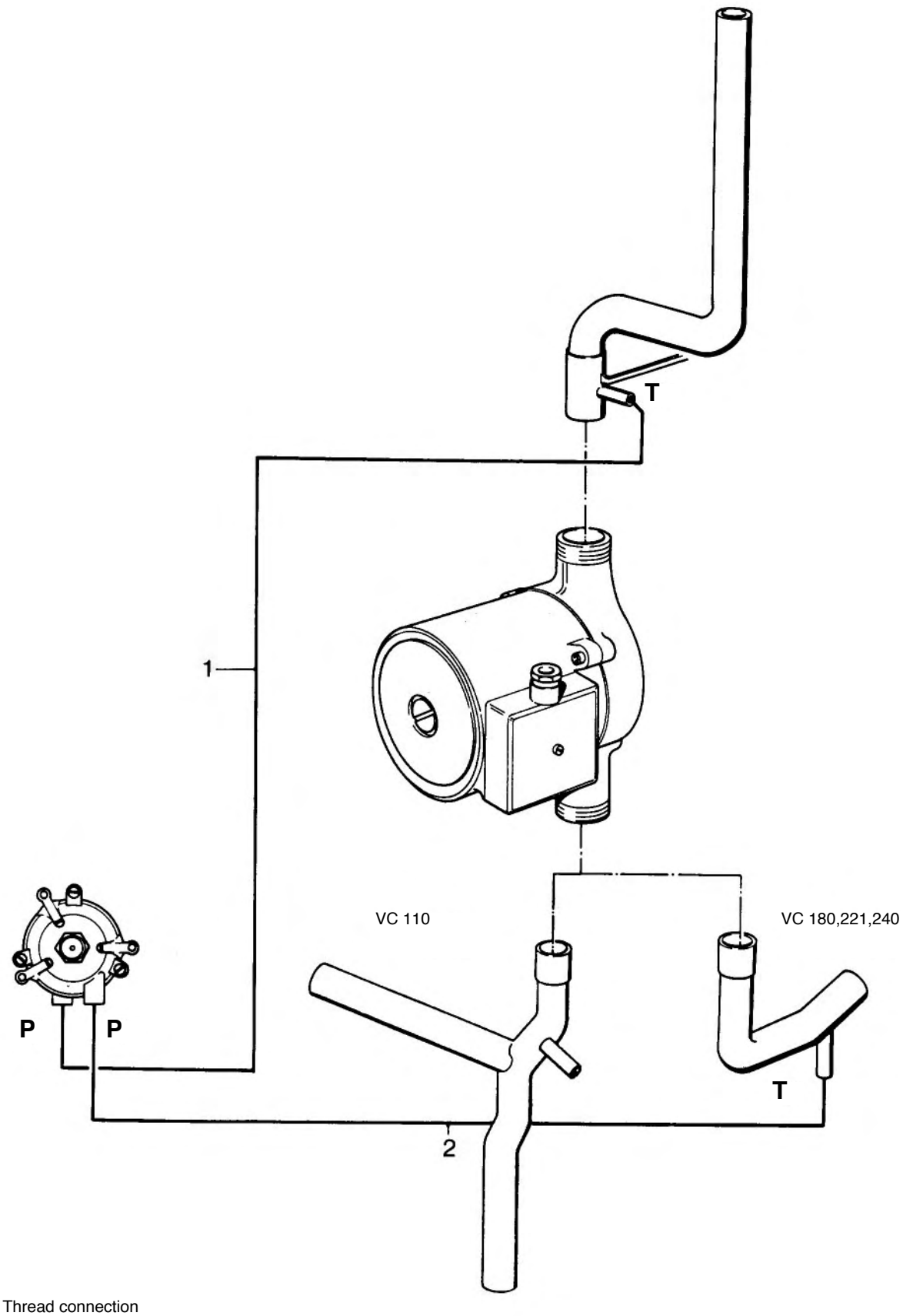
Main component 08 Connection parts
VC 180-242,282, VCW 221-282



Main component 08 Connection parts
VC 180-242,282, VCW 221-282

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
35	-	connection		VC 182,242,282 (not necessary see pict.-no. 49 or 17)
	-	connection		VCW 182,242,282 (not necessary see pict.-no. 4 or 17)
	-	connection		VC-VCW 221 (see main component 06)
36	25-1822	safety switch		VC 182,242,282 E, VCW 242,282 E
	25-1851	safety switch		VC 180,221,240 T, VCW 221,240,280 T
37	25-5730	cable,cpl.		only VC-VCW... E
	17-1165	thermo-couple		only 180,240,280 T
	17-1181	thermo-couple		only 221 T
38	08-9526	connection line		only 180,240,280 T
	17-1181	thermo-couple		only 221 T
39	13-7439	tube		180-242
	12-4370	tube		280,282
40	18-1025	expansion vessel		
41	08-4298	flow switch conduction		
42	13-6313	nipple		
43	25-1852	safety switch		only VCW...
44	95-0119	screw		
45	25-5726	cable		
46	08-9569	connection line		
47	08-9159	connecting tube		VCW...
48	98-0287	packingring		
49	08-9236	connecting tube		VC 180,221,240,280 T
	08-9237	connecting tube		VC 182,242,282 E

Main component 08 Connection piping
VC 110,180,221,240 T

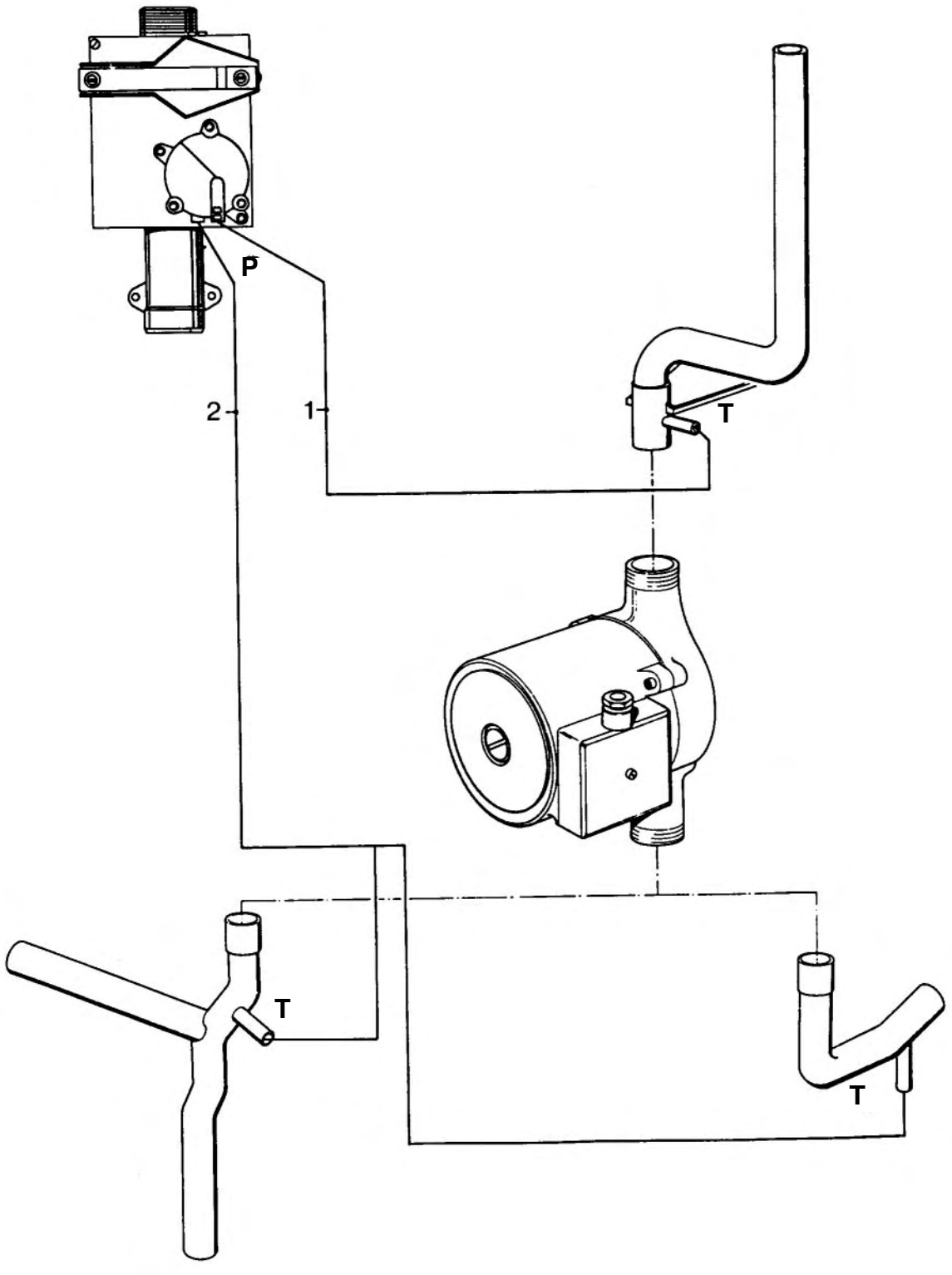


T = Thread connection
P = Plug-in connection

Main component 08 Connection piping
VC 110,180,221,240 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	08-8922	flow switch connection		110
	08-8916	flow switch connection		180,221,240
2	08-8924	flow switch connection		110
	08-8910	flow switch connection		180,221,240

