VIESSMANN MANUFACTURING COMPANY (U.S.) INC. ("Viessmann")

STANDARD LIMITED WARRANTY

For Hydronic Heating Boilers - Gas-Fired Condensing Stainless
Steel Boilers Only **(the "Standard Warranty" or the "Warranty")**

TERMS AND CONDITIONS OF WARRANTY

Viessmann provides this Warranty only to the original end user purchaser (the "Owner") of a Viessmann Stainless Steel Hydronic Heating Boiler of less than 530,000 BTU output purchased after September 1, 2016, in the United States of America for installations in the United States (the "Boiler"), provided the Owner uses the Boiler at the site of original installation in accordance with the terms hereof.

This Warranty provides specific legal rights. You may have other rights which vary from State to State in the United States of America. The rights in this Warranty are conditioned upon: (a) the proper installation of the Boiler in accordance with all applicable rules, regulations, industry standards and Viessmann instructions by a mechanical contractor or installer whose principal occupation is the sale and installation of heating, plumbing, and/or air conditioning equipment and who is properly licensed under all relevant and/or applicable laws of the jurisdiction in which the Boiler is installed ("Contractor"); (b) proper operation, and maintenance of the Boiler by a Contractor in accordance with the product manuals; (c) the original and continuous installation and use of the Boiler by an Owner within the United States of America; and (d) performance of warranted part replacements or repairs by a Contractor.

WARRANTY AND WARRANTY PERIODS

Viessmann's obligation under this Warranty is limited to the repair or replacement, at the sole discretion of Viessmann, of any goods or parts which do not conform to the express Warranty provided herein. Labor and all other costs for the examination, removal and/or re-installation of defective parts, and transportation costs for defective or replacement parts, are not covered by this Warranty.

LIMITED TWO (2) YEAR WARRANTY
Viessmann warrants that the Boiler enclosure, burner, controls, and other accessories Viessmann provides as standard equipment on the Boiler will be free from defects in material and workmanship for TWO (2) YEARS from the Date of Original Installation of the Boiler.

LIMITED FIVE (5) YEAR WARRANTY FOR RESIDENTIAL APPLICATIONS
If the Owner uses the Boiler exclusively for personal, family and household purposes in a single family dwelling or a residential building where Boiler services only the Owner's residence ("Residential Applications") Viessmann warrants that the Boiler enclosure , burner, controls, and other accessories that Viessmann provides as standard equipment on the Boiler will be free from defects in material and workmanship for FIVE (5) YEARS from the Date of Original Installation of the Boiler.

LIMITED TEN (10) YEAR WARRANTY FOR THE PRESSURE VESSEL
Viessmann warrants that the pressure vessel of the Boiler will be free from defects in materials and workmanship resulting in a leak for TEN (10) YEARS from the Date of Original Installation of the Boiler.

LIMITED LIFETIME WARRANTY FOR THE PRESSURE VESSEL AFTER THE TENTH (10TH) YEAR FOR RESIDENTIAL APPLICATIONS
If the Owner uses the Boiler exclusively in a Residential Application, Viessmann warrants that the pressure vessel will remain free from defects in materials and workmanship resulting in a leak during the life time of the boiler. Repair or replacement of a pressure vessel defective in material or workmanship after the tenth year in Residential Applications will be made only upon the Owner's payment of a proportionate charge based upon the length of time the pressure vessel has been installed.

The proportionate charge is the percentage of the then current Viessmann list price of the pressure vessel when the warranty claim is made, determined as follows: 11th year - Owner 20%, Viessmann 80%; 12th year - Owner 40%, Viessmann 60%; 13th year - Owner 50%, Viessmann 50%; 14th year - Owner 60%, Viessmann 40%; 15th year and beyond - Owner 75%, Viessmann 25%.

If a pressure vessel for the Boiler is no longer available when the warranty claim is made, Viessmann will provide a new condensing Boiler at the then current retail price subject to the following: The Owner must pay the then current retail price for the replacement boiler less a credit based upon (1) the percentage the list price of the pressure vessel of the new boiler bears to the list price of the entire boiler, and (2) Viessmann's share of the proportionate charge detailed above. By way of example, if the pressure vessel fails in the 14th year and the list price of the pressure vessel is 30% of the list price of the new boiler, the Owner will receive a credit of 12% of the retail list price of the new boiler (30% of Viessmann's 40% share of proportionate charge in the 14th year).

REPLACEMENT PARTS
Replacement or repaired parts provided under this Warranty are warranted for the applicable unexpired period of this Warranty, or the term of Viessmann's Parts Warranty, whichever is longer.

COMMENCEMENT OF WARRANTY PERIODS

The Warranty Periods commence on the date the Boiler is installed (the "Date of Original Installation"). In the event of a dispute as to the Date of Original Installation, the shipping date from the Viessmann facility, as recorded in the books and records of Viessmann, shall be deemed to be the Date of Original Installation.

WARRANTY EXPRESSLY EXCLUDES THE FOLLOWING

1. THE REMEDY PROVIDED IN THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE OWNER. VIESSMANN SHALL NOT BE RESPONSIBLE FOR ANY PUNITIVE, SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOSS OF USE AND LOST PROFITS). VIESSMANN'S MAXIMUM CUMULATIVE LIABILITY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE THE ORIGINAL END-USER PURCHASER PAID FOR THE BOILER. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

2. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES. VIESSMANN MAKES NO OTHER WARRANTIES OR GUARANTEES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. ANY SUCH WARRANTY IMPOSED BY LAW IS LIMITED TO THE PERIOD OF THE LIMITED WARRANTY PROVIDED HEREIN. NO WARRANTY ARISING BY USAGE, CUSTOM, COURSE OF DEALING OR COURSE OF PERFORMANCE IS GIVEN BY VIESSMANN OR SHALL ARISE. IN CONNECTION WITH THIS WARRANTY. Some States do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

3. Liability or damages caused by improper installation or unsuitable or improper use or operation of the Boiler, incorrect Boiler start-up, incorrect or careless handling, improper control adjustment or control strategy, incorrect burner adjustment, disregard of the operating and maintenance instructions or any other instructions supplied with the Boiler, alteration of the Boiler, or use of unauthorized replacement parts.

4. The workmanship of the Contractor and repairs or replacement of parts required due to poor workmanship of the Contractor.

5. Components and parts not furnished by Viessmann.

6. (a) Damage caused by improper care or maintenance, including, but not limited to improper removal of Boiler condensate, and (b) failure to inspect and service the Boiler in accordance with Viessmann's product manuals. The Boiler and its burner must be operated, serviced, inspected and cleaned in accordance with the product manuals.

7. Damage to the Boiler or any of its parts caused by matters outside the control of Viessmann, including excessive temperatures or pressures, unsuitable fuels, fuel impurities, improper fuel mixture, fuel or gas explosion, electrical, chemical or electrochemical reaction, water impurities, unsuitable water conditions as per system design guidelines, water conditions causing unusual deposits within the water side and heat exchanger combustion area of the pressure vessel within the Boiler, water treatment chemicals, electrical failures and surges, acts of God, combustion air contaminated externally, air impurities, sulfur or sulfuric action or reaction, dust particles, corrosive vapors, oxygen corrosion, situating the Boiler in an unsuitable location or continuing use of the Boiler after onset of a malfunction or discovery of a defect.

8. Damage to the Boiler or any of its original or authorized replacement parts caused by a water conditioning system in the building in which the Boiler is installed not conforming to Viessmann specifications.

9. Wear and tear and/or consumption of parts including, but not limited to, fuses, gaskets, ignitors, electrodes, combustion chamber linings, and parts in direct contact with the open flame.

NON- ASSIGNABILITY

No Viessmann warranties are assignable.

ARBITRATION

IN THE EVENT OF ANY DISPUTE BETWEEN VIESSMANN AND THE OWNER ARISING OUT OF THE INTERPRETATION OR PERFORMANCE OF THIS WARRANTY, OR THE PARTS AND EQUIPMENT COVERED HEREUNDER, SUCH DISPUTE SHALL BE SUBMITTED TO BINDING ARBITRATION ADMINISTERED BY THE AMERICAN ARBITRATION ASSOCIATION ("AAA"). THE ARBITRATION SHALL BE CONDUCTED BY THREE (3) ARBITRATORS, ONE OF WHOM SHALL BE NOMINATED BY VIESSMANN, ONE BY THE OWNER AND THE THIRD BY THE FIRST TWO NOMINEES IF THEY CAN AGREE AND OTHERWISE IN ACCORDANCE WITH THE RULES OF THE AAA. ALL CLAIMS OR DISPUTES SHALL BE BROUGHT IN THE PARTIES' INDIVIDUAL CAPACITY AND NOT AS A PLAINTIFF OR CLASS MEMBER IN ANY PURPORTED CLASS OR REPRESENTATIVE PROCEEDING. THERE SHALL BE NO RIGHT OR AUTHORITY FOR ANY CLAIMS OR DISPUTES TO BE ARBITRATED ON A CLASS ACTION BASIS.

HOW TO MAKE A WARRANTY CLAIM

For prompt warranty service, notify the Contractor who installed your Boiler. If this action does not result in warranty service, contact Viessmann directly at the address below.

The obligations of Viessmann under this Warranty apply only when the Owner promptly notifies the Contractor of the issue giving rise to the claim and in no event later than fourteen (14) days after its occurrence.

Viessmann Manufacturing Company (U.S.) Inc.
45 Access Road Warwick, Rhode Island ● 02886 ● USA
Telephone: (401) 732-0667 ● Fax: (401) 732-0590
www.viessmann-us.com

Installation Instructions

for use by heating contractor

VIE⑊MANN

Vitodens 200-W, B2HA
Models 112, 150, 399, 530
Wall-mounted, gas-fired condensing boiler

For operation with natural gas and liquid propane gas
Heating input: 113 to 530 MBH
33 to 155 kW

VITODENS® 200-W

AHRI CERTIFIED®
C
www.ahridirectory.org

CSA
CERTIFIED

DESIGN
CERTIFIED

A
S
M
E
H

NB

CSA®
Energy Verified

Product may not be exactly as shown

IMPORTANT

**Read and save these instructions
for future reference.**

Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation. Failure to comply with the instructions listed below and details printed in this manual can cause product/property damage, severe personal injury, and/or loss of life. Ensure all requirements below are understood and fulfilled (including detailed information found in manual subsections).

■ **Product documentation**
Read all applicable documentation before commencing installation. Store documentation near boiler in a readily accessible location for reference in the future by service personnel.

▶*For a listing of applicable literature, please see section entitled "Important Regulatory and Safety Requirements".*

■ **Warranty**
Information contained in this and related product documentation must be read and followed. Failure to do so renders the warranty null and void.

■ **Licensed professional heating contractor**
The installation, adjustment, service and maintenance of this equipment must be performed by a licensed professional heating contractor.

▶*Please see section entitled "Important Regulatory and Installation Requirements".*

■ **Contaminated air**
Air contaminated by chemicals can cause by-products in the combustion process, which are poisonous to inhabitants and destructive to Viessmann equipment.

▶*For a listing of chemicals which cannot be stored in or near the boiler room, please see subsection entitled "Mechanical room" in the "Installation Instructions".*

■ **Advice to owner**
Once the installation work is complete, the heating contractor must familiarize the system operator/ ultimate owner with all equipment, as well as safety precautions/requirements, shutdown procedure, and the need for professional service annually before the heating season begins.

> ⚠ **WARNING**
>
> **Installers must follow local regulations with respect to installation of carbon monoxide detectors. Follow the Viessmann maintenance schedule of the boiler contained in this manual.**

Operating and Service Documentation

It is recommended that all product documentation such as parts lists, operating and service instructions be handed over to the system user for storage. Documentation is to be stored near boiler in a readily accessible location for reference by service personnel.

■ **Carbon monoxide**
Improper installation, adjustment, service and/or maintenance can cause flue products to flow into living space. Flue products contain poisonous carbon monoxide gas.
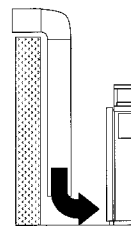
▶*For information pertaining to the proper installation, adjustment, service and maintenance of this equipment to avoid formation of carbon monoxide, please see subsection entitled "Mechanical room" and "Venting requirements" in the "Installation Instructions".*

■ **Fresh air**
This equipment requires fresh air for safe operation and must be installed ensuring provisions for adequate combustion and ventilation air exist.

▶*For information pertaining to the fresh air requirements of this product, please see subsection entitled "Mechanical room" in the "Installation Instructions".*

■ **Equipment venting**
Never operate boiler without an installed venting system. An improper venting system can cause carbon monoxide poisoning.

▶*For information pertaining to venting and chimney requirements, please see section entitled "Venting Connection". All products of combustion must be safely vented to the outdoors.*

> ⚠ **WARNING**
>
> **This boiler requires fresh air for safe operation and must be installed with provisions for adequate combustion and ventilation air (in accordance with local codes and regulations of authorities having jurisdiction).**
>
> **Do not operate this boiler in areas with contaminated combustion air. High levels of contaminants such as dust, lint or chemicals can be found at construction sites, home renovations, in garages, workshops, in dry cleaning/laundry facilities, near swimming pools and in manufacturing facilities.**
>
> **Contaminated combustion air will damage the boiler and may lead to substantial property damage, severe personal injury and/or loss of life. Ensure boiler/burner is inspected and serviced by a qualified heating contractor at least once a year in accordance with the Service Instructions of the boiler.**

5683 709 - 17

Safety, Installation and Warranty Requirements *(continued)*

Fiberglass wool and ceramic fiber materials

⚠️ **WARNING**

Inhaling of fiberglass wool and/or ceramic fiber materials is a possible cancer hazard. These materials can also cause respiratory, skin and eye irritation.

The state of California has listed the airborne fibers of these materials as a possible cancer hazard through inhalation. When handling these materials, special care must be applied.

Suppliers of ceramic fiber products recommend the following first aid measures:

- *Respiratory tract (nose and throat) irritation:* If respiratory tract irritation develops, move the person to a dust free location.

- *Eye irritation:* If eyes become irritated, flush immediately with large amounts of lukewarm water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes.

- *Skin irritation:* If skin becomes irritated, remove soiled clothing. Do not rub or scratch exposed skin. Wash area of contact thoroughly with soap and water. Using a skin cream or lotion after washing may be helpful.

- *Gastrointestinal irritation:* If gastrointestinal tract irritation develops, move the person to a dust free environment.

Suppliers of fiberglass wool products recommend the following precautions be taken when handling these materials:

- Avoid breathing fiberglass dust and contact with skin and eyes.
- Use NIOSH approved dust/mist respirator.
- Wear long-sleeved, loose fitting clothing, gloves and eye protection.
- Wash work clothes separately from other clothing. Rinse washer thoroughly.
- Operations such as sawing, blowing, tear-out and spraying may generate airborne fiber concentration requiring additional protection.

First aid measures

- If eye contact occurs, flush eyes with water to remove dust. If symptoms persist, seek medical attention.
- If skin contact occurs, wash affected areas gently with soap and warm water after handling.

⚠️ **WARNING**

Appliance materials of construction, products of combustion and the fuel contain alumina, silica, heavy metals, carbon monoxide, nitrogen oxides, aldehydes and/or other toxic or harmful substances which can cause serious injury or loss of life and which are known to the State of California to cause cancer, birth defects and other reproductive harm. Always use proper safety clothing, respirators and equipment when servicing or working nearby the appliance.

About these Installation Instructions

⚠️ **Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION", and "IMPORTANT". See below.**

⚠️ **WARNING**

Indicates an imminently hazardous situation which, if not avoided, could result in loss of life, serious injury or substantial product/property damage.

▶ *Warnings draw your attention to the presence of potential hazards or important product information.*

⚠️ **CAUTION**

Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product/property damage.

▶ *Cautions draw your attention to the presence of potential hazards or important product information.*

IMPORTANT

▶ *Helpful hints for installation, operation or maintenance which pertain to the product.*

▶

▶ *This symbol indicates that additional, pertinent information is to be found.*

▶ *This symbol indicates that other instructions must be referenced.*

Important Regulatory and Installation Requirements

Codes

The installation of this unit shall be in accordance with local codes or, in the absence of local codes, use CAN/CSA-B149.1 or .2 Installation Codes for Gas Burning Appliances for Canada. For U.S. installations use the National Fuel Gas Code ANSI Z223.1. Always use latest editions of codes.

In Canada all electrical wiring is to be done in accordance with the latest edition of CSA C22.1 Part 1 and/or local codes. In the U.S. use the National Electrical Code ANSI/NFPA 70. The heating contractor must also comply with both the Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, and the Installation Code for Hydronic Heating Systems, CSA B214-01, where required by the authority having jurisdiction.

Instructing the system user

The installer of the system is responsible to ensure the system operator/ultimate owner is made familiar with the system functioning, its activation, and its shut-down.

Initial start-up

Initial start-up must be performed by a qualified heating contractor. Proper completion of the Maintenance Record by the heating contractor is also required.

Working on the equipment

The installation, adjustment, service, and maintenance of this boiler must be done by a licensed professional heating contractor who is qualified and experienced in the installation, service, and maintenance of hot water boilers. There are no user serviceable parts on the boiler, burners, or control.

Ensure main power supply to equipment, the heating system, and all external controls has been deactivated. Close main gas supply valve. Take precautions in all instances to avoid accidental activation of power during service work.

The following topics must be covered:
Proper system operation sequence.
Explain the equipment.
Demonstrate an emergency shut-down, what to do and what not.
Explain that there is no substitute for proper maintenance to help ensure safe operation.

The Maintenance Record is located in the Service Instructions.

Please carefully read this manual prior to attempting start-up, maintenance or service. Any warranty is null and void if these instructions are not followed.

For information regarding other Viessmann System Technology componentry, please reference documentation of the respective product.

We offer frequent installation and service seminars to familiarize our partners with our products. Please inquire.

Technical literature

Literature for the Vitodens boiler:

- Technical Data Manual

- Installation Instructions

- Service Instructions

- Operating Instructions and User's Information Manual

- Instructions of other Viessmann products utilized and installed

- Installation codes mentioned in this manual

The completeness and functionality of field supplied electrical controls and components must be verified by the heating contractor. These include low water cut-offs, flow switches (if used), staging controls, pumps, motorized valves, air vents, thermostats, etc.

Leave all literature at the installation site and advise the system operator/ultimate owner where the literature can be found. Contact Viessmann for additional copies.

This product comes with several safety instruction labels attached.
Do not remove!
Contact Viessmann immediately if replacement labels are required.

5683 709 - 17

Important Regulatory and Installation Requirements *(continued)*

For installations on the Commonwealth of Massachusetts, the following modifications to NFPA-54 chapter 10 apply:

Excerpt from 248 CMR 5-08:

2(a) For all side-wall horizontally vented gas fueled equipment installed in every dwelling, building or structure used in whole or in part for residential purposes, including those owned or operated by the Commonwealth and where the sidewall exhaust vent termination is less than (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, the following requirements shall be satisfied:

    1. INSTALLATION OF CARBON MONOXIDE DETECTORS. At the time of installation of the side-wall horizontal vented gas fueled equipment, the installing plumber or gasfitter shall observe that a hard wired carbon monoxide detector with an alarm and battery back-up is installed on the floor level where the gas equipment is to be installed. In addition, the installing plumber or gasfitter shall observe that a battery operated or hard wired carbon monoxide detector with an alarm is installed on each additional level of the dwelling, building or structure served by the side-wall horizontal vented gas fueled equipment. It shall be the responsibility of the property owner to secure the services of qualified licensed professional for the installation of hard-wired carbon monoxide detectors.

        a. In the event that the side-wall horizontally vented gas fueled equipment is installed in a crawl space or an attic, the hard-wired carbon monoxide detector with alarm and battery back-up may be installed on the next adjacent floor level.

        b. In the event that the requirements of this subdivision can not be met at the time of completion of installation, the owner shall have a period of thirty (30) days to comply with the above requirements; provided, however, that during said thirty (30) day period, a battery operated carbon monoxide detector with an alarm shall be installed.

    2. APPROVED CARBON MONOXIDE DETECTORS. Each carbon monoxide detector as required in accordance with the above provisions shall comply with NFPA 720 and be ANSI/UL 2034 listed and IAS certified.

    3. SIGNAGE. A metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the exhaust vent terminal for the horizontally vented gas fueled heating appliance or equipment. The sign shall read, in print size no less than one-half (1/2) inch in size, "GAS VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS".

    4. INSPECTION. The state or local gas inspector of the side-wall horizontally vented gas fueled equipment shall not approve the installation unless, upon inspection, the inspector observes carbon monoxide detectors and signage installed in accordance with the provisions of 248 CMR 5.08(2)(a) 1 through 4.

  (b)   EXEMPTIONS: The following equipment is exempt from 248 CMR 5.08(2)(a) 1 through 4:

    1. The equipment listed in Chapter 10 entitled "Equipment Not Required To Be Vented" in the most current edition of NFPA 54 as adopted by the Board; and

    2. Product Approved side-wall horizontally vented gas fueled equipment installed in a room or structure separate from the dwelling, building or structure used in whole or in part for residential purposes.

CSD-1 Field Testing of High Limit Switches for Vitodens boilers – where required by law.

As per ASME Boiler and Pressure Vessel Code, section IV, subsection HG-613 TEMPERATURE CONTROL requirements, Vitodens 200-W hot water boilers are protected from over-temperature by two temperature-operated controls. These temperature control devices conform to Standards for Limit Controls, and are accepted by CSA, a nationally recognized testing agency. Each boiler is equipped with a manual reset high temperature limit control and a temperature control that will cut off fuel supply when the system water temperature reaches a preset operating temperature. VIESSMANN IS NOT RESPONSIBLE FOR ANY DAMAGES THAT THE FOLLOWING TEST PROCEDURE MAY RESULT IN BY OVERHEATING THE SYSTEM.

The Vitodens 200 boilers are equipped with flow switches or sensors that when activated enable the burner to operate. The fixed high limit, when tripped, produces a fault that will require manual reset of the boiler control.

Fixed High Limit fault simulation #1:

- Ensure that the boiler and boiler pump are in normal operating condition (pump output [20] is the boiler pump).
- Remove the cover from the back of the boiler control allowing access to the boiler control plugs.
- Under the extended menu (in the Operating manual), select 'Test mode' then 'flue gas test ON' and press 'OK'.
- The boiler/burner will start a firing cycle and will gradually go into high fire mode.
- Once the burner ignites, disconnect the boiler pump plug [20] from the boiler control board (gently with pliers).
  Note: For boiler models equipped with flow switches (only boiler sizes 19 to 100), it may be required that flow switches be jumpered during testing.
- Observe the boiler temperature on the control display.
- The temperature will gradually rise as more heat is put into the boiler heat exchanger. The burner will then shut off.
- The boiler temperature should continue to rise and once it reaches 210°F (99°C) the manual reset high limit safety switch will trip electronically generating an F2 fault.
- Should the limit temperature not be reached during the test, repeat the test with the following additional step;
  - two minutes after the burner shuts off, energize the boiler pump for a maximum of 1 second (by plugging in boiler pump plug [20]).

Fixed High Limit fault simulation #2:

- Close the boiler valve and jumper across the flow switch.
- Run the boiler at high fire and it will shut down by the coding card (in B2TB models, set coding address 06 to maximum) but should continue to steady increase the boiler temperature until the fixed high limit is tripped.
- Once the fixed high limit is tripped, slowly open the boiler valve to safely cool the boiler down.

Applicability

> ⚠️ **CAUTION**
>
> **The boiler serial number must be provided when ordering replacement parts. Some replacement parts are not reverse compatible with previous versions of the Vitodens 200-W B2HA boiler.**

> **IMPORTANT**
>
> **When ordering replacement parts, provide either the 16-digit boiler serial number (on the bar code label) or the 12-digit ASME/NB serial number, located as shown underneath boiler front enclosure panel. Refer to page 17 for instructions on how to remove front enclosure panel.**

Model No. B2HA 112, 399
Serial No. 7510835 □□□□□□□□□

Model No. B2HA 150, 530
Serial No. 7510836 □□□□□□□□□

Product may not be exactly as shown

Ⓐ Inox-Radial heat exchanger made from stainless steel
– for high operational reliability and a long service life. Large heating output in the smallest of spaces

Ⓑ Modulating MatriX cylinder burner for extremely clean combustion and quiet operation

Ⓒ Variable speed combustion fan for quiet and economical operation

Ⓓ Gas and water connections

Ⓔ Digital boiler control unit

Product Information

Natural gas-fired wall-mounted condensing heating boiler for weather-responsive operation in closed loop, forced circulation hot water heating systems for space heating and domestic hot water (DHW) production.

Models B2HA 112, 150, 399 and 530 are for operation with natural gas. For a fuel conversion to liquid propane gas refer to the service instructions for details.

Boiler model must be selected based on an accurate heat loss calculation of the building. Ensure boiler model is compatible with connected radiation.

Vitodens 200-W, B2HA series boilers are factory-tested and calibrated. Further gas valve adjustments are not typically required during field start-up.

Multi boiler system

In connection with the installation of a multi boiler system observe the installation instructions of the multi boiler system accessories.

5683 709 - 17

Mechanical Room

During the early stages of designing a new home, we recommend that proper consideration be given to constructing a separate mechanical room dedicated to the gas- or oil-fired heating equipment and domestic hot water storage tank(s).

The boiler must be located in a heated indoor area, near a floor drain, and as close as possible to a wall. Whenever possible, install the boiler near an outside wall so that it is easy to duct the venting system to the boiler.

Locate the boiler on a wall capable of supporting 330 lb. (150 kg) [the weight of the boiler filled with water]. Ensure that the boiler location does not interfere with the proper circulation of combustion and ventilation air of other fuel burning equipment within the mechanical room (if applicable).

The maximum room temperature of the mechanical room where the boiler is located must not exceed 104ºF (40ºC).

Installation area conditions

⚠️ **WARNING**

Incorrect ambient conditions can lead to damage to the heating system and put safe operation at risk.

- Ensure ambient temperatures are higher than 32°F (0°C) and lower than 104°F (40°C).
- Prevent the air from becoming contaminated by halogenated hydrocarbons (e.g. as contained in paint solvents or cleaning fluids) and excessive dust (e.g. through grinding or polishing work). Combustion air for the heating process, and ventilation of the boiler room must be free of corrosive contaminants. To that end, any boiler must be installed in an area that has no chemical exposure. The list to the right indicates the main, currently known sources.
- Avoid continuously high levels of humidity (e.g. through frequent drying of laundry).
- Never close existing ventilation openings.

⚠️ **WARNING**

If you notice fire coming from the appliance, call the fire department immediately! Do not attempt to extinguish the fire unless qualified to do so.

IMPORTANT

The service life of the boiler's exposed metallic surfaces, such as the casing and fan housing, is directly influenced by proximity to damp and salty marine environments. In such areas, higher concentration levels of chlorides from sea spray, coupled with relative humidity, can lead to degradation of the exposed metallic surfaces mentioned above. Therefore, it is imperative that boilers installed in such environments not be installed using direct vent systems which draw outdoor air for combustion. Such boilers must be installed using room air dependent vent systems; i.e. using room air for combustion. The indoor air will have a much lower relative humidity and, hence, potential corrosion will be minimized.

Sources of combustion and ventilation air contaminants
Areas likely to contain contaminants:

- New building construction
- Swimming pools
- Remodelling areas, hobby rooms
- Garages with workshops
- Furniture refinishing areas
- Dry cleaning/laundry areas and establishments
- Auto body shops
- Refrigeration repair shops
- Metal fabrication plants
- Plastic manufacturing plants
- Photo processing plants
- Beauty salons

Products containing contaminants:

- Chlorine-type bleaches, detergents and cleaning solvents found in household laundry rooms
- Paint and varnish removers
- Hydrochloric acid, muriatic acid
- Chlorine-based swimming pool chemicals
- Spray cans containing chlorofluorocarbons
- Chlorinated waxes and cleaners
- Cements and glues
- Refrigerant leaks
- Calcium chloride used for thawing
- Sodium chloride used for water softening salt
- Permanent wave solutions
- Adhesives used to fasten building products and other similar items
- Antistatic fabric softeners used in clothes dryers

Boiler operation in marine environments (damp, salty coastal areas)

⚠️ **WARNING**

Fire causes a risk of burns and explosion!
- **Shut down the boiler**
- **Close fuel shut-off valves**
- **Use a tested fire extinguisher, class ABC.**

Removing the Boiler Packaging
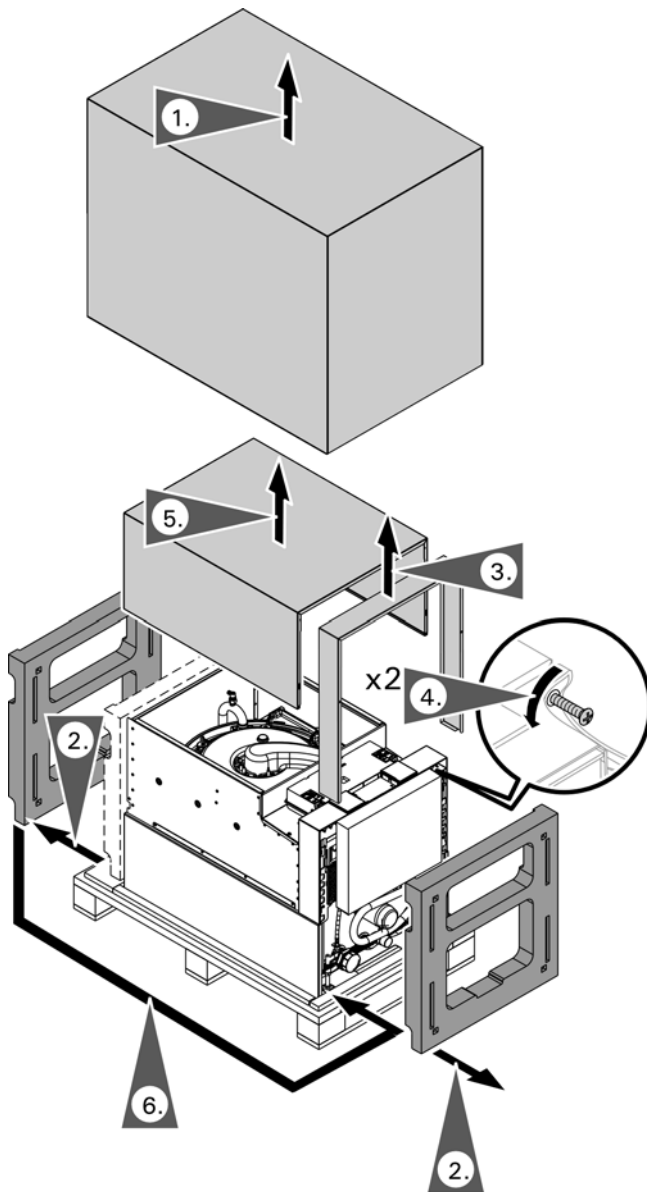
Note: Visually inspect equipment packaging for damage. If damage is discovered, carefully remove the packaging and note any evidence of damage to the equipment. Save the shipping container for inspection by the carrier if damage has occurred.

1. Remove shipping carton.

2. Remove packing material and set aside for later use.

3. Remove the external accessories connection box cover.

4. Loosen the screws at the bottom of the boiler (do not remove completely).

5. Remove the front encloser panel (lift to the top and pull away from the boiler).

6. Use the top packing material and place it on the bottom of the boiler for support when lifting the boiler to the upright position.

10

Prepare Boiler for Mounting
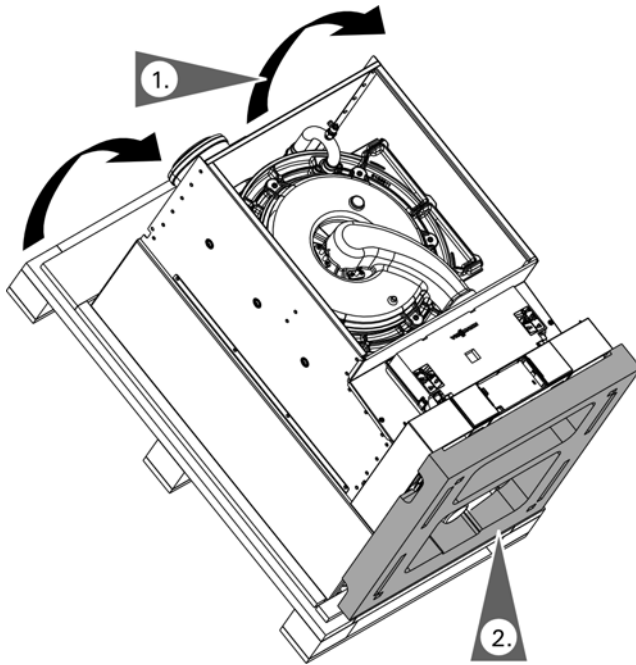
1. Lift the boiler carefully to the upright position.
   Note: Before lifting the boiler to the upright position ensure the floor is level and clear of debris.

It is recommended that two people complete this work.

2. Ensure the packing material remains in place when lifting to the upright position.

Ⓐ ⌀ 23/64 inch (9 mm) holes for attaching lifting gear
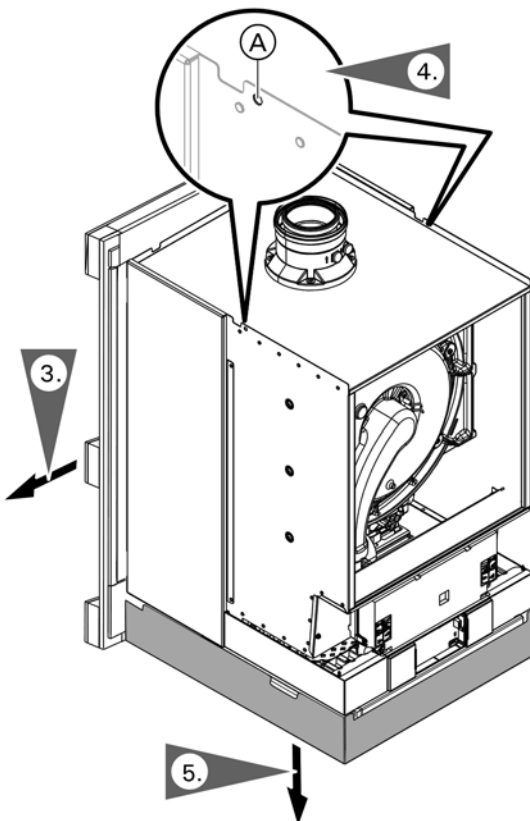
3. Remove the shipping pallet once the boiler is in the upright position.

4. Holes are provided for attaching lifting gear when mounting the boiler to the mounting bracket.

It is essential to use appropriate lifting devices certified of lifting over 330 lbs. (150 kg).

5. Remove the packing material once the boiler is mounted.

Before Set-up

Before placing boiler in its installation location, ensure all necessary accessories are installed.

> ⚠️ **CAUTION**
>
> **The boiler must be installed in such a way that gas ignition system components are protected from water (spraying, splashing, etc.) during boiler operation and service.**

Minimum Clearances
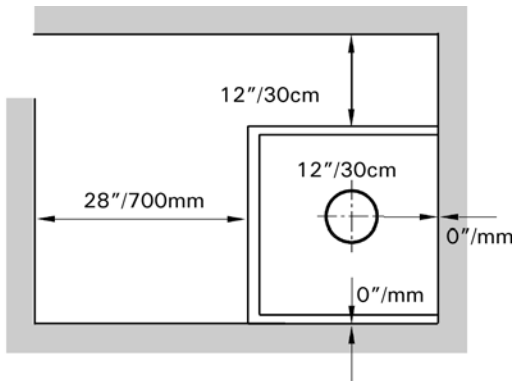
Note: The Vitodens 200-W, B2HA boiler has passed the zero inches vent clearance to combustibles testing requirements dictated by the boiler Harmonized Standard ANSI Z21.13. CSA 4.9.2007 and therefore is listed for zero clearance to combustibles when vented with a single-wall special venting system (AL-29-4C material) or UL/ULC-listed CPVC/PPs gas vent material. The zero inches vent clearance to combustibles for the Vitodens 200-W, B2HA boiler supercedes the clearance to combustibles listing that appears on the special venting system label.

Recommended minimum service clearances

For typical Vitodens installations, Viessmann recommends installing the boiler with the clearances shown in the illustration on the left.

Note: The 12 in. (305 mm) side clearance specified is only recommended to be able to view the boiler certified rating plate, decal and also accommodate the PRV installation kit.

If the pressure relief valve is rotated 90° facing forward by using an extension between the tee and the boiler connection, then this clearance can be reduced to ½ in. (12 mm). This ½ in. (12 mm) clearance is only required to be able to remove the boiler's front cover and view the rating plate attached to it, if needed.
This reduced clearance is also used in Vitodens multiple boiler installation system as described in the multiple boiler installation instructions.

The Vitodens 200-W, B2HA boiler is approved for closet and alcove installation with the following clearances to combustibles.

Table 1 Clearances

Top	Front	Rear	Left	Right	Vent pipe
0	0 AL CL	0	0	0	0

AL = Alcove
CL = Closet

See the Vitodens 200-W B2HA Venting System Installation Instructions for details.

Preparing the Connections
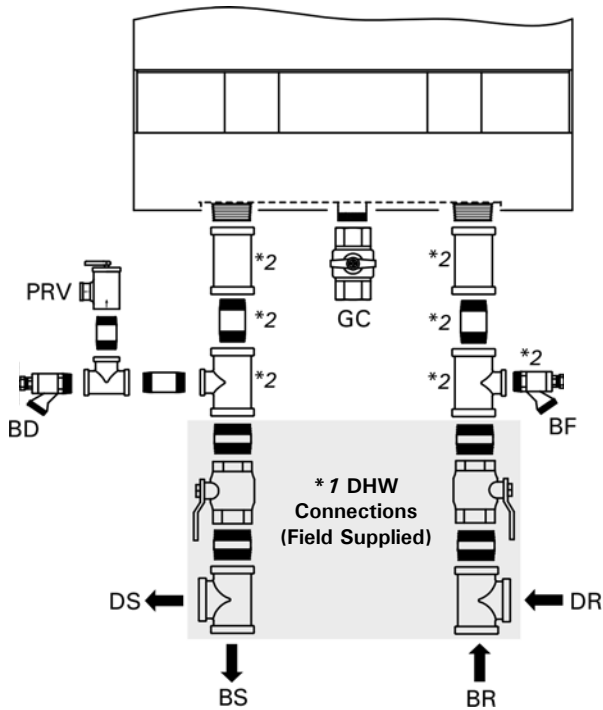
Use an approved pipe sealant or teflon tape when connecting the following installation fittings.

This section constitutes an overview only! Refer to subsequent sections for detailed information on individual piping connections.

*1 DHW Connections (Field Supplied)

Legend

DR   Boiler heating return for domestic hot water production

DS   Boiler heating supply for domestic hot water production

BD   Boiler Drain ¾ in. hose thread

BF   Boiler Fill ¾ in. hose thread

BR   Boiler Return 2 in. NPT

BS   Boiler Supply 2 in. NPT

GC   Gas Connection

PRV Pressure Relief Valve

*1   See page 44 for alternate DHW connection.

*2   Discard when using the multi-boiler distribution manifold

Preparing the Connections *(continued)*

This section constitutes an overview only! Refer to subsequent sections for detailed information on individual piping connections.

Use an approved pipe sealant or teflon tape when connecting the following installation fittings.

IMPORTANT

The maximum ambient temperature must not exceed 104° F (40° C).

Note: When preparing gas, water and electrical connections in the field, see section entitled "Wall Mounting" on page 15, 16 and 17 of this manual for information regarding the installation of the wall mounting bracket.

1. Heating water connections and gas connection to be made in the field. See illustration to the left and connection-specific section for details.

2. See subsection entitled "Electrical Connections" for details regarding power supply to the Vitodens 200-W B2HA boiler.
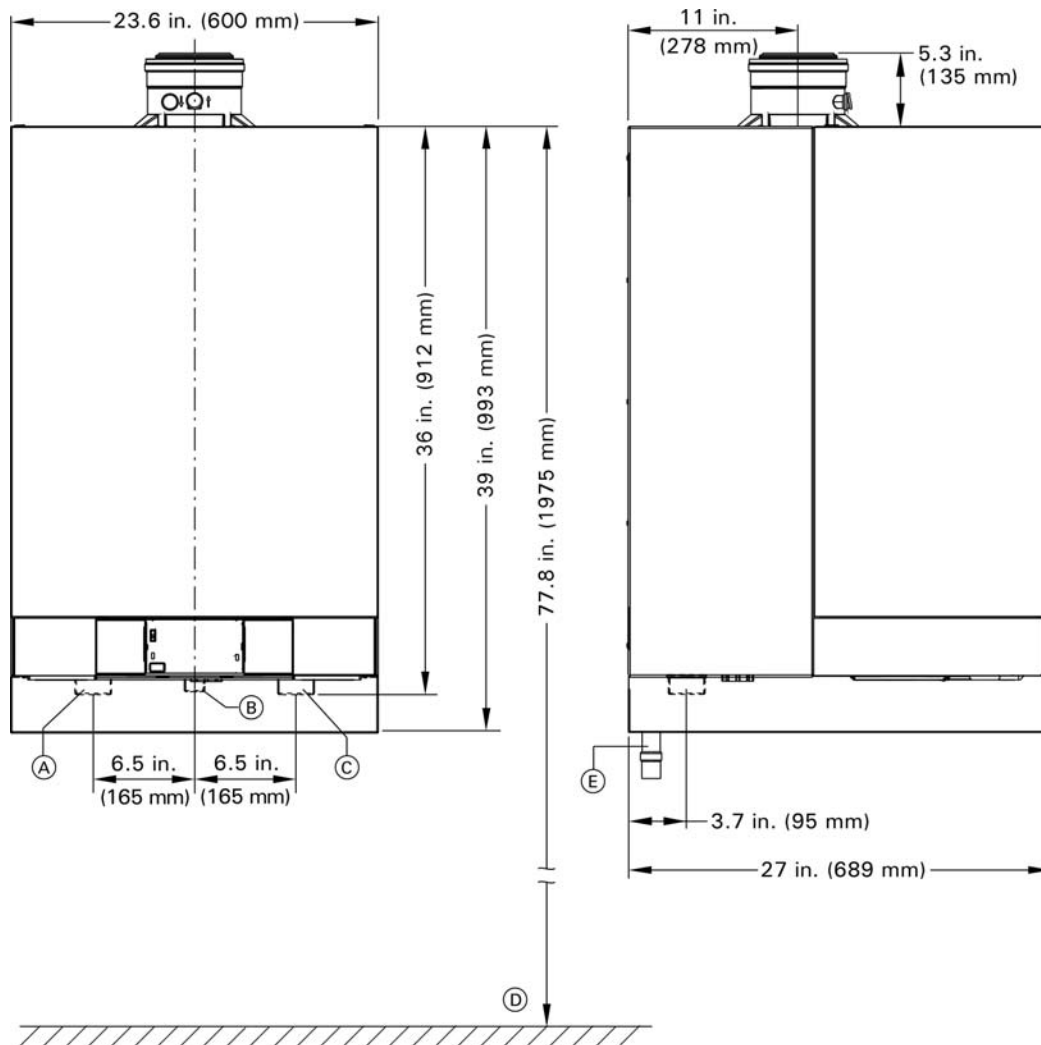
Legend
- Ⓐ Boiler Supply
- Ⓑ Gas Connection, 1 in. NPTF
- Ⓒ Boiler Return
- Ⓓ Recommended height (single boiler system)
- Ⓔ Condensate drain

14

5683 709 - 17
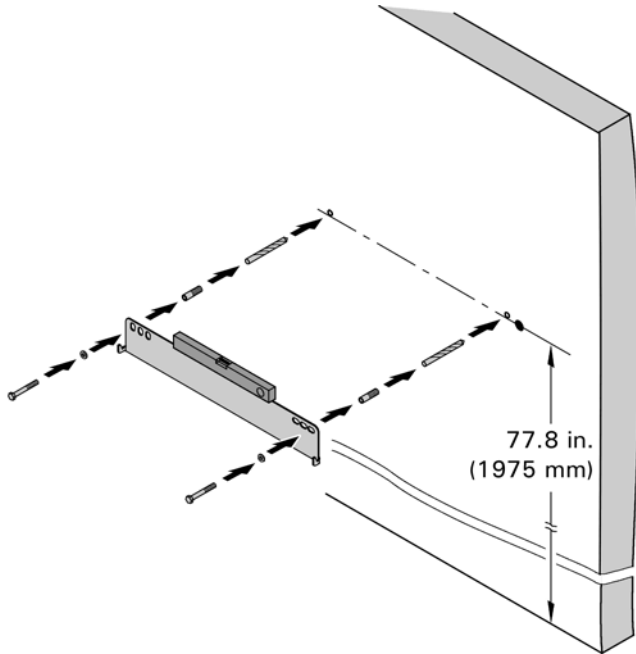
Wall Mounting

Fitting the wall mounting bracket

Following are the installation instructions for the mounting bracket on each material. See the instructions applicable to your installation requirements.