Main component 08 Connection piping
VC 112,142,182,242,282 E

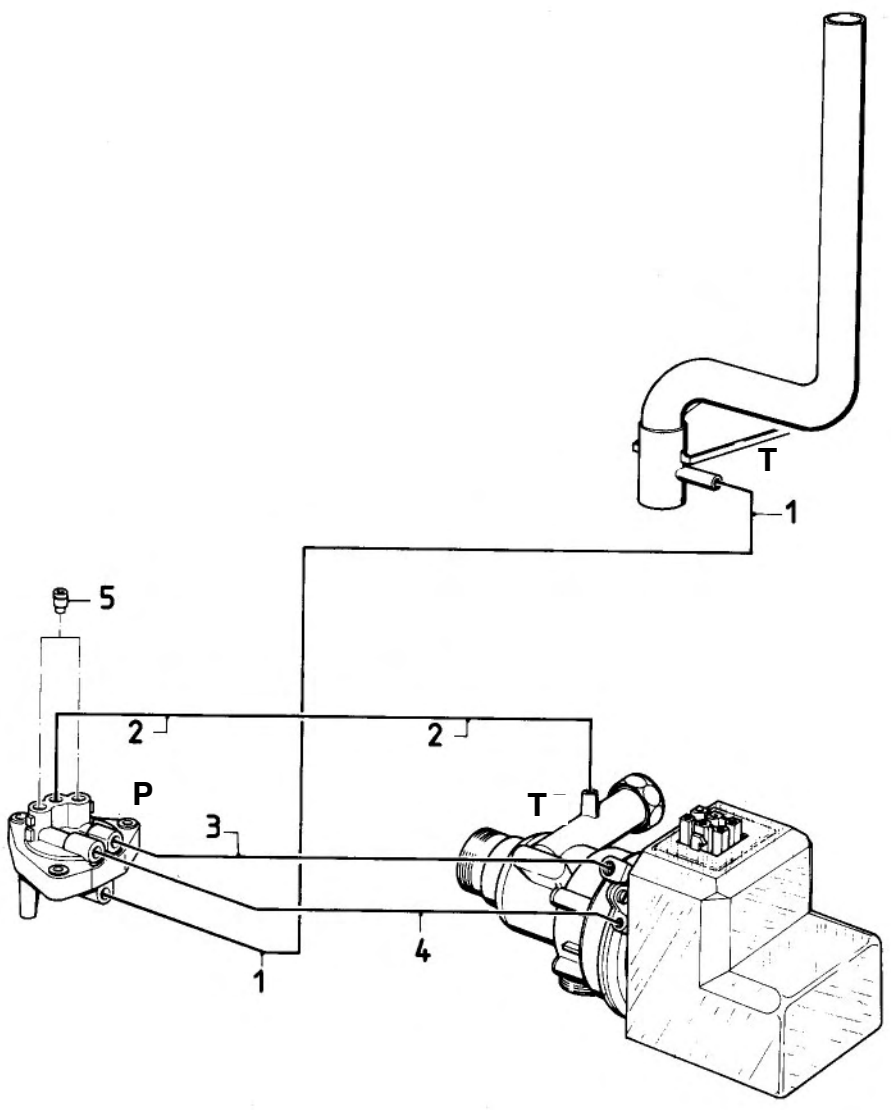


T = Thread connection
P = Plug-in connection

Main component 08 Connection piping
VC 112,142,182,242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	08-8914	flow switch connection		112,142
	08-8918	flow switch connection		182,242,282
2	08-8908	flow switch connection		112,142
	08-8920	flow switch connection		182,242,282

Main component 08 Connection piping
VCW 221,240,280 T

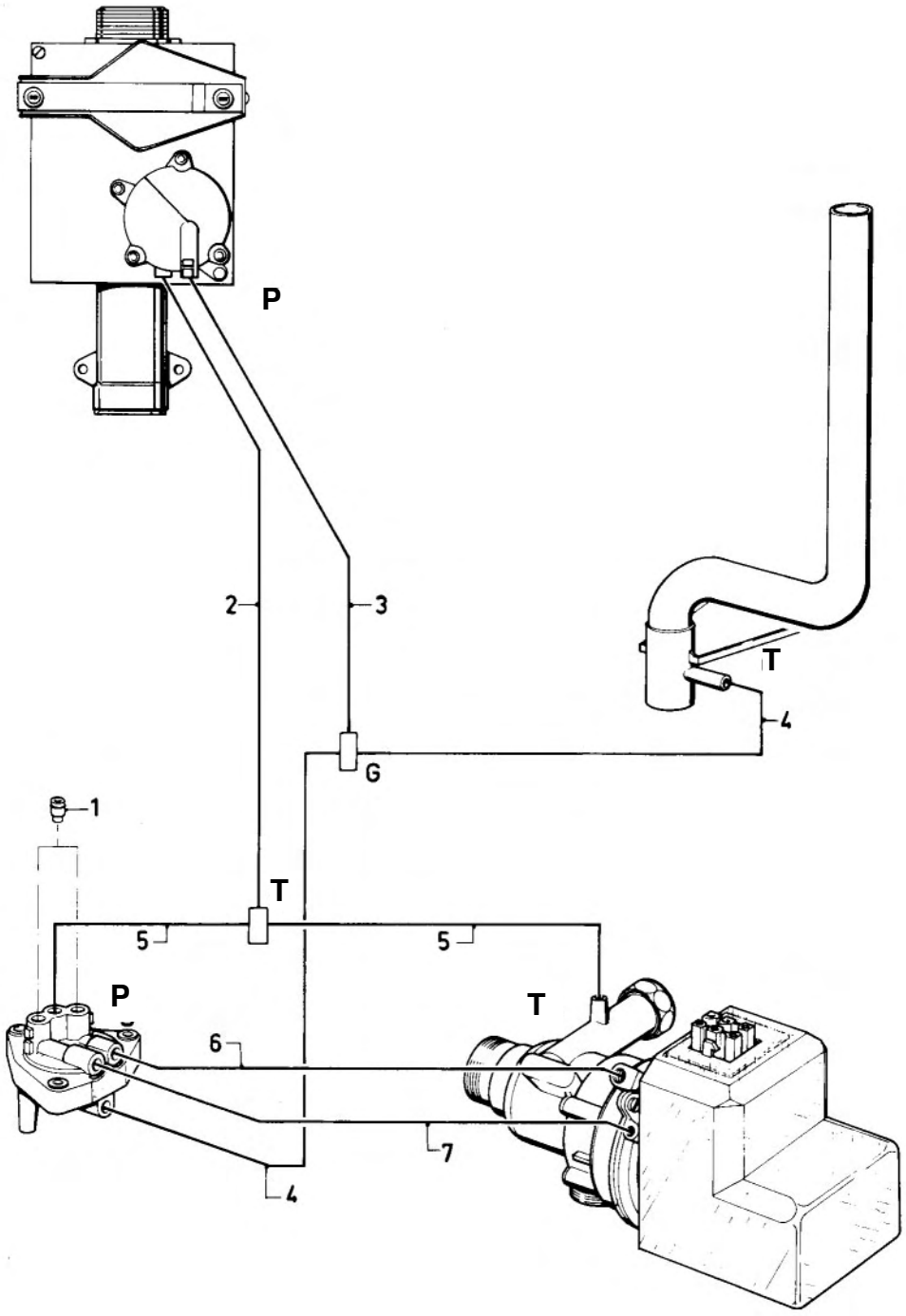


T = Thread connection
P = Plug-in connection

Main component 08 Connection piping
VCW 221,240,280 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	08-4253	flow switch connection		
2	08-4247	flow switch connection		
3	08-4245	flow switch connection		for diverter valve with throttle piece
	08-8940	flow switch connection		for diverter valve without throttle piece
4	08-8939	flow switch connection		
5	10-9914	plug		

Main component 08 Connection piping
VCW 242,282 E

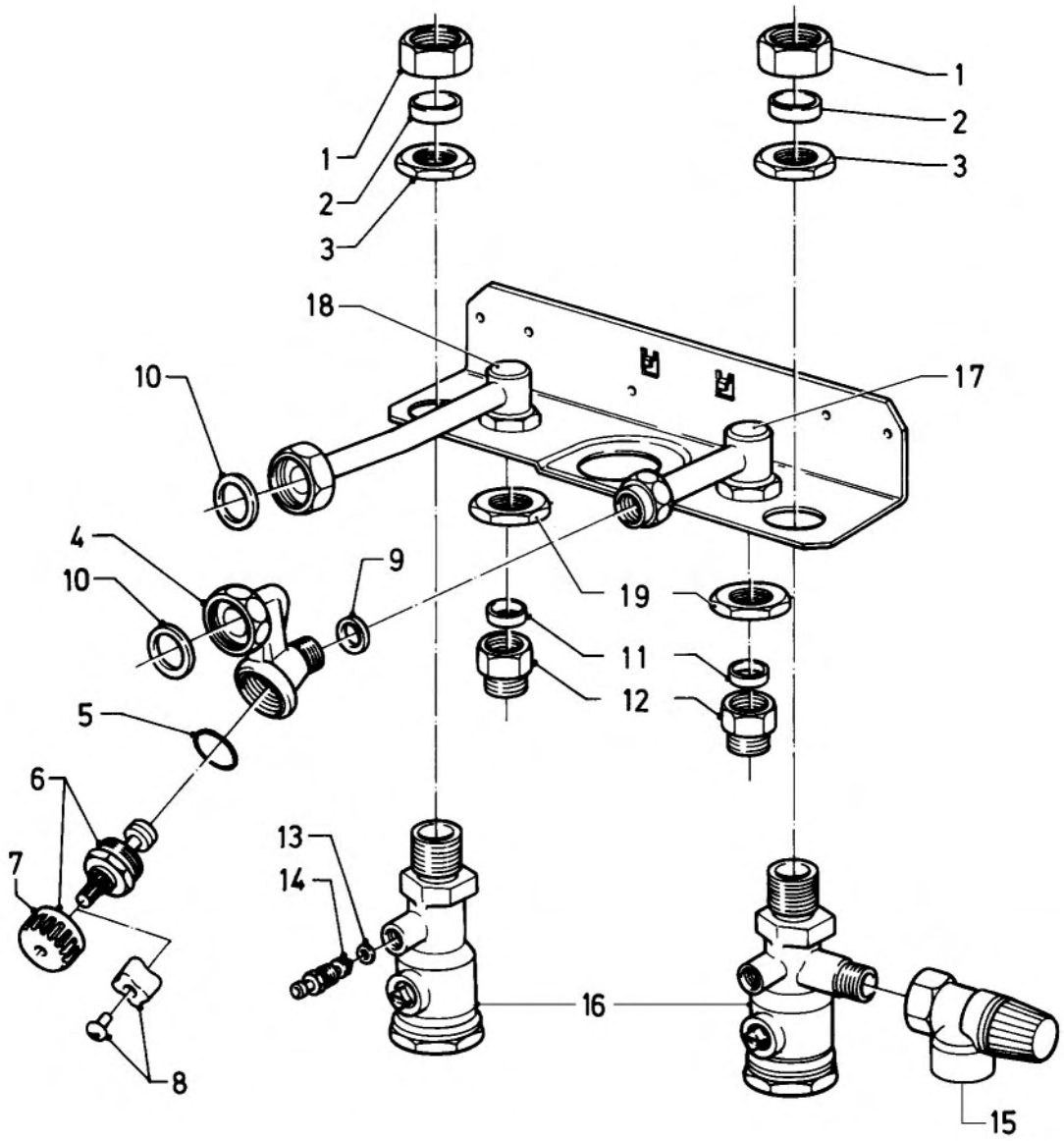


T = Thread connection
P = Plug-in connection

Main component 08 Connection piping
VCW 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	10-9914	plug		
2	08-8906	flow switch connection		
3	08-8912	flow switch connection		
4	08-4263	flow switch connection		
5	08-4266	flow switch connection		
6	08-4245	flow switch connection		for diverter valve with throttle piece
	08-8940	flow switch connection		for diverter valve without throttle piece
7	08-8939	flow switch connection		

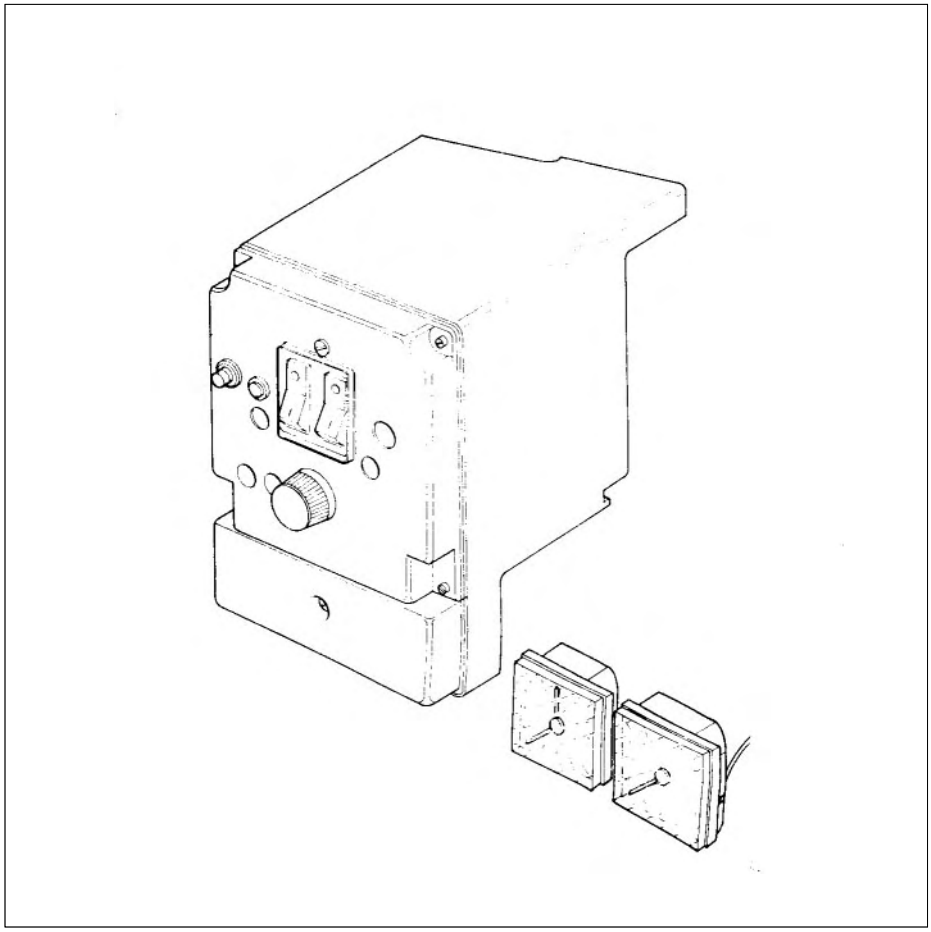
Main component 08 Acc.-connection parts
VC 110-282, VCW 180-282