Installing the wall mounting bracket

The Vitodens 200-W B2HA can be wall-mounted on a concrete wall.

Note: The enclosed screws and rawl plugs are only suitable for concrete. For other construction materials, use anchors and bolts that are suitable for 330 lb (150 kg) loads.

Installation of mounting bracket on brick/concrete wall

1. Drill holes $\varnothing$ $31/_{64}$ in. (12 mm).
2. Install rawl plugs and screw mounting bracket to wall.
3. Ensure the mounting bracket is level.

> ## ⚠ CAUTION
>
> **Whichever mounting method is used, ensure that the bracket is tightly and securely fastened to wall. Failure to secure boiler properly could cause boiler to loosen, posing a severe safety hazard.**

Boiler Stand
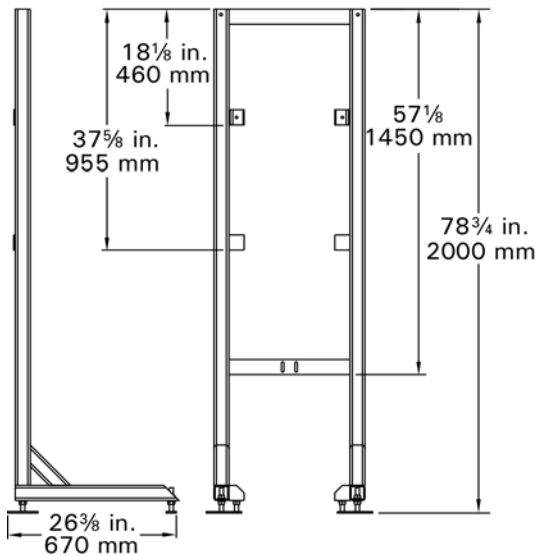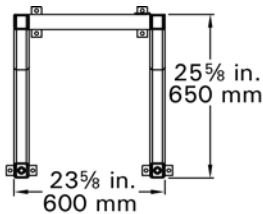
The boiler stand is used for free-standing installation of a single boiler within the mechanical room.

When using the boiler stand, ensure that the stand is securely fastened to the floor (recommended concrete expansion anchors are Hilti model KB-TZ ⅜ x 4 or equivalent.
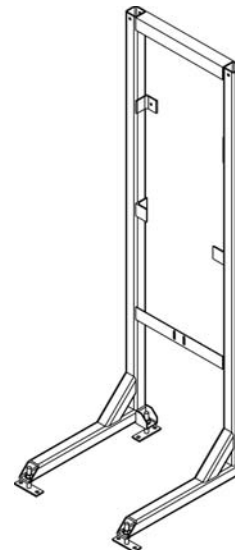
Boiler Mounting
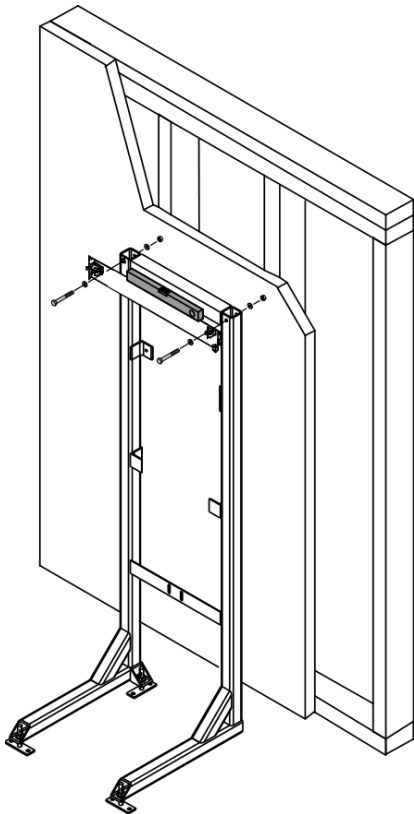
Boiler mounting frame and bracket
Install the boiler mounting frame to the wall studs and floor. Ensure the mounting bracket is level.

To mount on wood or metal studs a cross bar or frame may be required as reinforcement. The wall and studs must be capable of supporting a minimum of 330 lb. (150 kg).

For construction materials, use anchoring system that is suitable for 330 lb (150 kg) loads.

⚠ CAUTION

Whichever mounting method is used, ensure that the bracket is tightly and securely fastened to wall. Failure to secure boiler properly could cause boiler to loosen, posing a severe safety hazard.

IMPORTANT

When using the boiler restraint brackets, follow the instructions supplied with the restraints prior to installing the mounting bracket.
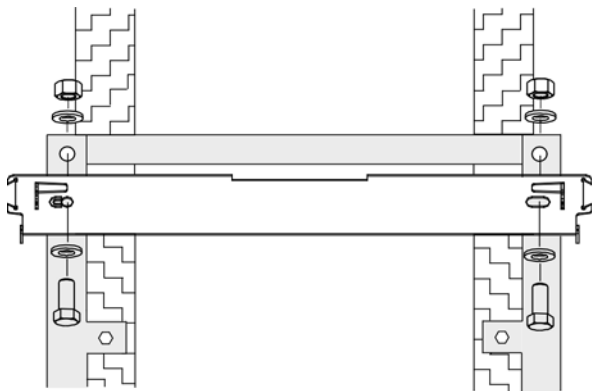
Installation on wood studs
Install mounting bracket on wood studs as per illustration. Drill $3/16$ in. pilot holes to insert mounting bolts. Ensure that holes are located in the center of each wood stud. Secure with bolts to wooden studs as shown.
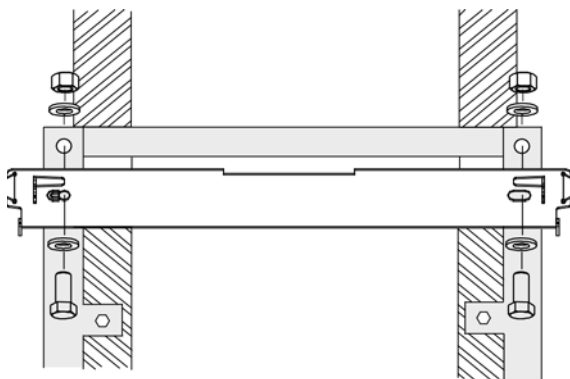
Installation on metal studs
Install mounting bracket the mounting frame as per illustration. Drill $5/8$ in. pilot holes to insert anchors. Ensure that holes are located in the center of each metal stud. Use appropriate fasteners to mount boiler to metal studs (not supplied). Secure with bolts to metal studs as shown.
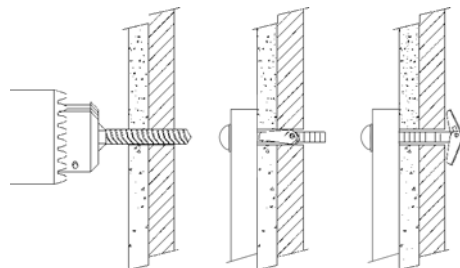
Boiler Mounting *(continued)*
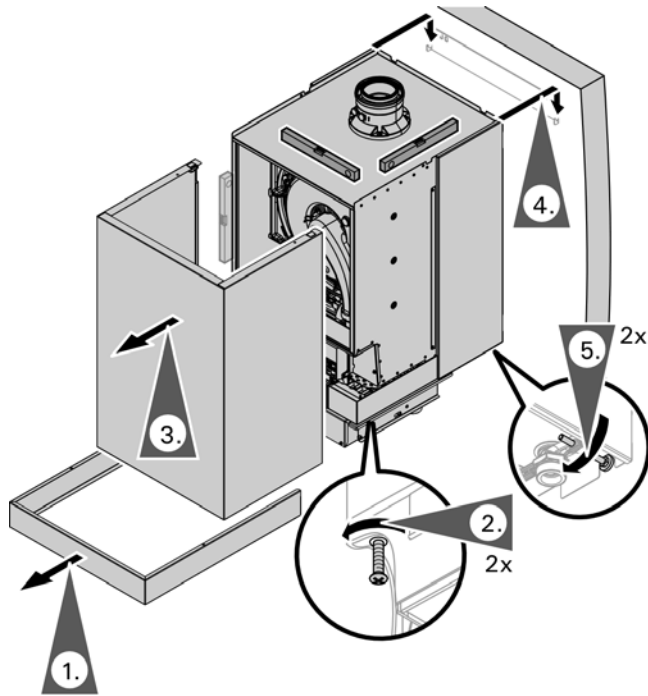
Note: The connection box cover and the front encloser panel may have been already removed during unpacking.

1. Remove the external accessories connection box cover.

2. Loosen the screws at the bottom of the boiler (do not remove completely).

3. Remove the front encloser panel (lift up and pull away from the boiler).

4. Mount boiler onto the mounting bracket.
   Note: For either wall or floor mounting.

5. Adjust the levelling screws to ensure the boiler is level.
   Note: For draining of the condensate (see page 29).

6. Install supplied installation fittings as per layout (see page 13).

> ⚠️ **CAUTION**
>
> **The boiler must be level both vertically and horizontally to ensure proper draining of the condensate.**

Connections
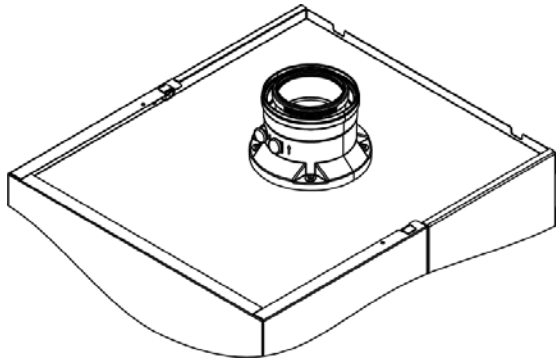
Connecting power

The Vitodens 200-W boiler has a external accessories connection box installed, which requires a 120VAC/12A power supply. Refer to the wiring diagram (see page 47).

Boiler venting

The Vitodens 200-W B2HA boiler comes with a pre-installed vent pipe adaptor.
Run venting system, single-wall or coaxial, through the side wall or the roof, taking the shortest possible route and at a rising angle (min. 3º).

> ### ⚠️ WARNING
>
> **Remove outer gasket if single wall (boiler room air dependant) venting system is used.**

2 imperfect threads
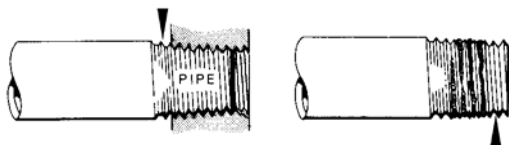
Leave 2 threads bare

Proper piping practice

Support piping by proper suspension method. Piping must not rest on or be supported by boiler. Use moderate amount of dope.

Manual gas shutoff

Closed

Open
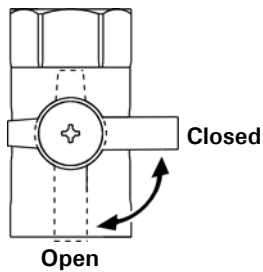
Gas shut-off valve connection

1. Make gas connections in accordance with codes CAN/CSA B149.1 and .2 or National Fuel Gas Code ANSI Z223.1/NFPA 54, as well as local codes.

2. Connect gas shutoff valve to the boiler gas connection.

3. Once connected close gas shutoff valve on boiler.

Connections *(continued)*

Gas connection and piping

1. Refer to current CAN/CSA B149.1 and .2 or National Fuel Gas Code ANSI Z223.1/NFPA 54, as well as local codes for gas piping requirements and sizing. Pipe size to the boiler must be determined based on:
    - pipe length
    - number of fittings
    - type of gas
    - maximum input requirements of all gas appliances in the residence.

IMPORTANT

Design piping layout in such a way that piping does not interfere with serviceable components.

---

2. Before connecting boiler to gas line, install ground joint union, capped drip leg and a manual equipment shutoff valve as shown. Valves must be listed by a nationally recognized testing agency. Make boiler gas connection as shown.

3. Perform gas piping pressure test as described in the following subsection.

IMPORTANT

Max. gas supply pressure: 14 "w.c.

---

4. Identify shutoff valves as such with a tab and familiarize operator / ultimate owner of boiler with these valves.

See Vitodens 200-W B2HA Service Instructions for applicable system coding information.

⚠ WARNING

The gas supply piping must be leak tested before placing the boiler in operation.

⚠ CAUTION

Ensure that gas piping is large enough for all appliances in the residence. No noticeable gas pressure drop in the gas line must occur when any unit (or combination of units) lights or runs.

IMPORTANT

Regarding operation with LPG, we recommend the installation of an external safety solenoid valve when installing the boiler in rooms below ground level.
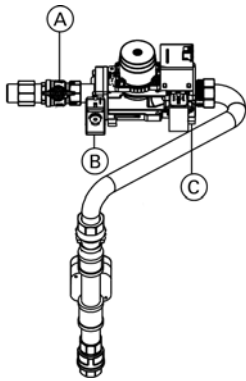
Legend
Ⓐ Gas connection ⌀ 1 in. (NPT)
Ⓑ Accessible manual gas shutoff valve
Ⓒ Ground joint union
Ⓓ Drip leg

Connections *(continued)*

Legend
Ⓐ Test firing valve
Ⓑ Fuel pressure regulator/high gas pressure switch
Ⓒ Low gas pressure switch

Legend
Ⓐ Shut off valve
Ⓑ Aux. low gas pressure switch

Kromshroder Combination Gas Valve
Assembly Model CES25

Ø1"

Additional components
may be required as
specified by:
248-CMR-7:00,
N.B.C., NFPA 54 and/or
ANSI Z223.1
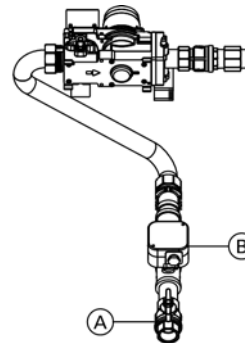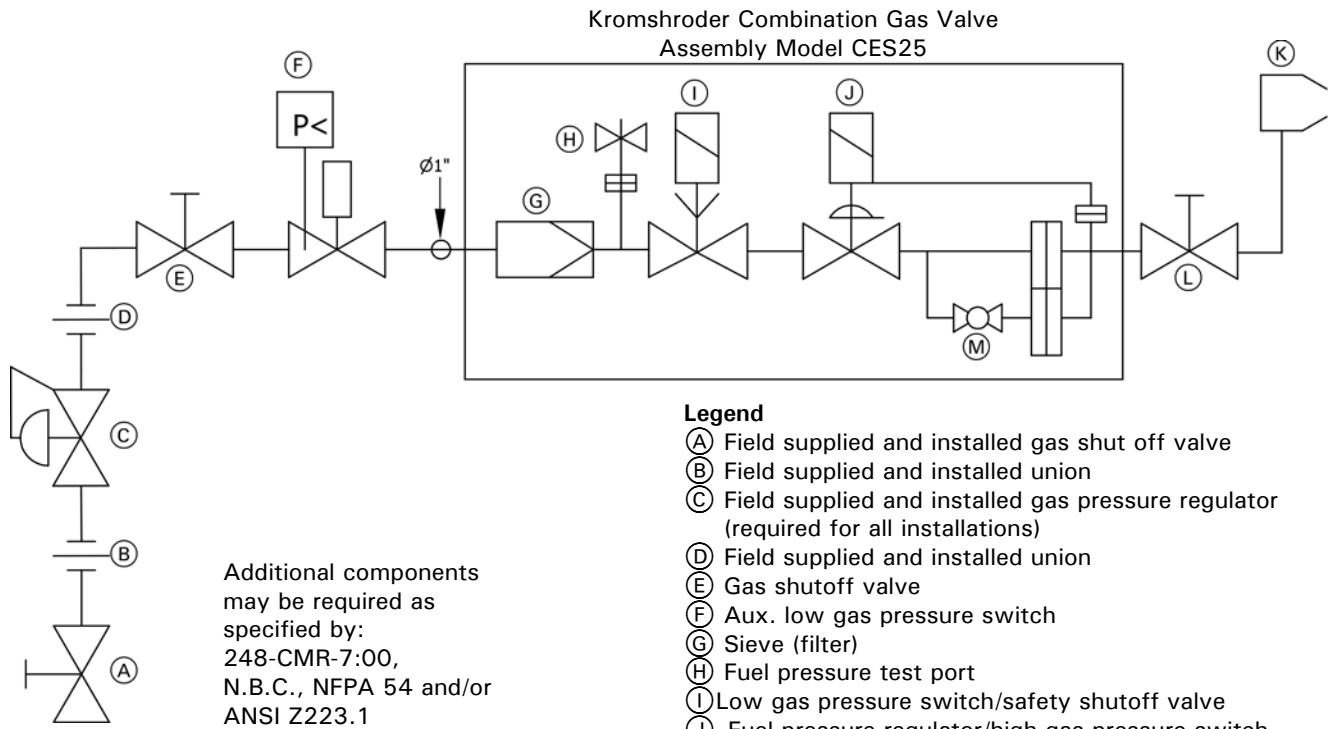
Legend
Ⓐ Field supplied and installed gas shut off valve
Ⓑ Field supplied and installed union
Ⓒ Field supplied and installed gas pressure regulator
(required for all installations)
Ⓓ Field supplied and installed union
Ⓔ Gas shutoff valve
Ⓕ Aux. low gas pressure switch
Ⓖ Sieve (filter)
Ⓗ Fuel pressure test port
Ⓘ Low gas pressure switch/safety shutoff valve
Ⓙ Fuel pressure regulator/high gas pressure switch
Ⓚ Burner with direct spark ignition
Ⓛ Test firing valve
Ⓜ Fuel selector switch (NG/LP)

Legend
Ⓐ Safety shutoff valve
Ⓑ Inlet
Ⓒ Regulator
Ⓓ Outlet

5683 709 - 17
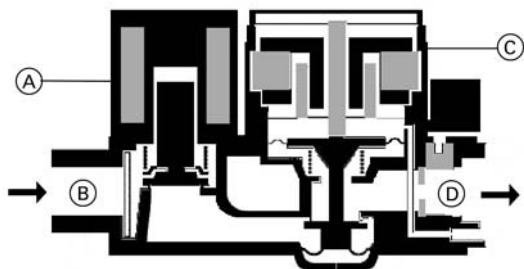
Connections *(continued)*

Gas piping pressure test

When performing the gas piping pressure test, ensure the following requirements are met.

⚠ WARNING

Never check for gas leaks with an open flame.

⚠ WARNING

Exposing boiler gas pressure regulator and gas valve to extreme pressures renders warranty null and void.

☐ IMPORTANT

½ psig = 14 "w.c.

1. Isolate the boiler from the gas supply piping system using the individual manual shutoff valve during pressure tests equal to or less than ½ psig (14 "w.c.)

2. The boiler and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of ½ psig (14 "w.c.)

3. Perform leak test.
   Use approved liquid spray solution for bubble test. Ensure that no liquid is sprayed on any electrical components, wires or connectors. Do not allow leak detection fluid to contact gas valve regulator or regulator vent opening.

4. Correct any and all deficiencies.

5. Remove air from gas line.

Heating water connections

1. Thoroughly flush heating system (particularly before connecting the boiler to an existing system).

2. Connect boiler to the heating system.

⚠ WARNING

Exposing the boiler to pressures and temperatures in excess of those listed will result in damages, and will render warranty null and void.

Max. allowable working pressure (MAWP)..5.5 bar (80 psig)
Max. boiler water temperature.....................210ºF (99ºC)

3. Connect field supplied nipples and tees as shown for DHW supply and return.
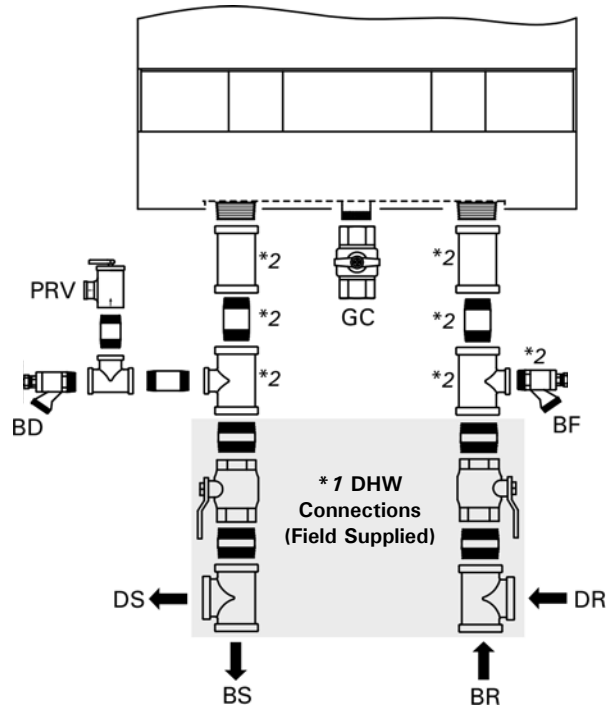
Legend
DR Boiler heating return for domestic hot water production
DS Boiler heating supply for domestic hot water production
BD Boiler Drain ¾ in. hose thread
BF Boiler Fill ¾ in. hose thread
BR Boiler Return 2 in. NPT
BS Boiler Supply 2 in. NPT
GC Gas Connection
PRV Pressure Relief Valve
*1 See page 42 for alternate DHW connection.
*2 Discard when using the multi-boiler distribution manifold

☐ IMPORTANT

Apply sufficient amount of thread sealant (supplied) when making the connections.

Connections *(continued)*
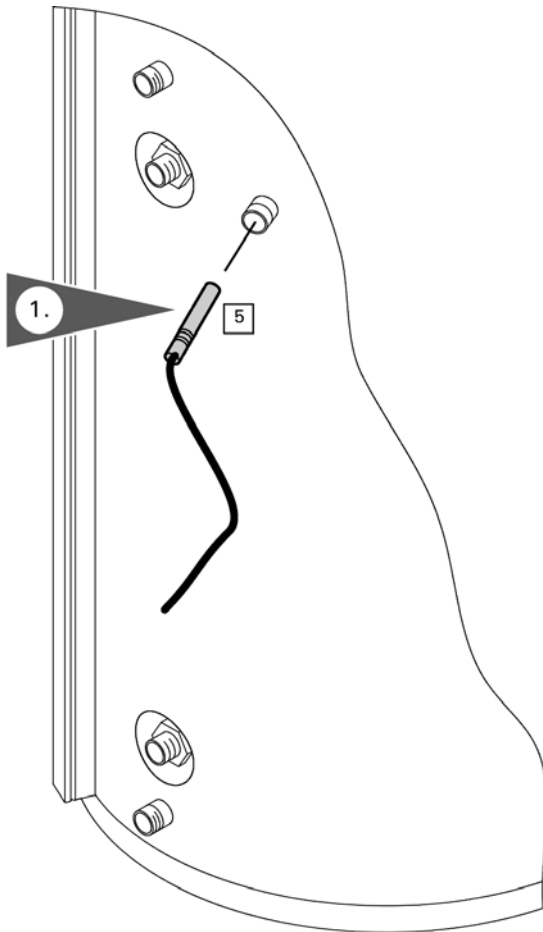
DHW storage tank information

The DHW water tank sensor is required when using a stand-alone DHW storage tank with the Vitodens 200-W B2HA heating boiler. It comprises the sensor only required for the connection of a stand-alone tank. All other required piping connections are field supplied.

See Vitodens 200-W B2HA Service Instructions for applicable system coding information.

IMPORTANT

Apply sufficient amount of thread sealant (supplied) when making the connections.

Making the DHW connections

1. With a Vitocell 100 and 300 series tanks locate the DHW temperature sensor well and install the DHW temperature sensor ⑤ using the installation instructions provided with the DHW storage tanks.

IMPORTANT

Follow the Installation Instructions supplied with the Viessmann DHW storage tank when mounting and securing DHW tank temperature sensor ⑤.

⚠ WARNING

If a DHW storage tank other than a Viessmann Vitocell 100 or 300 tank is used, the installer must verify proper operation of the Viessmann DHW tank temperature sensor with original manufacturer of the tank. Viessmann strongly recommends the installation of a temperature tempering valve in the DHW supply line.

Connections *(continued)*
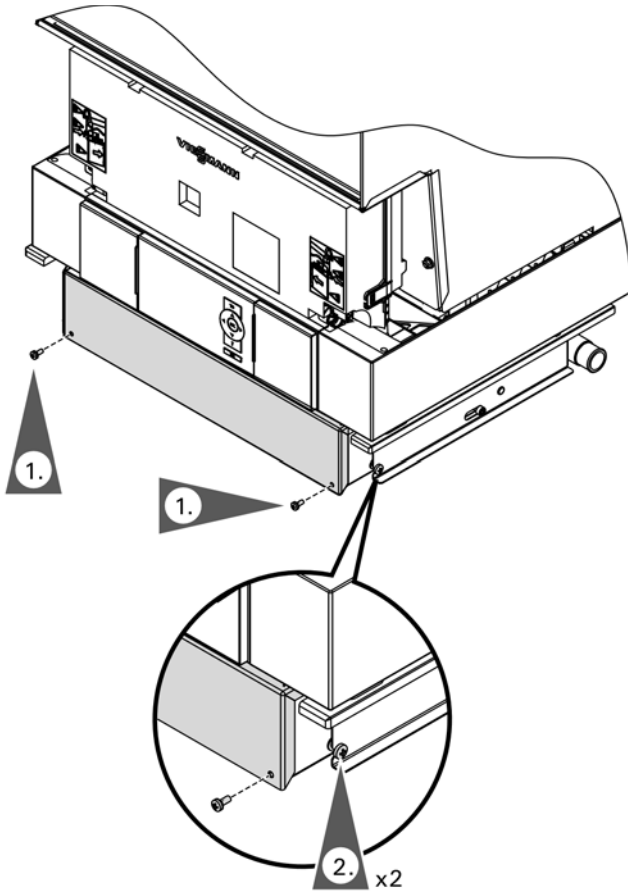
Accessing the control unit connections

1. Remove both screws from the external accessory connection box front plate and set aside.

2. Loosen both retaining screws as shown (do not remove).
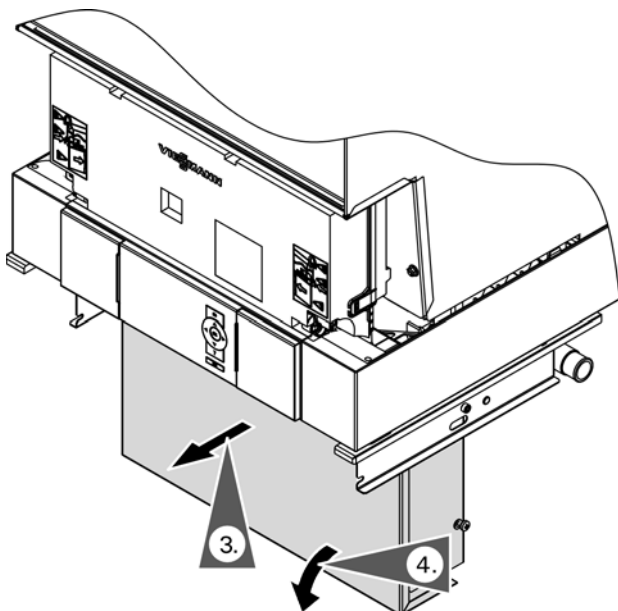
3. Pull the external accessory connection box forward until the retaining screws are clear of the guides.

4. Swing the external accessory connection box down.

Connections *(continued)*
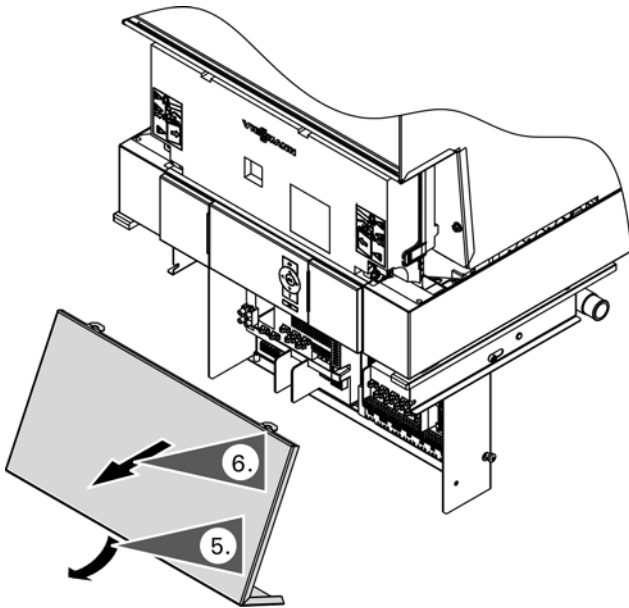
5. Tilt the bottom of the external accessory connection box cover forward.

6. Pull the cover up to clear the locating pins and out to remove, then set aside.
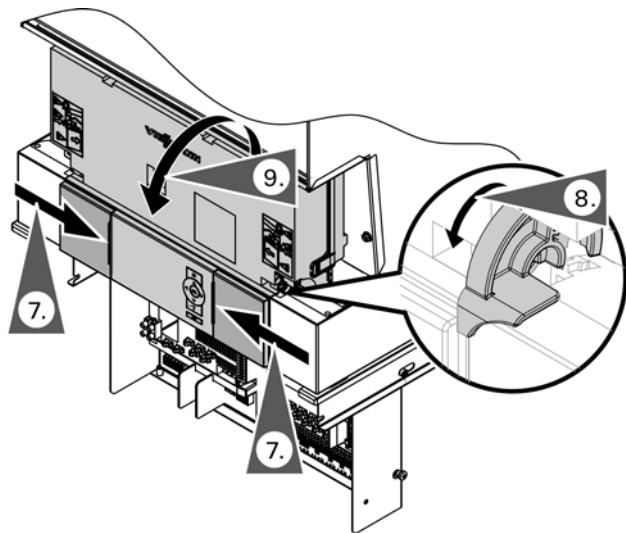
7. Slide both sides of the programming unit cover closed.

8. Release the hinged hooks located on both sides of the control unit.

9. To open hinged cover, lift cover and then fold down the control unit.
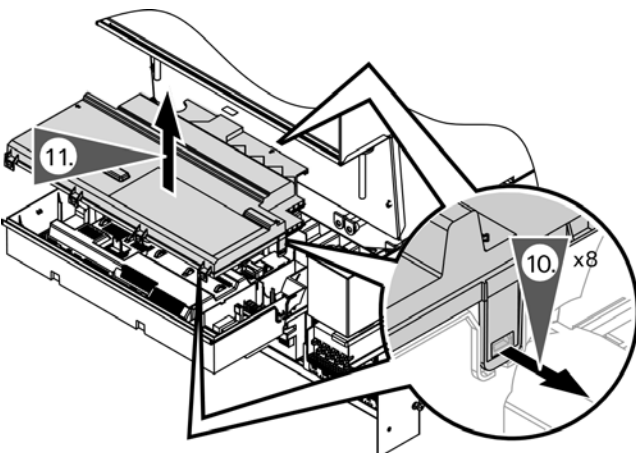
10. Release locking tabs as shown.

11. Remove cover.

Connections *(continued)*
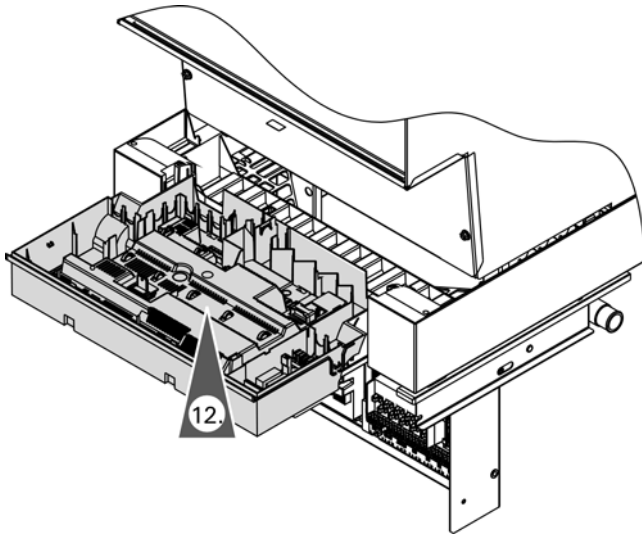
12. Route all connecting cables to the appropriate areas and secure the cables to the control base using existing strain reliefs as shown.

⚠ CAUTION

When running and securing connecting cables on site, ensure that the maximum permissible temperatures of the cables are not exceeded.

Electronic modules can be damaged by electrostatic discharges. Before commencing work, touch grounded objects (such as heating or water pipes) to discharge static loads.
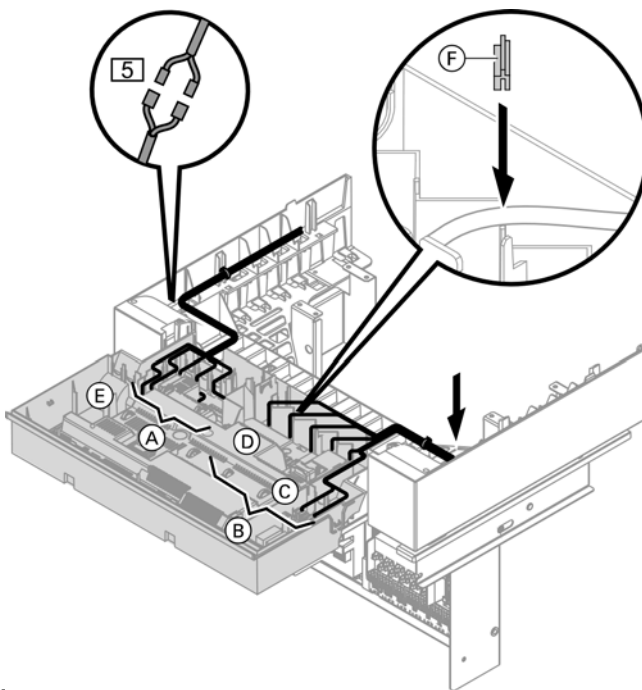
Routing the connecting cables

Note: If connecting cables touch hot components they will be damaged. When routing and securing connecting cables on site, ensure that the maximum permissible temperatures for these cables are not exceeded.

Remove the existing cable grommet when using larger cross-sections [up to 9/16 in. ($\varnothing$ 14 mm)]. Secure the cable with the cable grommet plugged into the lower casing section (black).

Legend
Ⓐ Low voltage connections
Ⓑ 120V connections
Ⓒ Internal extension
Ⓓ Main PCB
Ⓔ Communication module (accessory)
Ⓕ Cable grommet for power cable
⑤ Plugs for connecting the DHW temperature sensor to the cable harness

Connections *(continued)*

Field Connection

⬅ ⬅ 5 Connection

X9 Connector
(boiler control board)
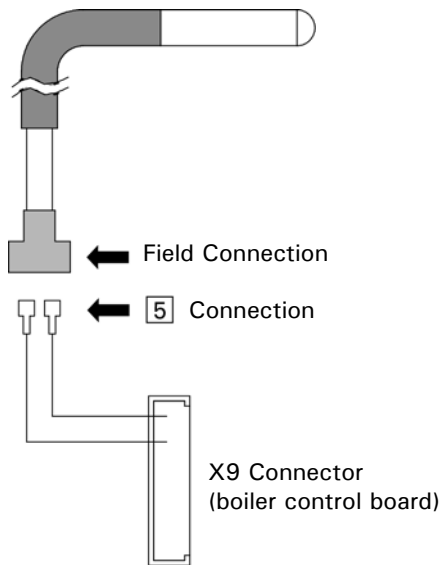
Connecting DHW sensor

1. Attach the DHW sensor to the quick connect plugs
   provided from the boiler control board (see page 25).

 Install DHW tank temperature sensor as
described in the Vitocell Installation Instructions
supplied with the DHW storage tank.

Setting altitude parameters
In the factory default setting, the boiler is equipped to
operate in altitudes of up to 5,000 ft. (1,500 m).
Altitude can be set using coding address 93 (in coding
level 2 General).

 See Vitodens 200-W B2HA Service Instructions
for applicable system coding information.

Connections *(continued)*

DHW
TEMPERATURE
SENSOR

OUTDOOR
TEMPERATURE
SENSOR

Control base

Note: See wiring diagram on page 47 for connection to
the external accessory connection box.
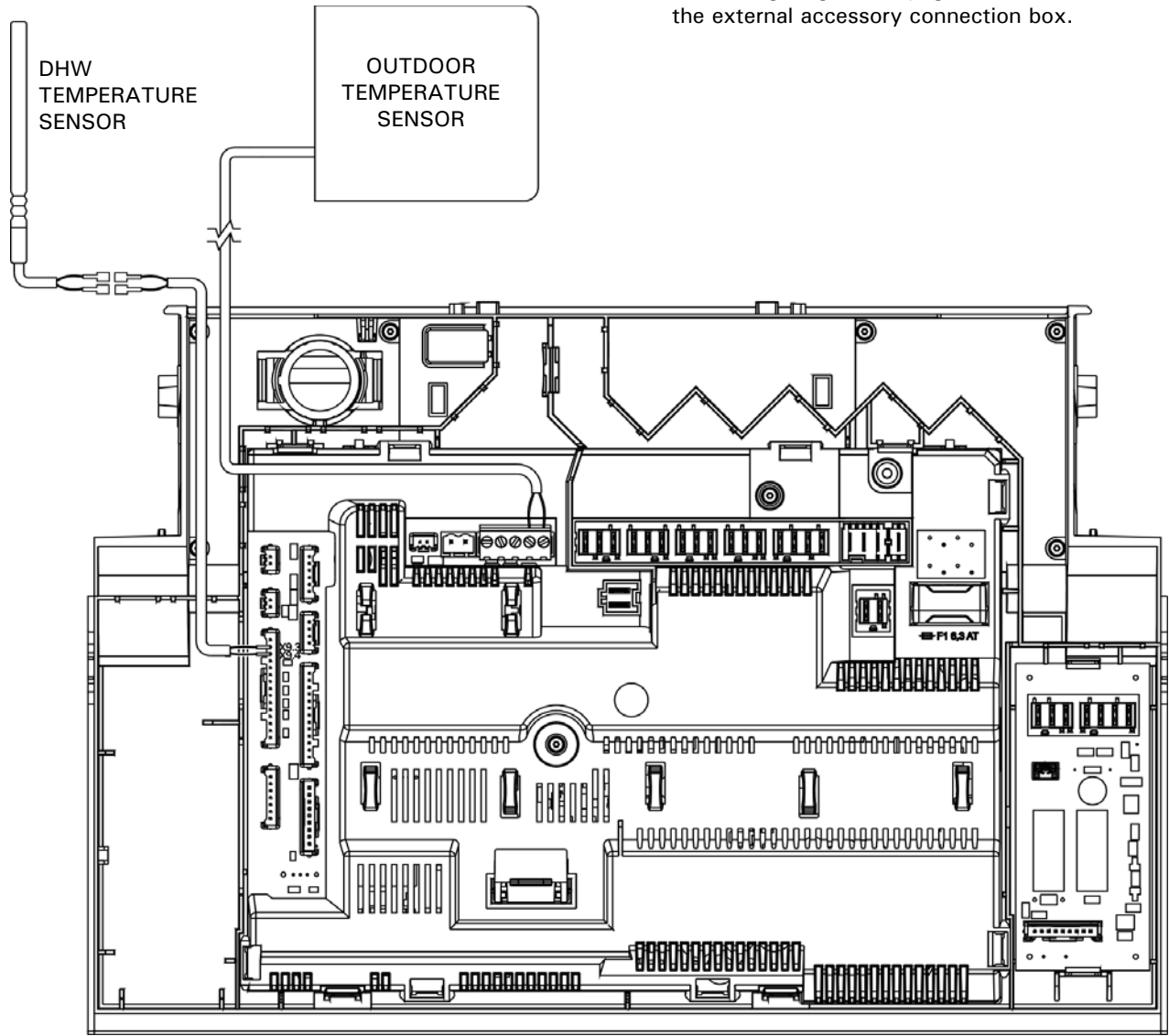
Connections *(continued)*

> # IMPORTANT
>
> **Electrical installations must comply with the latest edition of:**
>
> - **In the U.S.A., the National Electrical Code (NEC), ANSI/NFPA 70 and any other state, local codes and/or regulations.**
>
> - **In Canada, the Canadian Electrical Code (CEC), CSA C22.1 Part 1 and any other province, territory, local codes and/or regulations.**

External accessory connection box
Note: See wiring diagram on page 47 for connection to the control base.