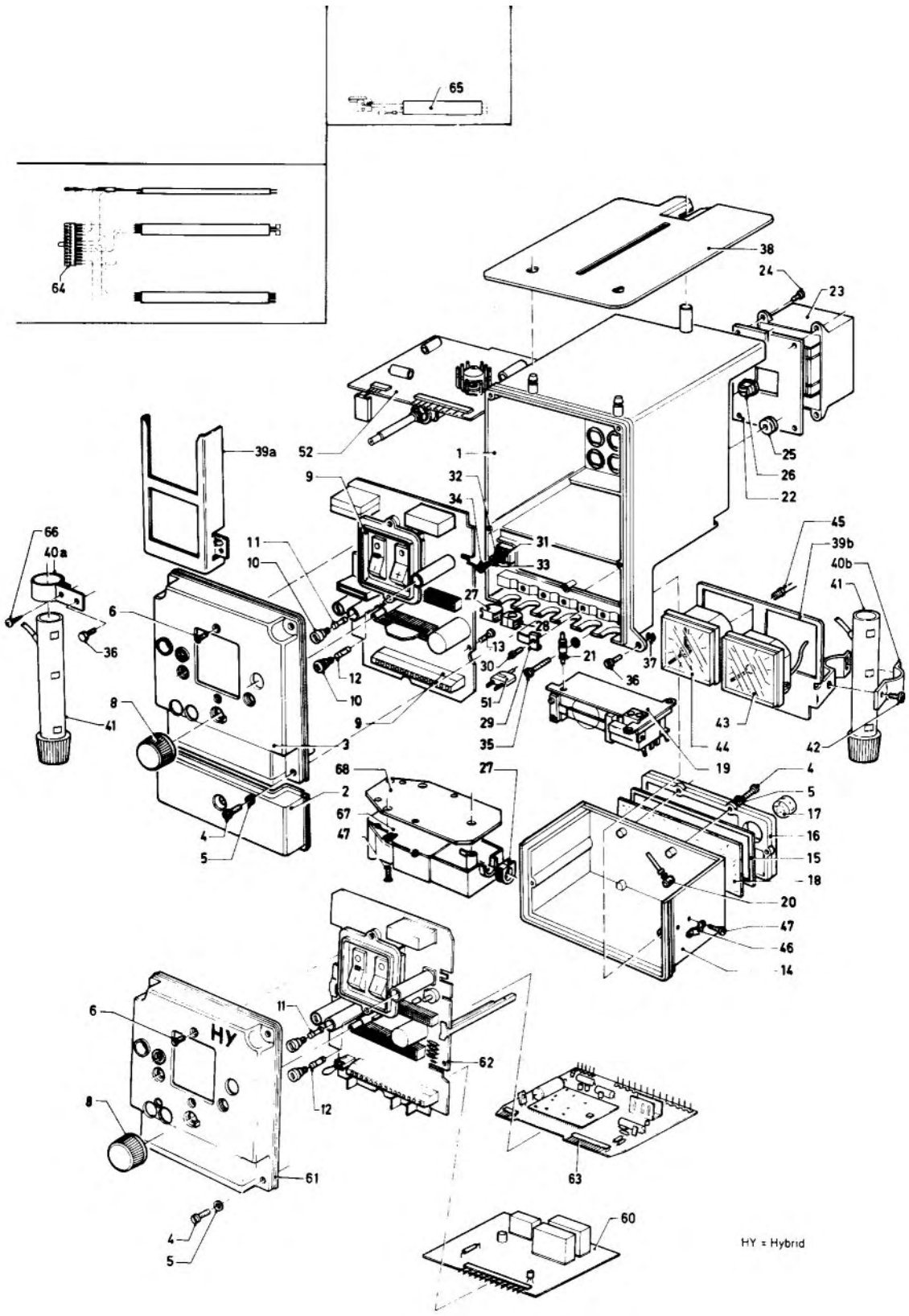
Main component 08 Acc.-connection parts
VC 110-282, VCW 180-282

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	08-0177	nut		
2	08-0184	brass olive		
3	95-0272	nut		
4	08-1714	cold water connection		supplied with parts 5,6
5	98-1605	packingring		
6	95-0057	upper part of valve		
7	14-3981	knob		
8	-	no more available		see pict.-no. 6
9	98-1508	packingring		
10	98-1511	packingring		
11	98-0410	packingring		
12	11-1328	sleeve nut		
13	98-2459	packingring		
14	14-0015	de-aeration screw		
15	19-0721	pressure relief valve		
16	-	-		not available as spare part see acc.-no. 9326 or 9327 see acc.-no. 9326 (return) or 9327 (flow)
17	08-0945	water connection		
18	08-1144	water connection		
19	08-0537	nut		
				Note: Connetion complete VC... acc.-no. 009745 VCW... acc.-no. 009313

Main component 13



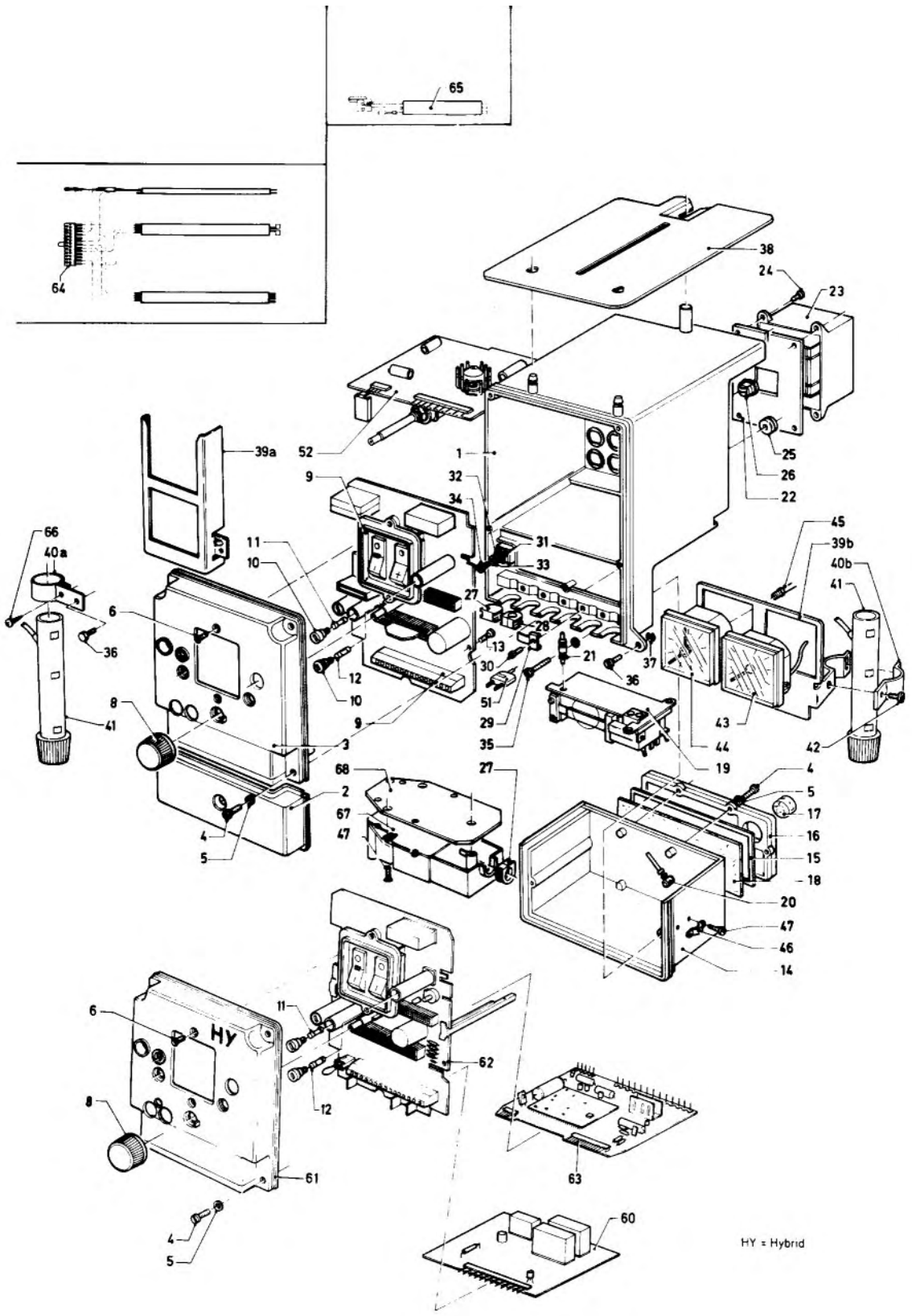
Main component 13 Control box
VC 110,180,221,240 T, VCW 221,240,280 T



Main component 13 Control box
VC 110,180,221,240 T, VCW 221,240,280 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	-	PCB housing		not available as a spare part
2	07-1775	plastic cover		
3	-	control box cover		not available as a spare part
4	10-5780	screw		
5	09-0034	safety disc		
6	13-9211	screw		
8	14-3967	knob		
9	13-0247	printed circuit	motherboard	VC... (supplied with parts 10-12) } non hybrid
	13-0240	printed circuit	motherboard	VCW... (supplied with parts 10-12) } non hybrid
10	-	fuse holder		not available as a spare part
11	13-0037	fuse (2.0 A/250 V)		
12	25-1920	fuse	0,16 A	
14-18	07-1788	cover		supplied with parts 4,5
19	16-0108	diaphragm pump		supplied with part 21
20	08-0368	hose		
21	13-7286	plug		
22	21-0654	insulation plate		
23	28-7418	transformer		
24	23-5740	screw		
25-26	20-1835	cable bushing		
27	20-1848	cable holder		
28	20-1849	cable holder		
29	18-8627	clamp		
30	14-0012	screw		
31	12-0020	contact protection		
32-34	10-5814	screw		
35	13-0012	screw		
36	07-0010	screw	M5 x 9	
	23-5755	screw	4,8 x 13 x 8	
37	11-5507	safety disc		
38	21-3364	back panel		180,240,280
39a	08-6386	support		110
39b	08-6405	support		180,221,240,280
40a	09-0011	support		110
40b	18-8626	clamp		180,221,240,280
41	09-1060	piezo ignition		
42	23-5727	screw		
43	10-1542	thermometer		} glass not available seperatley as a spare part
44	10-1250	manometer		} glass not available seperatley as a spare part
45	08-4280	flow switch connection		110
	08-4256	flow switch connection		180,221,240,280
46	18-8624	clamp		
47	11-8873	screw		

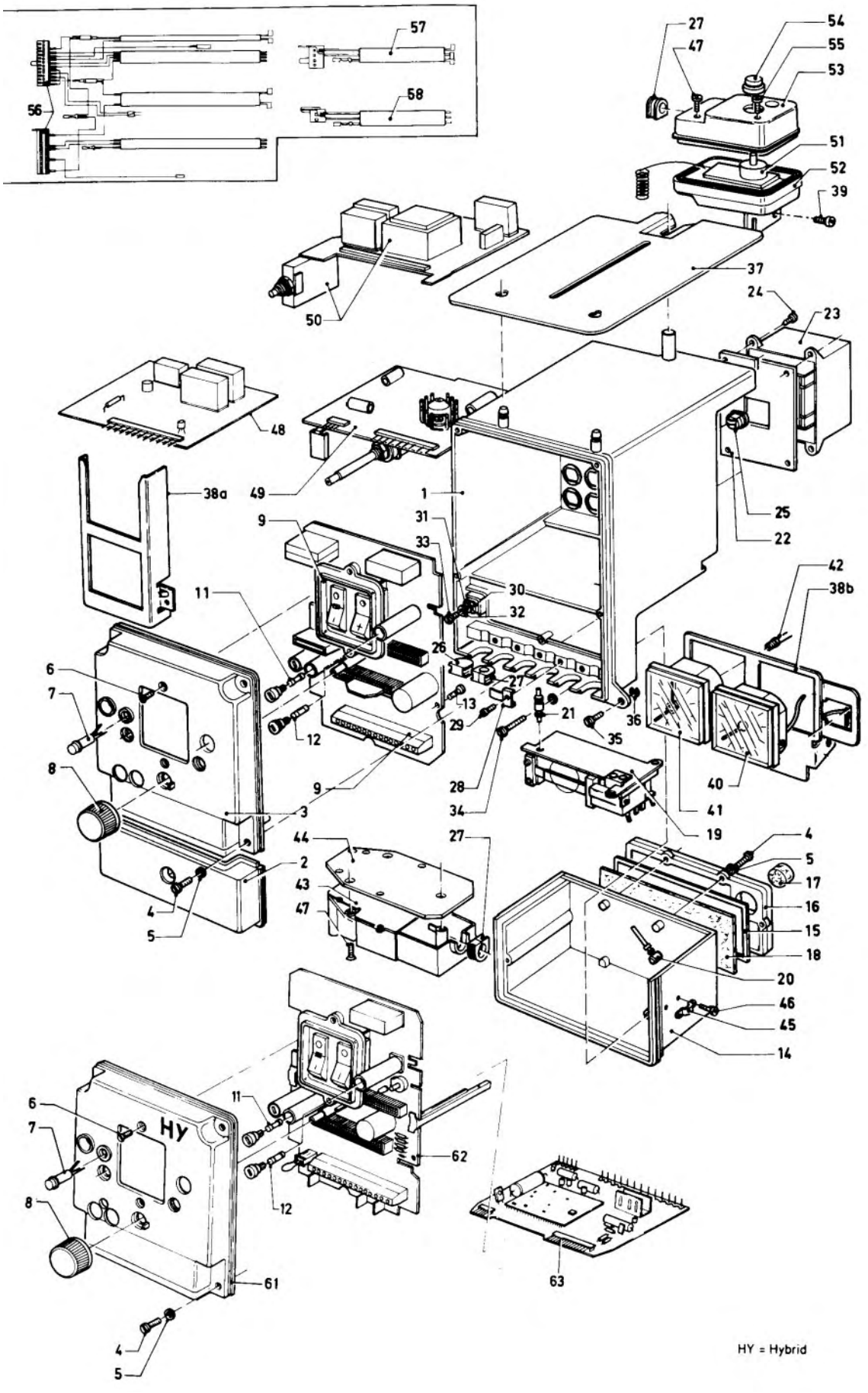
Main component 13 Control box
VC 110,180,221,240 T, VCW 221,240,280 T



Main component 13 Control box
VC 110,180,221,240 T, VCW 221,240,280 T

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
51	13-0242	printed circuit		link
52	25-2945	electronic board	thermostat	non hybrid
60	-	not necessary		
61	-	contol box cover		not available as a spare part
62	13-0323	printed circuit	motherboard	VC... hybrid (supplied with parts 10-12)
	13-0324	printed circuit	motherboard	VCW... hybrid (supplied with parts 10-12)
63	25-2957	electronic board	thermostat	hybrid
64	25-5807	cable tree		VC...
	25-5863	cable tree		VCW...
65	25-0798	cable tree		pump
66	07-0338	disc		
67-68	-	not necessary for (T) execution		

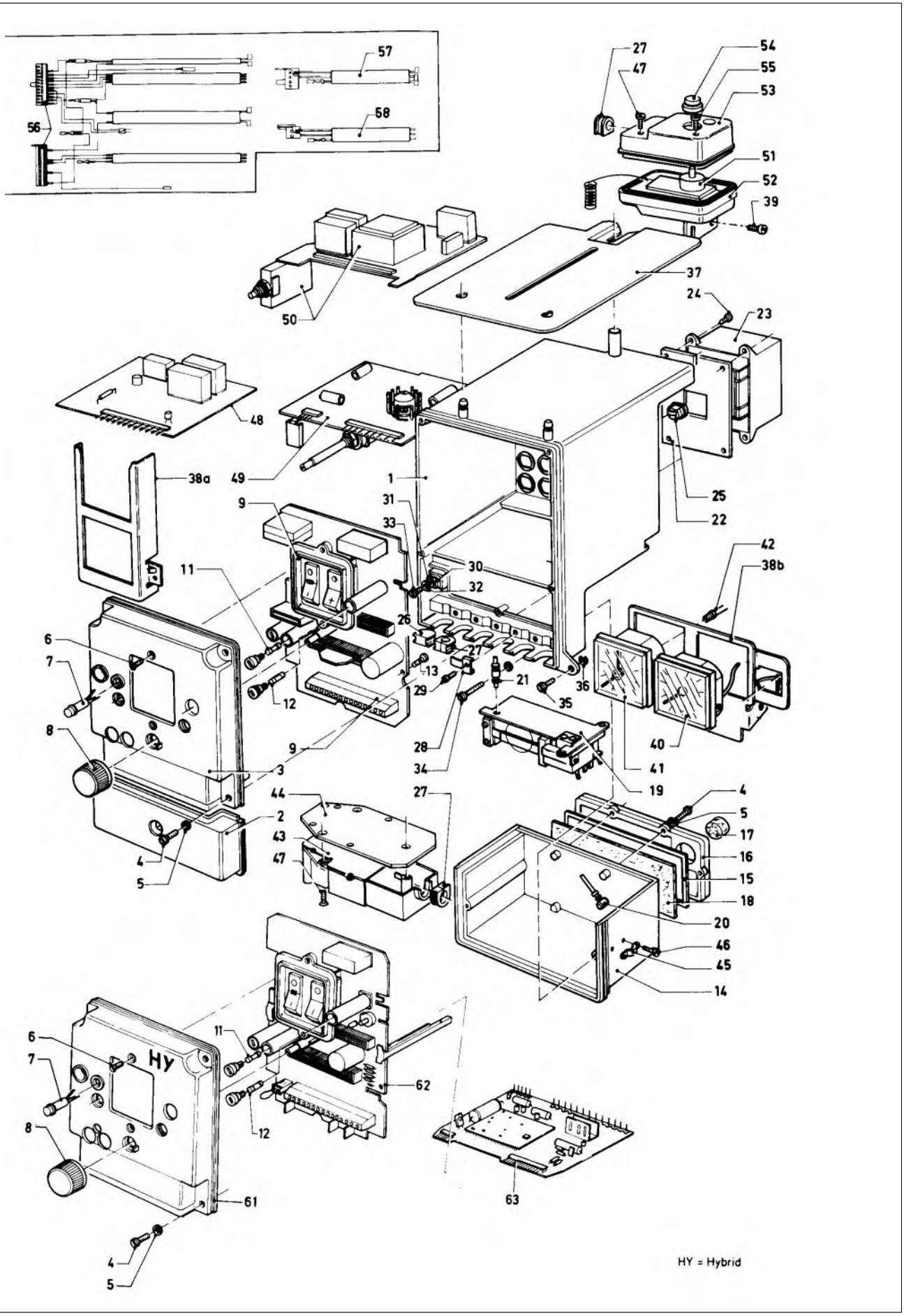
Main component 13 Control box
VC 112,142,182,242,282 E, VCW 242,282 E