ACCESSORIES
(ie VITOTROL
REMOTE OR
MIXING VALVE)

0-10V INPUT

PUMP

120/1/60 (12 Amps - full load amperage) POWER SUPPLY WITH DISCONNECT AND PROTECTION

L   G   N

145   DE3 DE2 DE1   0-10V   157   40A   40

156   Multi   28/20   96   20   21   156   40
L G N   1 L G N   L G N   1 L G N   L G N   L G N   L G N   L G N
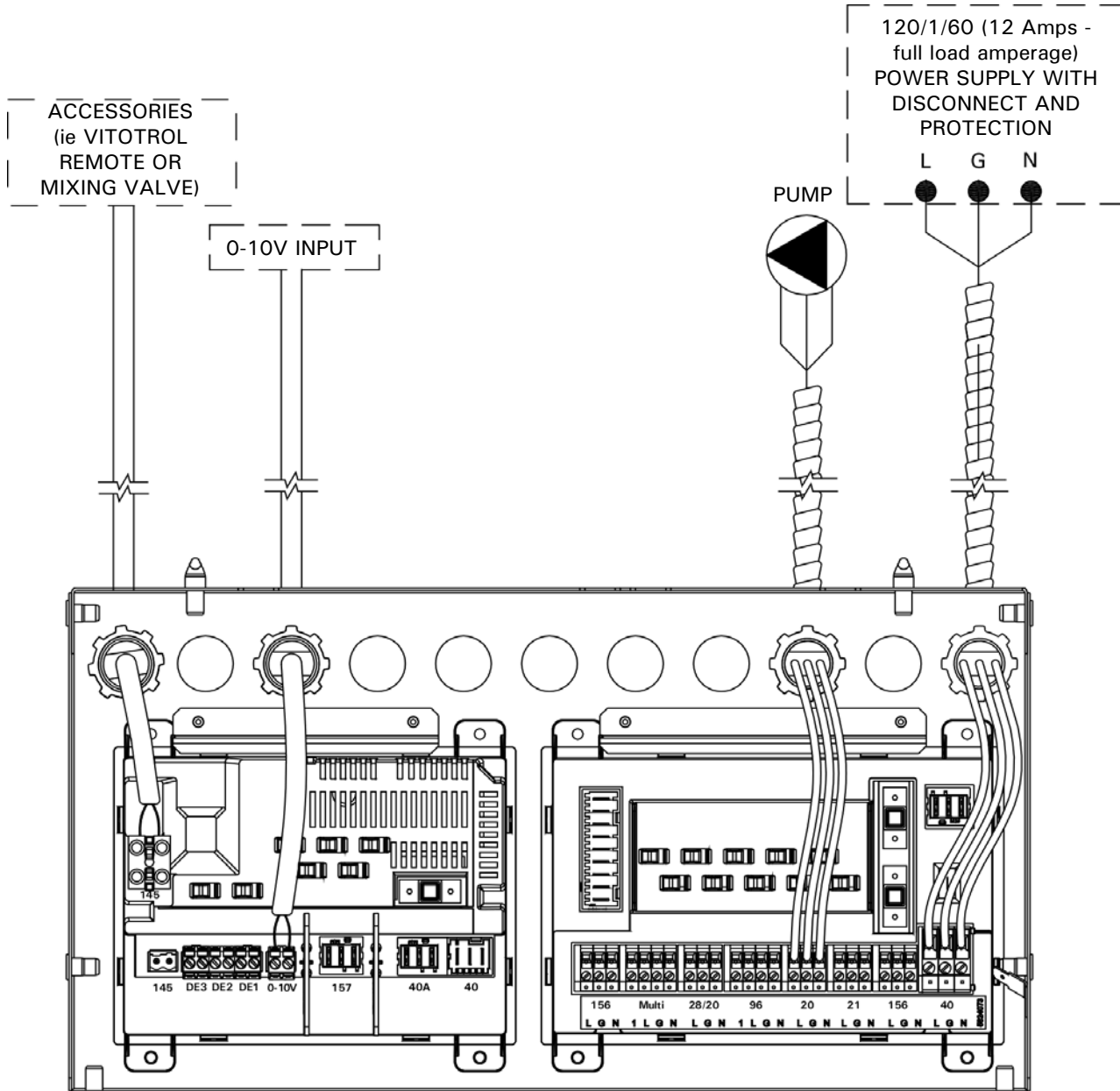
Connections *(continued)*
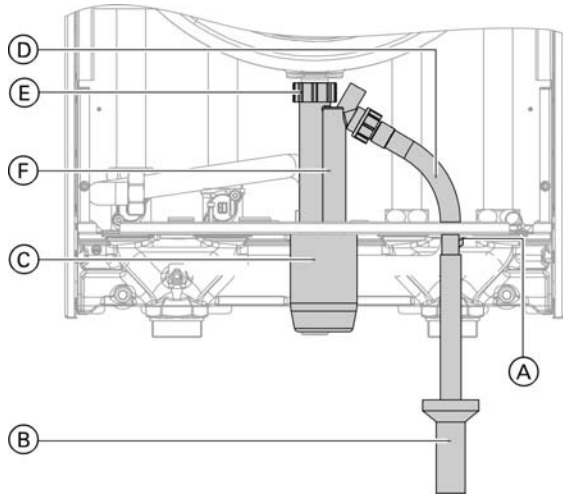
Condensate Connection for Vitodens
200-W, models B2HA 112, 150, 399, 530

Legend
Ⓐ Retaining clip
Ⓑ Discharge tube
Ⓒ Cap
Ⓓ Flexible discharge tubing
Ⓔ Union nut
Ⓕ Siphon trap

Condensate installation example:
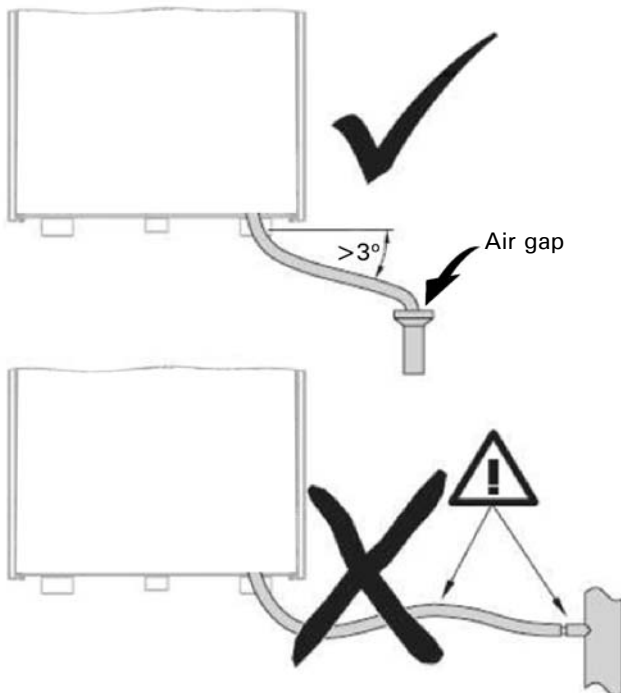
Condensate connection

The Vitodens 200-W B2HA boiler comes with a built-in condensate trap. An external trap is not required when connecting the field drain to flexible discharge tubing. Discharge tubing (field supplied) must be of 1 in. diameter.
Use CPVC, PVC or other material approved by codes listed below.

The drain pipe and fittings must conform to ANSI standards and ASTM D1785 or D2846. CPVC or PVC cement and primer must conform to ASTM D2564 or F493. In Canada use CSA or ULC listed schedule 40 CPVC or PVC drain pipe, fittings and cement.

If the condensate outlet of the Vitodens 200-W B2HA boiler is lower than the drain, a condensate pump must be installed. Select a pump which is approved for condensing boiler applications. To avoid condensate spillage, select a pump with an overflow switch. The drain connection must terminate into an open or vented drain as close to the boiler as possible to prevent siphoning of the boiler drain.

1. Install the condensate drain pipe with a suitable gradient. Pull the condensate hose so far out of the boiler that no unnecessary bends are created inside the boiler. Check tightness of siphon connection.

IMPORTANT

As shipped, the flexible discharge tubing Ⓑ will be found to be pushed up inside the boiler housing. Ensure the condensate drain pipe is pulled down and positioned to allow the condensate to properly drain.

2. Discharge condensate from the boiler into the vented drainage system, either directly or (if required) via a neutralization unit (accessory).

> Installation Instructions of Neutralization Unit (if applicable)

IMPORTANT

Pipe ventilation must take place between the siphon trap and the neutralization unit (if applicable).

IMPORTANT

Do not connect the drain pipe from any other appliance, such as water softener backwash pipe, to Vitodens condensate drain pipe.

3. Ensure the condensate discharge tubing is vented to the atmosphere prior to being plumbed into the neutralization unit.

Safety Connections

Installing boiler safety devices

1. Remove loosely pre-assembled combination pressure relief valve and drain valve assembly.

2. Apply sufficient amount of pipe sealant to both ends of all pipe fittings Ⓑ, Ⓓ, Ⓕ, Ⓗ and Ⓙ and install onto coupling Ⓐ and tees Ⓒ and Ⓖ.

3. Install pressure relief valve Ⓘ and isolation valve Ⓔ and tighten.

4. Install discharge pipe on pressure relief valve in such a way that...
   - the end of the pipe is not threaded.
   - the pressure relief discharge pipe extends to a floor drain and ends approximately 6 in. (150 mm) above the drain.

   Ensure that...
   - there is no shutoff valve installed in the discharge pipe.
   - discharge pipe diameter is not reduced.
   - discharge is not piped to outdoors.

IMPORTANT

Install the (approved) factory supplied pressure relief valve. Removal of air from the system must occur via use of air vent(s) in the system supply. To ensure the boiler can be purged of all air, ensure supply/return water lines do not contain restrictive piping where air could be trapped.

⚠ WARNING

Do not install an isolation valve between boiler and pressure relief valve.
The discharge pipe for the pressure relief valve must be oriented to prevent scalding of attendants.
Pipe pressure relief valve discharge pipe close to floor drain. Never pipe discharge pipe to the outdoors.

Legend

Ⓐ Coupling, ∅ 2 in.
Ⓑ Nipple, 2 in.
Ⓒ Reducing tee, 2 in. x 2 in. x ¾ in.
Ⓓ Nipple, 2 in. (field supplied)
Ⓔ Isolation valve, 2 in. (field supplied)
Ⓕ Nipple, ¾ in.
Ⓖ Tee, ¾ in.
Ⓗ Nipple, ¾ in.
Ⓘ Pressure relief valve, ¾ in.
Ⓙ Drain valve connection, ¾ in.

Minimum connection diameters:
Pressure relief valve.........................¾ in.
Discharge pipe...............................¾ in.
Piping to precharged expansion tank..(field supplied)

Safety Connections *(continued)*

Low water cut-off

A low water cut-off device may be required by local codes. If required, a low water cut-off device of an approved type (field supplied), is to be installed as per the manufacturers instructions. DO NOT install an isolation valve between the boiler and the low water cut-off device.

Waterside Flow

Waterside flow (primary circuit)

The Vitodens 200-W, B2HA is designed for closed loop, forced circulation hot water heating systems only.

Use standard friction loss method for pipe sizing. Observe boiler maximum and minimum flow rate limitations. If system flow rate exceeds boiler maximum flow rate (as stated above), falls below the minimum flow rate or if system flow rate is unknown, Viessmann strongly recommends the installation of a low-loss header.

Once the low-loss header is connected, the built-in low-loss header logic of the Vitodens 200-W boiler ensures the required $\triangle t$ across the system through the sensory communication between the low-loss header and the boiler.

An alternative method may be used, such as primary secondary piping using closely spaced tees. A low-loss header offers additional benefits not provided by a pair of closely spaced tees. Viessmann therefore strongly recommends and prefers the use of a low-loss header over closely spaced tees. Refer to the Technical Data manual for low-loss header information.
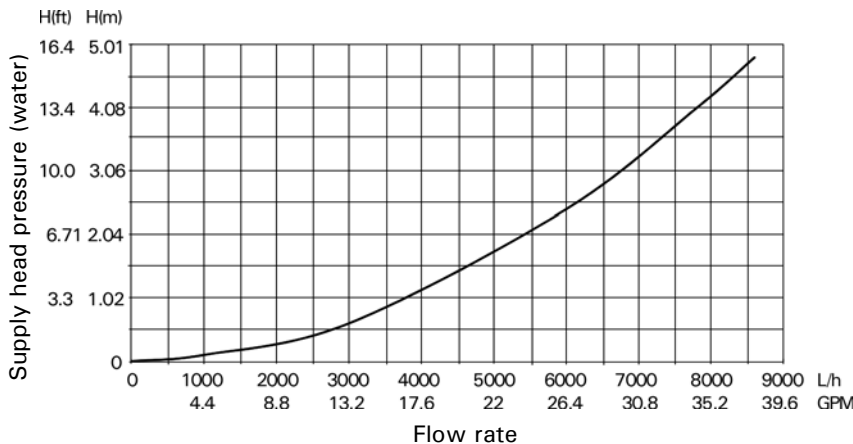
Pressure drop (primary circuit) for Vitodens 200-W,
B2HA 112, 150, 399, 530
For sizing an on-site circulation system.
Max. flow rate 38 GPM (8600 L/h)

Waterside flow *(continued)*

Boiler B2HA 112, 399 maximum flow rate; 38 GPM (8600 L/h)

B2HA 112, 399		1 boiler	2 boilers	3 boilers	4 boilers	5 boilers	6 boilers	7 boilers	8 boilers
Output (NG/LPG) MBH		375	750	1125	1500	1875	2250	2625	3000
△t for NG/LPG									
20° F rise	GPM (L/h)	37.5 (8500)	75 (17000)	112.5 (25600)	150 (34100)	187.5 (42600)	225 (51100)	262.5 (59600)	300 (68100)
25° F rise	GPM (L/h)	30 (6800)	60 (13600)	90 (20400)	120 (27300)	150 (34100)	180 (40900)	210 (44700)	240 (54500)
30° F rise	GPM (L/h)	25 (5700)	50 (11400)	75 (17000)	100 (22700)	125 (28400)	150 (34100)	175 (39700)	200 (45400)
35° F rise	GPM (L/h)	21.4 (4900)	42.9 (9700)	64.3 (14600)	85.7 (19500)	107.1 (24300)	128.6 (29200)	150 (34100)	171.4 (38900)
40° F rise	GPM (L/h)	18.8 (4300)	37.5 (8500)	56.3 (12800)	75 (17000)	93.8 (21300)	112.5 (25600)	131.3 (29800)	150 (34100)

Boiler B2HA 150, 530 maximum flow rate; 38 GPM (8600 L/h)

B2HA 150, 530	1 boiler	2 boilers	3 boilers	4 boilers	5 boilers	6 boilers	7 boilers	8 boilers
Output (NG/LPG) MBH	495	990	1485	1980	2475	2970	3465	3960
△t for NG/LPG								
20° F rise GPM (L/h)	49.5 *1 (11243)	99 (22487)	149 (33731)	198 (44974)	247.5 (56213)	297 (67461)	346.5 (78705)	396 (89949)
25° F rise GPM (L/h)	39.6 *1 (8994)	79 (17990)	119 (26985)	158 (35979)	198 (44971)	237.6 (53969)	277 (62964)	317 (71959)
30° F rise GPM (L/h)	33 (7495)	66 (14991)	99 (22487)	132 (29983)	165 (37476)	198 (44974)	231 (52470)	264 (59966)
35° F rise GPM (L/h)	28 (6424)	57 (12850)	85 (19275)	113 (25700)	141.4 (32122)	170 (38549)	198 (44974)	226 (51399)
40° F rise GPM (L/h)	25 (5631)	50 (11244)	74 (16865)	99 (22487)	124 (28107)	148.5 (33731)	173 (39352)	198 (44974)

*1 Not recommended without a low loss header

Installation Examples

General

The schematics on the following pages are to be seen as guidelines only. They further do not display all system varieties, safety devices, or concepts possible. Specific system layouts may be further discussed with the local Viessmann sales representative office.

Clearances

A minimum of 2 in. (51 mm) circumferential clearance from non-insulated hot water pipes to combustible construction must be maintained. In cases where the pipes are insulated with pipe insulation of appropriate and sufficient thickness and insulation values, the above clearance may be reduced to 0 in. (refer to local gas codes).

> ⚠️ **CAUTION**
>
> **For underfloor heating applications, an additional immersion or strap-on aquastat must be installed in the low temperature underfloor loop (downstream of the mixing valve) to de-energize the pump and/or boiler to prevent overheating. High water temperatures can damage concrete slabs.**

> **IMPORTANT**
>
> **The examples on the following pages depict possible piping layouts of the Vitodens 200-W B2HA boiler equipped with Viessmann System Technology.**
> **For boiler and tank combinations, please install only feasible combinations listed in the Viessmann Price List.**
>
> **Please note that the following examples are simplified conceptual drawings only!**
> **Piping and necessary componentry must be field verified.**
> **A low water cut-off (LWCO) must be installed where required by local codes.**
> **Proper installation and functionality in the field is the responsibility of the heating contractor.**

> ⚠️ **WARNING**
>
> **If a DHW storage tank other than a Viessmann Vitocell 100 or 300 tank is used, the installer must verify proper operation of the Viessmann DHW tank temperature sensor with the original manufacturer of the tank. Viessmann strongly recommends the installation of a temperature tempering valve in the DHW supply line.**

> **IMPORTANT**
>
> **DHW supply and return piping between boiler DHW connections and the Viessmann DHW tank connections, shall be a minimum of 1¼ in. pipe size. This will ensure the residual head of the field supplied pump is fully utilized to overcome the resistance of the DHW heat exchanger coil and to provide sufficient water flow to the boiler heat exchanger.**
>
> **In non-Viessmann DHW tank applications, perform, in addition to the above, accurate calculations for DHW tank coil pressure drop versus boiler pump (field supplied) residual head to ensure sufficient water flow to the boiler heat exchanger. Failure to heed the above instructions may cause boiler short-cycling and inadequate DHW supply.**
>
> **Note:** In the following piping layout examples all pumps are field supplied.

System Layout 1

Vitodens 200-W, B2HA with a direct-connected heating circuit

Legend

Ⓐ Vitodens 200-W B2HA boiler with Vitotronic 200, HO1B outdoor reset control
Ⓑ Outdoor temperature sensor [1]
Ⓒ Vitotrol remote (optional)
Ⓓ Heating circuit
Ⓔ Heating circuit pump [20]
Ⓕ DHW circulating pump [21]
Ⓖ DHW storage tank
Ⓗ DHW tank temperature sensor [5]
Ⓘ Expansion tank
Ⓙ Flow check valve
Ⓚ DHW recirculation pump [28/20] *
Ⓛ Temperature and pressure relief valve
Ⓜ Pressure relief valve
* Function based on coding of address 53

Installation of …

■ radiator heating circuit (high-temp. circuit)
■ DHW production

… with the following flow conditions:
The flow rate of the heating circuit is less than the maximum possible water flow rate of the Vitodens 200-W B2HA boiler (see page 31 for maximum water flow rate of boiler).

The use of a low-loss header is strongly recommended if the maximum water flow rate in the application concerned exceeds the values shown in the applicable table on page 32, or if the system flow rates are unknown.
The low-loss header is available as accessory part.

See following pages for installation examples with a low-loss header.

IMPORTANT

DHW circulating pump Ⓕ must pump into the Vitodens 200-W boiler (as illustrated).

5683 709 - 17

System Layout 2

Vitodens 200-W, B2HA with one heating circuit and low-loss header
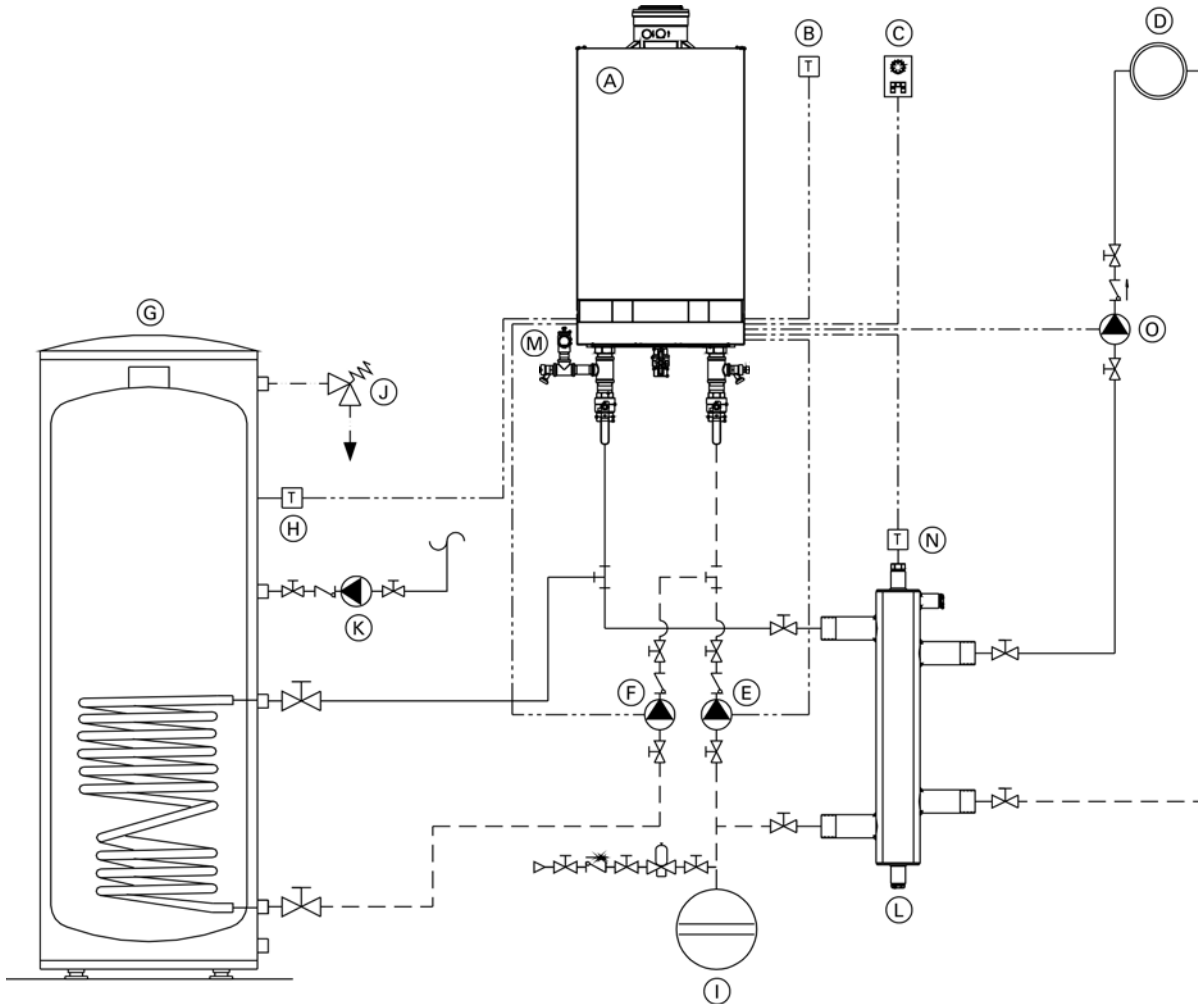
Legend
(A) Vitodens 200-W B2HA boiler with Vitotronic 200, HO1B outdoor reset control
(B) Outdoor temperature sensor 1
(C) Vitotrol remote (optional)
(D) Heating circuit
(E) Boiler pump 20
(F) DHW circulating pump 21
(G) DHW storage tank
(H) DHW tank temperature sensor 5
(I) Expansion tank
(J) Temperature and pressure relief valve
(K) DHW recirculation pump 28/20 *
(L) Low-loss header
(M) Pressure relief valve
(N) Viessmann temperature sensor for low-loss header 2
(O) Heating circuit pump 28/20 *

* Function based on coding of address 53

Installation of …

■ radiator heating circuit (high-temp. circuit)

■ DHW production

… with the following flow conditions:
The flow rate of the heating circuit is greater than the maximum possible water flow rate of the Vitodens 200-W B2HA boiler (see page 31 for maximum water flow rate of boiler).
The use of a low-loss header is strongly recommended if the maximum water flow rate in the application concerned exceeds the values shown on page 32, or if the system flow rates are unknown.
The low-loss header is available as accessory part.

IMPORTANT

Please note location of expansion tank.
DHW circulating pump (F) must pump into the Vitodens 200-W B2HA boiler (as illustrated).

System Layout 3

Vitodens 200-W, B2HA with…
- DHW storage tank
- one heating circuit with mixing valve and system separation

Legend

Ⓐ Vitodens 200-W B2HA boiler with Vitotronic 200, HO1B outdoor reset control
Ⓑ Outdoor temperature [1]
Ⓒ Vitotrol remote (optional)
Ⓓ Underfloor heating circuit
Ⓔ Mixing valve temperature sensor [2]
Ⓕ Pressure relief valve
Ⓖ Plate heat exchanger for system separation
Ⓗ Accessory kit for heating circuit with mixing valve
Ⓘ DHW circulating pump [21]
Ⓙ DHW storage tank
Ⓚ DHW tank temperature sensor [5]
Ⓛ Expansion tank
Ⓜ DHW recirculation pump [28/20] *
Ⓝ Temperature and pressure relief valve
Ⓞ Flow check valve
Ⓟ Heating circuit pump [20]
Ⓠ Heating circuit pump

* Function based on coding of address 53

IMPORTANT

DHW circulating pump must pump Ⓘ into the Vitodens 200-W B2HA boiler (as illustrated).

Installation of …

■ underfloor heating circuit with 3-way mixing valve and system separation (low-temp. circuit)

■ DHW production

… with the following flow conditions:
The flow rate of the heating circuit is less than the maximum possible water flow rate of the Vitodens 200-W B2HA boiler.

See page 30 for maximum water flow rate of the Vitodens 200-W B2HA boilers. The use of a low-loss header is recommended if the system water flow rate is unknown. The low-loss header is available as accessory part.

See following pages for installation examples with a low-loss header.

IMPORTANT

System separation is required of underfloor heating systems employing non-oxygen diffusion barrier tubing. All components on the secondary side of the heat exchanger must be made of corrosion-resistant materials.

IMPORTANT

Sizing of field-supplied pump Ⓟ is critical for proper boiler operation in this system layout. See page 31 for the supply head pressure drop of the boiler. An undersized pump may cause short-cycling and/or improper operation of the boiler. Viessmann STRONGLY recommends using a low-loss header and a boiler pump in this system layout.

System Layout 4

Vitodens 200-W, B2HA with…
- DHW storage tank
- one direct-connected heating circuit
- one heating circuit with a mixing valve
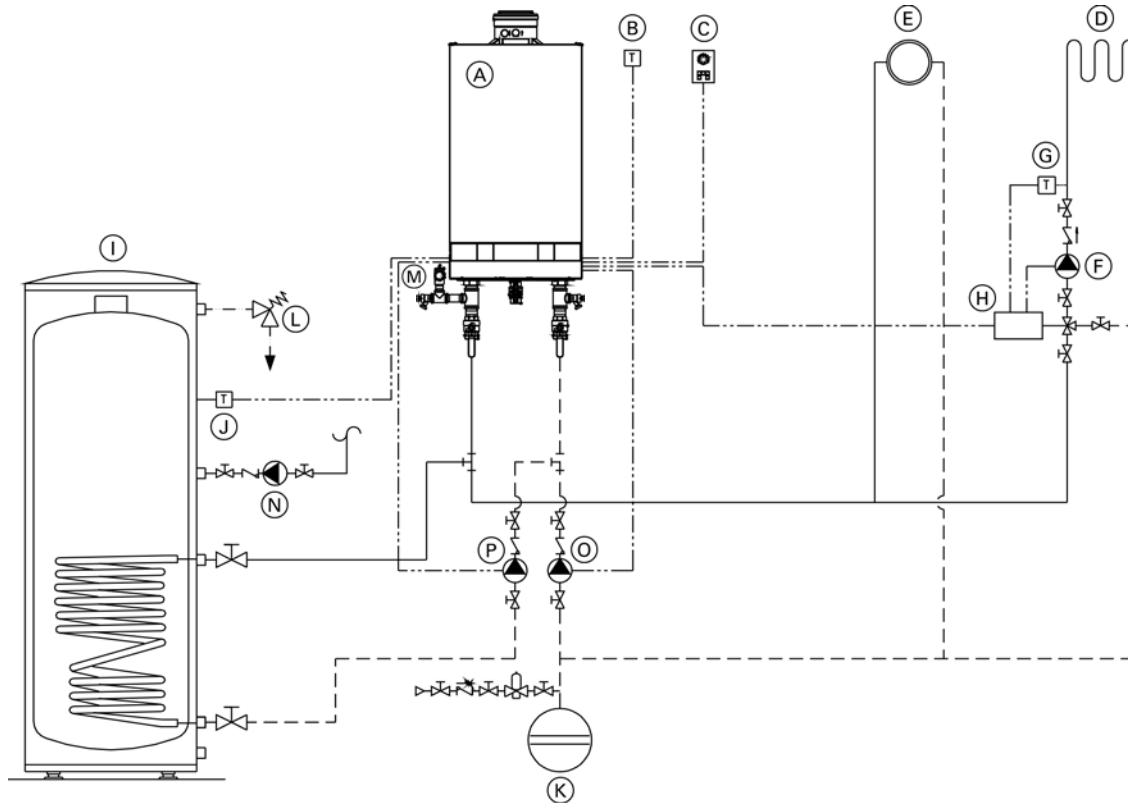
Legend
- (A) Vitodens 200-W B2HA boiler with Vitotronic 200, HO1B outdoor reset control
- (B) Outdoor temperature sensor $\boxed{1}$
- (C) Vitotrol remote (optional)
- (D) Under floor heating circuit
- (E) Radiator heating circuit
- (F) Heating circuit pump
- (G) Mixing valve temperature sensor $\boxed{2}$
- (H) Accessory kit for heating circuit with mixing valve
- (I) Domestic hot water storage tank
- (J) DHW tank temperature sensor $\boxed{5}$
- (K) Expansion tank
- (L) Temperature and pressure relief valve
- (M) Pressure relief valve
- (N) DHW recirculation pump $\boxed{28/20}$ *
- (O) Boiler pump $\boxed{20}$
- (P) DHW circulating pump $\boxed{21}$

*   Function based on coding of address 53

IMPORTANT

DHW circulating pump (P) must pump into the Vitodens 200-W B2HA boiler (as illustrated).

Installation of different heating circuits…

- ■ radiator heating circuit (high-temp. circuit)
- ■ under floor heating circuit with 3-way mixing valve (low-temp. circuit)
- ■ DHW production

… with the following flow conditions:

1.   The water flow rate (output) of the radiator heating circuit is at least 30% greater than that of the under floor heating circuit.

2.   The total flow rate of the two heating circuits is less than the maximum possible water flow rate of the Vitodens 200-W B2HA boiler (see page 31 for max. water flow rate).
The use of a low-loss header is strongly recommended if the maximum water flow rate in the application concerned exceeds the values shown on page 32, or if the system flow rates are unknown. The low-loss header is available as accessory part.

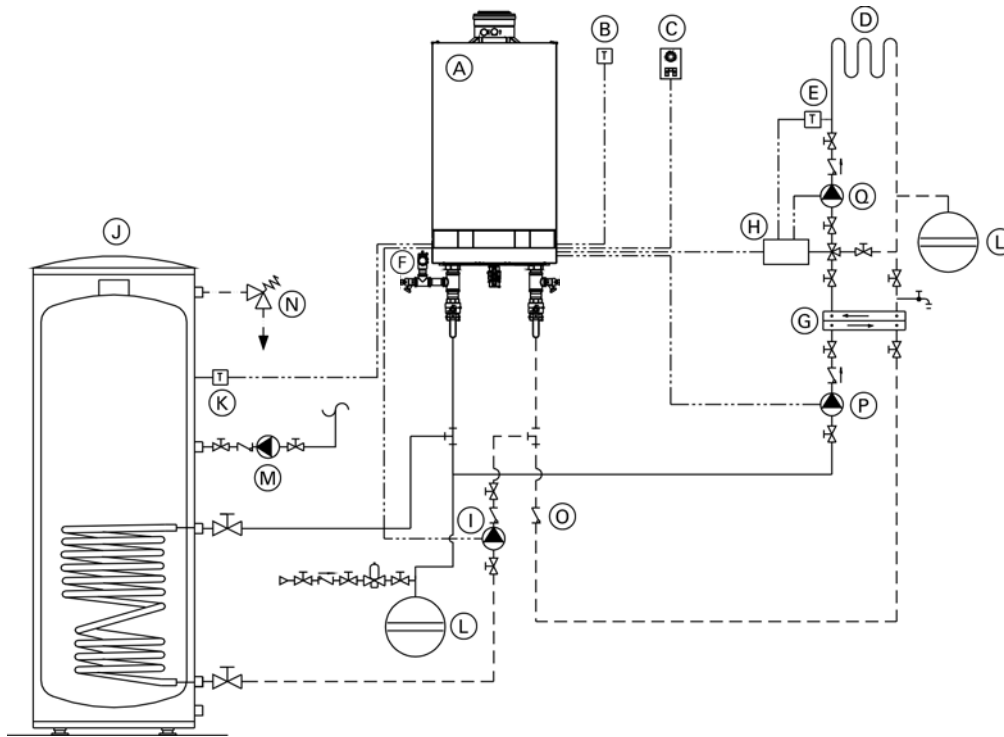See following pages for additional installation examples with a low-loss header.

The 3-way mixing valve, built-in to achieve the low-temperature level of the under floor heating circuit, is controlled by an accessory kit for a heating circuit with mixing valve.

Vitodens 200-W, B2HA with...
- DHW storage tank
- one heating circuit with mixing valve
- one heating circuit without mixing valve and low-loss header

Legend
- (A) Vitodens 200-W B2HA boiler with Vitotronic 200, HO1B outdoor reset control
- (B) Outdoor temperature sensor [1]
- (C) Vitotrol remote (optional)
- (D) Under floor heating circuit
- (E) Radiator heating circuit
- (F) Boiler circuit pump [20]
- (G) Mixing valve temperature sensor [2]
- (H) Kit for heating circuit with mixing valve
- (I) Domestic hot water storage tank
- (J) DHW tank temperature sensor [5]
- (K) Expansion tank
- (L) Temperature and pressure relief valve
- (M) Pressure relief valve
- (N) DHW recirculation pump [28/20] *
- (O) DHW circulating pump [21]
- (P) Heating circuit pump
- (Q) Low-loss header
- (R) Viessmann temperature sensor for low-loss header [2]
- (S) Heating circuit pump [28/20] *

* Function based on coding of address 53

Installation of different heating circuits...

■ radiator heating circuit (high-temp. circuit)

■ under floor heating circuit with 3-way mixing valve (low-temp. circuit)

■ DHW production

... with the following flow conditions:
The total flow rate of the two heating circuits is greater than the maximum possible water flow rate of the Vitodens 200-W B2HA boiler (see page 31 for maximum water flow rate of boiler).
The use of a low-loss header is strongly recommended. The low-loss header is available as accessory part.

The 3-way mixing valve, built-in to achieve the low-temperature level of the under floor heating circuit, is controlled by an accessory kit for a heating circuit with mixing valve.

IMPORTANT

DHW circulating pump (O) must pump into the Vitodens 200-W B2HA boiler (as illustrated).

System Layout 6

Vitodens 200-W, B2HA with...
  - DHW storage tank
  - one heating circuit without a mixing valve
  - two heating circuits with a mixing valve
  - low-loss header

Legend

Ⓐ   Vitodens 200-W B2HA boiler with
     Vitotronic 200, HO1B outdoor reset control
Ⓑ   Outdoor temperature sensor [1]
Ⓒ   Vitotrol remote (optional)
Ⓓ   Under floor heating circuit
Ⓔ   Heating circuit pump [28/20] *
Ⓕ   Mixing valve temperature sensor [2]
Ⓖ   Accessory kit for heating circuit with mixing valve
Ⓗ   Heating circuit pumps
Ⓘ   DHW storage tank
Ⓙ   DHW tank temperature sensor [5]
Ⓚ   Expansion tank
Ⓛ   Temperature and pressure relief valve
Ⓜ   Low-loss header
Ⓝ   Viessmann temperature sensor for low-loss header [2]
Ⓞ   Pressure relief valve
Ⓟ   DHW recirculation pump [28/20] *
Ⓠ   Radiator heating circuit
Ⓡ   Boiler pump [20]
Ⓢ   DHW circulating pump [21]
*   Function based on coding of address 53

Installation of different heating circuits...

■   two heating circuits with 3-way mixing valve
    (low-temp. circuit)

■   DHW production

... with the following flow conditions:
The total flow rate of the two heating circuits is greater than the maximum possible water flow rate of the Vitodens 200-W B2HA boiler (see page 31 for maximum water flow rate of boiler).
The use of a low-loss header is strongly recommended. The low-loss header is available as accessory part.

The 3-way mixing valve, built-in to achieve the low-temperature level of the under floor heating circuit, is controlled by an accessory kit for a heating circuit with a mixing valve.

IMPORTANT

DHW circulating pump Ⓢ must pump into the Vitodens 200-W B2HA boiler (as illustrated).

System Layout 7

Vitodens 200-W, B2HA with...
- direct-connected heating circuit
- one heating circuit with system separation

Legend

Ⓐ Vitodens 200-W B2HA boiler with Vitotronic 200, HO1B outdoor reset control
Ⓑ Outdoor temperature sensor [1]
Ⓒ Vitotrol remote (optional)
Ⓓ Under floor heating circuit
Ⓔ Radiator heating circuit
Ⓕ Plate heat exchanger for system separation
Ⓖ Heating circuit pump
Ⓗ Mixing valve temperature sensor [2]
Ⓘ Accessory kit for heating circuit with mixing valve
Ⓙ DHW storage tank
Ⓚ DHW tank temperature sensor [5]
Ⓛ Expansion tanks
Ⓜ Temperature and pressure relief valve
Ⓝ Pressure relief valve
Ⓞ DHW recirculation pump [28/20] *
Ⓟ Boiler pump [20]
Ⓠ DHW circulating pump [21]
* Function based on coding of address 53

> ## IMPORTANT
>
> **DHW circulating pump Ⓠ must pump into the Vitodens 200-W B2HA boiler (as illustrated).**

Installation of different heating circuits...

■ radiator heating circuit (high-temp. circuit)

■ under floor heating circuit with 3-way mixing valve (low-temp. circuit)

■ DHW production

... with the following flow conditions:
The total flow rate of the two heating circuits is less than the maximum possible water flow rate of the Vitodens 200-W B2HA boiler (see page 31 for maximum water flow rate of boiler).
The use of a low-loss header is strongly recommended if the maximum water flow rate in the application concerned exceeds the max. boiler flow rate, or if the system flow rates are unknown. The low-loss header is available as accessory part.
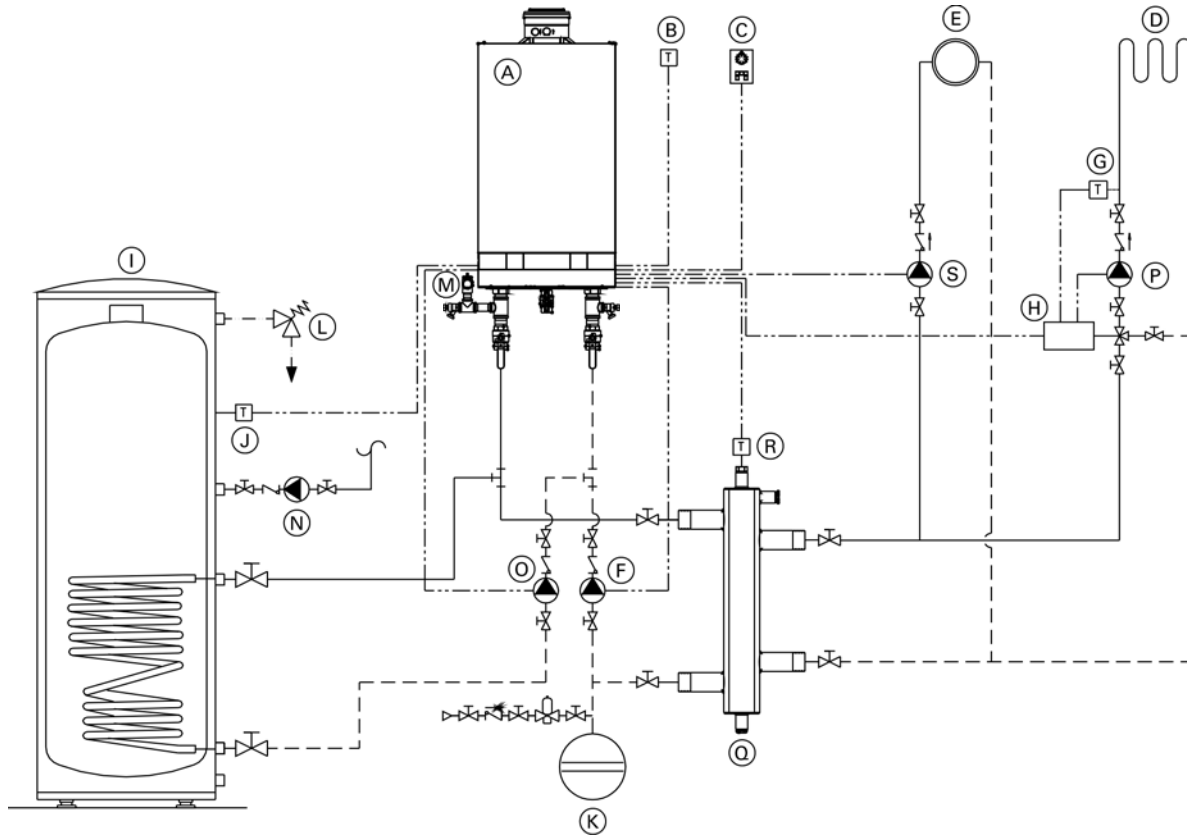
The 3-way mixing valve, built-in to achieve the low-temperature level of the under floor heating circuit, is controlled by an accessory kit for a heating circuit with mixing valve Ⓘ. The boiler pump [20] supplies the radiator heating circuit and the plate heat exchanger for system separation.

> ## IMPORTANT
>
> **The pressure drop (secondary circuit) of the plate heat exchanger Ⓕ must be less/equal to the pressure drop of the 3-way mixing valve. This must be taken into account when sizing the plate heat exchanger.**

5683 709 - 17

System Layout 8

Vitodens 200-W, B2HA with...
- DHW storage tank
- low-loss header
- multiple heating circuits with mixing valves
- one heating circuit without mixing valve
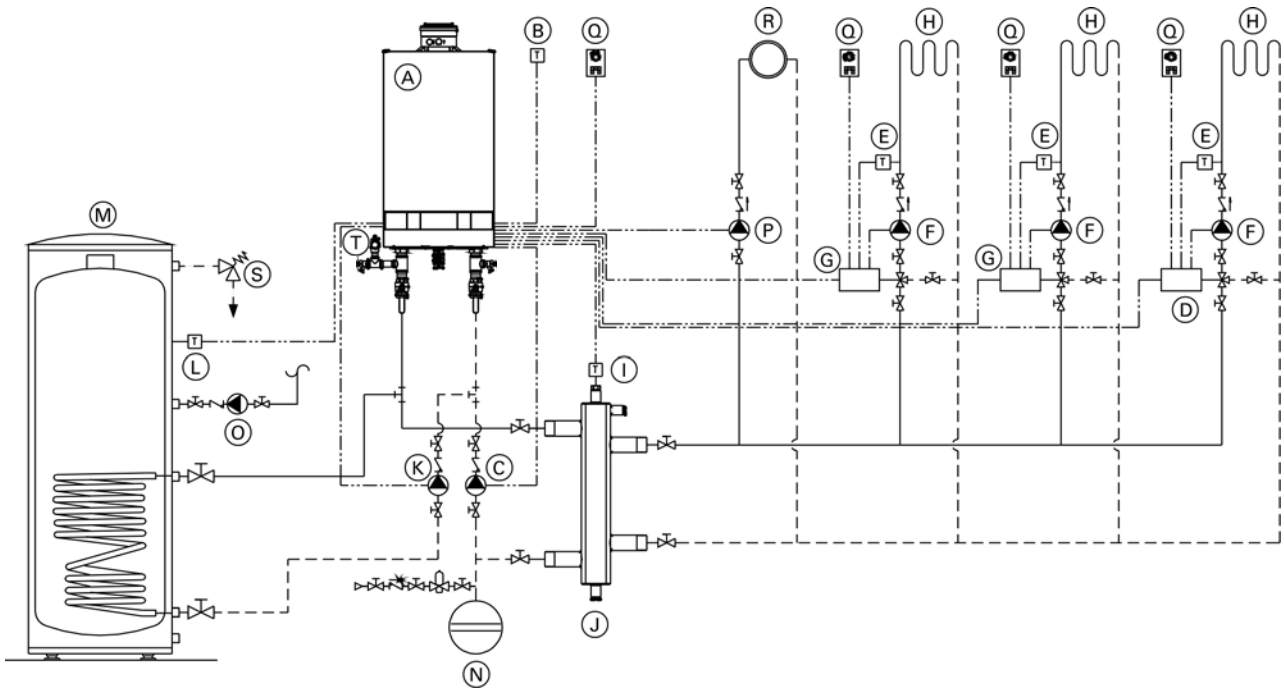
When designing a system as illustrated above, please contact your local Viessmann Sales Representative for assistance.