Main component 13 Control box
VC 112,142,182,242,282 E, VCW 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	-	PCB housing		not available as a spare part
2	07-1775	plastic cover		
3	-	control box cover		not available as a spare part
4	10-5780	screw		
5	09-0034	safety disc		
6	13-9211	screw		
7	25-0626	control lamp		
8	14-3967	knob		
9	13-0272	printed circuit	motherboard	VC... (supplied with parts 11,12) } non hybrid
	13-0277	printed circuit	motherboard	VCW... (supplied with parts 11,12) } non hybrid
11	13-0037	fuse (2.0 A/250 V)		
12	25-1920	fuse	0,16 A	
13	49-2147	screw		
	28-0217	clip		not shown
14-18	07-1788	cover		supplied with parts 4,5
19	16-0108	diaphragm pump		supplied with part 21
20	08-0368	hose		
21	13-7286	plug		
22	21-0654	insulation plate		
23	28-7418	transformer		
24	23-5740	screw		
25	20-1835	cable bushing		
26	20-1848	cable holder		
27	20-1849	cable holder		
28	18-8627	clamp		
29	14-0012	screw		
30	12-0020	contact protection		
31-33	10-5814	screw		
34	13-0012	screw		
35	07-0010	screw	M5 x 9	
	23-5755	screw	4,8 x 13 x 8	
36	11-5507	safety disc		
37	-	plate		not available as a spare part
38a	08-6386	support		112,142
38b	08-6405	support		182,242,282
39	23-5727	screw		
40	10-1542	thermometer		} glass not available seperatley as a spare part
41	10-1250	manometer		} glass not available seperatley as a spare part
42	08-4280	flow switch connection		112,142
	08-4256	flow switch connection		182,242,282
43	09-1235	ignition transformer		
44	21-0656	insulation plate		
45	18-8624	clamp		
46	11-8873	screw		
47	06-0018	screw	M 4x6	
	13-0005	screw	3,5x13	

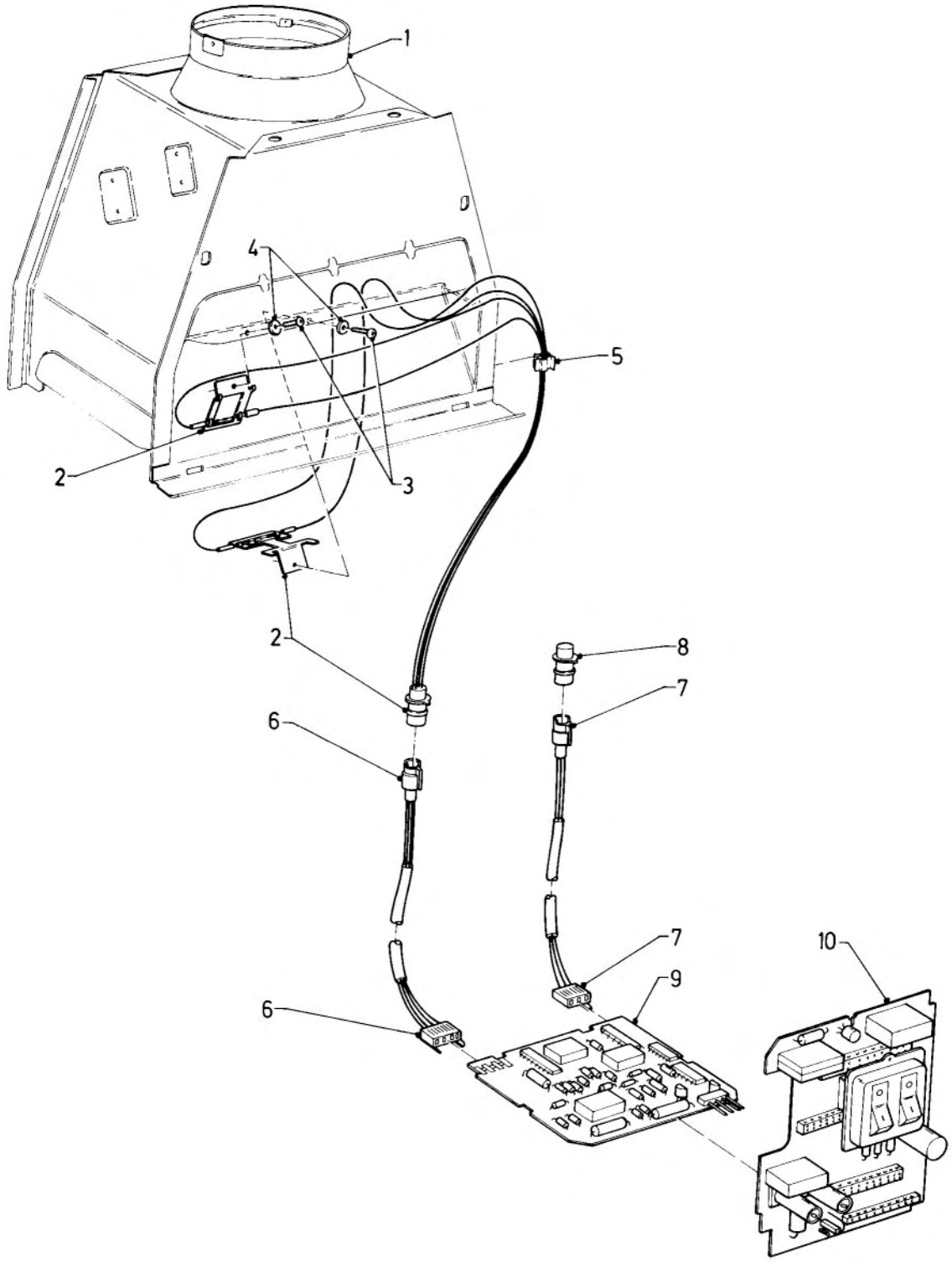
Main component 13 Control box
VC 112,142,182,242,282 E, VCW 242,282 E



Main component 13 Control box
VC 112,142,182,242,282 E, VCW 242,282 E

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
48	13-0451	printed circuit board	fan	
49	25-2945	electronic board	thermostat	non hybrid
50	10-0555	flame supervision device	ignition	
51	10-1384	temperature limiter		112,142
	10-1392	temperature limiter		182
	10-1391	temperature limiter		242,282
52	13-6936	casing		
53	-	casing		single delivery not possible, supplied with pict.-no. 51
54	20-4048	cap		
55	11-8947	screw	M 4x16	
	13-0005	screw	3,5x13	
56	25-5928	cable tree		VC...
	25-5929	cable tree		VCW...
57	25-5803	cable tree		temperature limiter
58	25-0798	cable tree		pump
61	-	control box cover		single delivery not possible
62	13-0330	printed circuit	motherboard	VC... hybrid (supplied with parts 11,12)
	13-0331	printed circuit	motherboard	VCW... hybrid (supplied with parts 11,12)
63	25-2957	electronic board	thermostat	hybrid
				Notice: Prior to 31/12/90 control box cover for hybrid stamped with " HY " (see pict.-no. 61). Non hybrid no stamp. After 1/1/91 all appliances produced were hybrid models, which contained no stamp on control box cover as previos hybrid models had.

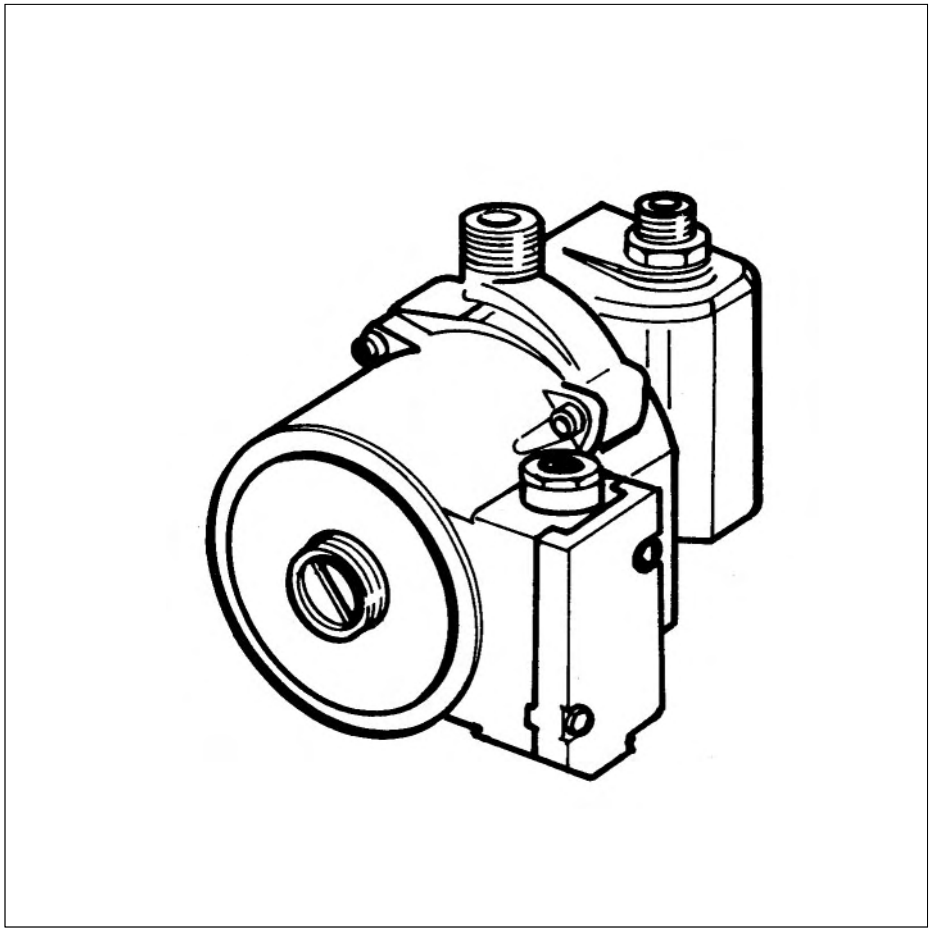
Main component 13 Flue sensor
VC 110,180,240 X H, VCW 240,280 X H