Legend

(A)   Vitodens 200-W B2HA boiler with Vitotronic 200, HO1B outdoor reset control
(B)   Outdoor temperature [1]
(C)   Boiler pump [20]
(D)   Vitotronic 200-H, HK1B *1
(E)   Mixing valve temperature sensor [2]
(F)   Heating circuit pumps
(G)   Accessory kit for heating circuit with mixing valve
(H)   Heating circuits with mixing valves
(I)   Viessmann temperature sensor for low-loss header [2]
(J)   Low-loss header
(K)   DHW circulating pump [21]
(L)   DHW tank temperature sensor [5]
(M)   DHW storage tank
(N)   Expansion tank
(O)   DHW recirculation pump [28]
(P)   Heating circuit pump [28/20] *
(Q)   Vitotrol remote (optional)
(R)   Radiator heating circuit
(S)   Temperature and pressure relief valve
(T)   Pressure relief valve

*   Function based on coding of address 53

*1   Contact your local Sales Representative for details.

Vitotronic 200-H, HK1B mixing valve control with LON communication module can be used instead of the accessory kit and Vitocontrol.

IMPORTANT

Please note location of expansion tank (N).

IMPORTANT

Pumps (C) and (K) must pump into the Vitodens 200-W B2HA boiler (as illustrated).

System Layout 9

Vitodens 200-W, B2HA/B2HB with…
- DHW storage tank
- low-loss header
- three zone circuits
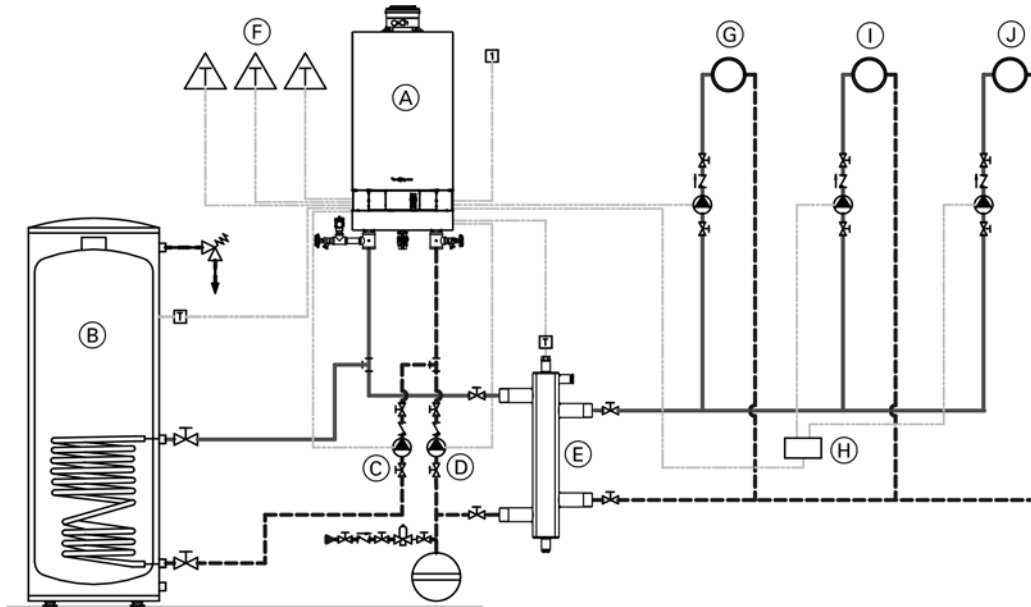
Legend
- Ⓐ Vitodens 200-W boilers
- Ⓑ DHW storage tank
- Ⓒ DHW pump [output 21]
- Ⓓ Boiler pump [output 20]
- Ⓔ Low-loss header
- Ⓕ Thermostat zone circuits 1, 2, 3 (dry contact)
- Ⓖ Zone circuit 1 [output 157]
- Ⓗ AM1 extension module (accessory)
- Ⓘ Zone circuit 2 [output A1 - AM1 extension module]
- Ⓙ Zone circuit 3 [output A2 - AM1 extension module]

Installation of different heating circuits…
- ■ DHW production
- ■ 3 zone circuits

… with the following flow conditions:
The total flow rate of the two heating circuits is greater than the maximum possible water flow rate of the Vitodens 200-W B2HA/B boiler.
The use of a low-loss header is strongly recommended.
The low-loss header is available as accessory part.

System Layout 10

Multiple (up to eight) Vitodens 200-W, models B2HA 112, 150, 399, 530 with...
- multiple heating circuits with mixing valves
- low-loss header
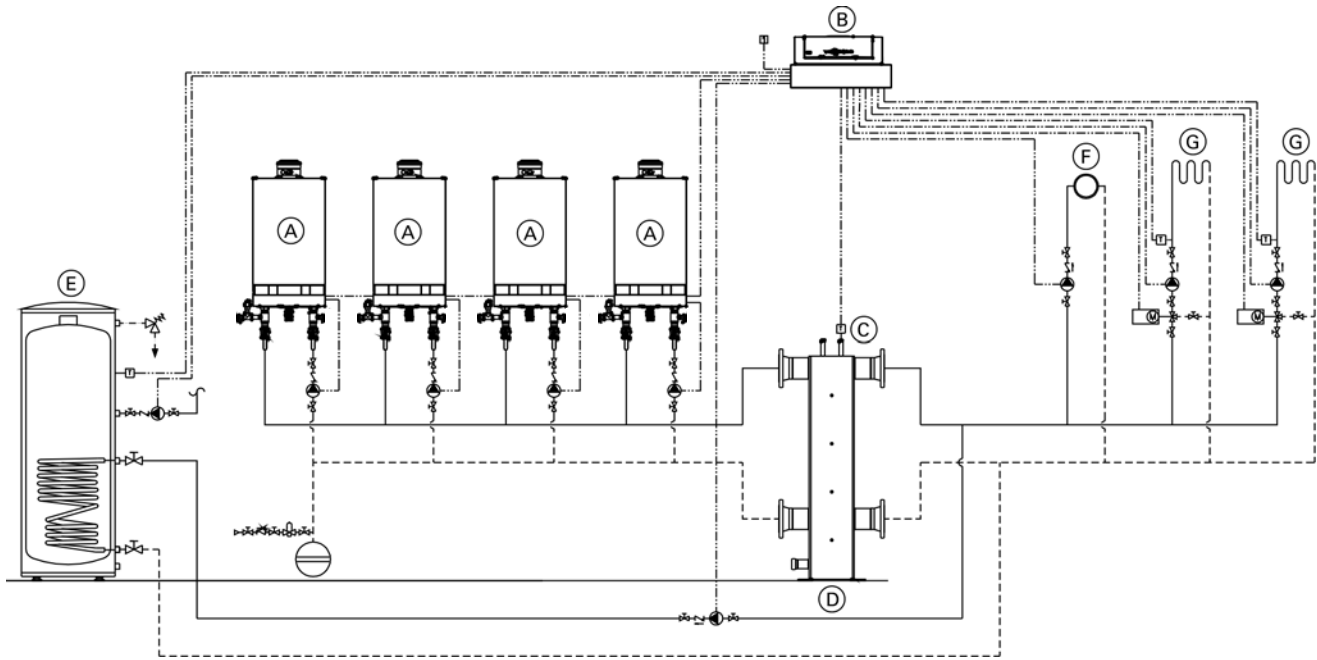
Legend
(A)   Vitodens boiler
(B)   Vitotronic 300K
(C)   Low-loss header/common supply temperature sensor
(D)   Low-loss header
(E)   DHW storage tank
(F)   High temperature heating circuit
(G)   Low temperature heating circuit

When designing a multiple Vitodens system as shown above, please reference applicable multiple Vitodens technical documentation, and contact your local Viessmann Sales Representative for further assistance.

This installation example depicts a possible piping layout for multiple Vitodens 200-W, B2HA boilers equipped with Viessmann System Technology. Please note that this example is based on a simplified conceptual drawing only! Piping and necessary componentry must be field verified. A low water cut-off (LWCO) must be installed where required by local codes.
Proper installation and functionality in the field is the responsibility of the heating contractor.

> ⚠️ **WARNING**
>
> **If a DHW storage tank other than a Viessmann Vitocell 100 or 300 tank is used, the installer must verify proper operation of the Viessmann DHW tank temperature sensor with the original manufacturer of the tank. Viessmann strongly recommends the installation of a temperature tempering valve in the DHW supply line.**

Alternative DHW Connection

The following piping diagram reflects an alternative connection for the DHW tank only and applies to system layouts 2, 5, 6 and 8. The boiler control pump logic function must be programmed in the Service Instructions.
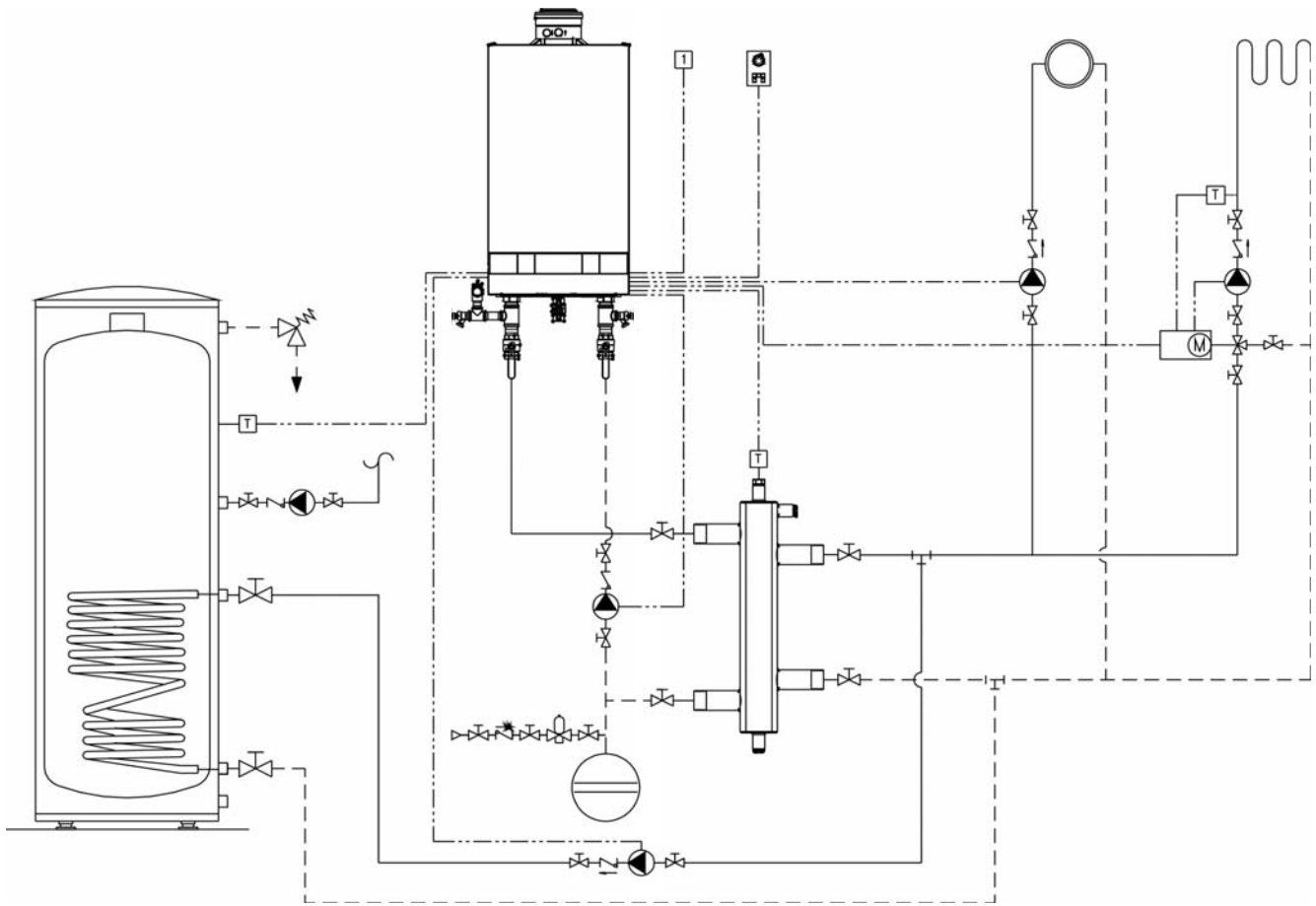
*Note: When using a low loss header in the system, the DHW connections can be made downstream of the low loss header. See Vitodens 200-W B2HA Service Instructions for applicable system coding information (see coding level 2):
00: ...
A2: ...
5b: ...

Boiler in Heating/Cooling

Boiler in heating/cooling application

The boiler, when used in connection with a refrigeration system, must be installed ensuring the chilled medium is piped in parallel to the boiler with appropriate valves to prevent the chilled medium from entering the boiler. See illustration on the left.

The boiler piping system of a hot water heating boiler connected to heating coils located in air handling units where they may be exposed to refrigerated air circulation must be equipped with flow control valves or other automatic means to prevent gravity circulation of the boiler water during the cooling cycle.

Check installation instructions of the chiller manufacturer carefully for additional requirements.

Cooling season starts:
Close valve "v1" and open valve "v2".

Heating season starts:
Close valve "v2" and open valve "v1".
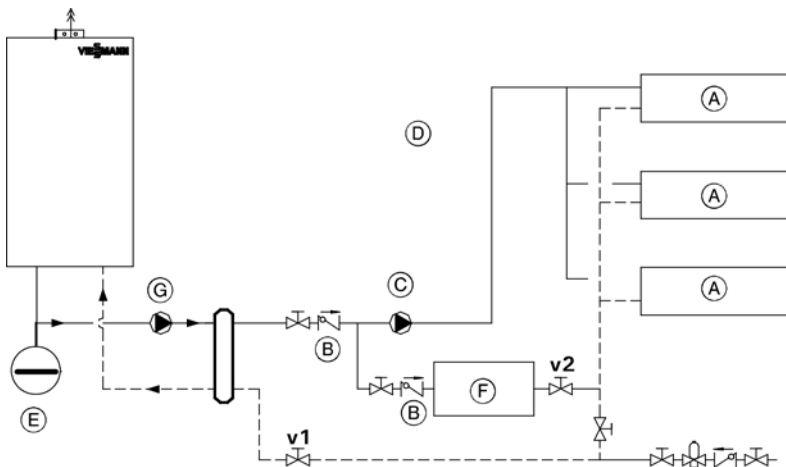
IMPORTANT

Viessmann strongly suggests that the valves illustrated be labelled "v1" and "v2".

IMPORTANT

In the illustration, the circulating pump must be operated from a separate on/off switch, not from the pump aquastat on the boiler control.

Legend

Ⓐ Heating/Cooling unit
Ⓑ Spring-loaded flow check valve
Ⓒ Circulation pump
Ⓓ Safety header with automatic air vent and pressure relief valve
Ⓔ Expansion tank
Ⓕ Water chiller
Ⓖ Boiler circuit pump (field supplied)

Boiler with Low Water Cut-off
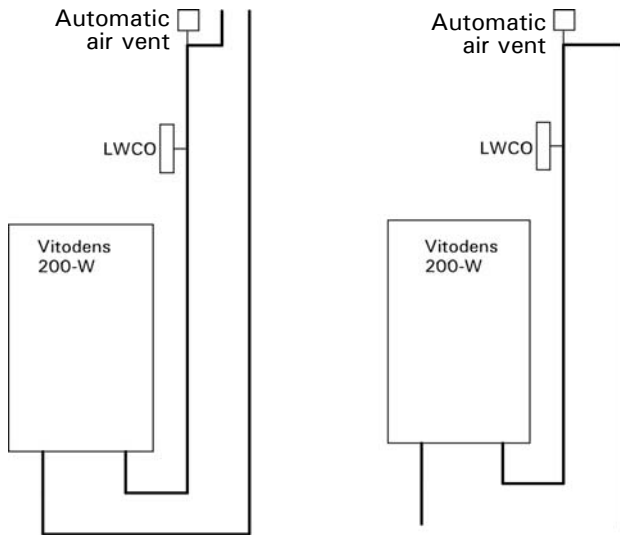
Boiler with low water cut-off (remote-mounted, field supplied)

A low water cut-off may be required by local codes. Do not install an isolation valve between boiler and low water cut-off.

Follow the installation instructions of the low water cut-off from the manufacturer.

For low water cut-off wiring information specific to your application, refer to applicable wiring diagram (see page 47).

Venting Connection

⚠ **CAUTION**

Under certain climatic conditions some building materials may be affected by flue products expelled in close proximity to unprotected surfaces. Sealing or shielding of the exposed surfaces with a corrosion resistant material (e.g. aluminum sheeting) may be required to prevent staining or deterioration. The protective material should be attached and sealed (if necessary) to the building before attaching the vent termination. It is strongly recommended to install the vent termination on the leeward side of the building.

Vitodens 200-W, B2HA Installation Instructions Venting System

5683 709 - 17

Overview of Electrical Connections, Models B2HA 112, 150, 399 and 530

⚠️ **WARNING**

DISCONNECT POWER BEFORE SERVICING BOILER.

If any of the original wires as supplied with the appliance must be replaced, it must be replaced with the exact equivalent.

⚠️ **CAUTION**

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

∗ Only one function/accessory may be assigned to each connection.
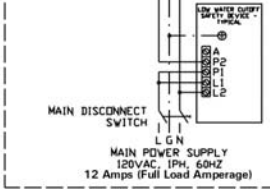
Overview of Electrical Connections, Models B2HA 112, 150, 399 and 530 *(continued)*

Legend

1	Outdoor Temperature Sensor
2	Supply Temperature Sensor/Low Loss Header
3	Boiler Temperature Sensor/High Limit Sensor
3A	Boiler Temperature Sensor/High Limit Sensor
5	DHW Temperature Sensor
11	Ionization Electrode
15	Flue Gas temperature Sensor
20	Boiler Pump
21	DHW Pump
[21]	Pump Output Connection
28/20	Programmable Pump Output / zone circuit pump output*
35	Gas Valve
40	Power Supply
40A	Accessory Power Output
[53]	Powered Accessory Connection
54	Ignition Transformer
96	Powered Accessory Connection
100	Fan Motor
100A	Fan Motor Control
111	Low and High Pressure Gas Switches
145	KM BUS
Multi	Powered Accessory Connection
156A	Switched Output F2
156B	Switched Output F1
DE1	Digital Input 1 (Dry Contact)
DE2	Digital Input 2 (Dry Contact)
DE3	Digital Input 3 (Dry Contact)
0-10V	0-10VDC Input
157	Fault Alarm/DHW Recirc. Pump / zone circuit pump output*
190	Gas Modulation Coil
F	Flow Sensor

 * See wiring diagram

Ⓐ Boiler Control
Ⓑ External Accessory Connection Board
Ⓒ Pump Connection Interface
Ⓓ Extension Module EA1
Ⓔ KM-BUS for External Devices
Ⓕ Electrical Junction Box
Ⓖ Field Wiring Connections
A1 Main Board
A2 Internal Power Supply Unit
A3 Optolink
A4 Burner Control Unit
A5 Programming Unit
A6 Coding Card
A7 Connection Adaptor
A8 LON Communication Module
S1 ON/OFF Switch
S2 Reset Button
X.. Electrical Interface

IMPORTANT

Electrical installations must comply with the latest edition of:

■ **In the U.S.A., the National Electrical Code (NEC), ANSI/NFPA 70 and any other state, local codes and/or regulations.**

■ **In Canada, the Canadian Electrical Code (CEC), CSA C22.1 Part 1 and any other province, territory, local codes and/or regulations.**

Electrical Connections

Power supply connection of accessories

The power supply connection of accessories can be made directly at the control. The connection is activated and deactivated with the system on/off switch.
The Vitotronic 200-H, HK1B mixing valve control, the mixing valve accessory kit and the Solartrol control require a separate 120VAC power supply from the wall receptacle.

Closing the control unit casing and inserting (continued)
Insert programming unit (packed separately) into the control unit support.

Note: The programming unit can also be used in a wall mounting base (accessory) near the boiler

Cabling required for:
- outdoor temperature sensor
- Vitotronic 200-H, HK1B mixing valve control
- accessory kit for heating circuit with mixing valve
- remote switching of operating mode
- remote disable
- alarm output
- wall-mount base
- circulating pump

IMPORTANT

It is essential to route cables as illustrated to ensure freedom of movement of control unit.

IMPORTANT

When running and securing connecting cables on site, ensure that the maximum permissible temperatures of the cables are not exceeded.

IMPORTANT

Cables in the vicinity of the control unit must not be secured to the control unit bracket.

Connection of accessories

For details regarding other installation steps required, please reference the Installation Instructions supplied with the respective accessory part.

Note: Only one accessory part or one switch contact can be connected to the contacts of a plug at a time.

Accessing the X3 Plug
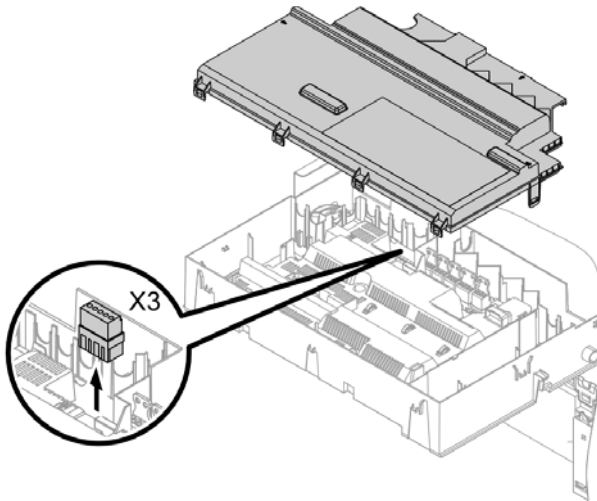
1. Remove the control unit cover (see page 24).
2. Remove the X3 plug from the control board. Install the required sensors.
3. Reinstall the control cover.

Connecting the Low-loss Header Sensor
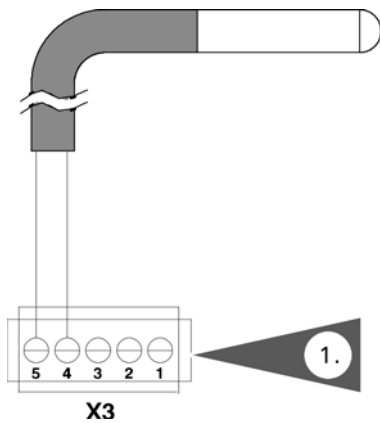
1. Connect the low-loss header sensor (if used) to terminals X3.4/X3.5 on the boiler control board.

Connecting the Outdoor Temperature Sensor

X3
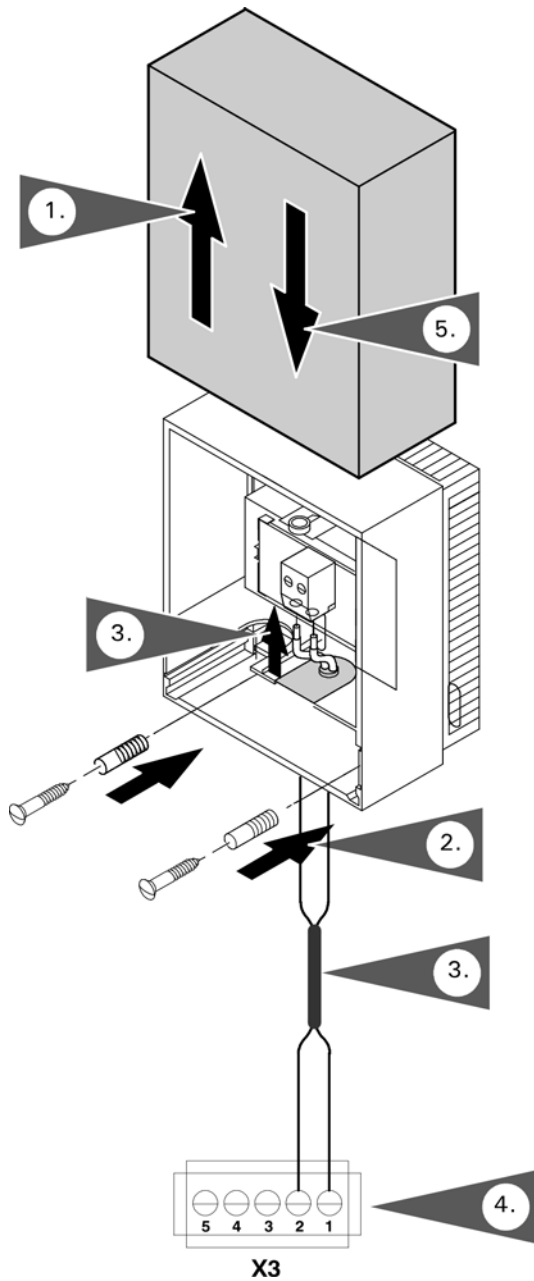
1. Remove cover of outdoor temperature sensor.
2. Mount wall-mount base (cable entry must point downward).

IMPORTANT

The outdoor temperature sensor should be mounted 6.6 to 8.2 ft. (2 to 2.5 m) above ground level on the north or northwest wall of the building. In case of a multi-storey building, mount outdoor temperature sensor in the upper half of the second floor.
Ensure that sensor is not located above windows, doors and air vents, or immediately underneath a balcony or gutter.
The outdoor temperature sensor must not be covered by plaster. If mounting on an unplastered wall, make allowances for thickness of plaster or remove sensor before plastering wall.

---

3. Route cable from the boiler control board to the outdoor sensor. Connect cable to sensor terminals (wires are interchangeable).
   Cable specifications:
   2-wire cable, max. cable length 95 ft. (35 m) with a wire size of min. AWG 16 copper.
4. Connect the outdoor temperature sensor to terminals X 3.1/X3.2 on the boiler control board (wires are interchangeable).
5. Place cover on base and snap into place.

IMPORTANT

Cable to the outdoor sensor must not be laid near line voltage wiring (120/240V).

External 0-10 Volt Signal Connection

Extension Module EA1

| 0-10V | | 157 | | 40A | | 40 |

1 2   S O P   L ⊕ N   N ⊕ L

120 V~
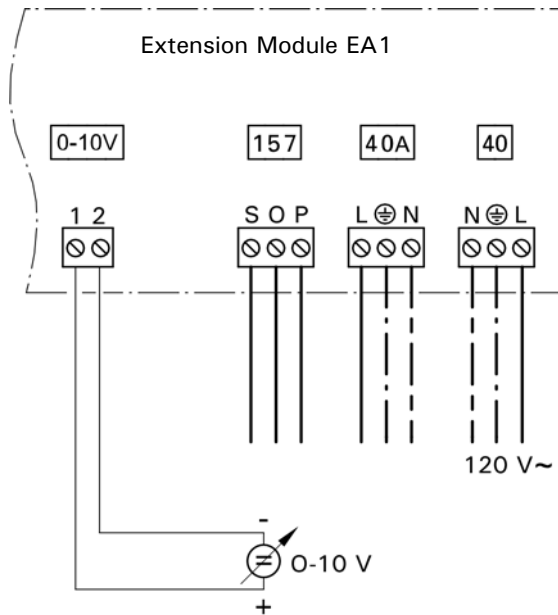
– / + 0-10 V

1. Connect the external 0-10 V signal to plug 0-10V located in the extension module EA1.
2. Ensure correct polarity.
3. See chart for maximum possible boiler water temperature and required signal.

Example: Voltage to temperature setpoint
8VDC = 176ºF (80ºC)

212ºF	100ºC	
203ºF	95ºC	
194ºF	90ºC	
185ºF	85ºC	
176ºF	80ºC	
167ºF	75ºC	
158ºF	70ºC	
149ºF	65ºC	
144ºF	60ºC	
131ºF	55ºC	
122ºF	50ºC	
113ºF	45ºC	
104ºF	40ºC	
95ºF	35ºC	
86ºF	30ºC	
77ºF	25ºC	
68ºF	20ºC	
59ºF	15ºC	
50ºF	10ºC	
41ºF	5ºC	

0V 1V 2V 3V 4V 5V 6V 7V 8V 9V 10VDC
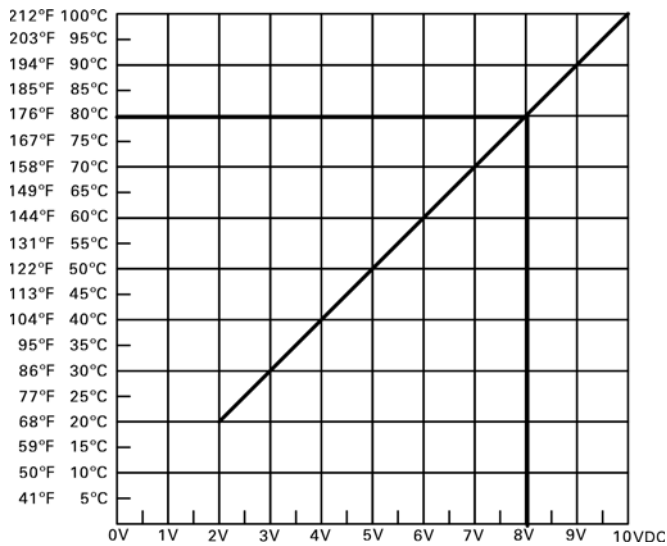
Connecting a 24 VAC Thermostat

1. Connect normally open dry contact of the switching relay ('T-T' contact) to terminal DE1, DE2 or DE3 of the EA1 module located in the boiler electrical junction box.

2. Connect switching relay to thermostat and power supply as per manufacturers instructions.

   When the thermostat contact is closed, burner operation is load-dependent. The supply water is heated to the value set in the coding address "9b" in the "General" group of the boiler.
   The supply water temperature is limited by this set value and the electronic supply temperature maximum limit.

Codes
Extension EA1   Set "3A", "3B" or "3C" in the "General" group to 2.

Note: 'Live' contacts lead to short circuits or phase failure. The external connection must be potential-free.

Note: When only using a thermostat (field supplied) for room temperature control, the boiler standard and reduced room temperature set points may be set to 37ºF (3ºC) to reduce boiler cycling.
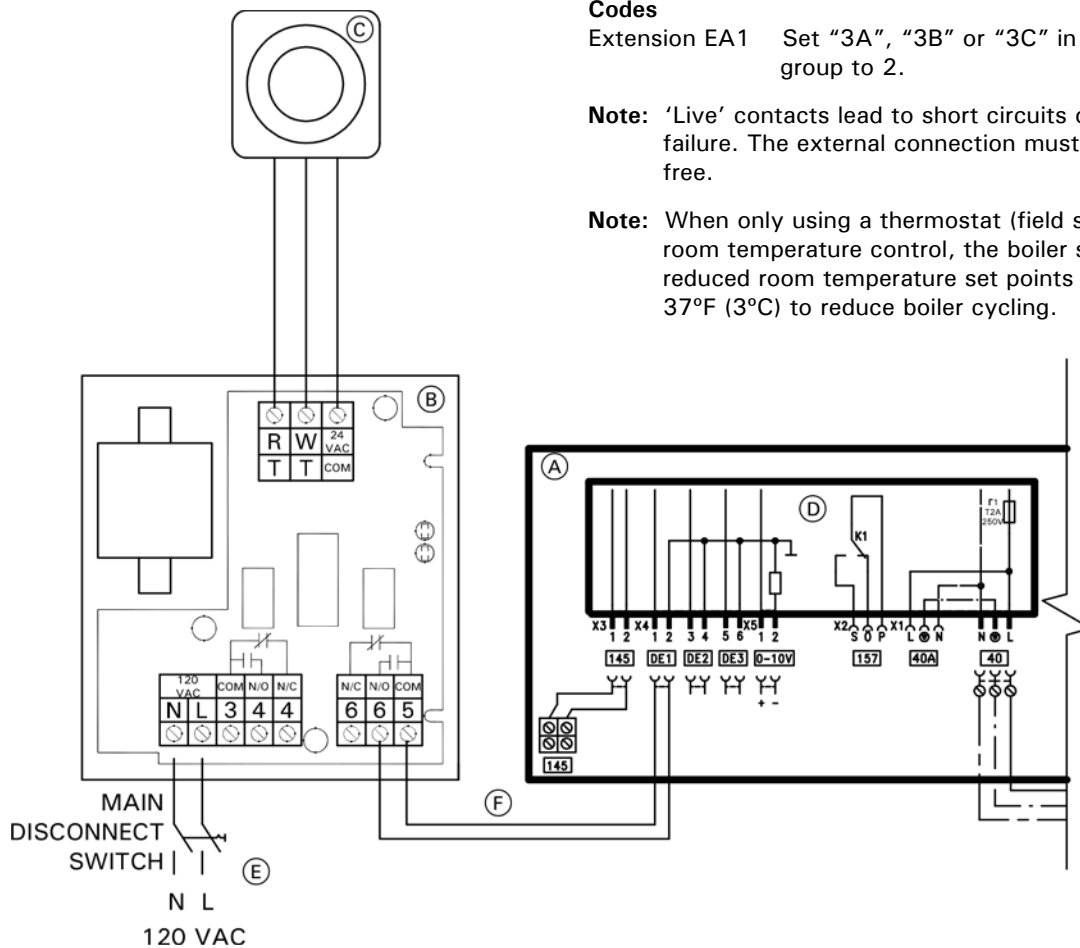
Legend
Ⓐ Boiler electrical junction box
Ⓑ Switch relay (ie Taco SR501, Honeywell RA889A-1001, field supplied)
Ⓒ 24VAC room thermostat (field supplied)
Ⓓ Internal EA1 module
Ⓔ 120VAC power supply for switching relay (refer to manufacturers instructions)
Ⓕ Dry contact connection from switching relay (to boiler 'T-T')

Thermostat Connection
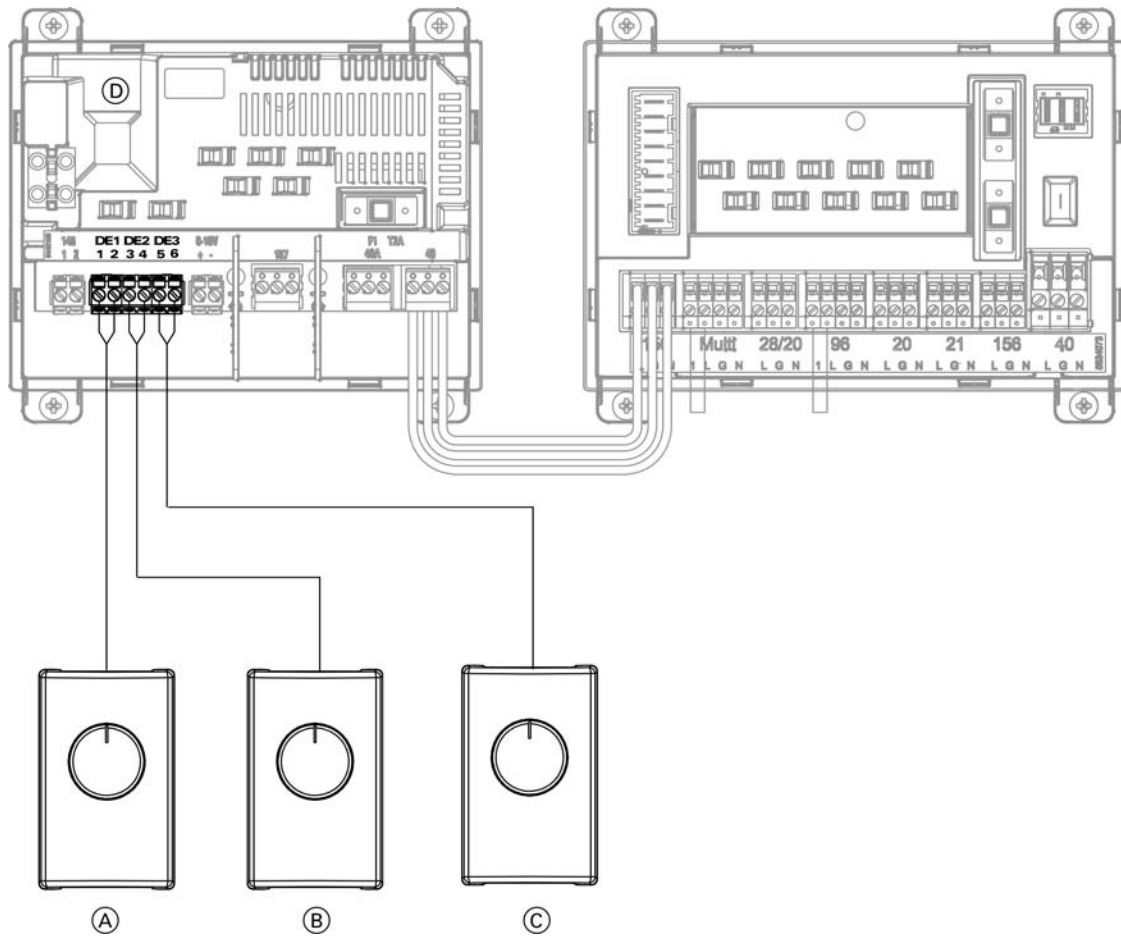
Legend

Ⓐ Room thermostat (dry contact) zone circuit 1
Ⓑ Room thermostat (dry contact) zone circuit 2
Ⓒ Room thermostat (dry contact) zone circuit 3
Ⓓ EA1 module (integrated into the boiler)

Refer to the boiler Installation Instructions for locating and accessing the integrated EA1 module.

Pump Connection

Connection to boiler

Pump output assignment is done using the start-up wizard. A maximum of 2 zone circuit pumps can be connected to the boiler additional pumps will require the use of an AM1 extension module.

Refer to the AM1 extension module Installation Instructions for additional details.
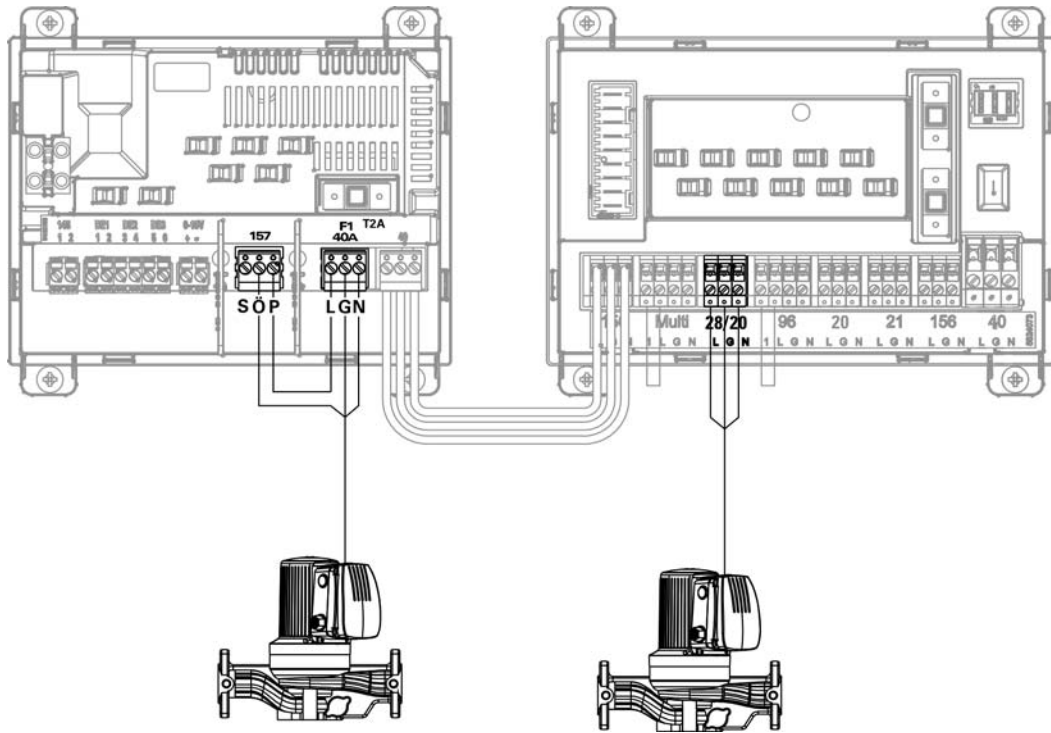
Connection at AM1 (accessory)

Pump output assignment is done using the start-up wizard.

Refer to the boiler Service Instructions for start-up instructions.
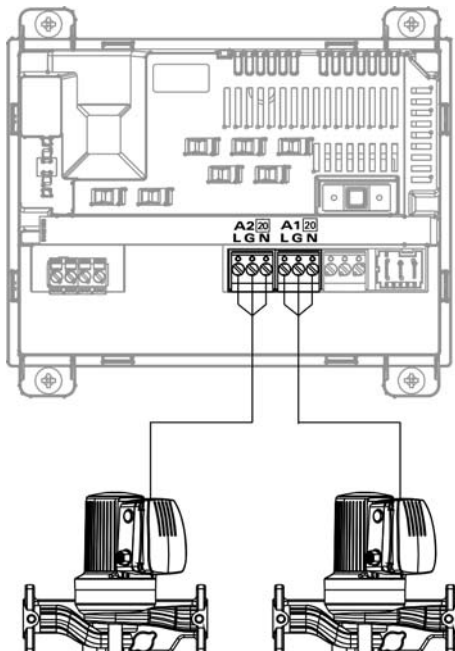
LON Module
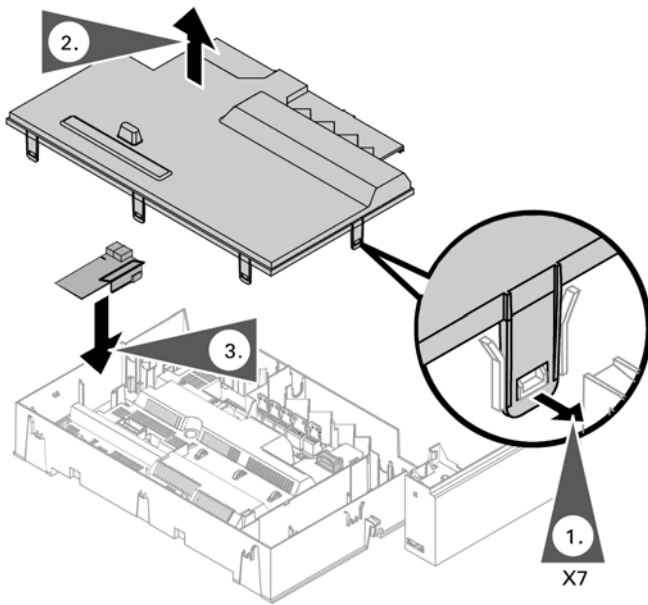
Installing the LON module to the boiler control board

1. Remove the control cover.
2. Insert the LON module into the boiler control board.
3. Connect the LON connector cable to the LON module.