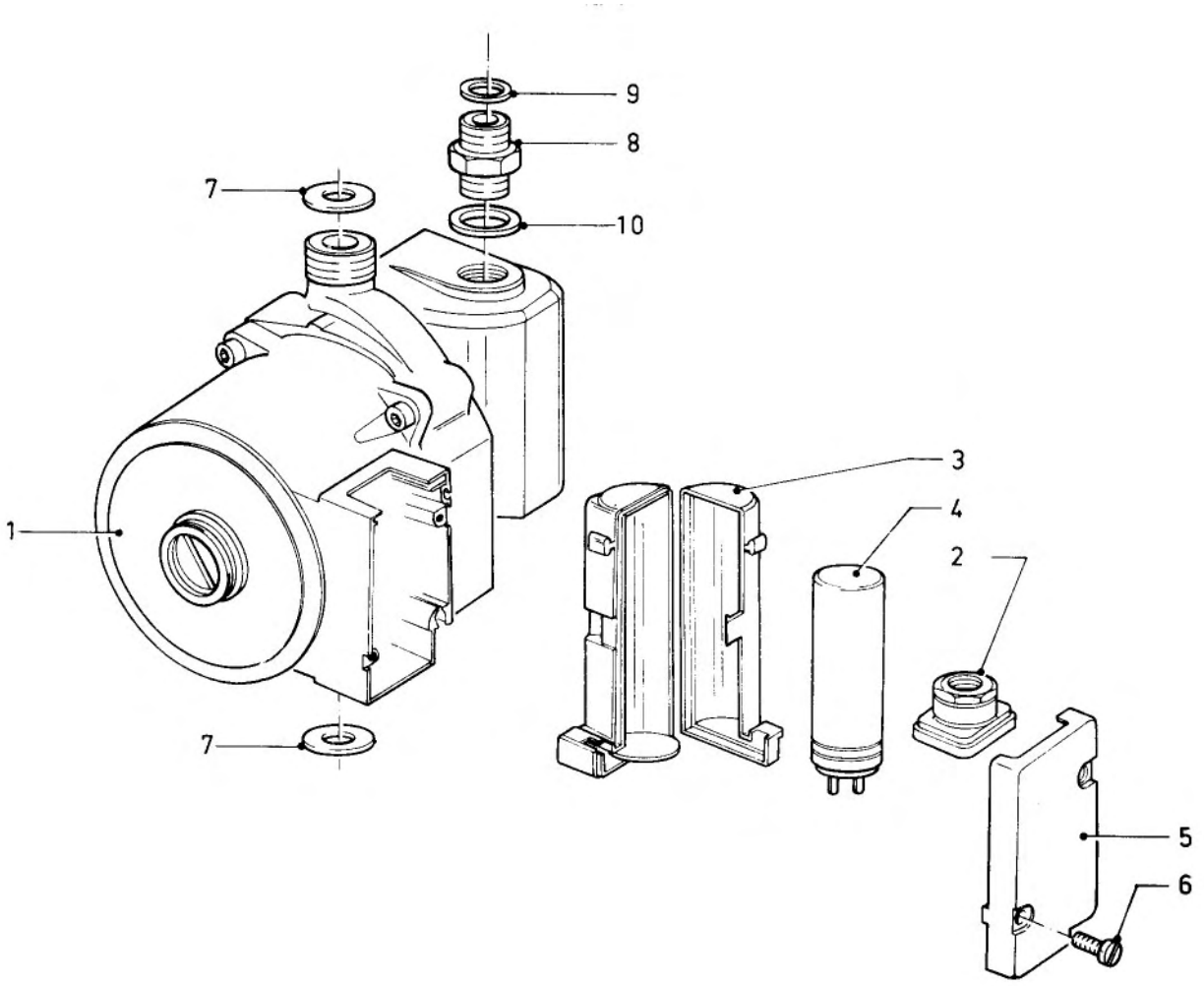
Main component 13 Flue sensor
VC 110,180,240 X H, VCW 240,280 X H

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	07-4945	draft diverter		110
	07-4920	draft diverter		180
	07-4921	draft diverter		240
	07-4940	draft diverter		280
2	25-3516	flue sensor		VC 110 } supplied with parts 3-5
	25-3511	flue sensor		VC 180,240, VCW 240,280 }
3	23-5750	screw		
4	95-0239	disc		
5	18-8638	clamp		
6	08-9445	connection line		
7-8	-	not necessary for british execution		
9	13-0311	printed circuit		flue sensor
10	13-0323	printed circuit	motherboard	VC... hybrid
	13-0324	printed circuit	motherboard	VCW... hybrid

Main component 16



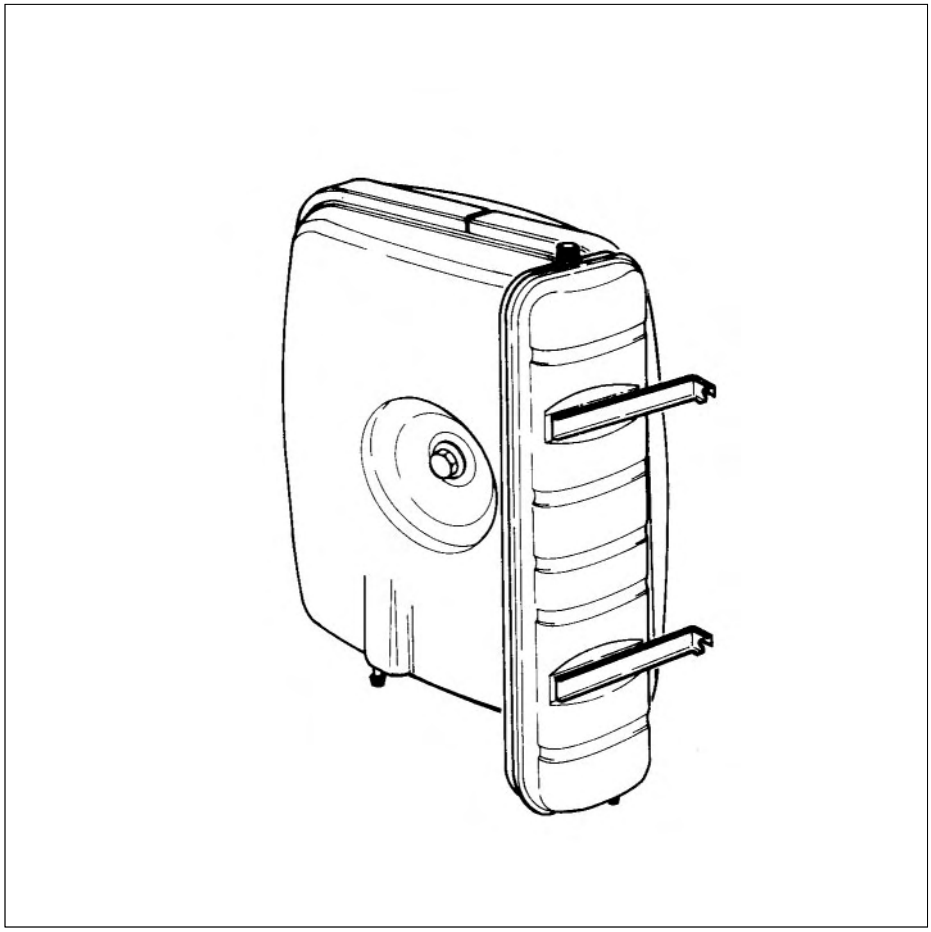
Main component 16 Pump
VC 110-242,282, VCW 221-282