X7
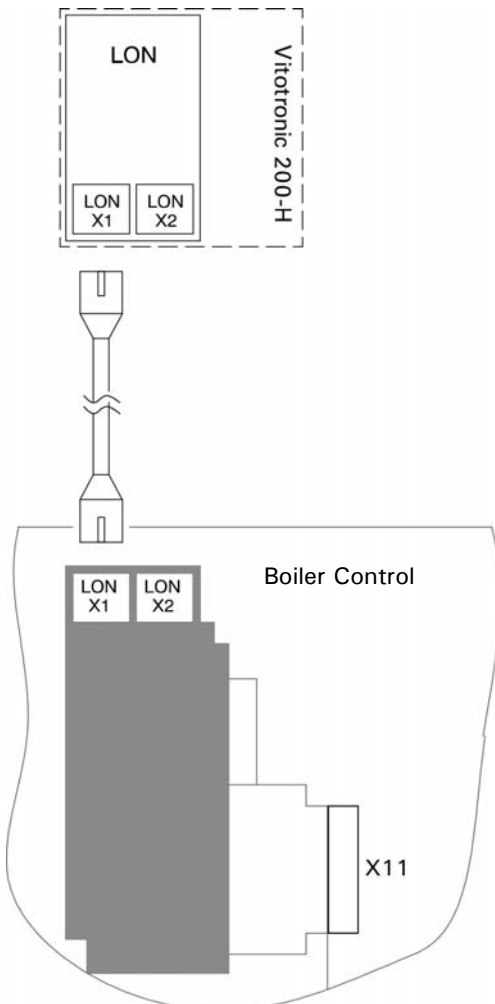
Connecting the LON module cable

See the Vitotronic 200-H
HK1B Installation Instructions.

LON

Vitotronic 200-H

LON X1   LON X2

Boiler Control

LON X1   LON X2

X11

Accessory Kit

Boiler
Control

Extension Module EA1

KM Bus
Accessory
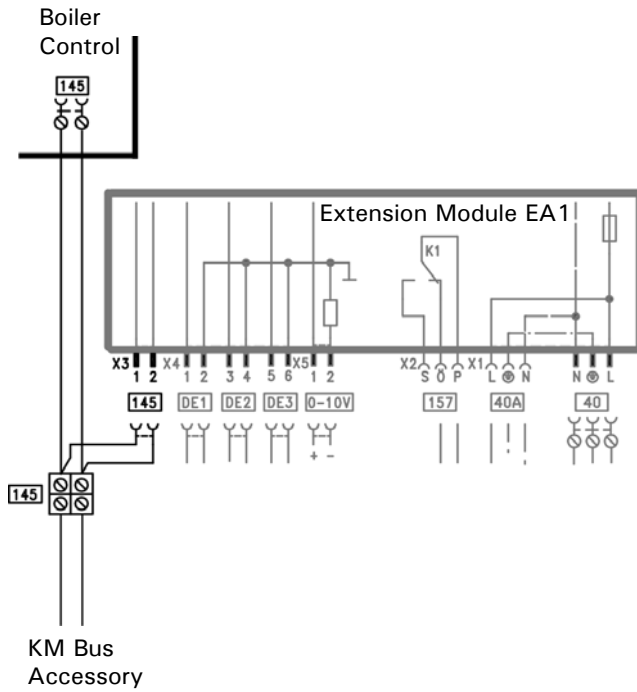
Accessory kit connections for heating circuit with mixing valve

The mixing valve controller kit can only be used with wall-mounted gas-fired hot water heating boilers and a weather-responsive control (it can be used as an alternative for a Vitotronic control HK1B).

For details on coding and connection to the control, refer to the Vitodens 200-W B2HA Service Instructions.

For details on installation, refer to the accessory kit Installation Instructions.

Closing the Control Unit
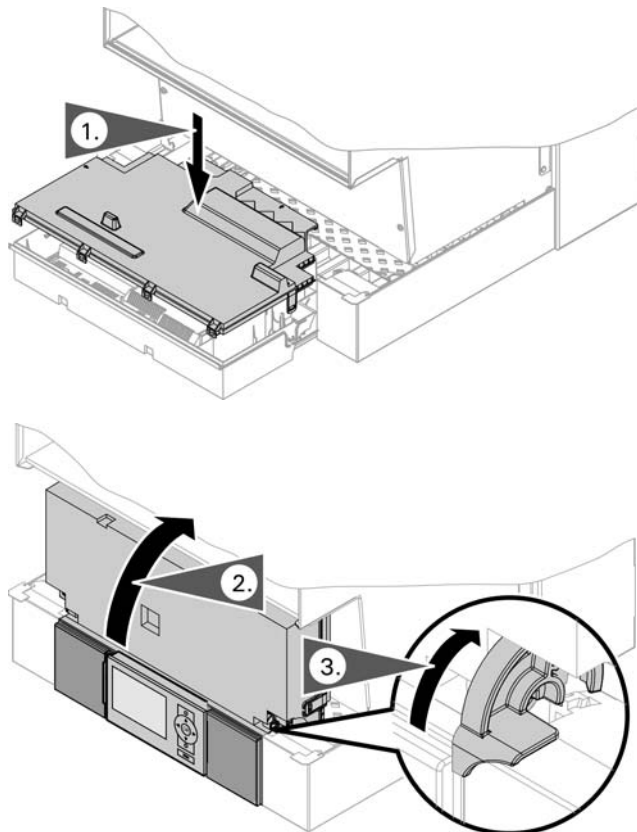
Closing the control cover

1. Install the cover onto the control board.
2. Flip the control board back into position.
3. Secure the locking tabs as shown.

Closing the External Accessory Connection Box
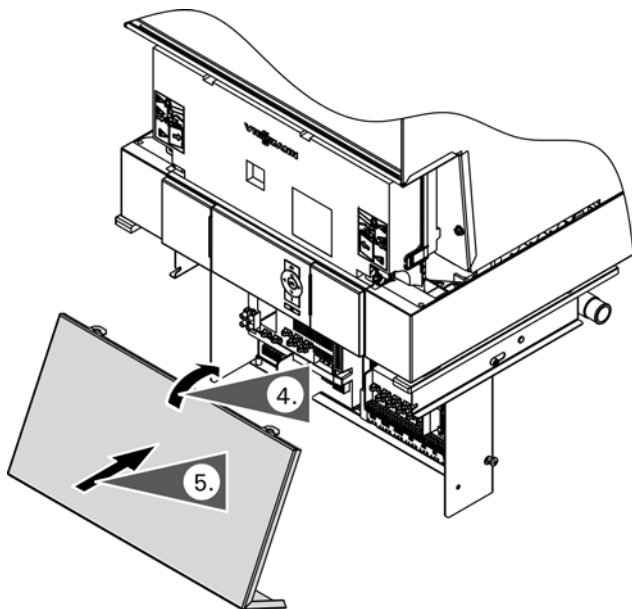
4. Tilt the top of the external accessory connection box cover forward.

5. Drop down over the locating pins and set the cover in place.
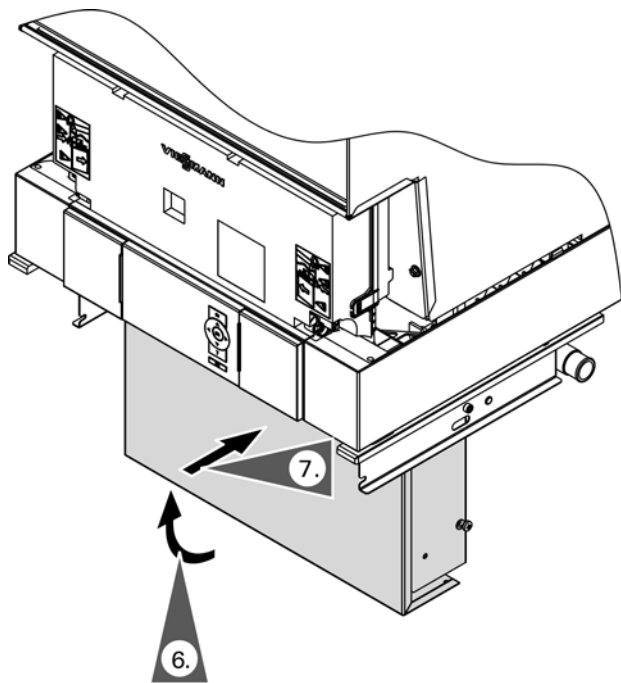
6. Swing the external accessory connection box up.

7. Push the external accessory connection box in until the holding screw is in place.

Closing the External Accessory Connection Box *(continued)*
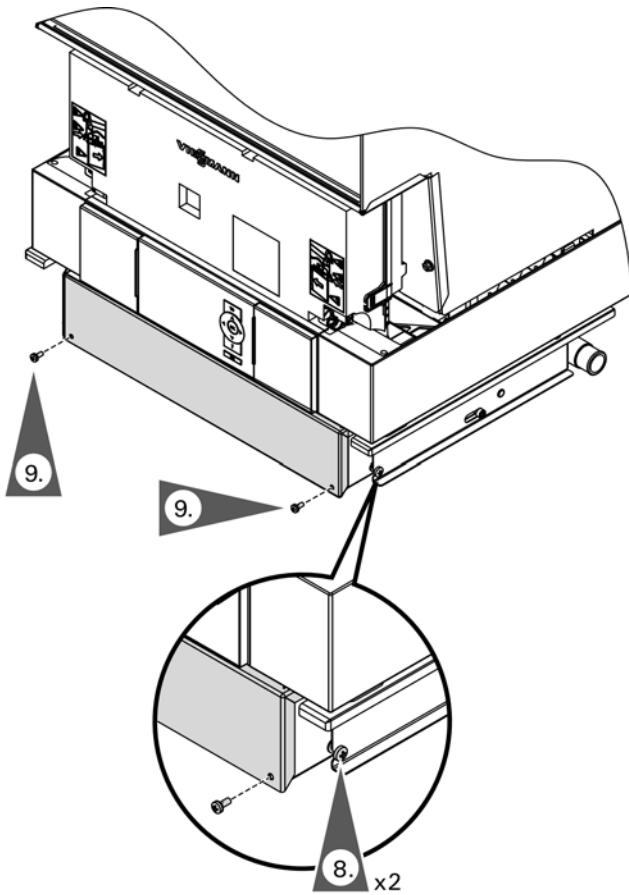
8. Tighten the external accessory connection box retaining screw.

9. Install the external accessory connection box cover screws.

Reinstalling the Front Enclosure Panel
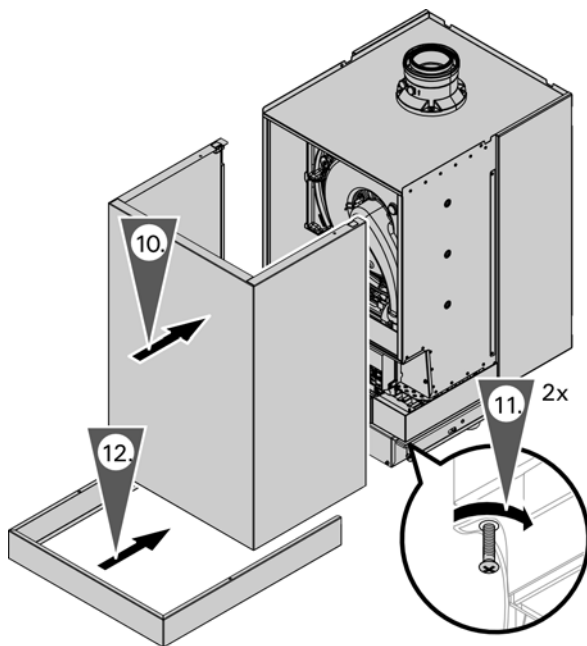
10. Set front enclosure panel on the guide rails and push in place.

11. Tighten screws at the bottom.

12. Insert the external accessories connection box cover in place.

Note: Ensure the locking screws are fitted before operating.

Instructing the system user

The system installer should hand the operating instructions to the system user and instruct the user in operating the system.

IMPORTANT

Read and follow, where applicable, the safety instructions of all labels and stickers attached to boiler surfaces. Do not remove any of these instructions. Contact Viessmann if any replacement labels are required.

Technical Data

Boiler Model No. B2HA		112, 399	150, 530 *A
CSA input Natural Gas (NG)	MBH	113-399	113-530
	(kW)	(33-117)	(33-155)
CSA input Liquid Propane Gas (LPG)	MBH	113-399	113-530
	(kW)	(33-117)	(33-155)
CSA output NG *3	MBH	103-375	103-495
	(kW)	(30-110)	(30-145)
CSA output LPG *3	MBH	103-375	103-495
	(kW)	(30-110)	(30-145)
DOE/AHRI Gross output	MBH	371	490
	(kW)	(109)	(144)
Net AHRI Rating *B	MBH	323	426
	(kW)	(95)	(125)
Heat exchanger surface area	ft.^{2}	36.78	36.78
	(m^2)	(3.41)	(3.41)
Min. gas supply pressure			
Natural gas	"w.c.	4	4
Liquid propane gas	"w.c.	10	10
Max. gas supply pressure *1			
Natural gas	"w.c.	14	14
Liquid propane gas	"w.c.	14	14
ANSI Z21,13/CSA 4.9			
Thermal efficiency	%	93.9	93.5
AHRI, BTS-2000 *C			
Combustion efficiency	%	93.5	93.0
Thermal efficiency	%	93.0	92.5
Weight	lbs	298	298
	(kg)	(135)	(135)
Boiler water content	USG	4	4
	(L)	(15)	(15)
Boiler max. flow rate *2	GPM	37.9	38
	(L/h)	(8600	(8600
Max. operating pressure	psig	80	80
at 210ºF (99ºC)	(bar)	(5.5)	(5.5)
Boiler water temperature			
- Adjustable high limit (AHL) range	ºF	68 to 185	68 to 185
space heating (steady state)	(ºC)	(20 to 85)	(20 to 85)
DHW production	ºF	185	185
	(ºC)	(85)	(85)
- Fixed high limit (FHL)	ºF (ºC)	210 (99)	210 (99)
Boiler connections			
Boiler heating supply and return	NPTM	2 in.	2 in.
Pressure relief valve	NPTF	¾ in.	¾ in.
Drain valve	(male	¾ in.	¾ in.
	thread)		
Boiler supply/return for indirect-fired DHW storage tank (field supplied)	NPT	2 in.	2 in.
Gas valve connection	NPTF	1 in.	1 in.

*A For high altitude installations 5,000 - 10,000 ft. (1500 m - 3000 m), the input for model B2HA 150, 530 will have an altitude de-ration of 14% for 5,000 ft. (1500 m) and 29% for 10,000 ft. (3000 m) average of 2.8% / 1,000 ft. (305 m). The input for models B2HA 112, 399 at 10,000 ft. (3000 m) will have an input de-rate of 13%.

*B Net AHRI rating based on piping and pick-up allowance of 1.15.

*C Tested to AHRI, BTS-2000 Testing Standard Method to Determine Efficiency of Commercial Heating Boilers.

*1 If the gas supply pressure exceeds the maximum gas supply pressure value, a separate gas pressure regulator must be installed upstream of the heating system.

*2 See "Waterside Flow" on page 31 in this manual.

*3 Output based on 180ºF (82ºC), 80ºF (26ºC) system supply/return temperature.

Technical Data *(continued)*

Boiler Model No. B2HA		112, 399	150, 530 *A
Dimensions			
Overall depth	inches	27.1	27.1
	(mm)	(689)	(689)
Overall width	inches	23⅝	23⅝
	(mm)	(600)	(600)
Overall height	inches	44½	44½
	(mm)	*8 (1128)	*8 (1128)
Flue gas *4			
Temperature (at boiler return temperature of 86°F (30°C)			
- at rated full load	°F (°C)	124 (51)	140 (60)
- at rated partial load	°F (°C)	102 (39)	102 (39)
Temperature (at boiler return temperature of 140°F (60°C)	°F (°C)	158 (70)	165 (74)
Max. condensate flow rate *5			
for NG and LPG			
T_S/T_R = 104/86°F (40/30°C)	USG/h	4.35	5.28
	(L/h)	(16.5)	(20.0)
Condensate connection *6	hose nozzle Ø in.	¾-1	¾-1
Boiler flue gas connection *7	Ø in. (mm)	4⅜ (110)	4⅜ (110)
Combustion air supply connection (coaxial)	outer Ø in. (mm)	6 (150)	6 (150)
Sound Rating			
- at maximum input	dB	57	61
- at minimum input	dB	40	40

*A   For high altitude installations 5,000 - 10,000 ft. (1500 m - 3000 m), the input for model B2HA 150, 530 will have an altitude de-ration of 14% for 5,000 ft. (1500 m) and 29% for 10,000 ft. (3000 m) average of 2.8% / 1,000 ft. (305 m). The input for model B2HA 112, 399 at 10,000 ft. (3000 m) will have an input de-rate of 13%.

*4   Measured flue gas temperature with a combustion air temperature of 68°F (20°C).

*5   Based on maximum input rate.

*6   Requires 1 inch (25 mm) tubing. See the Installation Instructions of the Vitodens 200-W, B2HA for details.

*7   For side wall vent installations (coaxial system):
Do not exceed max. equivalent length specified in the Installation Instructions of the Vitodens 200-W, B2HA Venting System.
Do not attempt to common-vent Vitodens 200-W with any other appliance.
Side wall co-axial vent installation must include Viessmann protective screen!
For details refer to the Installation Instructions for the Vitodens 200-W, B2HA Venting System.

*8   Add approximately 2½ inches (65 mm) for coaxial vent pipe transition adaptor.

For information regarding other Viessmann System Technology componentry, please reference the documentation of each respective product.

Installation Fittings
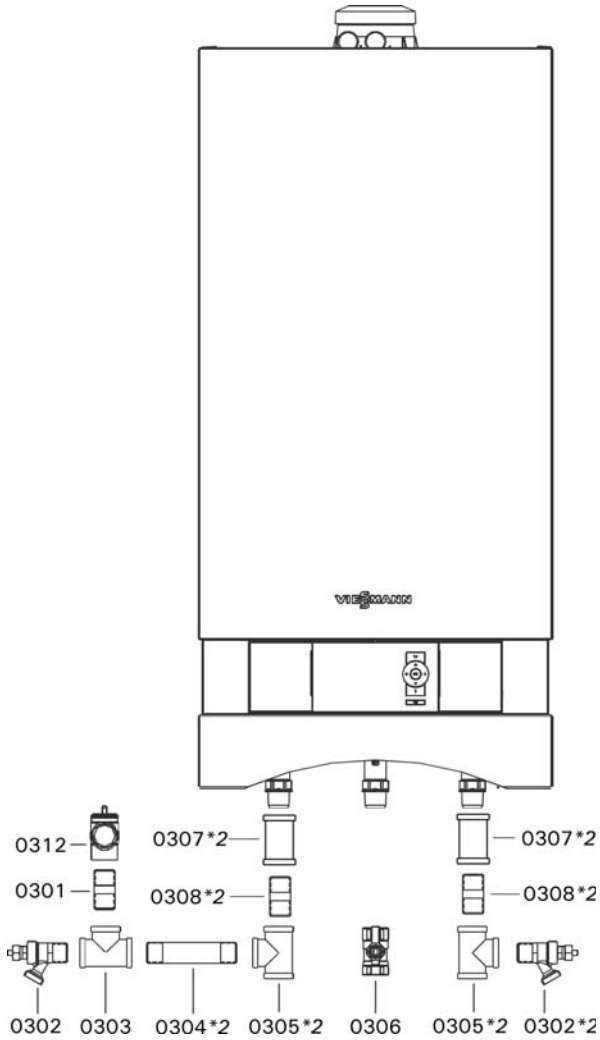
Parts

0301 Nipple ¾ in. x 1½ in.
0302 Sediment faucet ¾ in.
0303 Tee, ¾ in.
0304 Nipple ¾ in. x 3½ in.
0305 Reducing tee 1½ in. x 1½ in. x ¾ in.
0306 Gas ball valve 1 in.
0307 Coupling 2 in.
0308 Nipple
0312 Pressure relief valve, 30 psig

Other Parts (not illustrated)

0309 Accessory pack (metal stud mount kit)
0311 Outdoor temperature sensor
0316 Air bleed key
0325 Parts List, Installation Fittings
0320 Technical literature set
0350 Temperature gauge 2 in. 30-250ºF *1
0351 Temperature sensor (immersion)
         for DHW production NTC
0352 Temperature sensor (immersion)
         for low-loss header NTC (if low-loss header installed)

*1   Install anywhere in supply piping near boiler
*2   Discard when using multi-boiler distribution manifold

Lighting and Operating Instructions

FOR YOUR SAFETY READ BEFORE OPERATING

W A R N I N G: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
WHAT TO DO IF YOU SMELL GAS
● Do not try to light any appliance.
● Do not touch any electric switch; do not use any phone in your building.
● Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
● If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.

2. Set thermostat or other operating control to lowest setting.

3. Turn off all electric power to the appliance.

4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

Manual gas shutoff

Closed

Open

5. Close main gas shut-off valve.

6. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.

7. Open main gas shut-off valve.

8. Turn on all electric power to the appliance.

9. Set thermostat or other operating control to desired setting.

10. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Set thermostat or other operating control to lowest setting.

2. Turn off all electric power to the appliance if service is to be performed.

3. Close main gas shut-off valve.

Quick Reference

°C	°F
-40	-40
-35	-31
-25	-13
-20	-4
-18	0
-16	+3
-14	+7
-12	+10
-10	+14
-9	+16
-8	+18
-7	+19
-6	+21
-5	+23
-4	+25
-3	+27
-2	+28
-1	+30
0	+32
+1	+34
+2	+36
+3	+37
+4	+39
+5	+41
+6	+43
+7	+45
+8	+46
+9	+48
+10	+50
+12	+54
+14	+57
+16	+61
+18	+64
+20	+68
+25	+77
+30	+86
+35	+95
+40	+104
+50	+122
+60	+140
+70	+158
+80	+176
+90	+194
+100	+212
+110	+230

Technical information subject to change without notice.

Service Instructions

for use by heating contractors

VIE**S**MANN®

Vitodens 200-W, B2HA
Models 112, 150, 399, 530
Wall-mounted, gas-fired condensing boiler
Natural gas and LPG version

For operation with Natural Gas and Liquid Propane Gas
Heating input   113 to 530 MBH
                           33 to 150 kW

VITODENS® 200-W

Product may not be exactly as shown

IMPORTANT

Read and save these instructions
for future reference.

Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation. Failure to comply with the instructions listed below and details printed in this manual can cause product/property damage, severe personal injury, and/or loss of life. Ensure all requirements below are understood and fulfilled (including detailed information found in manual subsections).

■ **Product documentation**
Read all applicable documentation before commencing installation. Store documentation near boiler in a readily accessible location for reference in the future by service personnel.

▶*For a listing of applicable literature, please see section entitled "Important Regulatory and Safety Requirements".*

■ **Warranty**
Information contained in this and related product documentation must be read and followed. Failure to do so renders the warranty null and void.

■ **Licensed professional heating contractor**
The installation, adjustment, service and maintenance of this equipment must be performed by a licensed professional heating contractor.

▶*Please see section entitled "Important Regulatory and Installation Requirements".*

■ **Contaminated air**
Air contaminated by chemicals can cause by-products in the combustion process, which are poisonous to inhabitants and destructive to
0 equipment.

▶*For a listing of chemicals which cannot be stored in or near the boiler room, please see subsection entitled "Mechanical room" in the "Installation Instructions".*

■ **Advice to owner**
Once the installation work is complete, the heating contractor must familiarize the system operator/ ultimate owner with all equipment, as well as safety precautions/requirements, shutdown procedure, and the need for professional service annually before the heating season begins.

⚠ **WARNING**

Installers must follow local regulations with respect to installation of carbon monoxide detectors. Follow the Viessmann maintenance schedule of the boiler contained in this manual.

Operating and Service Documentation

It is recommended that all product documentation such as parts lists, operating and service instructions be handed over to the system user for storage. Documentation is to be stored near boiler in a readily accessible location for reference by service personnel.

■ **Carbon monoxide**
Improper installation, adjustment, service and/or maintenance can cause flue products to flow into living space. Flue products contain poisonous carbon monoxide gas.

▶*For information pertaining to the proper installation, adjustment, service and maintenance of this equipment to avoid formation of carbon monoxide, please see subsection entitled "Mechanical room" and "Venting requirements" in the "Installation Instructions".*

■ **Fresh air**
This equipment requires fresh air for safe operation and must be installed ensuring provisions for adequate combustion and ventilation air exist.

▶*For information pertaining to the fresh air requirements of this product, please see subsection entitled "Mechanical room" in the "Installation Instructions".*

■ **Equipment venting**
Never operate boiler without an installed venting system. An improper venting system can cause carbon monoxide poisoning.

▶*For information pertaining to venting and chimney requirements, please see section entitled "Venting Connection". All products of combustion must be safely vented to the outdoors.*

⚠ **WARNING**

This boiler requires fresh air for safe operation and must be installed with provisions for adequate combustion and ventilation air (in accordance with local codes and regulations of authorities having jurisdiction).

Do not operate this boiler in areas with contaminated combustion air. High levels of contaminants such as dust, lint or chemicals can be found at construction sites, home renovations, in garages, workshops, in dry cleaning/laundry facilities, near swimming pools and in manufacturing facilities.

Contaminated combustion air will damage the boiler and may lead to substantial property damage, severe personal injury and/or loss of life. Ensure boiler/burner is inspected and serviced by a qualified heating contractor at least once a year in accordance with the Service Instructions of the boiler.

5683 710 - 26

Safety, Installation and Warranty Requirements *(continued)*

Fiberglass wool and ceramic fiber materials

> ⚠️ **WARNING**
>
> **Inhaling of fiberglass wool and/or ceramic fiber materials is a possible cancer hazard. These materials can also cause respiratory, skin and eye irritation.**

The state of California has listed the airborne fibers of these materials as a possible cancer hazard through inhalation. When handling these materials, special care must be applied.

Suppliers of ceramic fiber products recommend the following first aid measures:

- *Respiratory tract (nose and throat) irritation:* If respiratory tract irritation develops, move the person to a dust free location.

- *Eye irritation:* If eyes become irritated, flush immediately with large amounts of lukewarm water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes.

- *Skin irritation:* If skin becomes irritated, remove soiled clothing. Do not rub or scratch exposed skin. Wash area of contact thoroughly with soap and water. Using a skin cream or lotion after washing may be helpful.

- *Gastrointestinal irritation:* If gastrointestinal tract irritation develops, move the person to a dust free environment.

Suppliers of fiberglass wool products recommend the following precautions be taken when handling these materials:

- Avoid breathing fiberglass dust and contact with skin and eyes.

- Use NIOSH approved dust/mist respirator.

- Wear long-sleeved, loose fitting clothing, gloves and eye protection.

- Wash work clothes separately from other clothing. Rinse washer thoroughly.

- Operations such as sawing, blowing, tear-out and spraying may generate airborne fiber concentration requiring additional protection.

First aid measures

- If eye contact occurs, flush eyes with water to remove dust. If symptoms persist, seek medical attention.

- If skin contact occurs, wash affected areas gently with soap and warm water after handling.

> ⚠️ **WARNING**
>
> **Appliance materials of construction, products of combustion and the fuel contain alumina, silica, heavy metals, carbon monoxide, nitrogen oxides, aldehydes and/or other toxic or harmful substances which can cause serious injury or loss of life and which are known to the State of California to cause cancer, birth defects and other reproductive harm. Always use proper safety clothing, respirators and equipment when servicing or working nearby the appliance.**

Page

About these Service Instructions

Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION", and "IMPORTANT". See below.

⚠ WARNING

Indicates an imminently hazardous situation which, if not avoided, could result in loss of life, serious injury or substantial product/property damage.

▶ *Warnings draw your attention to the presence of potential hazards or important product information.*

⚠ CAUTION

Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product/property damage.

▶ *Cautions draw your attention to the presence of potential hazards or important product information.*

IMPORTANT

▶ *Helpful hints for installation, operation or maintenance which pertain to the product.*

▶

▶ *This symbol indicates that additional, pertinent information is to be found.*

▶ *This symbol indicates that other instructions must be referenced.*

Necessary Tools

Testing/analysis equipment (Use only calibrated equipment)

- Multimeter to measure 0 - 120V, 0 - 12A AC and 0-100 mA DC
- Flue gas analyzer to measure % CO_2 or O_2 (i.e. Bacharach fluid samplers or suitable electronic analyzer)
- Manometer to measure gas pressure 0 to 11 "w.c. (accurately) and up to 28 "w.c. gas pressure (or a non-electric Magnehelic® manometer may also be utilized)
- Stack thermometer 0 to 500°F (0 to 260°C)
- Bacharach calculator or suitable tables to calculate efficiency
- Carbon monoxide measuring equipment 0 to 400 ppm

Cleaning supplies

- Plastic hand brush
- Rags

Special items

- Approved leak detection fluid for natural gas and liquid propane gas
- Pipe joint sealant

5683 710 - 26

Important Regulatory and Installation Requirements

Codes

The installation of this unit shall be in accordance with local codes or, in the absence of local codes, use CAN/CSA-B149.1 or .2 Installation Codes for Gas Burning Appliances for Canada. For U.S. installations use the National Fuel Gas Code ANSI Z223.1. Always use latest editions of codes.

In Canada all electrical wiring is to be done in accordance with the latest edition of CSA C22.1 Part 1 and/or local codes. In the U.S. use the National Electrical Code ANSI/NFPA 70. The heating contractor must also comply with both the Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, and the Installation Code for Hydronic Heating Systems, CSA B214-01, where required by the authority having jurisdiction.

Instructing the system user

The installer of the system is responsible to ensure the system operator/ultimate owner is made familiar with the system functioning, its activation, and its shut-down.

Initial start-up

Initial start-up must be performed by a qualified heating contractor. Proper completion of the Maintenance Record by the heating contractor is also required.

Working on the equipment

The installation, adjustment, service, and maintenance of this boiler must be done by a licensed professional heating contractor who is qualified and experienced in the installation, service, and maintenance of hot water boilers. There are no user serviceable parts on the boiler, burners or control.

Ensure main power supply to equipment, the heating system, and all external controls has been deactivated. Close main gas supply valve. Take precautions in all instances to avoid accidental activation of power during service work.

The completeness and functionality of field supplied electrical controls and components must be verified by the heating contractor. These include low water cut-offs, flow switches (if used), staging controls, pumps, motorized valves, air vents, thermostats, etc.

The following topics must be covered:
Proper system operation sequence.
Explain the equipment.
Demonstrate an emergency shut-down, what to do and what not.
Explain that there is no substitute for proper maintenance to help ensure safe operation.

The Maintenance Record is located in the Service Instructions

Please carefully read this manual prior to attempting start-up, maintenance or service. Any warranty is null and void if these instructions are not followed.

For information regarding other Viessmann System Technology componentry, please reference documentation of the respective product.

We offer frequent installation and service seminars to familiarize our partners with our products. Please inquire.

Technical literature

Literature for the Vitodens boiler:
- Technical Data Manual
- Installation Instructions
- Service Instructions
- Operating Instructions and User's Information Manual
- Instructions of other Viessmann products utilized and installed
- Installation codes mentioned in this manual

Leave all literature at the installation site and advise the system operator/ultimate owner where the literature can be found. Contact Viessmann for additional copies.

This product comes with several safety instruction labels attached.
Do not remove!
Contact Viessmann immediately if replacement labels are required.

Important Regulatory and Installation Requirements *(continued)*

For installations on the Commonwealth of Massachusetts, the following modifications to NFPA-54 chapter 10 apply:
Excerpt from 248 CMR 5-08:
2(a) For all side-wall horizontally vented gas fueled equipment installed in every dwelling, building or structure used inwhole or in part for residential purposes, including those owned or operated by the Commonwealth and where the sidewall exhaust vent termination is less than (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, the following requirements shall be satisfied:

    1. INSTALLATION OF CARBON MONOXIDE DETECTORS. At the time of installation of the side-wall horizontal vented gas fueled equipment, the installing plumber or gasfitter shall observe that a hard wired carbon monoxide detector with an alarm and battery back-up is installed on the floor level where the gas equipment is to be installed. In addition, the installing plumber or gasfitter shall observe that a battery operated or hard wired carbon monoxide detector with an alarm is installed on each additional level of the dwelling, building or structure served by the side-wall horizontal vented gas fueled equipment. It shall be the responsibility of the property owner to secure the services of qualified licensed professional for the installation of hard-wired carbon monoxide detectors.

        a. In the event that the side-wall horizontally vented gas fueled equipment is installed in a crawl space or an attic, the hard-wired carbon monoxide detector with alarm and battery back-up may be installed on the next adjacent floor level.

        b. In the event that the requirements of this subdivision can not be met at the time of completion of installation, the owner shall have a period of thirty (30) days to comply with the above requirements; provided, however, that during said thirty (30) day period, a battery operated carbon monoxide detector with an alarm shall be installed.

    2. APPROVED CARBON MONOXIDE DETECTORS. Each carbon monoxide detector as required in accordance with the above provisions shall comply with NFPA 720 and be ANSI/UL 2034 listed and IAS certified.

    3. SIGNAGE. A metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the exhaust vent terminal for the horizontally vented gas fueled heating appliance or equipment. The sign shall read, in print size no less than one-half (1/2) inch in size, "GAS VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS".

    4. INSPECTION. The state or local gas inspector of the side-wall horizontally vented gas fueled equipment shall not approve the installation unless, upon inspection, the inspector observes carbon monoxide detectors and signage installed in accordance with the provisions of 248 CMR 5.08(2)(a) 1 through 4.

  (b) EXEMPTIONS: The following equipment is exempt from 248 CMR 5.08(2)(a) 1 through 4:

    1. The equipment listed in Chapter 10 entitled "Equipment Not Required To Be Vented" in the most current edition of NFPA 54 as adopted by the Board; and

    2. Product Approved side-wall horizontally vented gas fueled equipment installed in a room or structure separate from the dwelling, building or structure used in whole or in part for residential purposes.

CSD-1 Field Testing of High Limit Switches for Vitodens boilers – where required by law.
As per ASME Boiler and Pressure Vessel Code, section IV, subsection HG-613 TEMPERATURE CONTROL requirements, Vitodens 200-W hot water boilers are protected from over-temperature by two temperature-operated controls. These temperature control devices conform to Standards for Limit Controls, and are accepted by CSA, a nationally recognized testing agency. Each boiler is equipped with a manual reset high temperature limit control and a temperature control that will cut off fuel supply when the system water temperature reaches a preset operating temperature. VIESSMANN IS NOT RESPONSIBLE FOR ANY DAMAGES THAT THE FOLLOWING TEST PROCEDURE MAY RESULT IN BY OVERHEATING THE SYSTEM.

The Vitodens 200 boilers are equipped with flow switches or sensors that when activated enable the burner to operate. The fixed high limit, when tripped, produces a fault that will require manual reset of the boiler control.

Fixed High Limit fault simulation #1:
- Ensure that the boiler and boiler pump are in normal operating condition (pump output [20] is the boiler pump).
- Remove the cover from the back of the boiler control allowing access to the boiler control plugs.
- Under the extended menu (in the Operating manual), select 'Test mode' then 'flue gas test ON' and press 'OK'.
- The boiler/burner will start a firing cycle and will gradually go into high fire mode.
- Once the burner ignites, disconnect the boiler pump plug [20] from the boiler control board (gently with pliers).
  Note: For boiler models equipped with flow switches (only boiler sizes 19 to 100), it may be required that flow switches be jumpered during testing.
- Observe the boiler temperature on the control display.
- The temperature will gradually rise as more heat is put into the boiler heat exchanger. The burner will then shut off.
- The boiler temperature should continue to rise and once it reaches 210ºF (99ºC) the manual reset high limit safety switch will trip electronically generating an F2 fault.
- Should the limit temperature not be reached during the test, repeat the test with the following additional step;
  - two minutes after the burner shuts off, energize the boiler pump for a maximum of 1 second (by plugging in boiler pump plug [20]).

Fixed High Limit fault simulation #2:
- Close the boiler valve and jumper across the flow switch.
- Run the boiler at high fire and it will shut down by the coding card (in B2TB models, set coding address 06 to maximum) but should continue to steady increase the boiler temperature until the fixed high limit is tripped.
- Once the fixed high limit is tripped, slowly open the boiler valve to safely cool the boiler down.

Flow Switch /Sensor Test:
The Vitodens 200 B2HA models 112 and 150 boilers are equipped with two flow sensing devices. Upon detection of an inadequate flow rate, the switches will shut down the burner and will prevent restarting until an adequate flow rate is restored. To test the sensors, throttle down the flow of water to or from the boiler. The boiler will shut down once the flow has dropped below it's safe operating set point.

Applicability

> ⚠️ **CAUTION**
>
> The boiler serial number must be provided when ordering replacement parts. Some replacement parts are not reverse compatible with previous versions of the Vitodens 200-W B2HA boiler.

> **IMPORTANT**
>
> When ordering replacement parts, provide either the 16-digit boiler serial number (on the bar code label) or the 12-digit ASME/NB serial number, located as shown underneath boiler front enclosure panel. Refer to page 15 for instructions on how to remove front enclosure panel.

Model No. B2HA 112, 399
Serial No. 7510835 □□□□□□□□□

Model No. B2HA 150, 530
Serial No. 7510836 □□□□□□□□□

Product may not be exactly as shown

Ⓐ Inox-Radial heat exchanger made from stainless steel – for high operational reliability and a long service life. Large heating output in the smallest of spaces

Ⓑ Modulating MatriX cylinder burner for extremely clean combustion and quiet operation

Ⓒ Variable speed combustion fan for quiet and economical operation

Ⓓ Gas and water connections

Ⓔ Digital boiler control unit

Product Information

Natural gas-fired wall-mounted condensing heating boiler for weather-responsive operation in closed loop, forced circulation hot water heating systems for space heating and domestic hot water (DHW) production.

Models B2HA series boilers are for operation with natural gas. For a fuel conversion to liquid propane gas (see page 19).

Boiler model must be selected based on an accurate heat loss calculation of the building. Ensure boiler model is compatible with connected radiation.

Vitodens 200-W, B2HA series boilers are factory-tested and calibrated. Further gas valve adjustments are not typically required during field start-up.

Multi boiler system

In connection with the installation of a multi boiler system observe the installation instructions of the multi boiler system accessories.

📖 Follow the Vitodens Venting System Installation Instructions to vent this boiler.

Mechanical Room

During the early stages of designing a new home, we recommend that proper consideration be given to constructing a separate mechanical room dedicated to the gas- or oil-fired heating equipment and domestic hot water storage tank(s).

The boiler must be located in a heated indoor area, near a floor drain, and as close as possible to a wall. Whenever possible, install the boiler near an outside wall so that it is easy to duct the venting system to the boiler.

Locate the boiler on a wall capable of supporting the weight of the boiler filled with water (see section entitled "Technical Data" on page 98 for information required for total boiler weight calculation). Ensure that the boiler location does not interfere with the proper circulation of combustion and ventilation air of other fuel burning equipment within the mechanical room (if applicable).

The maximum room temperature of the mechanical room where the boiler is located must not exceed 104°F (40°C).

Installation area conditions

⚠ WARNING

Incorrect ambient conditions can lead to damage to the heating system and put safe operation at risk.

- Ensure ambient temperatures are higher than 32°F (0°C) and lower than 104°F (40°C).
- Prevent the air from becoming contaminated by halogenated hydrocarbons (e.g. as contained in paint solvents or cleaning fluids) and excessive dust (e.g. through grinding or polishing work). Combustion air for the heating process, and ventilation of the boiler room must be free of corrosive contaminants. To that end, any boiler must be installed in an area that has no chemical exposure. The list to the right indicates the main, currently known sources.
- Avoid continuously high levels of humidity (e.g. through frequent drying of laundry).
- Never close existing ventilation openings.

⚠ WARNING

If you notice fire coming from the appliance, call the fire department immediately! Do not attempt to extinguish the fire unless qualified to do so.

IMPORTANT

The service life of the boiler's exposed metallic surfaces, such as the casing and fan housing, is directly influenced by proximity to damp and salty marine environments. In such areas, higher concentration levels of chlorides from sea spray, coupled with relative humidity, can lead to degradation of the exposed metallic surfaces mentioned above. Therefore, it is imperative that boilers installed in such environments not be installed using direct vent systems which draw outdoor air for combustion. Such boilers must be installed using room air dependent vent systems; i.e. using room air for combustion. The indoor air will have a much lower relative humidity and, hence, potential corrosion will be minimized.

Sources of combustion and ventilation air contaminants

Areas likely to contain contaminants:

- New building construction
- Swimming pools
- Remodelling areas, hobby rooms
- Garages with workshops
- Furniture refinishing areas
- Dry cleaning/laundry areas and establishments
- Auto body shops
- Refrigeration repair shops
- Metal fabrication plants
- Plastic manufacturing plants
- Photo processing plants
- Beauty salons

Products containing contaminants:

- Chlorine-type bleaches, detergents and cleaning solvents found in household laundry rooms
- Paint and varnish removers
- Hydrochloric acid, muriatic acid
- Chlorine-based swimming pool chemicals
- Spray cans containing chlorofluorocarbons
- Chlorinated waxes and cleaners
- Cements and glues
- Refrigerant leaks
- Calcium chloride used for thawing
- Sodium chloride used for water softening salt
- Permanent wave solutions
- Adhesives used to fasten building products and other similar items
- Antistatic fabric softeners used in clothes dryers

Boiler operation in marine environments (damp, salty coastal areas)

⚠ WARNING

Fire causes a risk of burns and explosion!
- **Shut down the boiler**
- **Close fuel shut-off valves**
- **Use a tested fire extinguisher, class ABC.**

5683 710 - 26

Accessing the User Interface Programming Unit
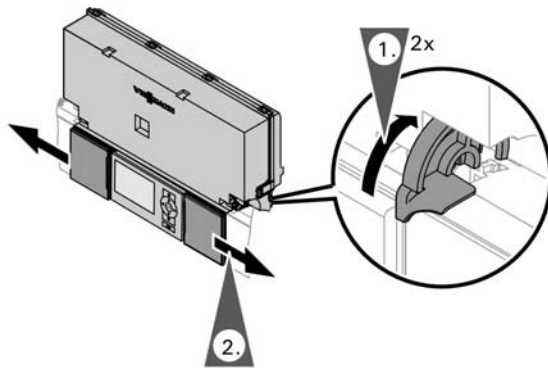
1. Turn up both locks to unlock the user interface programming unit covers.
2. Slide open the user interface programming unit covers.

Check Power Supply Connection

An external accessories connection box is attached to the Vitodens 200-W, B2HA boiler, which requires a 120VAC power supply from a wall receptacle (15A fuse protected).
Refer to the Installation Instructions shipped with the boiler.

Voltage range

The voltage at connector 40 of the boiler control must be 120V (see wiring diagram).

Neutral conductor

The electrical power supply must have a neutral conductor.

IMPORTANT

In Canada all electrical wiring is to be done in accordance with the latest edition of CSA C22.1 Part 1 and/or local codes. In the U.S. use the National Electrical Code ANSI/ NFPA 70. The heating contractor must also comply with both the Standard for Controls and Safety Devices for Automatically Fired Boilers, ANSI, ASME CSD-1.

Note: The outer conductor "L " and the neutral conductor "N" must not be interchanged.
See wiring diagram on page 95 in section entitled "Additional Information".

Start-up Wizard

Sprache		
Deutsch	DE	☑
American English	EUS	☐
Français Canadien	FCA	☐

Wählen mit ⬍

Select Language

At the commissioning stage, the display is in German.

1. "Sprache" (Language) Deutsch DE (German)
2. Select the required language with ▲/▼
3. Accept by pressing OK

Time / Date	
Time	11:35
Date	Fr 07.12.2018

Change with ⬍
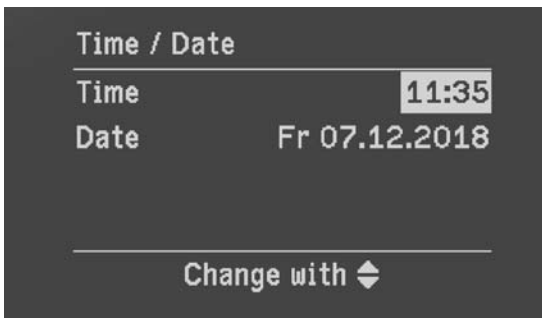
Set time and date

1. Using the ▲/▼ set the current time
2. Accept by pressing OK, this will move to date
3. Using the ▲/▼ set the current date
4. Press OK to complete

Temperature unit		
Degrees Celsius	°C	☑
Degrees Fahrenheit	°F	☐
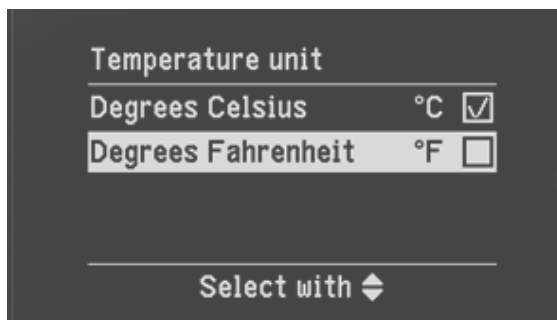
Select with ⬍

Select temperature unit

1. Select the temperature unit "°C" or "°F" using the ▲/▼
2. Accept by pressing OK

DHW temperature setpoint

122°F

Change with ⬍
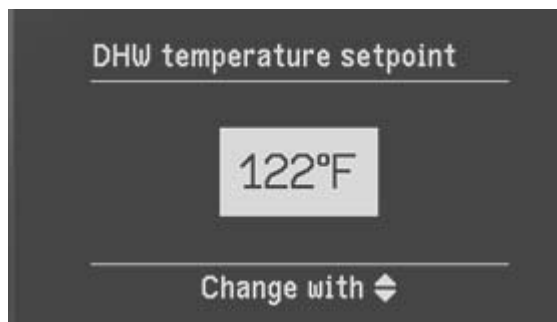
Set DHW temperature setpoint

1. Set DHW temperature setpoint with ▲/▼
2. Accept by pressing OK

Note: if the DHW sensor is installed.

Start-up Wizard *(continued)*

Zone circuit settings

No zone circuit

1 Zone circuit

2 Zone circuit

3 Zone circuit

Select with ⬍
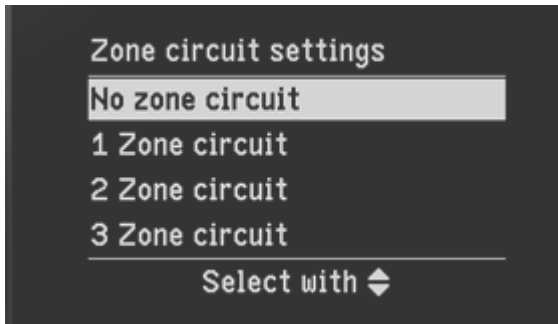
Select zone circuits

During the start-up wizard an additional display screen will come up asking for the number of connected zone circuits use ▲/▼ to adjust and press OK.

If no zone circuit is selected the control will finish the set up and display will show DHW/Heating circuit 1, outdoor temperature, indoor temperature setup and burner operating status.

Zone circuit 1

Fixed setpoint

Weather compensated

Select with ⬍
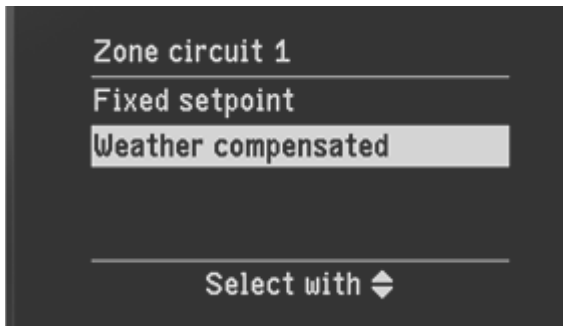
Select zone circuit type

Each zone circuit can be operated either as a fixed setpoint or weather compensated (using the outdoor temperature sensor) thermostat, use ▲/▼ to select and press OK.

Temperature setpoint   ZC1

165°F

Change with ⬍
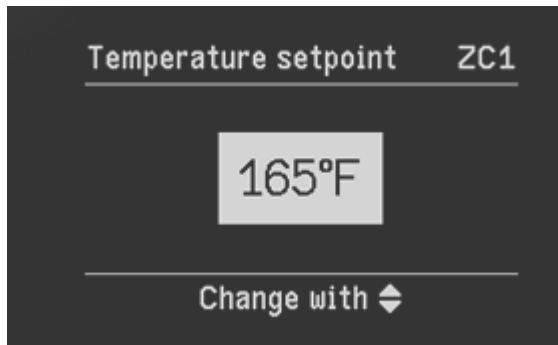
Select fixed setpoint

For zone circuits with fixed setpoint operation select desired supply water temperature use ▲/▼ to adjust and press OK.

Heating curve   ZC1

212°F
68°F
99°F
124°F
145°F
167°F
68 50 32 14 -4 -22 °F
Slope   ◄ 1.4 ►
Shift   0 K
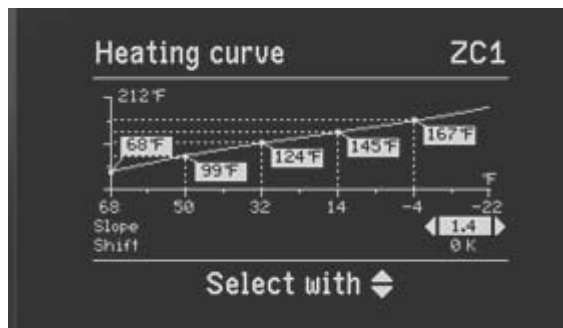
Select with ⬍

Adjust heating curve

Select between slope and shift with ▲/▼ and ►/◄ to adjust and press OK.

```
Output Configuration    ZC1
No Output
28/20 Output
157 Output
AM1 A1 Output
            Select with ⬍
```

Select pump output

Assign desired pump output for zone circuit with ▲/▼ and press OK.

```
i Zone circuit settings
Zone circuit 1  28/20 Output



       Continue with OK
```
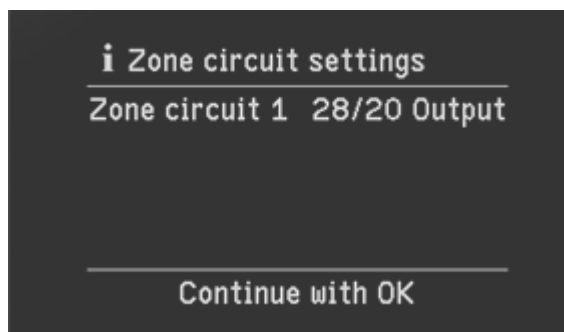
Confirm pump output

Confirmation of selected pump output and press OK.

```
◄ ZC1 ►

        Zone circuit 1
         160°F    88%
                   ⇨
Boiler temperature   140°F
```
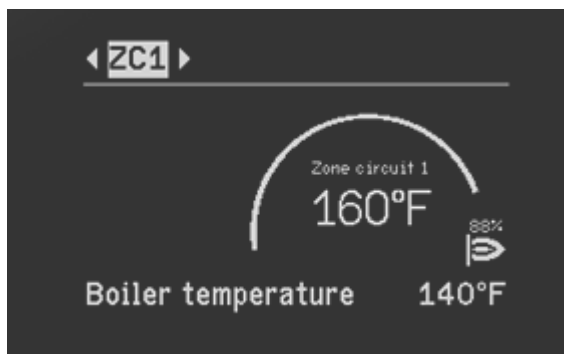
Zone circuit temperature setting

For the selected zone with fixed set point thermostat will display zone circuit temperature setting.

```
◄ ZC1 ►

        Zone circuit 1
  50°F   165°F
                88%
                 ⇨
Boiler temperature   140°F
```
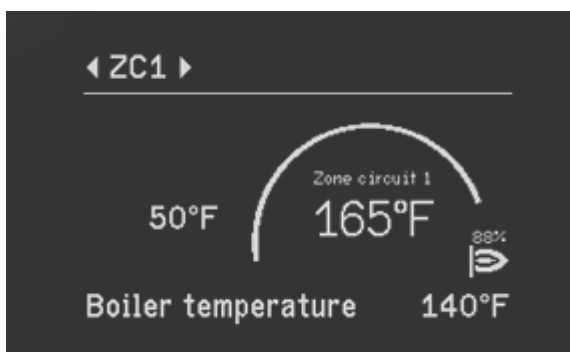
Weather compensated operation

For the selected zone circuit with weather compensated operation the current outdoor temperature and the current setpoint boiler temperature as calculated by the outdoor reset curve.

Removing Front Enclosure Panel
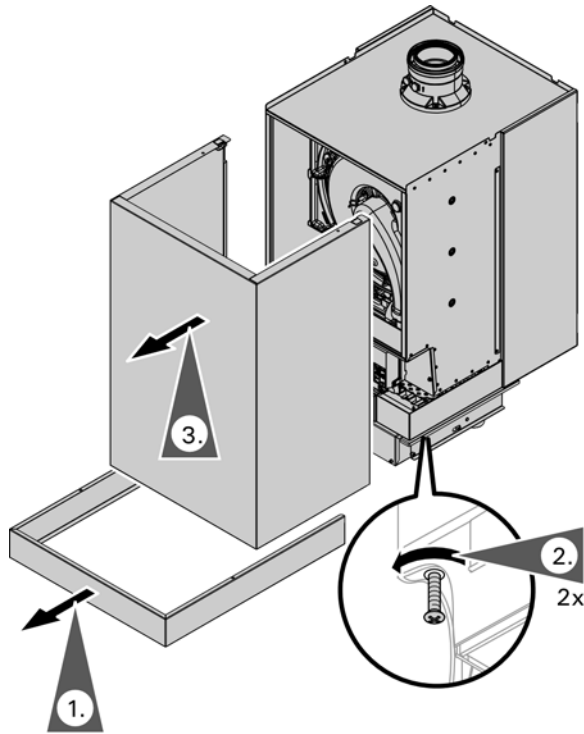
Some of the following service steps require the removal of the front enclosure panel. To avoid personal injury and/or product damage of any kind please follow the instructions below carefully when removing the front enclosure panel.

IMPORTANT

Close the main gas supply valve.

1. Remove the external accessories connection box cover.
2. Loosen the screws at the bottom of the boiler as shown (do not remove completely).
3. Slide out and remove front enclosure panel.

Fill Condensate Trap with Water
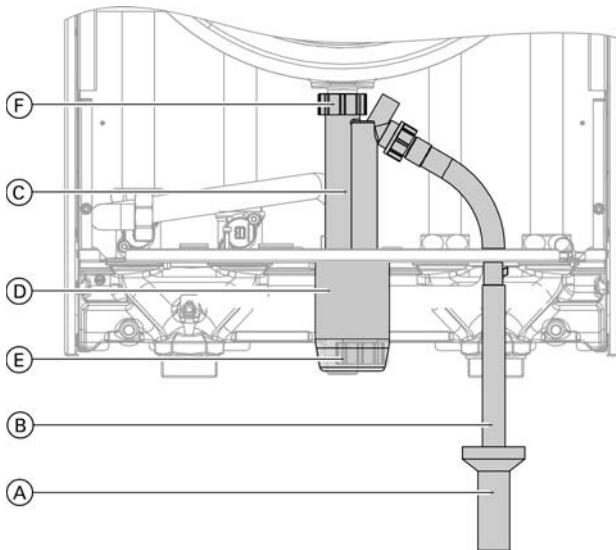
Filling the siphon with water

1. Undo union nut (F) and pull off condensate trap (C) downwards.
2. Fill condensate trap (C) with water.
3. Reinstall condensate trap (C) and reconnect union nut (F).

Legend
(A) Open or vented field supplied drainage system
(B) Flexible discharge tubing
(C) Condensate trap
(D) Rubber cap
(E) Threaded cap
(F) Union nut

5683 710 - 26

Fill Heating System with Water
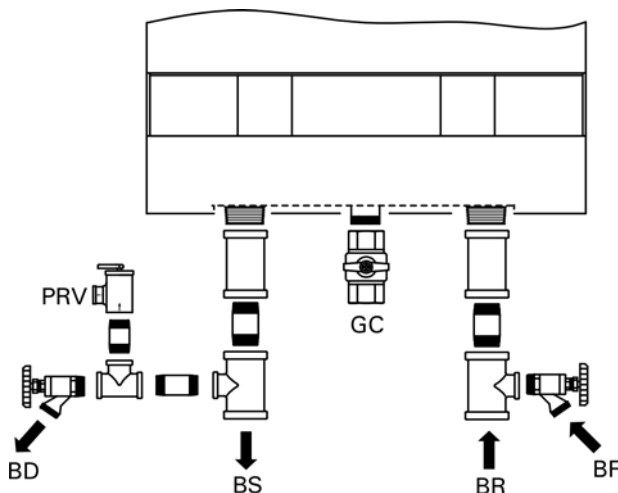
Legend
BD Boiler Drain
BF Boiler Fill
BR Boiler Return
BS Boiler Supply
GC Gas Connection
PRV Pressure Relief Valve

⚠ CAUTION

Unsuitable fill water increases the level of deposits and corrosion, and may lead to damage to the equipment.

- **Thoroughly flush the entire heating system prior to filling with water.**
- **Only use water of potable quality.**
- **The water will have to be softened if it is harder than 8.77 grains / 150 ppm total dissolved solids.**
- **Inhibitors or antifreeze additives suitable for heating systems may be added manually.**

1. Open system isolation valves at Ⓒ and Ⓓ (if installed).
   Note: Before filling the heating system with water, check that all necessary flow check valves are installed.

2. Check inlet pressure of the diaphragm expansion tank.
   Note: If the nitrogen pressure of the precharged expansion tank is less than the static pressure of the system, inflate membrane pressure to slightly exceed pressure of system. The static pressure required at the tank is based upon the static height of the system. The system fill pressure value must be equal to the expansion tank pressure value at approximately 60°F (15.6°C).

3. To remove debris and/or sludge ensure that the system piping is flushed out. Failure to do so could cause settlement in the boiler causing overheating and damage not covered by warranty.
   Note: System fill pressure must be approximately 3 psig higher than the static head when the system is cold.

4. Fill the heating system with water at the boiler fill (BF) and drain air completely from the boiler drain (BD).
   Note: Water treatment should be considered in areas where it is known that boiler feed water contains a high mineral content and hardness. In areas where freezing might occur, an antifreeze may be added to the system water to protect the system. Please adhere to the specifications given by the antifreeze manufacturer. Do not use automotive silicate-based antifreeze. Please observe that an antifreeze/water mixture may require a backflow preventer within the automatic water feed and influence components such as diaphragm expansion tanks, radiation, etc. A 40% antifreeze content will provide freeze-up protection to -10°F (-23°C). Do not use antifreeze other than specifically made for hot water heating systems. System also may contain components which might be negatively affected by antifreeze. Check total system frequently when filled with antifreeze.

5. Bleeding the heating system

   1. Close the gas shut-off valve and switch the control unit ON.
   2. Activate venting program (see next steps).
      Note: During the venting program, the circulation pump will be alternately switched ON and OFF for 30 seconds respectively over a period of 20 minutes. The burner is switched OFF during the venting program.

   3. Check the system pressure.

   Activating filling (bleeding) program:

   1. Press OK and ☰ simultaneously for approximately 4 seconds.
   2. "Service functions"
   3. "Filling"
   4. Ending filling function: Press OK
                   or ⤺.

Maximum operating pressure...80 psig
Minimum operating pressure...14 to 23 psig
Pressure relief valve...............80 psig

5683 710 - 26

Bleed (Vent) Air from Boiler Heat Exchanger
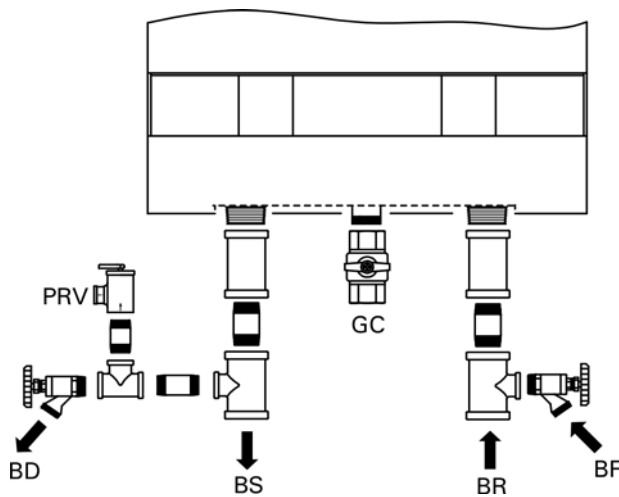
Legend

BD Boiler Drain

BF Boiler Fill

BR Boiler Return

BS Boiler Supply

GC Gas Connection

PRV Pressure Relief Valve

1. Connect hose to boiler filling tap and other end to a fresh water supply (or heating medium).

2. Open fresh water supply valve and then the boiler filling tap slowly (isolation valves must be closed during fill/bleed process).

3. Flush boiler heat exchanger via boiler supply and return (for at least 10 minutes) until all air is removed from the boiler.

4. When the drain valve begins to bleed water, close boiler drain valve, then boiler fill valve and open system isolation valves.

5. a. Close the gas shut-off valve and switch the control unit ON.
    b. Activate venting program (see next steps).
       Note: For function and sequence of the venting program, see page 93.
    c. Check the system pressure.

6. Activating the venting program:
    Service menu
    - Press OK and ☰⋮ simultaneously for approximately 4 seconds.
    - "Service functions"
    - "Venting"
    Venting function is enabled.
    Ending venting function:
    - Press OK or ⬑.

7. Check system pressure.

8. Ensure adequate fuel supply exists and open gas shutoff valve.

Designating Heating Circuits

In the delivered condition, the heating circuits are designated "Heating circuit 1", "Heating circuit 2" and "Heating circuit 3" (if installed).
If the system user prefers, the heating circuits can be designated differently to suit the specific system.
To enter names for heating circuits:

Refer to the Operating Instructions

Select Gas Type

Note: the Vitodens 200-W, B2HA boiler is factory set to operate with natural gas . See following subsection for conversion instructions to liquid propane gas.

1. Ensure that the fuel type listed on the boiler rating plate is the correct type for the installation being attempted.
2. Record fuel type in Maintenance Record on page 105.

The Vitodens 200-W boiler is for use with gases whose characteristics fall within the following ranges.
Do not use any other types of gas.

		Natural gas	Liquid propane gas
Heating value (gross)	Btu/ft^3	970 to 1100	2466 to 2542
Specific gravity		0.57 to 0.70	1.522 to 1.574
Ultimate carbon dioxide (CO_2)	%	11.7 to 12.2	13.73 to 13.82

5683 710 - 26

Convert Fuel Type to Liquid Propane Gas
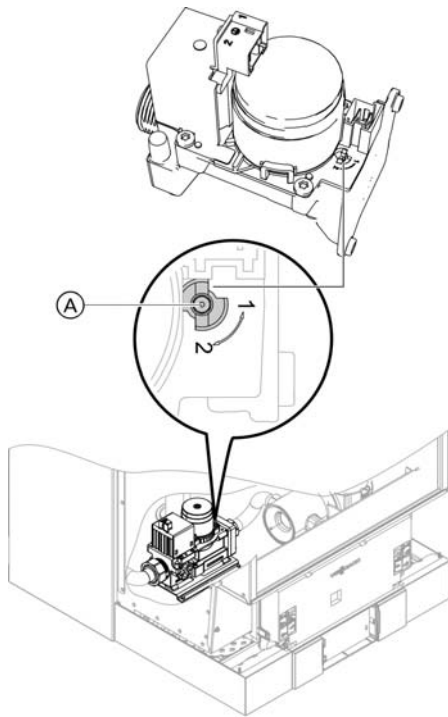
1. Set adjusting screw Ⓐ at the gas valve to "2" (using a hex key, 2.5 mm).
   Note: The Vitodens 200-W, B2HA boiler comes factory adjusted for operation with natural gas. Coding address "82" is set to "0" (operation with natural gas) in the factory default setting.

2. Switch ON/OFF switch "Ⓞ" to ON.
   Note: Slide the black control cover outwards to access the ON/OFF switch.

3. Call up coding level 2 (see page 45).

4. Call up "General".

5. In coding address "11" select value "9".

6. In coding address "82" select value "1" (operation with liquid propane gas).

7. Go back to coding address "11" and select any value (except "9").

8. Terminate coding level 2 and open gas shut-off valve.

9. Apply supplied fuel conversion labels.

Setting High Altitude

In the factory default setting, the boiler is equipped to operate in altitudes of up to 5,000 ft. (1,500 m).
Altitude can be set using coding address 93:
(in coding level 2 General).

- Coding 11:9 must be set in order to unlock coding 93:.
- 93:0 is reserved for altitudes up to 5000 ft. (1500 m).
- 93:6 must be set for altitudes from 5000 ft. (1500 m). to 10000 ft. (3000 m)
- Setting back to 93:0 turns off the high altitude function.

IMPORTANT

Do not set or use coding addresses 93:1 to 93:5.

- After setting coding address 93:, set coding address 11:0
- The program is automatically disabled after 20 minutes.

Measure Static Pressure and Running Pressure
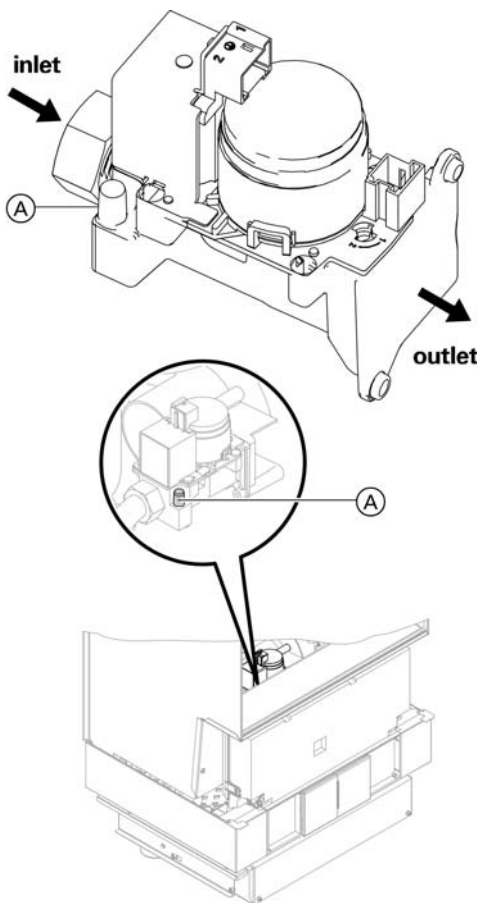
1. To measure static and/or running pressure remove boiler enclosure panel as indicated page 15 in these instructions.

2. Close gas shutoff valve (field supplied).

3. Loosen screw at inlet gas pressure port Ⓐ on the gas combination valve, do not remove completely. Connect manometer.

4. Open the gas shutoff valve.

5. Measure static pressure. Values must be:
   14 "w.c. maximum for NG
   14 "w.c. maximum for LPG

6. Enter measured value into Maintenance Record on page 105 in this manual.

7. Start up boiler, using the ON/OFF switch "Ⓞ" on the boiler control.
   Note: Slide the black control cover outwards to access the ON/OFF switch.

8. Measure the running pressure; value must be:
   Note: Use suitable measuring instruments calibrated with a minimum resolution of 0.04 "w.c. for measuring the running pressure.

Running supply pressure with		Corrective action
NG	**LPG**	
under 4 "w.c.	under 4 "w.c.	Do not start the boiler. Notify your gas supply utility or LPG supplier.
4 to 14 "w.c.	10 to 14 "w.c.	Start up boiler.
over 14 "w.c.	over 14 "w.c.	Do not attempt adjustment. Call local gas utility to decrease pressure or install up stream gas pressure regulator. Boiler valve must not be exposed to pressure over 14 "w.c.

9. Enter gas type into Maintenance Record on page 105 in this manual.

10. Switch off the ON/OFF switch "Ⓞ" on the boiler control, close the gas shut-off valve, remove the manometer and re-tighten the screw at inlet gas pressure port Ⓐ.

IMPORTANT

A CO measurement (see page 31) must be taken before and after working on gas appliances to eliminate risks to health and to guarantee the satisfactory condition of the system.

IMPORTANT

The burner is automatically ignited and starts operation after a safety time has elapsed. During initial start-up, the unit may indicate a fault because of air in the gas supply pipe (especially for liquid propane gas). After approx. 5 seconds, press the "R" button to reset the burner. The ignition procedure is repeated. This boiler employs a direct spark ignition system.

⚠ WARNING

Ensure that there is no open flame in the room.

⚠ WARNING

Never purge a gas line into a combustion chamber. Never use matches, candles, flame, or other sources of ignition for purpose of checking leakage. Use a soap and water solution to check for leakage. A failure to follow this warning could result in fire, explosion, personal injury or death.

5683 710 - 26

Pressure Switches

Rear View
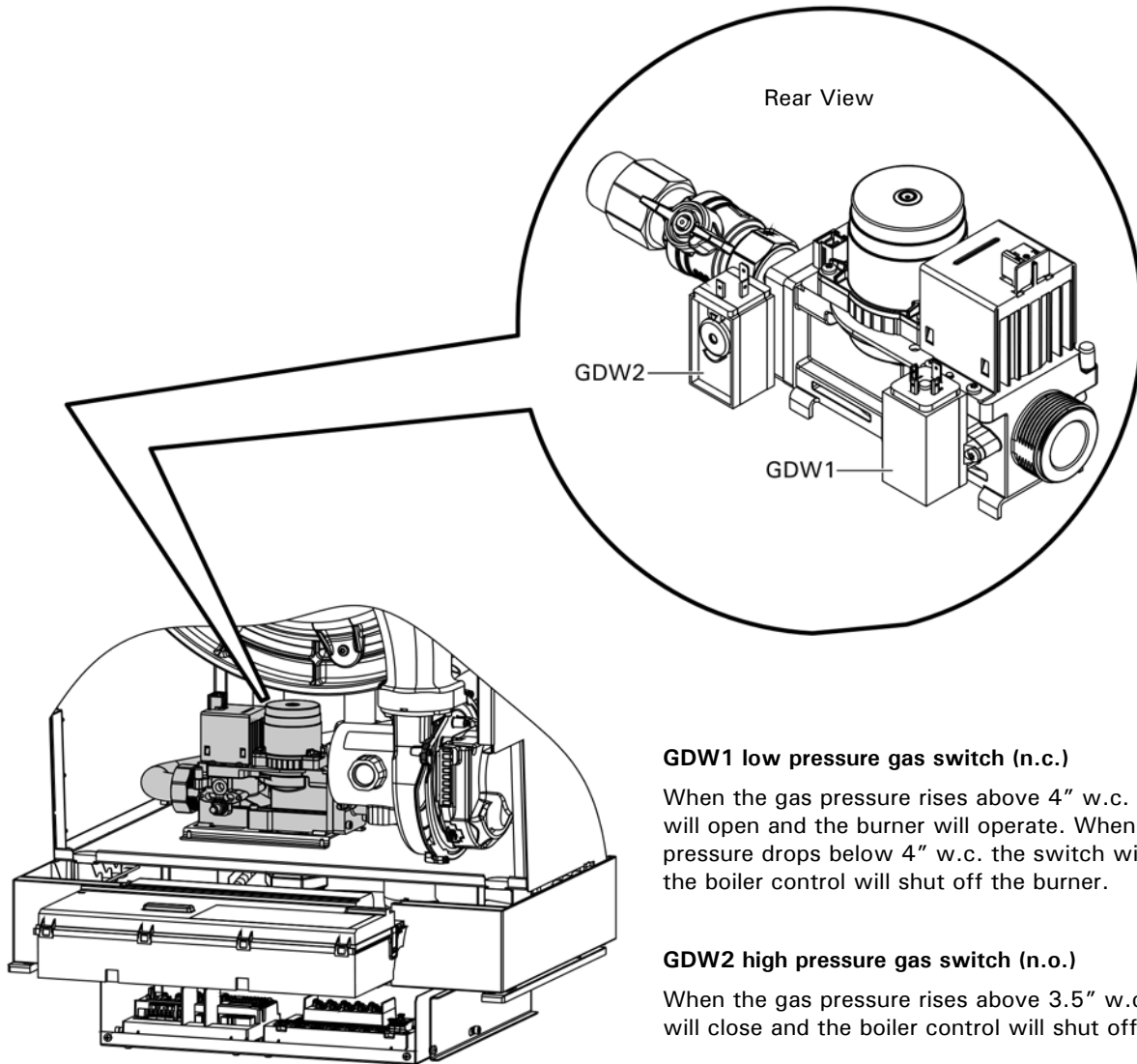
GDW2

GDW1

GDW1 low pressure gas switch (n.c.)

When the gas pressure rises above 4" w.c. the switch will open and the burner will operate. When the gas pressure drops below 4" w.c. the switch will close and the boiler control will shut off the burner.

GDW2 high pressure gas switch (n.o.)

When the gas pressure rises above 3.5" w.c. the switch will close and the boiler control will shut off the burner.

If either switch is activated (closed position) the burner will shut down, but no fault will be displayed on the control.

Check address 38 in coding 2, if the value is 2 then one of the switches has been activated (closed).

Sequence of Operation and Potential Faults During Each Start-up Cycle

Display message   **Measures**

Process		Display message	Measures
Call for heat by control	no →		Increase set value and ensure heat is drawn off
↓ yes			
Fan starts up	no →	After approx. 51 s fault F9	Check the fan, fan connecting cables, power at the fan and fan control
↓ yes			
Ignition	no →	Fault EE	Check the ignition module (control voltage 120V across plugs "X2.1" and "X2.2")
↓ yes			
Gas combination valve opens	no →	Fault EE	Fault EE Check the gas train (control voltage 120V); check the gas supply pressure
↓ yes			
Ionization current builds Symbol ▷	no →	Fault EE	Check the ionization electrode adjustment and the gas line for airlocks
↓ yes			
Burner in operation	no →	Stops below the set boiler water temperature and restarts immediately	Check the flue gas system for tightness (flue gas recirculation), check the gas flow pressure
↓ yes			
Automatic calibration of the combustion controller	no →	Fault E3	Ensure adequate heat transfer. Press reset button **R**.
		Fault EB	Check gap between ionization electrode and burner gauze assembly. Check allocation of gas type (coding address 82, gas train setting). Check flue system; remedy flue gas recirculation if required. Press reset button **R**.

For further details regarding faults, see page 77.

Set Maximum Input

The maximum input (or output) for heating operation can be limited. The limit is set via the modulation range. The maximum adjustable heating input (or output) is limited upwards by the boiler coding card.

Note: The input for DHW production can be limited as well. To do so, change coding address "6F" in coding level 2.

1. Press OK and ☰ simultaneously for approximately 4 seconds.

2. "Service functions"

3. "Maximum output"

4. "Change?" Select "Yes".
   A value flashes on the display (e.g. "85"). In the factory setting, this value represents 100% of rated input (or output).

5. Select required value.

Check All Primary and Secondary Circuit Connections for Leaks

Check heating system and domestic hot water connections (if applicable). Ensure all connections are pressure tight. Correct any leaks found on fittings, pumps, valves, etc.

Perform Combustion Analysis

┌───┐
│ **IMPORTANT**   │
└───┘

A CO measurement (see page 31) must be taken before and after working on gas appliances to eliminate risks to health and to guarantee the satisfactory condition of the system.

Record the measured combustion values in the sequence stated in the Maintenance Record on page 105 in this manual.

Check Coaxial Venting System for Leaks (circular air gap measurement)
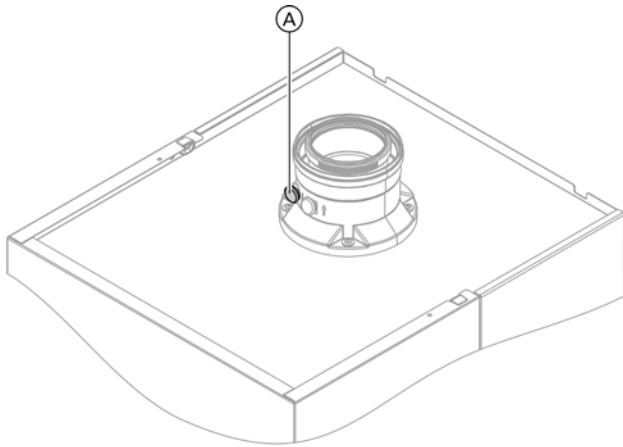
Viessmann strongly recommends that the heating contractor perform a simplified leak test during boiler start-up. For this purpose it is sufficient to measure the CO_2 concentration of the combustion air in the coaxial gap of the air intake pipe. The vent pipe is considered sufficiently leak-proof if a CO_2 concentration in the combustion air no higher than 0.2% or an O_2 concentration no lower than 20.6% is measured. If higher CO_2 values or lower O_2 values are measured, check venting system thoroughly.

Note: The vent pipe adaptor comes with two measurement ports, one for combustion air-intake measurement and one for flue gas measurement.

Remove Burner Assembly
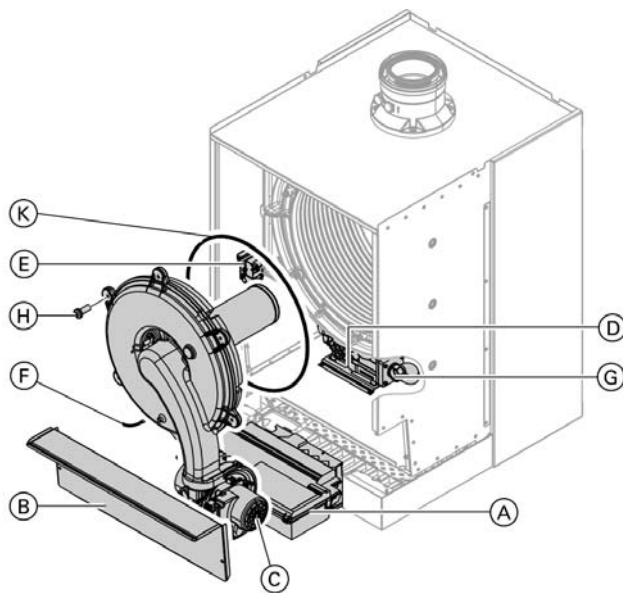
1. Switch the main power supply and the ON/OFF switch "Ⓞ" on the boiler control to OFF.
   Note: Slide the black control cover outwards to access the ON/OFF switch.

2. Shut off the gas valve.

3. Fold down control unit Ⓐ and remove cover Ⓑ.

4. Pull the cables from the fan motor Ⓒ, gas valve Ⓓ, ionization electrode Ⓕ and ignition module Ⓔ.

5. Release gas supply pipe fitting Ⓖ.
   Note: there is a gasket between the gas valve and the fitting.

6. Loosen the six Torx (T-30) screws Ⓗ and remove burner.

7. Check burner gasket Ⓚ for damage. Generally replace the burner gasket every 2 years.

> ⚠ **CAUTION**
>
> **To avoid damage to the burner, do not lay burner on its cylindrical burner tube or touch the burner tube mesh. Failure to heed this caution may cause damage to the burner tube, which may lead to improper operation.**

Reinstall Burner Assembly

> **IMPORTANT**
>
> Perform gas leak test.

1. Mount burner assembly and tighten screws in a diagonal pattern to a torque of 70 lb.in (8 Nm).

2. Fasten threaded connection for the gas line with a new gasket and torque to 132 lb.in (15 Nm).

3. Connect the electrical cables to the corresponding parts.

5683 710 - 26

Checking the Flue Gas Flapper
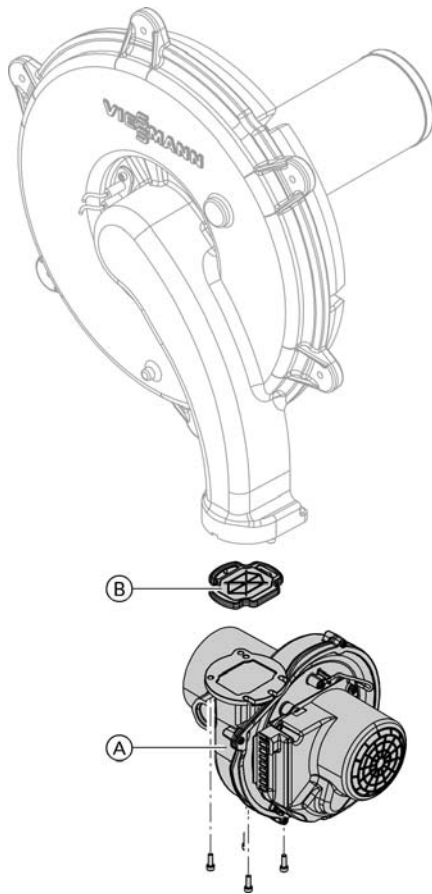
1. Undo three screws and remove fan (A).

2. Remove the flue gas flapper (B).

3. Check the flapper and gasket for dirt and damage. Replace as necessary.

4. Refit the flue gas flapper (B).

5. Refit fan (A) and secure with three screws. Torque: 2.2 lb.ft. (3.0 Nm).

Check Burner Refractory
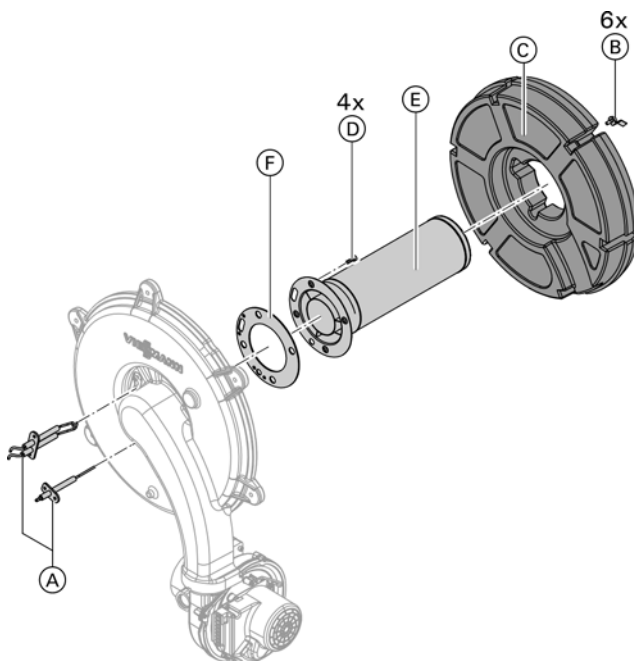
Check the burner refractory ring (C) and DHW tank burner assembly (E) for damage and replace if necessary.

1. Remove electrode block and ionization electrode (A).

2. Undo the three retaining clips (B) at the refractory ring (C) and remove refractory ring (C).

3. Loosen the four Torx screws (D) and remove DHW tank burner assembly (E) and assembly gasket (F).

4. Fit and secure new DHW tank burner assembly (E) and new assembly gasket (F). Tighten to a torque of 3.3 lb.ft. (4.5 Nm) using a calibrated torque wrench.

5. Reinstall refractory ring (C) and secure with retaining clip (B).

6. Reinstall electrode block and ionization electrode (A). Tighten to a torque of 3 lb.ft. (4 Nm) using a calibrated torque wrench.

Check and Adjust Ignition and Ionization Electrodes
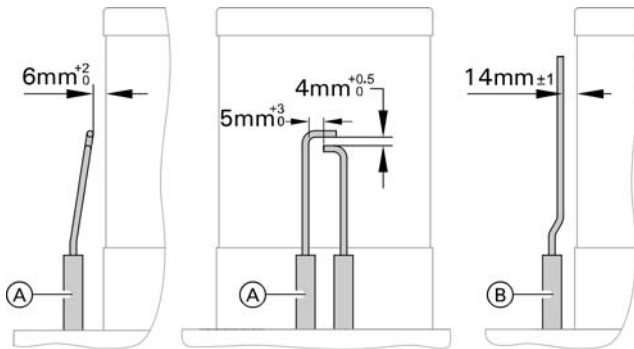
1. Check the ignition electrodes Ⓐ and ionization electrode Ⓑ for wear and contamination.

2. Clean electrodes with small brush (not a wire brush) or emery paper (cloth).

3. Check electrode gaps. If the gaps are not as specified, or the electrodes are damaged, replace and align the electrodes with new gaskets. Tighten the electrode fixing screws to a torque of 1.5 lb.ft. (2 Nm) using a calibrated torque wrench.

Clean Combustion Chamber/Heat Exchanger Surface
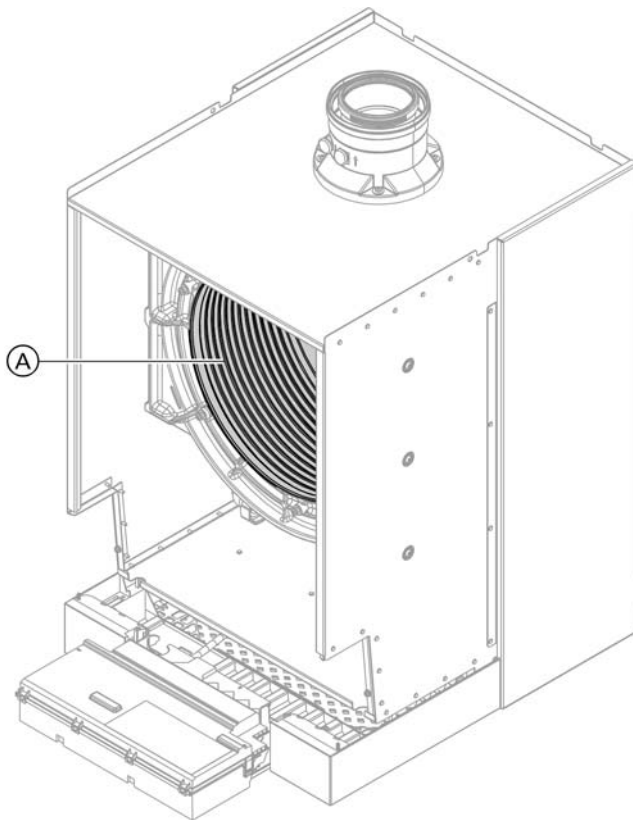
1. Remove burner assembly and reinstall upon completion of service work as per the instructions on page 24 in this manual.