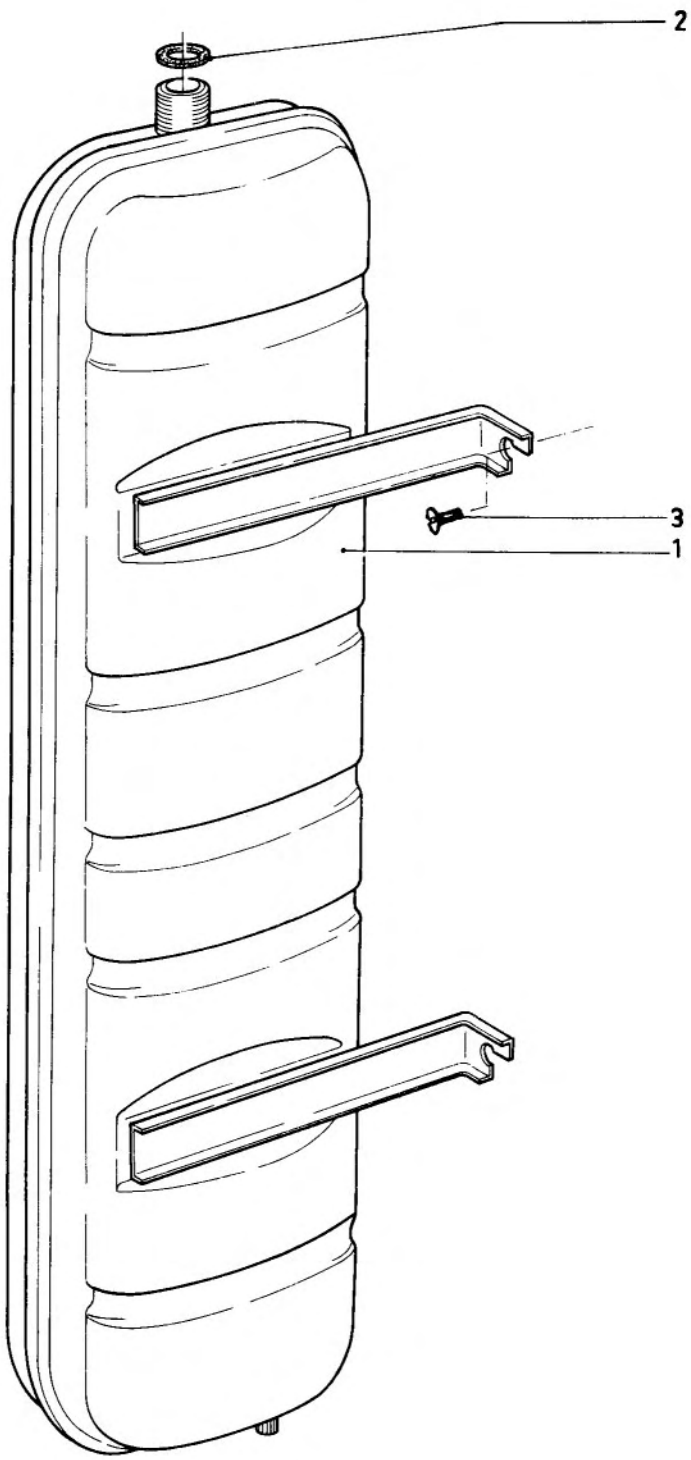
Main component 16 Pump
VC 110-242,282, VCW 221-282

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	16-1077	pump	VP 4 (240 V)	110,112,142 (supplied with parts 4,7,9)
	16-1106	pump	VP 5 (240 V)	180-242 (supplied with parts 2-10)
	16-1107	pump	VP 6 (240 V)	280,282 (supplied with parts 2-10)
2-3	-	-		single delivery not possible, supplied with 16-1108 or 16-1109
4	25-1329	condenser	2,5 µF	110,112,142
	25-1370	condenser	3 µF	180-282
5	-	-		single delivery not possible, supplied with 16-1108 or 16-1109
6	06-0009	screw		
7	98-1511	packingring		
8	13-6333	nipple		
9	98-1508	packingring		
10	98-0222	packingring		

Main component 18



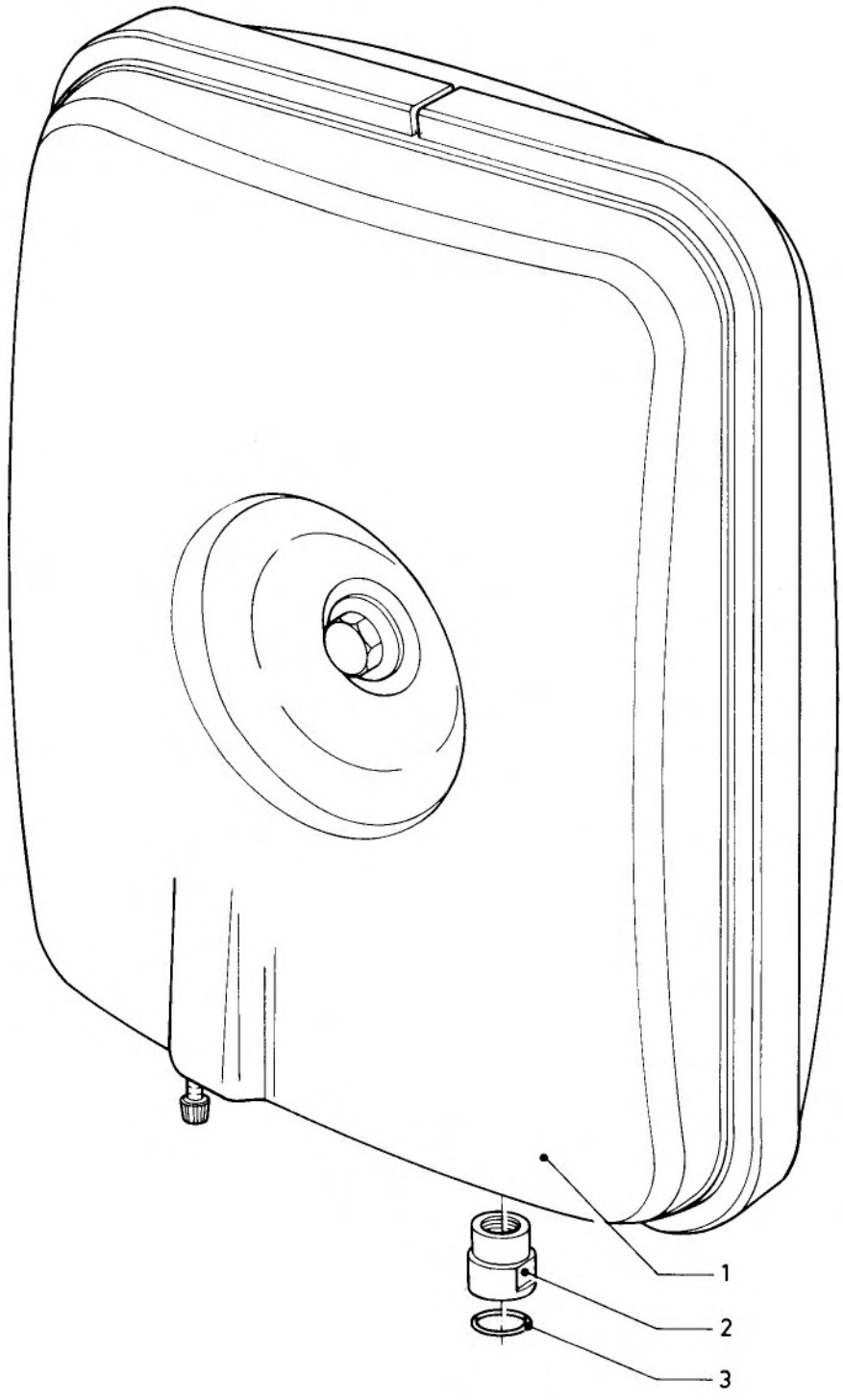
Main component 18 Expansion vessel
VC 110,112,142



Main component 18 Expansion vessel
VC 110,112,142

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	18-1005	expansion vessel		
2	98-1508	packingring		
3	23-5727	screw		

Main component 18 Expansion vessel
VC 180-282, VCW 221-282



Main component 18 Expansion vessel
VC 180-282, VCW 221-282

Pict. No.	Article-No.	Part	Indic.	Type, Remarks
1	18-1022 18-1030	expansion vessel expansion vessel	12 ltr. 8 ltr.	supplied with parts 2,3 from 05/95 (CE marked
2	-	-		single delivery not possible, supplied with 18-1022
3	98-2495	packingring		