2. Clean the combustion chamber Ⓐ by vacuuming loose debris out.

3. Remove embedded sediment from the heat exchanger surface Ⓐ by thoroughly rinsing with water or solvent free cleaning agents such as citric acid based cleaners. Avoid getting the refractory wet during cleaning.
   Note: Discoloration of the heat exchanger surface Ⓐ is the normal result of the combustion process. It has no impact on the functionality or the longevity of the heat exchanger.

4. Use a non-metallic brush if necessary, with a gentle brushing motion to remove the embedded sediment.
   It is not recommended to use chemicals to clean the heat exchanger surface Ⓐ.

5. If the gaps between the heat exchanger coil windings are plugged, carefully remove debris without scratching the heat exchanger surface using the Viessmann tool specific for this purpose.
   Tool part number 7840112;
   Replacement blade part number 7840346.

6. Flush the combustion chamber Ⓐ with water until it runs clear through the condensate trap.

7. Remove and clean out any accumulated debris from condensate trap. Reinstall condensate trap. See page 27 for details.

⚠ WARNING

Never use a metal wire brush or mechanically driven brushes.

⚠ WARNING

Follow cleaning agent manufacturer's safety instructions and wear appropriate protective equipment.

Check Condensate Drain
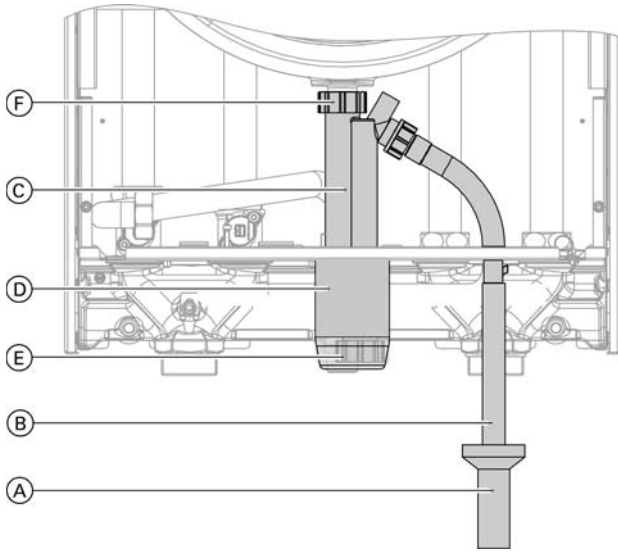
Legend

Ⓐ Open or vented field supplied drainage system
Ⓑ Flexible discharge tubing
Ⓒ Condensate trap
Ⓓ Rubber cap
Ⓔ Threaded cap
Ⓕ Union nut

Examples of condensate drain installation
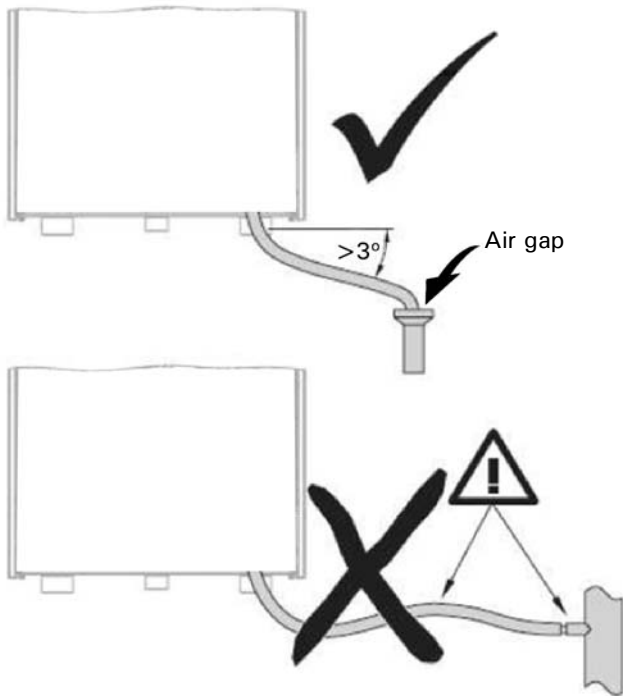
Cleaning condensate trap (during regular maintenance)

1. Remove rubber cap Ⓓ from below the condensate trap.

2. Unscrew threaded cap Ⓔ from the condensate trap Ⓒ.
    Note: After unscrewing the threaded cap Ⓔ it may
    be necessary to pry off to remove.

3. Clean out any debris from the condensate trap Ⓒ.

4. Reinstall threaded cap Ⓔ and rubber cap Ⓓ.

5. Undo union nut Ⓕ and pull off condensate trap Ⓒ
    downwards.

6. Fill condensate trap Ⓒ with water.

7. Reassemble in reverse order.

IMPORTANT

If the condensate does not drain freely, condensate will accumulate in bottom part of boiler resulting in a burner shut-down (fault message).

IMPORTANT

Pipe ventilation must take place between the condensate trap and the neutralization unit (if applicable).

Refer to Installation Instructions
Neutralization Unit (if applicable)

IMPORTANT

Do not connect the drain pipe from any other appliance, such as water softener backwash pipe, to Vitodens condensate drain pipe.

Check Neutralization Unit (if applicable)

1. Check the pH value of the condensate with pH measuring strip. If the pH value is less than 6.5, replace granulate.

2. If contaminated:
   Rinse neutralization unit with tap water.

3. Add granulate as marked.

Refer to Installation Instructions
Neutralization Unit (if applicable)

IMPORTANT

pH measuring strip must be field supplied.

IMPORTANT

The granulate is consumed as it neutralizes the condensate. The red marking indicates the minimum filling level.

Check Diaphragm Expansion Tank and System Pressure

Perform check with the system cold.

1. Drain boiler/system and reduce pressure until the manometer reading is "0".

2. If the nitrogen pressure of the precharged expansion tank is less than the static pressure of the system, inflate membrane pressure to slightly exceed pressure of system.
   The static pressure required at the tank is based upon the static height of the system. The system fill pressure value must be equal to the expansion tank pressure value at approximately 60ºF (15.6ºC).
   Note: Static head of 33 ft. (10 m) (distance between boiler and topmost heat emitter surface) corresponds to a static pressure of 1 bar (15 psig).

3. Top up with water until filling pressure is higher than the inlet pressure of the diaphragm expansion tank.
   Note: With the system cold, the filling pressure must be approximately 3 psig higher than the static pressure.
   Maximum operating pressure: 80 psig
   Minimum operating pressure: 14 psig

4. When starting up the system for the first time, mark this value as the minimum filling pressure on the manometer.
   Note: A lower manometer reading usually indicates loss of water due to leakage. All leaks must be repaired.

5683 710 - 26

Check Functioning of Safety Valves

Ensure proper operation of low water cut-off(s) (if applicable), pressure relief valve, and pump(s).

Check pressure gage, air vent and pressure relief valve. Ensure that pressure relief valve does not leak and that it operates in accordance with information provided by the manufacturer.

Refer to maintenance instructions supplied with low water cut-offs, pumps, etc.

Flush float water type low water cut-offs (if used).

Follow local regulations with respect to backflow preventers.

If oil-lubricated pumps are used, ensure proper lubrication.

If motorized zone valves are used, refer to maintenance instructions provided with zone valves.

Check Electrical Connections

Ensure all plug-in connectors and strain reliefs make positive contact and are seated properly.

Refer to the Installation Instructions

Check Gas Pipes and Fittings for Leaks

⚠ WARNING

The gas supply piping must be leak tested before placing the boiler in operation.

⚠ CAUTION

Ensure all joints of gas line are pressure tight and that gas valves do not leak when under normal operating pressure (use approved leak detection liquid).

Clock Natural Gas Meter

Clock natural gas meter to verify input.

1. Ensure all other gas equipment served by the meter is turned off during timing of gas input to the Vitodens 200-W, B2HA boiler.

2. Measure the time in seconds it takes for the boiler to use 10 ft.^{3} of gas. Divide 3600 x 10 by the number of seconds and you get the number of ft.^{3} of gas used per hour. Multiply this number by the heating value of the gas to obtain Btu per hour input.

For example:
A Vitodens 200-W, B2HA 530 boiler (530000 Btu/h input) requires 68 sec. to use 10 ft.^{3} of natural gas. After contacting the local utility, you will find the heating value is 1000 Btu per ft.^{3}.

Therefore:
3,600 sec./h x 10 revolutions
36,000/68 x 1000 = 530000 Btu/h input.
The boiler input is correct.

Burner input formulas (for low altitude only):
INPUT = (3600t) x 1000 where
t = TIME (sec.) for 1 ft.^{3}
INPUT = (3600 x .01 x 1000 x 35.31)T where
T = TIME (sec.) for .01 m^3 natural gas

IMPORTANT

A boiler underfired by 5% is acceptable. Do not overfire the boiler.

⚠ CAUTION

Always contact your gas utility to obtain the correct heating value before clocking the meter.

Check CO$_2$ Setting

The Vitodens 200-W, B2HA boiler is equipped with the Combustion Management System developed by Viessmann which ensures optimal combustion quality independent of gas quality and type. (For a description of the Combustion Management System, see page 34 in this manual). During initial start-up and maintenance you will only need to check the CO$_2$ and O$_2$ content at the boiler vent pipe adaptor.

Note: The Vitodens 200-W, B2HA boiler comes factory set to operation with natural gas. (For instructions on how to convert to operation with liquid propane gas, see page 19). For high-altitude operation above 5,000 ft. (1,500 m), see page 19. The MatriX cylinder burner of this boiler is preset for the entire gas group. No adjustment or readjustment of the burner is required.
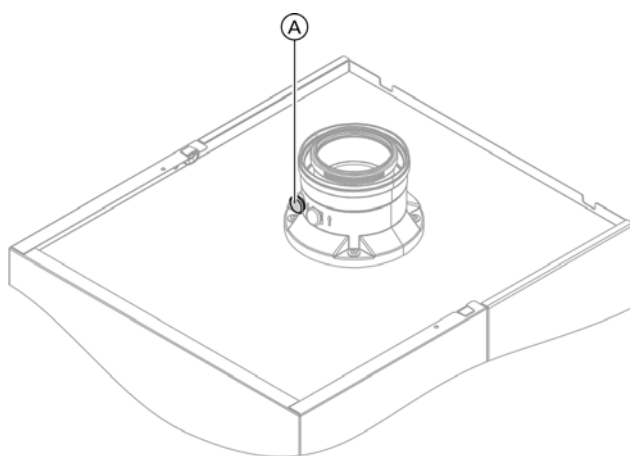
1. Connect a flue gas analyzer to test port Ⓐ at boiler vent pipe adaptor.

2. Open gas shut-off valve, start up boiler and create heat demand.

3. Selecting low/high fire:
   Service menu
   - Press OK and ☰ simultaneously for approximately 4 seconds.
   - "Actuator test"
   - Selecting low fire: select "Base load OFF". Then "Base load ON" appears and the burner operates in low fire.

4. Measure CO$_2$ and O$_2$ content at boiler vent pipe adaptor. If the measured values deviated by more than 1% from the ranges for the respective fuel type listed in the right column or in the table on page 34.
   - check the venting system for leaks (see subsection on page 24).
   - check that the boiler is set for the gas type used (see subsection on page 19).
   CO$_2$ content range:
   - 7.5 to 10.5% for natural gas
   - 9.0 to 11.3% for LPG
   O$_2$ content range:
   - 3.8 to 7.3% for all gas types

5. Enter measured values into the Maintenance Record on page 105. Terminate by selecting 'all actuators off'.

6. Selecting high fire: select "Full load OFF". Then "Full load ON" appears and the burner operates in high fire.

7. Measure CO$_2$ and O$_2$ content at boiler vent pipe adaptor. If the measured values deviated by more than 1% from the ranges listed in the right column or in the table on page 34.
   - check the venting system for leaks (see subsection on page 24).
   - check that the boiler is set for the gas type used (see subsection on page 19).
   CO$_2$ content range:
   - 7.5 to 10.5% for natural gas
   - 9.0 to 11.3% for LPG
   O$_2$ content range:
   - 3.8 to 7.3% for all gas types

8. Press ⮌ to exit actuator test after testing and enter measured values into the Maintenance Record on page 105.

Start-up and Shutdown

Legend
(A) Fault indicator (red)
(B) ON indicator (green)
(C) Reset button
(D) ON/OFF switch
(E) Pressure gauge

Starting the heating system

1. Check the heating system pressure at the pressure gauge. The heating system pressure is too low if the indicator points to the area below 15 psi.
   In this case, top up with water or notify your local heating contractor.

2. For room air dependent operation:
   Check that the ventilation apertures of the installation room are open and unrestricted.
   Note: With room air dependent operation, the combustion air is drawn from the boiler room.

3. For Vitodens:
   Open the gas shut-off valve.
   Note: Ask your heating contractor to explain the positioning and handling of these components.

4. Switch ON the power supply, e.g. at a separate power switch or fuse.

5. Turn the ON/OFF switch "⓪" ON. After a short time, the standard menu is displayed and the green ON indicator illuminates. Your heating system and, if installed, your remote controls are now ready for operation.
   Note: Slide the black control cover outwards to access the ON/OFF switch.

Menu

There are two control levels available, the "Standard menu" and the "Extended menu".
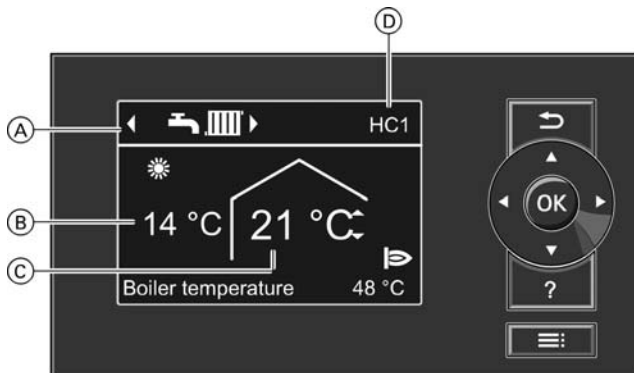
Heating circuit interface

Legend
(A) Header (shows the heating program for displayed heating circuit (D)
(B) Current outside temperature
(C) Set room temperature
(D) Heating circuit which is selected for operation in the standard menu

Standard menu

Note: If your heating system has 2 or 3 heating circuits or zone circuits

You can select the heating circuit "**HC1**", "**HC2**" "**HC3**" "**ZC1**", "**ZC2**" or "**ZC3**" to be displayed in the standard menu.

If your heating system only has 1 heating circuit: No heating circuit name "**HC…**" is shown in the header.

In the standard menu, you can adjust and scan the most frequently used settings for the heating circuit shown in the header:

Press the following keys to set room temperature:
▲/▼ for the required value
OK to confirm

Heating programs:
⏻ Standby mode with frost protection monitoring
🚰 Only DHW
🚰 ▥ Heating and DHW

Press the following keys:
▶/◀ for the required heating program
OK to confirm

Note: 2 minutes after any setting has been made, the display automatically reverts to the standard menu.

32

5683 710 - 26

Menu *(continued)*
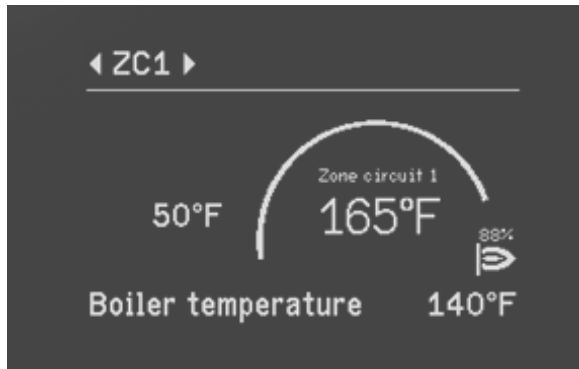
Zone control interface

Note: For any other connected heating circuits, use the settings in the extended menu.
Call up the standard menu as follows:
- If the screen saver is active
- Press any key except ?.
If you are somewhere in the menu:
Keep pressing ⮌ until the standard menu appears.
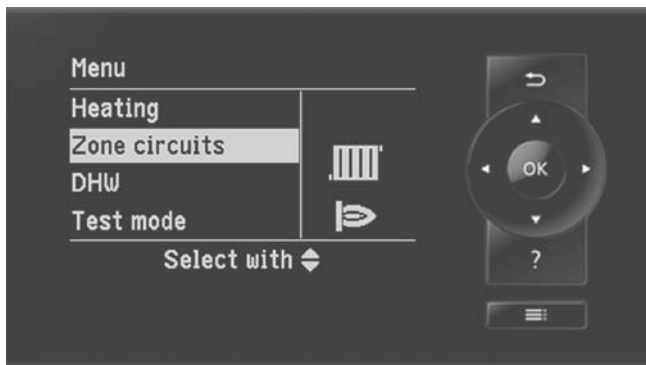
Symbols on the display
These symbols are not always displayed, but appear subject to the system version and the operating state.
Heating programs
⏻ Standby mode with frost protection monitoring
🚰 Only DHW
🚰 ▥ Heating and DHW

Displays
HC1 (2, 3) To display the heating circuit selected in the standard menu
To change this, see page 32
❄ Frost protection monitoring
☀ Central heating with standard temperature
☽ Central heating with reduced temperature
🍸 Party mode enabled
⚘ Economy mode enabled

In conjunction with a solar thermal system
☀ Solar circuit pump running
⊳ Burner in operation

Messages
🔧 Service message
⚠ Fault message

Extended menu

In the extended menu, you can adjust and scan the settings from the control unit's range of functions used less frequently, (e.g. time programs and holiday programs). The menu overview can be found on page 32.

Call up the extended menu
If the screen saver is active:
Press any key except ?, and then press ☰.
If you are somewhere in the menu:
Press ☰.

How to use the controls
The screen saver will become active if you have not adjusted any settings on the programming unit for a few minutes. The display brightness is reduced.

Zone Circuit Display
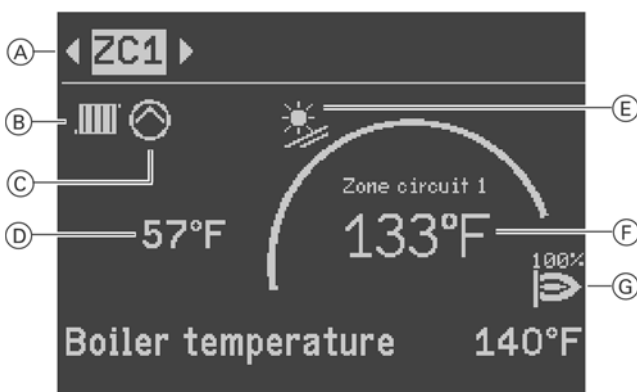
Legend
Ⓐ   Header zone circuit which is selected for operation in the standard menu.
Ⓑ   Heating
Ⓒ   Zone circuit pump output active
Ⓓ   Current outdoor temperature. Only for zone circuits with weather compensated operation.
Ⓔ   In conjunction with solar thermal system:
       Solar circuit pump running
Ⓕ   Set zone circuit temperature
Ⓖ   Burner in operation with modulation rate in %.

Functional Description

Space heating mode
The control unit calculates a boiler water setpoint temperature based on the outdoor or room temperature (where a room temperature dependent remote control is connected) and on the slope/shift of the heating curve. The computed boiler water setpoint temperature is transmitted to the burner control unit.

For zone circuit operation the boiler water temperature is calculated based on the slope/shift of the heating curve or programmed boiler water temperature setpoint. The boiler runs only when a signal has been received from a connected room thermostat (dry contact).

From the boiler water setpoint and the actual temperature the burner control calculates the degree of modulation required, and regulates the burner accordingly. The maximum operating boiler water temperature is limited in the burner control unit to 185ºF (85ºC) by the electronic temperature control. The fixed high limits of the safety chain interlock the burner control unit at 210ºF (99ºC) boiler water temperature.

Domestic hot water supply with gas-fired space heating boiler
Domestic hot water heating is activated when the tank temperature is 4.5ºF (2.5ºC) below the tank temperature setpoint value. The burner and the tank DHW pump are switched on. In the factory default setting, the desired boiler water temperature is set at 36ºF (20ºC) above the tank temperature setpoint value. When the actual tank temperature rises 4.5ºF (2.5ºC) above the tank temperature setpoint value, the burner is switched off and the time delay function of the tank DHW pump is activated.

The temperature differential of 4.5ºF (2.5ºC) can be adjusted in coding level 2, address "59" DHW boost heating / additional heating function. This function will heat your DHW tank to a second DHW setpoint temperature within the fourth time phase. It can act as an "Anti-Legionnaire-Function" if the DHW supply is not heated to 140ºF (60ºC) during the regular time schedule.

You can activate this function by selecting a switching period for the fourth time phase. (See Vitodens 200-W, B2HA Operating Instructions.)
The temperature setpoint for this function is adjustable in coding address "58".

Combustion Management System

The combustion management system utilizes the physical correlation between the level of the ionization current and the air factor λ. For all gas qualities, the maximum ionization current results with air factor λ.

The ionization signal is evaluated by the combustion management system, and the air factor is adjusted to between $\lambda = 1.24$ and 1.44. This range provides for an optimum combustion quality. Thereafter, the electronic gas valve regulates the required gas volume based on the prevailing gas quality.

To check the combustion quality, the CO_2 content or the O_2 content of the flue gas is measured. The actual values enable the prevailing air factor to be determined. The relationship between the CO_2 or O_2 content and air factor λ is illustrated in the table below.

To achieve an optimum combustion control, the system regularly performs an automatic self-calibration; also after a power failure (shutdown). For this, the combustion is briefly regulated to max. ionization current (equals air factor $\lambda = 1$). The automatic calibration is performed shortly after the burner starts and lasts approximately 5 seconds.

During the calibration, higher than normal CO emissions may occur briefly.

Air factor λ - CO_2/O_2 content

Air factor λ	O_2 content (%)	CO_2 content (%) for natural gas	CO_2 content (%) for liquid propane gas
1.20	3.8	9.6	11.3
1.24	4.4	9.2	10.9
1.27	4.9	9.0	10.6
1.30	5.3	8.7	10.3
1.34	**5.7**	**8.5**	**10.0**
1.37	6.1	8.3	9.8
1.40	6.5	8.1	9.6
1.44	6.9	7.8	9.3
1.48	7.3	7.6	9.0

The Vitodens 200-W, B2HA boilers come equipped with Lambda Pro, the industry's first intelligent combustion management system.

Installation Examples

System type 1
System Examples for codes 00:1 and 00:2

Heating system with one heating circuit without mixing valve A1 with/without DHW heating, with/without low loss header.
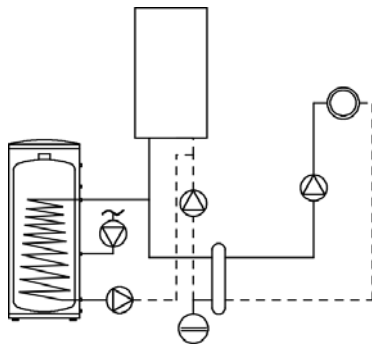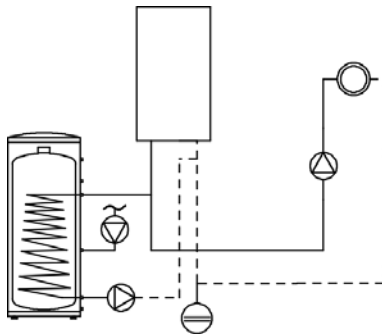
Matching the control unit to the heating system

The control unit must be matched to the equipment level of the system. Various system components are recognized automatically by the control unit and the relevant codes are adjusted automatically.
- For the selection of an appropriate type, see the following diagrams.
- For coding steps, starting on page 44.

Function/system components	Code	
	Adjust	**Group**
One heating circuit without mixing valve A1 (heating circuit 1), without DHW heating	00:1	General/1
One heating circuit without mixing valve A1 (heating circuit 1), with DHW heating (code is adjusted automatically)	00:2	General/1
System with low loss header	04:0	Boiler/2

Installation Examples *(continued)*

System type 2
System Examples for codes 00:3 and 00:4

Heating system with one heating circuit with mixing valve M2 with system separation, with/without DHW heating, with/without low loss header.
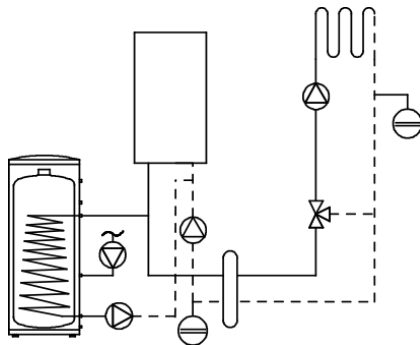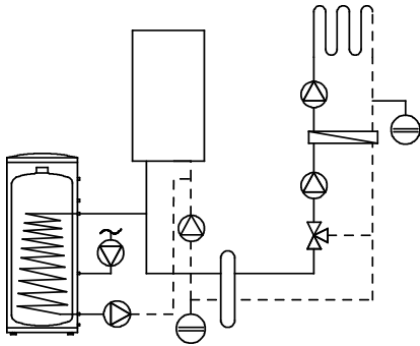
Function/system components	Code	
	Adjust	**Group**
Heating system with one heating circuit without mixing valve, with/ without domestic hot water heating		General/1
- without DHW tank	00:3	
- with DHW tank	00:4	
System with low loss header	04:0	Boiler/2

Installation Examples *(continued)*

System type 3
System Examples for code 00:5 and 00:6

Heating system with one heating circuit without mixing valve, one heating circuit with mixing valve, one heating circuit with mixing valve and system separation, with/without domestic hot water heating (with and without low loss header).

Function/system components	Code	
	Adjust	**Group**
System with one heating circuit without mixing valve A1 (heating circuit 1) and one heating circuit with mixing valve M2 (heating circuit 2), (code is adjusted automatically)		General/1
- without DHW heating	00:5	
- with DHW heating	00:6	
System with low loss header	04:0	Boiler/2

Installation Examples *(continued)*

System type 4
System Example for code 00:7 and 00:8

Heating system with one heating circuit with mixing valve, one heating circuit with mixing valve M2 (with extension kit), one heating circuit with mixing valve M3 (with extension kit) and low loss header (with/without DHW heating).
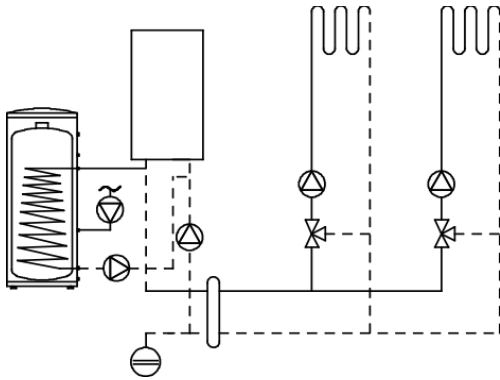
Function/system components	Code	
	Adjust	**Group**
System only with two heating circuits with mixing valve with extension kit for mixing valve (without unregulated heating circuit)		General/1
- with DHW tank	00:8	
- without DHW tank	00:7	
System with low loss header	04:0	Boiler/2

System type 5
System Example for code 00:9 and 00:10

Heating system with one heating circuit with mixing valve, one heating circuit with mixing valve M2 (with extension kit), one heating circuit with mixing valve M3 (with extension kit) and low loss header (with/without DHW heating).

Function/system components	Code	
	Adjust	**Group**
System with one heating circuit without mixing valve A1 (heating circuit 1), one heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), without DHW heating (code is adjusted automatically)		General/1
- without DHW tank	00:9	
- with DHW tank	00:10	
System with low loss header	04:0	Boiler/2

Installation Examples *(continued)*

System type 6

Heating system with three zone circuits (thermostat operated).
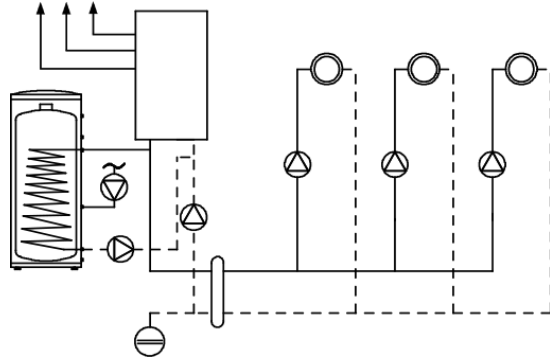
Function/system components	Code	
	Adjust	**Group**
Zone circuit 1 A1 (AM1)	33:5	General/2
Zone circuit 2 A2 (AM1)	34:6	
Zone circuit 3 output 157 at extension EA1	36:8	
System with low loss header	04:0	Boiler/2

Function / System components	Code
	General 2
Zone circuit 1	
Constant	3A:7
Weather compensate	3A:8
Zone circuit 2	
Constant	3B:7
Weather compensate	3B:8
Zone circuit 3	
Constant	3C:7
Weather compensate	3C:8

System Example for multiple boilers

Multi boiler system with several heating circuits with mixing valve and low loss header (with/without DHW heating)
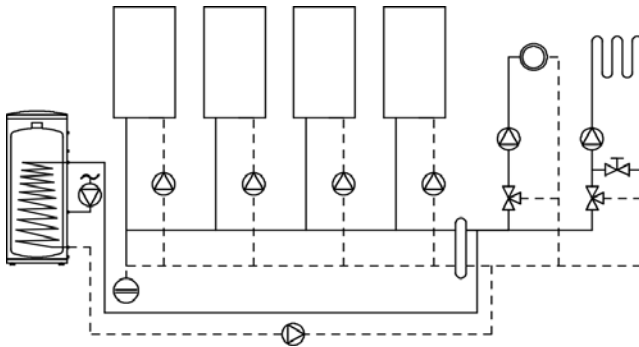
Function/system components	Code	
	Adjust	**Group**
Multi boiler system with Vitotronic 300-K, MW2C control	01:2	General/1
System with low loss header	04:0	Boiler/2

Note: Codes for multi boiler system, see Vitotronic 300-K, MW2C control Service Instructions.

Heating Curve Adjustment

The heating curves represent the relationship between the outdoor temperature and the boiler water or supply temperature.
Put simply: The lower the outdoor temperature, the higher the boiler water or supply temperature.
In turn, the room temperature is dependent on the boiler water or supply temperature.
If a different room temperature is set, the curves are shifted parallel to the desired room temperature axis.

The control unit regulates the boiler water temperature (= supply temperature of heating circuit without mixing valve) and the supply temperature of the heating circuit with mixing valve (in conjunction with the accessory kit for a heating circuit with mixing valve) according to the outdoor temperature. The boiler water temperature is automatically raised by 0 to 72 F / 0 to 40 K higher than the currently required set supply temperature (in the factory default setting the differential temperature is 14.4 F / 8 K). See coding address "9F" in General Group.

The supply temperature that is required to achieve a given room temperature depends on the heating system and the thermal insulation of the building that is being heated.

The adjustment of the two heating curves is used to match the boiler water temperature and the supply temperature to these conditions. The boiler water temperature is limited upwards by the fixed high limit and the temperature set for the electronic high limit.

The supply temperature cannot rise above the boiler water temperature.

Factory settings:

- slope = 1.4

- shift = 0

Note: If the heating system includes heating circuits with mixing valves, then the flow temperature of the heating circuit without mixing valve is higher by a selected differential (8 K in the factory setting) than the flow temperature of the heating circuits with mixing valves. The differential temperature can be changed at coding address 9F.
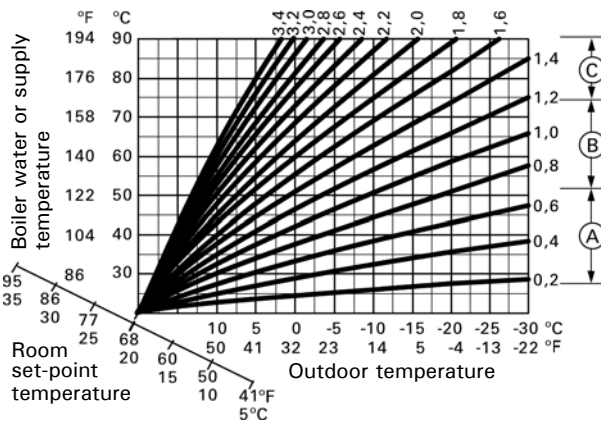
Legend

Ⓐ Low-temperature heating system,
e.g. radiant floor heating, 0.2 - 0.7

Ⓑ Medium-temperature heating system, e.g. cast iron radiation, panel radiant floor heating, 0.7 - 1.2

Ⓒ High-temperature heating system,
e.g. fintube radiation, fan coils, 1.2 - 1.5

Heating Curve Adjustment *(continued)*

Outdoor temperature in °F/°C

Example 1: Adjusting the room temperature setpoint from 68° F to 79° F (20° C to 26° C)

Legend

Ⓐ Boiler water temperature / Supply temperature
Ⓑ Outdoor temperature
Ⓒ Room temperature setpoint
Ⓓ Heating circuit pump "OFF"
Ⓔ Heating circuit pump "ON"

Example 2: Adjusting the room temperature setback from 41° F to 57° F (5° C to 14° C)

Legend

Ⓐ Boiler water temperature / Supply temperature
Ⓑ Outdoor temperature
Ⓒ Room temperature setpoint
Ⓓ Heating circuit pump "OFF"
Ⓔ Heating circuit pump "ON"

Changing the slope and level

Extended menu:

1. ≡┊
2. Select "Heating" - **OK**
3. Heating circuit selection ▶/◀
4. Accept with **OK**
5. Heating curve - **OK**
6. Slope or level - **OK**
7. Change with ▲/▼
8. Select heating curve according to the system requirements.
9. Exit ⤺
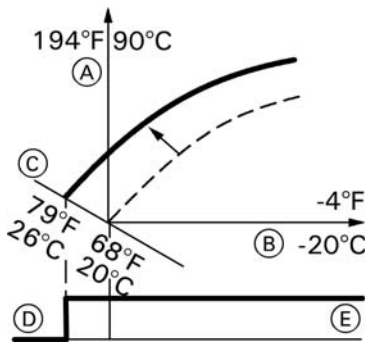
Standard Room Temperature

1. ≡┊
2. Select "Heating"
3. Heating circuit selection ▶/◀
4. **OK**
5. Room temperature setpoint - OK
6. Change with ▲/▼
7. Accept with OK
8. ⤺

Refer to the Operating Instructions

Room Temperature Setback

1. ≡┊
2. Select "Heating"
3. Heating circuit selection ▶/◀
4. **OK**
5. Red room temperature setpoint - OK
6. Change with ▲/▼
7. Accept with OK
8. ⤺

Refer to the Operating Instructions.

Connecting the Boiler Control to a LON System

Updating the LON participant list

Only possible if all participants are connected and the control unit is programmed to be fault manager (coding address "79:1").

Performing a LON participant check

Communication with the system devices connected to the fault manager is tested by means of a participant check.

Preconditions:
- The control unit must be programmed as fault manager (code "79:1")
- The LON participant number must be programmed in all control units (see page 43)
- The LON participant list in the fault manager must be up to date

Performing the participant check:
1. Press OK and ≣ simultaneously for approximately 4 seconds
2. "Service functions"
3. "Participant check"
4. Select participant (e.g. participant 10).

The participant check for the selected participant is initiated.
- Successfully tested participants are designated with "**OK**".
- Unsuccessfully tested participants are designated with "**Not OK**".

Note: To carry out a new participant check, create a new participant list with menu item "Delete list?"

Note: If the participant check is carried out by another control unit, the participant number and "Wink" are shown on the display for approximately 1 minute.

Scanning and resetting the "Service" display

After the limits specified in coding addresses "21" and "23" have been reached, the red fault indicator flashes and the following appears on the programming unit display:
- "Service" and "🔧"

Scanning and resetting service

Press **OK** to acknowledge a service message.
Note: An acknowledged service message that was not reset reappears:
- On the following Monday.

After a service has been carried out (reset service):
1. Press OK and ≣ simultaneously for approximately 4 seconds.
2. "Service functions"
3. "Service reset"
Note: The selected service parameters for hours run and time interval restart at 0.

Instructing the system user

The system installer must hand the operating instructions to the system user and instruct the user in the operation of the system.

Connecting the Boiler Control to a LON System *(continued)*

The LON communication module (accessory) must be connected.

Note: The data transfer via the LON can take several minutes.

Single boiler system with Vitotronic 200-H, HK1B and Vitotronic 200-H, HK3B mixing valve controls and Vitocom LON communication module

Set the LON participant numbers and other functions via coding level 2 (see table below)

Note: In the same LON system, the same participant number cannot be allocated twice. Only one Vitotronic may be programmed as fault manager.

Refer to the Installation Instructions for the LON communication module

Boiler control unit	Vitotronic 200-H	Vitotronic 200-H	Vitocom
	(e.g. HK1B mixing valve control)	(e.g. HK3B *1 multiple mixing valve control)	*1 LON communication module
Participant no. 1 Code "77:1"	Participant no. 10 Code "77:10"	Participant no. 11 Set code "77:11"	Participant no. 99
Control unit is fault manager Code "79:1"	Control unit is not fault manager Code "79:0"	Control unit is not fault manager Code "79:0"	Device is fault manager
Control unit transmits the time Code "7B:1"	The control unit receives the time Set code "81:3"	The control unit receives the time Set code "81:3"	Device receives the time
Control unit transmits outside temperature Set code "97:2"	Control unit receives outside temperature Set code "97:1"	Control unit receives outside temperature Set code "97:1"	--
LON participant fault monitoring Code "9C:20"	LON participant fault monitoring Code "9C:20"	LON participant fault monitoring Code "9C:20"	--

1 Refer to the separate Installation Instructions of accessories.

General

Calling up coding level 1

Note: Codes are displayed as plain text.

Codes that have no function due to the heating system equipment level or the setting of other codes are not displayed.

Heating systems with one heating circuit without mixing valve and one or two heating circuits with mixing valve:
The heating circuit without a mixing valve is designated "Heating circuit 1" and the heating circuits with mixing valve as "Heating circuit 2" or "Heating circuit 3".

If the heating circuits were given individual designations, the selected designation and "HC1", "HC2" or "HC3" appear instead:
1. Press **OK** and ☰ simultaneously for approximately 4 seconds.

2. "Coding level 1"
3. Select group of required coding address:
   - "General"
   - "Boiler"
   - "DHW"
   - "Solar"
   - "Heating circuit 1/2/3"
   - "All codes std device"

   In this group, all coding addresses from coding level 1 (except the coding addresses from the "Solar"group) are displayed in ascending order.
4. Select coding address.
5. Select value according to the following tables and confirm with **OK**.
6. If you want to reset all codes to their factory setting: Select "Standard setting" in "Coding level 1".
   Note: This also resets codes from coding level 2.

Select "General"

Coding			
Coding in the factory setting		**Possible change**	
System design			
00:1	System type 1: One heating circuit without mixing valve A1 (heating circuit 1), without DHW heating	00:2 to 00:10	For system type, see the following table:

Value address 00: …	System type	Description
2	1	One heating circuit without mixing valve A1 (heating circuit 1), with DHW heating (code is adjusted automatically).
3	2	One heating circuit with mixing valve M2 (heating circuit 2), without DHW heating.
4	2	One heating circuit with mixing valve (heating circuit 2), with DHW heating.
5	3	One heating circuit without mixing valve A1 (heating circuit 1) and one heating circuit with mixing valve M2 (heating circuit 2), without DHW heating (code is adjusted automatically).
6	3	One heating circuit without mixing valve A1 (heating circuit 1) and one heating circuit with mixing valve M2 (heating circuit 2), with DHW heating (code is adjusted automatically).
7	4	One heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), without DHW heating.
8	4	One heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), with DHW heating.
9	5	One heating circuit without mixing valve A1 (heating circuit 1), one heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), without DHW heating (code is adjusted automatically).
10	5	One heating circuit without mixing valve A1 (heating circuit 1), one heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), with DHW heating (code is adjusted automatically).

General *(continued)*

Coding in the factory set mode		Possible change	
Internal circulation pump function			
51:0	System with low loss header: Internal circulation pump always starts when there is a heat demand	51:1	System with low loss header: When there is a heat demand, the internal circulation pump is only started if the burner is operating. Circulation pump is switched off after a 60 sec. delay.
		51:2	System with heating water buffer DHW tank: When there is a heat demand, the internal circulation pump is only started if the burner is operating. Circulation pump is switched off after a 60 sec. delay.
Participant no.			
77:1	LON participant number	77:2 to 77:99	LON participant number, adjustable from 1 to 98: 1 - 8 = Boiler 9 = Cascade 10 - 98 = Vitotronic 200-H **Note:** Allocate each number only once.
Detached house/apartment building			
7F:1	Detached house	7F:0	Apartment building Separate adjustment of holiday program and time program for DHW heating possible.
Lock out controls			
8F:0	Operation in the standard menu and extended menu enabled. **Note:** The respective code is only activated when you exit the service menu.	8F:1	Operation in standard menu and extended menu blocked. Emissions test mode can be enabled.
		8F:2	Operation enabled in the standard menu and blocked in the extended menu. Emissions test mode can be enabled.
Set flow temperature for external demand			
9B:70	Set flow temperature for external demand 158°F (70°C)	9B:0 to 9B:127	Set flow temperature for external demand adjustable from 32 to 260°F (0 to 127°C) (limited by boiler-specific parameters).

Boiler

Select "Boiler"

Coding in the factory setting		Possible change	
Single/multi boiler system			
01:1	Single boiler system	01:2	Multi boiler system with Vitotronic 300-K, control.
Boiler number			
07:1	Boiler number in multi boiler systems	07:2 to 07:8	Boiler number 2 to 8 in multi-boiler systems.
Burner service in 100 hours			
21:0	No service interval (hours run) selected	21:1 to 21:100	Number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h One adjusting step ≙ 100 h.
Service interval in months			
23:0	No time interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months.
Service status			
24:0	No "Service" display	24:1	"Service" display (the address is automatically set and must be manually reset after a service has been carried out).
Filling/Venting			
2F:0	Venting (bleeding) program/fill program disabled	2F:1	Venting (bleeding) program enabled.
		2F:2	Fill program enabled.

DHW

Select "DHW"

Coding in the factory setting		Possible change	
Set DHW temperature reheating suppression			
67:40	For solar DHW heating: Set DHW temperature 104°F (40°C). Reheating is suppressed above the selected set temperature (boiler is only connected as backup if the rise in DHW tank temperature is too low). Cannot be adjusted on gas condensing combi-boilers.	67:0 to 67:95	Set DHW temperature adjustable from 32 to 203°F (0 to 95°C) (limited by boiler-specific parameters).
Enable DHW recirculation pump			
73:0	DHW recirculation pump: "ON" in accordance with the time program	73:1 to 73:6	"ON" from once per hour for 5 minutes up to 6 times per hour for 5 minutes during the time program.
		73:7	Constantly "ON"

Solar

Select "Solar"

Note: The solar group is only displayed if a solar control module, type SM1, is connected.

Coding

Coding in the factory setting		Possible change	
Speed control solar circuit pump			
02:0	Solar circuit pump is not speed-controlled.	02:1	Solar circuit pump is speed-controlled with wave packet control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
DHW tank maximum temperature			
08:60	The solar circuit pump is switched off when the actual DHW tank temperature reaches 140°F (60°C) (maximum DHW tank temperature).	08:10 to 08:90	Set DHW temperature adjustable from 50 to 194°F (10 to 90°C).
Stagnation time reduction			
0A:5	To protect the system components and heat transfer medium, the speed of the solar circuit pump is reduced when the differential between the actual DHW tank temperature and the set DHW tank temperature is less than 5 K.	0A:0	Stagnation time reduction disabled.
		0A:1 to 0A:40	Temperature differential adjustable from 1 to 40 K.
Flow rate solar circuit			
0F:70	Solar circuit flow rate at the maximum pump speed 7 L/minute.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 L/minute; 1 step ≙ 0.1 L/minute.
Extended solar control functions			
20:0	No extended control function enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW tanks.

Heating Circuit 1, 2 and 3

Select "Heating circuit …"

Coding

Coding in the factory setting		Possible change	
Priority DHW heating			
A2:2	DHW tank priority applicable to heating circuit pump and mixing valve	A2:0	Without DHW tank priority applied to heating circuit pump and mixing valve.
		A2:1	DHW tank priority only applicable to mixing valve.
		A2:3 to A2:15	Reduced priority applied to mixing valve (the heating circuit receives a reduced amount of energy).
Economy function outside temperature			
A5:5	With heating circuit pump logic function (economy mode): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RTset) AT > RTset + 1 K	A5:0	Without heating circuit pump logic function.
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF"; see following table.

Parameter address A5:…	With heating circuit pump logic function: Heating circuit pump "OFF"
1	AT > RTset + 5 K
2	AT > RTset + 4 K
3	AT > RTset + 3 K
4	AT > RTset + 2 K
5	AT > RTset + 1 K
6	AT > RTset
7 to 15	AT > RTset - 1 K AT > RTset - 9 K

Coding in the factory setting		Possible change	
Extended economy function adjusted outside temperature			
A6:36	Extended economy function disabled	A6:5 to A6:35	Extended economy function enabled, i.e. the burner and heating circuit pump will stop and the mixing valve close at a variable value, adjustable between 41 and 95°F (5 and 35°C) plus 1.8°F (1°C). The base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant, which takes the cooling down of an average building into consideration.

Heating Circuit 1, 2 and 3 *(continued)*

Coding in the factory setting		Possible change	
Extended economy function mixing valve			
A7:0	Without mixing valve economy function	A7:1	With mixing valve economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": - If the mixing valve has been attempting to close for longer. than 20 minutes. Heating circuit pump "ON": - If the mixing valve changes to control function. - If there is a risk of frost.
Pump idle time, transition reduced mode			
A9:7	With pump idle time: Heating circuit pump "OFF" if the set value is altered through a change in operating mode or through a change in the set room temperature	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15.
Economy function room temperature			
B5:0	With remote control: No room temperature dependent heating circuit pump logic function	B5:1 to B5:8	Heating circuit pump logic function, see the following table:

Parameter address **B5:...**	With heating circuit pump logic function:	
	Heating circuit pump "OFF"	**Heating circuit pump "ON"**
1	RTactual > RTset + 5 K	RTactual < RTset + 4 K
2	RTactual > RTset + 4 K	RTactual < RTset + 3 K
3	RTactual > RTset + 3 K	RTactual < RTset + 2 K
4	RTactual > RTset + 2 K	RTactual < RTset + 1 K
5	RTactual > RTset + 1 K	RTactual < RTset
6	RTactual > RTset	RTactual < RTset - 1 K
7	RTactual > RTset - 1 K	RTactual < RTset - 2 K
8	RTactual > RTset - 2 K	RTactual < RTset - 3 K

Heating Circuit 1, 2 and 3 (continued)

Coding in the factory setting		Possible change	
Minimum flow temperature heating circuit			
C5:20	Electronic minimum flow temp. limit 68°F (20°C)	C5:1 to C5:127	Minimum limit adjustable from 34 to 260°F (1 to 127°C) (limited by boiler-specific parameters).
Maximum flow temperature heating circuit			
C6:74	Electronic maximum flow temperature limit 165°F (74°C)	C6:10 to C6:127	Maximum limit adjustable from 50 to 260°F (10 to 127°C) (limited by boiler-specific parameters).
Heating program - changeover			
D5:0	The external heating program changeover changes the heating program to "Constant operation with reduced room temperature" or "Standby mode"	D5:1	The external heating program changeover changes to "Constant operation with standard room temperature" (subject to coding address 3A, 3B and 3C).
Ext. heating program changeover to heating circuit			
D8:0	No heating program changeover via extension EA1	D8:1	Heating program changeover via input DE1 at extension EA1.
		D8:2	Heating program changeover via input DE2 at extension EA1.
		D8:3	Heating program changeover via input DE3 at extension EA1.
Maximum pump speed in standard mode			
E6:... NOT USED	Maximum speed of the variable speed heating circuit pump in % of the maximum speed in standard mode. Value is specified by boiler-specific parameters	E6:0 to E6:100	Maximum speed adjustable from 0 to 100%.
Minimum pump speed			
E7:50 NOT USED	Minimum speed of the variable speed heating circuit pump: 30% of the maximum speed	E7:0 to E7:100	Minimum speed adjustable from 0 to 100% of the maximum speed.
Slab curing function			
F1:0 NOT USED	Do not adjust	--	--
Party mode time limit			
F2:8	Time limit for party mode or external heating program changeover via push button: 8 h[1]	F2:0	No time limit for party mode[1].
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h[1].

[1]   Party mode ends automatically in the "Heating and DHW" program, when the system changes over to operation with standard room temperature.

Heating Circuit 1, 2 and 3 *(continued)*

Coding in the factory setting		Possible change	
Pump control in "Only DHW"			
F6:25	In the "Only DHW" operating mode, the circulation pump in the heating circuit connection set is permanently ON	F6:0	In the "Only DHW" operating mode, the circulation pump in the heating circuit connection set is permanently OFF.
		F6:1 to F6:24	In the "Only DHW" operating mode, the circulation pump in the heating circuit connection set will be started 1 to 24 times per day for 10 minutes each time.
Pump control in "Standby mode"			
F7:25	In the "Standby" operating mode, the circulation pump in the heating circuit connection set is permanently ON	F7:0	In the "Standby" operating mode, the circulation pump in the heating circuit connection set is permanently OFF.
		F7:1 to F7:24	In the "Standby" operating mode, the circulation pump in the heating circuit connection set will be started 1 to 24 times per day for 10 minutes each time.
Start temperature raising			
F8:-5	Temperature limit for terminating the reduced mode 23°F (-5ºC); see example on page 86. Observe the setting of coding address "A3"	F8:+10 to F8:-60	Temperature limit adjustable from +50 to -76°F (+10 to -60°C).
		F8:-61	Function disabled.
End temperature raising			
F9:-14	Temperature limit for raising the reduced set room temperature 6.8°F (-14ºC); see example on page 94.	F9:+10 to F9:-60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from 50 to -76°F (10 to -60°C).
Set flow temperature heating circuit			
FA:20	Raising the set boiler water temperature or the set flow temperature when changing from operation with reduced room temperature to operation with standard room temperature, by 20%. See example on page 94.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50%.
Duration set flow temperature increase			
FB:30	Duration for raising the set boiler water temperature or the set flow temperature (see coding address "FA") 60 minutes. See example on page 94.	FB:0 to FB:150	Duration adjustable from 0 to 300 minutes; 1 step ~ 2 minutes.

General

Calling up coding level 2

Note: At coding level 2, all codes are accessible, including the codes at coding level 1.

Codes that have not been assigned due to the heating system equipment level or the setting of other codes are not displayed.

Heating systems with one heating circuit without mixing valve and one or two heating circuits with mixing valve:
The heating circuit without mixing valve is designated "Heating circuit 1" and the heating circuits with mixing valve as "Heating circuit 2" or "Heating circuit 3".

If the heating circuits were given individual designations, the selected designation and "HC1", "HC2" or "HC3" appear instead:

1. Press **OK** and ☰ simultaneously for approximately 4 seconds.

2. Press **OK** and ↰ simultaneously for approximately 4 seconds.

3. "Coding level 2"

4. Select group of required coding address:
   - "General"
   - "Boiler"
   - "DHW"
   - "Solar"
   - "Heating circuit 1/2/3"
   - "All cod. or solar"
     In this group, all coding addresses (except the coding addresses from the "Solar" group) are displayed in ascending order.

5. Select coding address.

6. Select value according to the following tables and confirm with "**OK**".

7. If you want to reset all codes to their factory setting: Select "Standard setting" in "Coding level 2".

   Note: This also resets codes at coding level 1.

Select "General"

Coding

Coding in the factory setting		Possible change	
00:1	System type 1: One heating circuit without mixing valve A1 (heating circuit 1), without DHW heating	00:2 to 00:10	For system type, see the following table:

Value address 00: …	System type	Description
2	1	One heating circuit without mixing valve A1 (heating circuit 1), with DHW heating (code is adjusted automatically).
3	2	One heating circuit with mixing valve M2 (heating circuit 2), without DHW heating.
4	2	One heating circuit with mixing valve (heating circuit 2), with DHW heating.
5	3	One heating circuit without mixing valve A1 (heating circuit 1) and one heating circuit with mixing valve M2 (heating circuit 2), without DHW heating (code is adjusted automatically).
6	3	One heating circuit without mixing valve A1 (heating circuit 1) and one heating circuit with mixing valve M2 (heating circuit 2), with DHW heating (code is adjusted automatically).

General *(continued)*

Value address 00: …	System type	Description
7	4	One heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), without DHW heating.
8	4	One heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), with DHW heating.
9	5	One heating circuit without mixing valve A1 (heating circuit 1), one heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), without DHW heating (code is adjusted automatically).
10	5	One heating circuit without mixing valve A1 (heating circuit 1), one heating circuit with mixing valve M2 (heating circuit 2) and one heating circuit with mixing valve M3 (heating circuit 3), with DHW heating (code is adjusted automatically).

Coding in the factory setting		Possible change	
11:≠ 9	No access to the coding addresses for the combustion controller parameters	11:9	Access open to the coding addresses for the combustion controller parameters.
20:74	Supply temperature for zone circuit 1 164ºF (74ºC)	20:20 to 20:85	Supply temperature for zone circuits adjustable from 68 to 185ºF (20 to 85ºC) (limited by boiler specific parameters).
27:74	Supply temperature for zone circuit 2 164ºF (74ºC)	27:20 to 27:85	Supply temperature for zone circuits adjustable from 68 to 185ºF (20 to 85ºC) (limited by boiler specific parameters).
2A:0	Without wireless outside temperature sensor	2A:1	With wireless outside temperature sensor (automatic recognition).
		2A:2	Wireless outside temperature sensor not used.
2C:74	Supply temperature for zone circuit 3 164ºF (74ºC)	2C:20 to 2C:85	Supply temperature for zone circuits adjustable from 68 to 185ºF (20 to 85ºC) (limited by boiler specific parameters).
2D:0	DO NOT ADJUST	--	--
32:0	Without extension AM1	32:1	With extension AM1 (automatic recognition).

General *(continued)*

Coding in the factory setting		Possible change	
33:1	Function output A1 at extension AM1: Heating circuit pump	33:0	Function output A1: DHW recirculation pump.
		33:2	Function output A1: Circulation pump for DHW tank heating.
		33:3	No function
		33:4	No function
		33:5	Zone circuit pump 1
		33:6	Zone circuit pump 2
		33:7	Zone circuit pump 3
34:0	Function output A2 at extension AM1: DHW recirculation pump	34:1	Function output A2: Heating circuit pump.
		34:2	Function output A2: Circulation pump for DHW tank heating.
		34:3	No function
		34:4	No function
		34:5	Zone circuit pump 1
		34:6	Zone circuit pump 2
		34:7	Zone circuit pump 3
35:0	Without extension EA1	35:1	With extension EA1 (automatic recognition).
36:0	Function, output 157 at extension EA1: Fault message	36:1	Function output 157: Feed pump.
		36:2	Function output 157: DHW recirculation pump.
		36:3-5	No function
		36:6	Zone circuit pump 1
		36:7	Zone circuit pump 2
		36:8	Zone circuit pump 3
39:2	Function output 21: Circulation pump for DHW tank heating	39:0	Function output 21: DHW recirculation pump.
		39:1	Function output 21: Heating circuit pump.

General *(continued)*

Coding in the factory setting		Possible change	
3A:0	Function input DE1 at extension EA1: Not assigned	3A:1	Function input DE1: Heating program - changeover.
		3A:2	Function input DE1: External demand with set flow temperature. Flow temperature setting: Coding address 9B. Internal circulation pump function: Coding address 3F.
		3A:3	Function input DE1: External blocking. Internal circulation pump function: Coding address 3E.
		3A:4	Function input DE1: External blocking with fault message input Internal circulation pump function: Coding address 3E.
		3A:5	Function input DE1: Fault message input.
		3A:6	Function input DE1: Brief operation, DHW recirculation pump (pushbutton function). DHW recirculation pump runtime adjustment: Coding address 3D.
		3A:7	Input zone circuit 1, constant
		3A:8	Input zone circuit 1, weather compensated
3B:0	Function input DE2 at extension EA1: Not assigned	3B:1	Function input DE2: Heating program - changeover.
		3B:2	Function input DE2: External demand with set flow temperature. Flow temperature setting: Coding address 9B. Internal circulation pump function: Coding address 3F.
		3B:3	Function input DE2: External blocking. Internal circulation pump function: Coding address 3E.
		3B:4	Function input DE2: External blocking with fault message input Internal circulation pump function: Coding address 3E.
		3B:5	Function input DE2: Fault message input.
		3B:6	Function input DE2: Brief operation, DHW recirculation pump (pushbutton function). DHW recirculation pump runtime adjustment: Coding address 3D.
		3B:7	Input zone circuit 2, constant
		3B:8	Input zone circuit 2, weather compensated

General *(continued)*

Coding in the factory setting		Possible change	
3C:0	Function input DE3 at extension EA1: Not assigned	3C:1	Function input DE3: Heating program - changeover.
		3C:2	Function input DE3: External demand with set flow temperature. Flow temperature setting: Coding address 9B. Internal circulation pump function: Coding address 3F.
		3C:3	Function input DE3: External blocking. Internal circulation pump function: Coding address 3E.
		3C:4	Function input DE3: External blocking with fault message input Internal circulation pump function: Coding address 3E.
		3C:5	Function input DE3: Fault message input.
		3C:6	Function input DE3: Brief operation, DHW recirculation pump (pushbutton function). DHW recirculation pump runtime adjustment: Coding address 3D.
		3C:7	Input zone circuit 3, constant
		3C:8	Input zone circuit 3, weather compensated
3D:5	DHW recirculation pump runtime for brief operation: 5 minutes	3D:1 to 3D:60	DHW recirculation pump off-delay adjustable from 1 to 60 minutes.
3E:0	Internal circulation pump stays in control mode at signal "External blocking"	3E:1	Internal circulation pump stops at signal "External blocking".
		3E:2	Internal circulation pump starts at signal "External blocking".
3F:0	Internal circulation pump stays in control mode at signal "External demand"	3F:1	Internal circulation pump stops at signal "External demand".
		3F:2	Internal circulation pump starts at signal "External demand".
4B:0	Function input 96: Room thermostat (Vitotrol 100) for constant temperature control	4B:1	External demand.
		4B:2	External blocking.

General *(continued)*

Coding in the factory setting		Possible change	
51:0	System with low loss header: Boiler circuit pump is always started when there is a heat demand	51:1	System with low loss header: When there is heat demand, the boiler circuit pump will only be started if the burner is running. Circulation pump is switched off when run-on time expires.
		51:2	System with heating water buffer DHW tank: When there is a heat demand, the internal circulation pump will only be started when the burner is operational.
52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic recognition).
53:1	Function connection 28 of the internal extension: DHW recirculation pump	53:0	Function connection 28: Central fault message
		53:2	Function connection 28: External heating circuit pump (heating circuit 1).
		53:3	Function connection 28: External circulation pump for DHW tank heating.
		53:4	No function
		53:5	Zone circuit pump 1
		53:6	Zone circuit pump 2
		53:7	Zone circuit pump 3
54:0	Without solar thermal system	54:1	With Vitosolic 100 (automatic recognition).
		54:2	With Vitosolic 200 (automatic recognition).
		54:3	With solar control module SM1 without auxiliary function (automatic recognition).
		54:4	With solar control module SM1 with auxiliary function, e.g. central heating backup (automatic recognition).
6E:50	No correction of measured outside temperature	6E:0 to 6E:100	Outside correction in 0.1 K steps 0 to 49 = -5 K to -0.1 K 51 to 100 = 0.1 K to 5 K
76:0	Without communication module	76:1	With LON communication module (recognized automatically.
		76:2	With cascade communication module (recognized automatically; only for constant temperature control units).

General *(continued)*

Coding in the factory setting		Possible change	
77:1	LON participant number	77:2 to 77:99	LON participant number, adjustable from 1 to 99: 1 - 8 = Boiler 9 = Cascade 10 - 98 = Vitotronic 200-H 99 = Vitocom **Note:** Allocate each number only once.
79:1	With LON communication module: Control unit is fault manager	79:0	Control unit is not fault manager.
7B:1	With LON communication module: Control unit transmits the time	7B:0	Does not transmit time.
7E:0 NOT USED	Without flue gas cascade or with flue gas cascade with negative pressure (only for multi boiler systems)	7E:1	With positive pressure flue gas cascade.
7F:1	Detached house	7F:0	Apartment building Separate adjustment of holiday program and time program for DHW heating possible.
80:6	A fault message is displayed if a fault is active for at least 30 seconds	80:0	Immediate fault message.
		80:2 to 80:199	Minimum fault duration until fault message occurs, adjustable from 10 s to 995 s; 1 step ≙ 5 seconds.
81:1 NOT USED	Automatic summer/wintertime changeover	81:0	Manual summer/wintertime changeover.
		81:2	Use of the radio clock receiver (automatic recognition).
		81:3	With LON communication module: The control unit receives the time.
82:0	Operation with natural gas	82:1	Operation with LPG (only adjustable if coding address 11:9 has been set).
86:0	DO NOT ADJUST	--	--
87:0	DO NOT ADJUST	--	--
88:0	Temperature display in °C (Celsius)	88:1	Temperature display in °F (Fahrenheit).

General *(continued)*

Coding in the factory setting		Possible change	
8A:175 DO NOT ADJUST	--	--	--
8F:0	Operation in the standard menu and extended menu enabled **Note:** The respective code is only activated when you exit the service menu	8F:1	Operation in the standard menu and extended menu blocked. Emissions test mode can be enabled
		8F:2	Operation enabled in the standard menu; blocked in the extended menu. Emissions test mode can be enabled
90:128	Time constant for calculating the adjusted outside temperature 21.3 h	90:1 to 90:199	Fast (low values) or slow (high values) matching of the flow temperature, subject to the set value when the outside temperature changes; 1 step ≙ 10 minutes.
93:0	0-5000 ft.	93:1 - 93:5	NOT USED
		93:6	5000-10000 ft.
94:0	Without Open Therm extension	94:1	With Open Therm extension (automatic recognition).
95:0	Without Vitocom 100 communication interface	95:1	With Vitocom 100 communication interface (automatic recognition).
97:0	With LON communication module: The outside temperature of the sensor connected to the control unit is utilized internally	97:1	Control unit receives outside temperature.
		97:2	Control unit transmits the outside temperature to the Vitotronic 200-H.
98:1	Viessmann system number (in conjunction with monitoring several systems via Vitocom 300)	98:1 to 98:5	System number adjustable from 1 to 5.
99:0	DO NOT ADJUST	--	--
9A:0	DO NOT ADJUST	--	--
9B:70	Set flow temperature for external demand 158°F (70°C)	9B:0 to 9B:127	Set flow temperature for external demand adjustable from 32 to 260°F (0 to 127°C) (limited by boiler-specific parameters).
9C:20	Monitoring LON participants. If a participant fails to respond, the values specified inside the control unit will be used after 20 minutes. Only then will a fault message be issued.	9C:0	No monitoring
		9C:5 to 9C:60	Time adjustable from 5 to 60 minutes.
9F:8	Differential temperature 8 K; only in conjunction with mixing valve circuit	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K.

Boiler

Select "Boiler"

Coding

Coding in the factory setting		Possible change	
01:1	Single boiler system	01:2	Multi boiler system with Vitotronic 300-K.
04:1	Minimum burner pause subject to the boiler load (specified by boiler coding card)	04:0	Minimum burner pause set permanently (specified by boiler coding card).
06:...	Maximum limit of the boiler water temperature, specified in °C by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges specified by the boiler.
07:1	Boiler number in multi boiler systems	07:2 to 07:8	Boiler number 2 to 8 in multi- boiler systems.
08:...	Maximum burner heating output in kW in the case of a multi boiler system	08:0 to 08:199	Maximum burner heating output adjustable from 0 to 199 kW (limited by boiler specific parameters) in steps of 1 kW.
0D:0	DO NOT ADJUST	--	--
0E:0	DO NOT ADJUST	--	--
13:1	DO NOT ADJUST	--	--
14:1	DO NOT ADJUST	--	--
15:1	DO NOT ADJUST	--	--
21:0	No service interval (hours run) selected	21:1 to 21:100	Number of hours run before the burner should be serviced is adjustable from 100 to 10,000 h One adjusting step ≙ 100 h.
23:0	No time interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months.
24:0	No "Service" display	24:1	"Service" display (the address is automatically set and must be manually reset after a service has been carried out).
28:0	No burner interval ignition	28:1 to 28:24	Interval adjustable from 1 hour to 24 hours. The burner is force started for 15 seconds (only when operating with LPG).
2E:0	DO NOT ADJUST	--	--
2F:0	Venting program/fill program disabled	2F:1	Venting program enabled.
		2F:2	Fill program enabled.
30:0	Boiler circulation pump without variable speed (for use with single boiler systems with Low Loss Header, or multi-boiler systems)	30:1	Boiler variable speed circulation pump (automatic adjustment). DO NOT ADJUST
		30:2	Boiler variable speed circulation pump with flow control. DO NOT ADJUST
		30:3	Boiler variable speed circulation pump controlled via 0-10VDC output [147] When changing from a single boiler to a multiboiler operation, the coding address may automatically reset to 30:3. To prevent continuous boiler pump operation, adjust the coding address for each boiler to 30:0.
31:...	Set speed in % of the internal circulation pump when operated as boiler circuit pump, specified by the boiler coding card	31:0 to 31:100	Set speed adjustable from 0 to 100%.
38:0	Status burner control unit: Operational (no fault)	38:≠0	Status burner control unit: Fault.

DHW

Select "DHW"

Coding

Coding in the factory setting		Possible change	
56:0	Set DHW temperature adjustable from 50 to 140°F (10 to 60°C)	56:1	Set DHW temperature adjustable from 50 to over 140°F (10 to over 60°C) **Note:** Maximum value subject to boiler coding card. Observe the maximum permissible DHW temperature.
58:0	Without auxiliary function for DHW heating	58:10 to 58:60	Input of a second set DHW temperature, adjustable from 50 to 140°F (10 to 60°C) (observe coding addresses "56" and "63").
59:0	DHW tank heating: Starting point -2.5 K Stopping point +2.5 K	59:1 to 59:10	Starting point adjustable from 1 to 10 K below the set value.
5b:0	DHW tank directly connected to the boiler	5B:1	DHW tank connected downstream of the low loss header.
5E:0	Circulation pump for DHW tank heating stays in control mode at signal "External blocking"	5E:1	Circulation pump for DHW tank heating stops at signal "External blocking".
		5E:2	Circulation pump for DHW tank heating starts at signal "External blocking".
5F:0	Circulation pump for DHW tank heating stays in control mode at signal "External demand"	5F:1	Circulation pump for DHW tank heating stops at signal "External demand".
		5F:2	Circulation pump for DHW tank heating starts at signal "External demand".
60:20	During DHW heating, the boiler water temperature is maximum 20 K higher than the set DHW temperature	60:5 to 60:25	The differential between the boiler water temperature and the set DHW temperature is adjustable from 5 to 25 K.
62:2	Circulation pump with 2 minutes run-on time after DHW tank heating	62:0	Circulation pump without run-on.
		62:1 to 62:15	Run-on time adjustable from 1 to 15 minutes.

Coding in the factory setting		Possible change	
63:0 NOT USED	Without auxiliary function for DHW heating	63:1	Auxiliary function: 1 x daily
		63:2 to 63:14	Every 2 days to every 14 days.
		63:15	2 x daily
65:0	Do not adjust.	--	--
67:40	For solar DHW heating: Set DHW temperature 104°F (40°C). Reheating is suppressed above the selected set temperature (boiler is only connected as backup if the rise in DHW tank temperature is too low).	67:0 to 67:95	Set DHW temperature adjustable from 32 to 203°F (0 to 95°C) (limited by boiler-specific parameters).
6C:100 NOT USED	Set speed, internal circulation pump with DHW heating 100%	6C:0 to 6C:100	Set speed adjustable from 0 to 100%.
6F:...	Maximum output for DHW heating in %, specified by the boiler coding card	6F:0 to 6F:100	Maximum output for DHW heating adjustable from minimum output to 100%.
71:0	DHW recirculation pump: "ON" in accordance with the time program	71:1	"OFF" during DHW heating to first set value.
		71:2	"ON" during DHW heating to first set value.
72:0	DHW recirculation pump: "ON" in accordance with the time program	72:1	"OFF" during DHW heating to second set value.
		72:2	"ON" during DHW heating to second set value.
73:0	DHW recirculation pump: "ON" in accordance with the time program	73:1 to 73:6	"ON" from once per hour for 5 minutes up to 6 times per hour for 5 minutes during the time program.
		73:7	Constantly "ON".

Solar

Select "Solar"

Note: The solar group is only displayed if a solar control module, type SM1, is connected.

Coding

Coding in the factory setting		Possible change	
00:8	The solar circuit pump starts when the collector temperature exceeds the actual DHW tank temperature by 8 K.	00:2 to 00:30	The differential between the actual DHW tank temperature and the start point for the solar circuit pump can be adjusted from 2 to 30 K.
01:4	The solar circuit pump is switched off when the differential between the collector temperature and the actual DHW tank temperature is less than 4 K.	01:1 to 01:29	The differential between the actual DHW tank temperature and the stop point for the solar circuit pump can be adjusted from 1 to 29 K.
02:0	Solar circuit pump (stepped) is not speed-controlled	02:1	Solar circuit pump is speed-controlled with wave packet control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
03:10	The temperature differential between the collector temperature and actual DHW tank temperature is regulated to 10 K.	03:5 to 03:20	The differential temperature control between collector temperature and actual DHW tank temperature can be adjusted from 5 to 20 K.
04:4	Controller amplification of the speed control 4%/K.	04:1 to 04:10	Controller amplification adjustable from 1 to 10%/K.
05:10	Minimum speed of the solar circuit pump 10% of the maximum speed.	05:2 to 05:100	Minimum speed of the solar circuit pump is adjustable from 2 to 100%.
06:75	Maximum speed of the solar circuit pump 75% of the maximum possible speed.	06:1 to 06:100	Maximum speed of the solar circuit pump is adjustable from 1 to 100%.
07:0	Interval function of the solar circuit pump switched off.	07:1	Interval function of the solar circuit pump switched on. To capture the collector temperature more accurately, the solar circuit pump starts for short cycles.
08:60	The solar circuit pump is switched off when the actual DHW tank temperature reaches 140°F (60°C) (maximum DHW tank temperature).	08:10 to 08:90	The maximum DHW tank temperature can be adjusted from 50 to 194°F (10 to 90°C).

Solar *(continued)*

Coding in the factory setting		Possible change	
09:130	The solar circuit pump stops if the collector temperature reaches 266°F (130°C) (maximum collector temperature to protect the system components)	09:20 to 09:200	Temperature adjustable from 68 to 392°F (20 to 200°C).
0A:5	Temperature differential for stagnation time reduction (reduction in the speed of the solar circuit pump to protect system components and heat transfer medium) 5 K.	0A:0 to 0A:40	The differential between the set DHW tank temperature and the start point for reducing the stagnation time can be adjusted from 0 to 40 K.
0B:0	Collector frost protection function switched off	0B:1	Collector frost protection function switched on (not required with Viessmann heat transfer medium).
0C:1	$\triangle$t monitoring switched on. No flow rate captured in the solar circuit, or flow rate too low.	0C:0	$\triangle$t monitoring switched off.
0D:1	Night circulation monitoring switched on. Unintentional flow rate is captured in the solar circuit (e.g. at night).	0D:0	Night circulation monitoring switched off.
0E:1	Calculation of solar yield with Viessmann heat transfer medium	0E:2	Calculation of solar yield with water as heat transfer medium (do not select as operation is only possible with Viessmann heat transfer medium).
		0E:0	Calculation of solar yield switched off.
0F:70	The flow rate in the collector circuit at the maximum pump speed is set to 1.8 USG (7 L/minute).	0F:1 to 0F:255	Flow rate in the collector circuit adjustable from 1.6 to 6.7 USG/minute (0.1 to 25.5 L/minute).
10:0	Target temperature control switched off (see coding address "11").	10:1	Target temperature control switched on.

Solar *(continued)*

Coding in the factory setting		Possible change	
11:50	Set DHW tank temperature for solar 122°F (50°C). - Target temperature control switched on (code 10:1): Temperature at which the solar heated water in the DHW tank is to be stratified. - Extended control functions set to heat two DHW tanks (code 20:9): If the actual temperature of a DHW tank reaches the selected set DHW tank temperature, heating is switched to the second DHW tank.	11:10 to 11:90	The set DHW tank temperature for solar can be adjusted from 50 to 194°F (10 to 90°C).
12:20	Minimum collector temperature 68°F (20°C). The solar circuit pump is only started when the set minimum collector temperature is exceeded at the collector temperature sensor.	12:0	Minimum collector temperature function switched off.
		12:1 to 12:90	Minimum collector temperature adjustable from 34 to 194°F (1 to 90°C).
20:0	No extended control functions enabled.	20:1	Auxiliary function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW tanks.
22:8	Start temperature differential for central heating backup: 8 K. (code 20:4 must be selected)	22:2 to 22:30	Start temperature differential for central heating backup is adjustable from 21 to 30 K.

Solar *(continued)*

Coding in the factory setting		Possible change	
23:4	Stop temperature differential for central heating backup: 4 K. (code 20:4 must be selected)	23:2 to 23:30	Stop temperature differential for central heating backup is adjustable from 1 to 29 K.
24:40	Start temperature for thermostat function 104°F (40°C). (code 20:5 or 20:6 must be selected)	24:0 to 24:100	Start temperature for thermostat function adjustable from 0 to 100 K.
25:50	Stop temperature for thermostat function 122°F (50°C). (code 20:5 or 20:6 must be selected)	25:0 to 25:100	Start temperature for thermostat function is adjustable from 0 to 100 K.
26:1	Priority for DHW tank 1 with alternate heating. Only when setting code 20:8.	26:0	Priority for DHW tank 1 without alternate heating.
		26:2	Priority for DHW tank 2 without alternate heating.
		26:3	Priority for DHW tank 2 with alternate heating.
		26:4	Alternate heating without priority for one of the DHW tank.
27:15	Alternate heating time 15 minutes. The DHW tank without priority is heated at most for the duration of the set alternate heating time if the DHW tank with priority is heated up.	27:5 to 27:60	The alternate heating time is adjustable from 5 to 60 minutes.
28:3	Alternate pause time 3 minutes After the selected alternate heating time for the DHW tank without priority has expired, the rise in collector temperature is captured during the alternate pause time.	28:1 to 28:60	The alternate pause time is adjustable from 1 to 60 minutes.

Heating Circuit 1, 2 and 3

Select "Heating circuit …"

Coding

Coding in the factory setting		Possible change	
A0:0	Without remote control	A0:1	With Vitotrol 200A (automatic recognition).
		A0:2	With Vitotrol 300A or Vitohome 300 (automatic recognition).
A1:0	All possible settings at the remote control can be accessed	A1:1	Only party mode can be set at the remote control (only for Vitotrol 200A).
A2:2	DHW tank priority applicable to heating circuit pump and mixing valve	A2:0	Without DHW tank priority applied to heating circuit pump and mixing valve.
		A2:1	DHW tank priority only applicable to mixing valve.
		A2:3 to A2:15	Reduced priority applied to mixing valve (the heating circuit receives a reduced amount of energy).
A3:2	Outside temperature below 34°F (1°C): Heating circuit pump "ON" Outside temperature above 37°F (3°C): Heating circuit pump "OFF"	A3:-9 to A3:15	Heating circuit pump "ON/OFF" (see following table).

Note: When selecting a value below 1°C, there is a risk of pipes outside the thermal envelope of the building freezing up. The standby mode in particular should be taken into consideration, e.g. during holidays.

Parameter address A3:…	Heating circuit pump	
	"ON"	"OFF"
-9	14°F (-10°C)	17.6°F (-8°C)
-8	15.8°F (-9°C)	19.4°F (-7°C)
-7	17.6°F (-8°C)	21.2°F (-6°C)
-6	19.4°F (-7°C)	23°F (-5°C)
-5	21.2°F (-6°C)	24.8°F (-4°C)
-4	23°F (-5°C)	26.6°F (-3°C)
-3	24.8°F (-4°C)	28.4°F (-2°C)
-2	26.6°F (-3°C)	32.2°F (-1°C)
-1	28.4°F (-2°C)	32°F (0°C)
0	32.2°F (-1°C)	33.8°F (1°C)
1	32°F (0°C)	35.6°F (2°C)
2 to 15	33.8 to 57.2°F (1 to 14°C)	37.4 to 60.8°F (3 to 16°C)

Heating Circuit 1, 2 and 3 *(continued)*

Coding in the factory setting		Possible change	
A4:0	With frost protection	A4:1	No frost protection; this setting is only possible if code "A3:-9" has been selected. **Note:** "Important" also coding address "A3".
A5:5	With heating circuit pump logic function (economy mode): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RTset) AT > RTset + 1 K	A5:0	Without heating circuit pump logic function.
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF"; see following table:

Parameter address A5:…	With heating circuit pump logic function: Heating circuit pump "OFF"
1	AT > RTset + 5 K
2	AT > RTset + 4 K
3	AT > RTset + 3 K
4	AT > RTset + 2 K
5	AT > RTset + 1 K
6	AT > RTset
7 to	AT > RTset - 1 K
15	AT > RTset - 9 K

Coding in the factory setting		Possible change	
A6:36	Extended economy function disabled	A6:5 to A6:35	Extended economy function enabled, i.e. the burner and heating circuit pump will stop and the mixing valve close at a variable value, adjustable between 41 and 95°F (5 and 35°C) plus 1.8°F (1°C). The base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant, which takes the cooling down of an average building into consideration.
A7:0	Without mixing valve economy function	A7:1	With mixing valve economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": - If the mixing valve has been attempting to close for longer than 20 minutes. - Heating circuit pump "ON": If the mixing valve changes to control function. - If there is a risk of frost.

Heating Circuit 1, 2 and 3 *(continued)*

Coding in the factory setting		Possible change	
A8:1	Heating circuit with mixing valve creates a demand for the boiler circuit pump	A8:0	Heating circuit with mixing valve creates no demand for the boiler circuit pump.
A9:7	With pump idle time: Heating circuit pump "OFF" if the set value is altered through a change in operating mode or through a change in the set room temperature	A9:0	Without pump idle time.
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15.
B0:0	With remote control: Heating mode/reduced mode: (only change the code for the heating circuit with mixing valve)	B0:1	Heating mode: weather compensated. Reduced mode: with room temperature hook-up.
		B0:2	Heating mode: with room temperature hook-up. Reduced mode: weather-compensated.
		B0:3	Heating mode/reduced mode: with room temperature hook-up.
B2:8	With remote control unit and for the heating circuit, operation with room temperature hook-up must be programmed: Room influence factor 8 (change the code only for the heating circuit with mixing valve)	B2:0	Without room influence.
		B2:1 to B2:64	Room influence factor adjustable from 1 to 64.
B5:0	With remote control: No room temperature-dependent heating circuit pump logic function (only change the code for the heating circuit with mixing valve)	B5:1 to B5:8	Heating circuit pump logic function, see the following table:

Parameter address b5:…	With heating circuit pump logic function:	
	Heating circuit pump "OFF"	Heating circuit pump "ON"
1	$RTactual > RTset + 5\ K$	$RTactual < RTset + 4\ K$
2	$RTactual > RTset + 4\ K$	$RTactual < RTset + 3\ K$
3	$RTactual > RTset + 3\ K$	$RTactual < RTset + 2\ K$
4	$RTactual > RTset + 2\ K$	$RTactual < RTset + 1\ K$
5	$RTactual > RTset + 1\ K$	$RTactual < RTset$
6	$RTactual > RTset$	$RTactual < RTset - 1\ K$
7	$RTactual > RTset - 1\ K$	$RTactual < RTset - 2\ K$
8	$RTactual > RTset - 2\ K$	$RTactual < RTset - 3\ K$

Heating Circuit 1, 2 and 3 (continued)

Coding in the factory setting		Possible change	
C5:20	Electronic minimum flow temperature limit 68°F (20°C)	C5:1 to C5:127	Minimum limit adjustable from 1 to 260°F (127°C) (limited by boiler-specific parameters).
C6:74	Electronic maximum flow temperature limit 165°F (74°C)	C6:10 to C6:127	Maximum limit adjustable from 50 to 260°F (10 to 127°C) (limited by boiler-specific parameters).
D3:14	Heating curve slope = 1.4	D3:2 to D3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 40).
D4:0	Heating curve level = 0	D4:−13 to D4:40	Heating curve level adjustable from −13 to 40 (see page 40).
D5:0	The external heating program changeover changes the heating program to "Constant operation with reduced room temperature" or "Standby mode"	D5:1	The external heating program changeover changes to "Constant operation with standard room temperature" (subject to coding address 3A, 3B and 3C).
D6:0	Heating circuit pump stays in control mode at signal "External blocking"	D6:1	Heating circuit pump stops at signal "External blocking" (subject to coding addresses 3A, 3B and 3C).
		D6:2	Heating circuit pump starts at signal "External blocking" (subject to coding addresses 3A, 3B and 3C).
D7:0	Heating circuit pump stays in control mode at signal "External demand"	D7:1	Heating circuit pump stops at signal "External demand" (subject to coding addresses 3A, 3B and 3C).
		D7:2	Heating circuit pump starts at signal "External demand" (subject to coding addresses 3A, 3B and 3C).
D8:0	No heating program changeover via extension EA1	D8:1	Heating program changeover via input DE1 at extension EA1.
		D8:2	Heating program changeover via input DE2 at extension EA1.
		D8:3	Heating program changeover via input DE3 at extension EA1.
E1:1	DO NOT ADJUST	--	--
E2:50	With remote control: No display correction for the actual room temperature	E2:0 to E2:49	Display correction −5 K to Display correction −0.1 K.
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K.

Heating Circuit 1, 2 and 3 *(continued)*

Coding in the factory setting		Possible change	
E5:0	Do not adjust	--	--
E6:... NOT USED	Maximum speed of the variable speed heating circuit pump in % of the maximum speed in standard mode. Value is specified by boiler-specific parameters	E6:0 to E6:100	Maximum speed adjustable from 0 to 100%.
E7:50 NOT USED	Minimum speed of the variable speed heating circuit pump: 30% of the maximum speed	E7:0 to E7:100	Minimum speed adjustable from 0 to 100% of the maximum speed.
E8:1 NOT USED	Minimum speed in operation with reduced room temperature subject to the setting in coding address "E9"	E8:0	Speed subject to the setting in coding address "E7".
E9:45 NOT USED	Speed of the variable speed heating circuit pump: 45% of the maximum speed during operation with reduced room temperature	E9:0 to E9:100	Speed adjustable from 0 to 100% of the maximum speed during operation with reduced room temperature.
F1:0	Do not adjust	--	--
F2:8	Time limit for party mode or external heating program changeover via pushbutton: 8 h[1]	F2:0	No time limit for party mode[1].
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h [1].
F5:12	Run-on time of the boiler circuit pump in heating mode: 12 minutes.	F5:0	No run-on time for the circulation pump in the heating circuit connection set.
		F5:1 to F5:20	Run-on time of the circulation pump in the heating circuit connection set adjustable from 1 to 20 minutes.
F6:25	In the "Only DHW" operating mode, the circulation pump in the heating circuit connection set is permanently ON	F6:0	In the "Only DHW" operating mode, the circulation pump in the heating circuit connection set is permanently OFF.
		F6:1 to F6:24	In the "Only DHW" operating mode, the circulation pump in the heating circuit connection set will be started 1 to 24 times per day for 10 minutes each time.

[1] Party mode ends automatically in the "Heating and DHW" program, when the system changes over to operation with standard room temperature.

Heating Circuit 1, 2 and 3 (continued)

Coding in the factory setting		Possible change	
F7:25	In the "Standby" operating mode, the circulation pump in the heating circuit connection set is permanently ON	F7:0	In the "Standby" operating mode, the circulation pump in the heating circuit connection set is permanently OFF.
		F7:1 to F7:24	In the "Standby" operating mode, the circulation pump in the heating circuit connection set will be started 1 to 24 times per day for 10 minutes each time.
F8:-5	Temperature limit for terminating the reduced mode 23°F (-5°C); see example on page 86. Observe the setting of coding address "A3".	F8:+10 to F8:-60	Temperature limit adjustable from 50 to -76°F (10 to -60°C).
		F8:-61	Function disabled.
F9:-14	Temperature limit for raising the reduced set room temperature 6.8°F (-14°C); see example on page 94.	F9:+10 to F9:-60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from 50 to -76°F (10 to -60°C).
FA:20	Raising the set boiler water temperature or the set flow temperature when changing from operation with reduced room temperature to operation with standard room temperature, by 20%. See example on page 86.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50%.
FB:30	Duration for raising the set boiler water temperature or the set flow temperature (see coding address "FA") 60 minutes. See example on page 86.	FB:0 to FB:150	Duration adjustable from 0 to 300 minutes; 1 step ≙ 2 minutes).
1B:14	Heating curve slope = 1.4	1B:2 to 1B:35	Heating curve slope adjustable from 0.2 to 3.5. Zone circuit 1
1C:0	Heating curve level = 0	1C:−13 to 1C:40	Heating curve level adjustable from −13 to 40. Zone circuit 1
68:14	Heating curve slope = 1.4	68:2 to 68:35	Heating curve slope adjustable from 0.2 to 3.5. Zone circuit 2
69:0	Heating curve level = 0	69:−13 to 69:40	Heating curve level adjustable from −13 to 40. Zone circuit 2
6A:14	Heating curve slope = 1.4	6A:2 to 6A:35	Heating curve slope adjustable from 0.2 to 3.5. Zone circuit 3
6B:0	Heating curve level = 0	6B:−13 to 6B:40	Heating curve level adjustable from −13 to 40. Zone circuit 3

Calling up the Service Level

Press OK and ☰ simultaneously for approximately 4 seconds.

Service menu overview

Service

Diagnosis

Actuator test

Coding level 1

Coding level 2

Fault history

Service functions

Terminate service?

General
Heating circuit 1 HC1
Heating circuit 2 HC2
Heating circuit 3 HC3
Zone circuit 1
Zone circuit 2
Zone circuit 3
DHW
Solar
Brief scan
Reset data

Participant check
Service PIN
Enter Vitocom PIN code
Service reset
Filling
Venting
Maximum output
Multi-boiler system
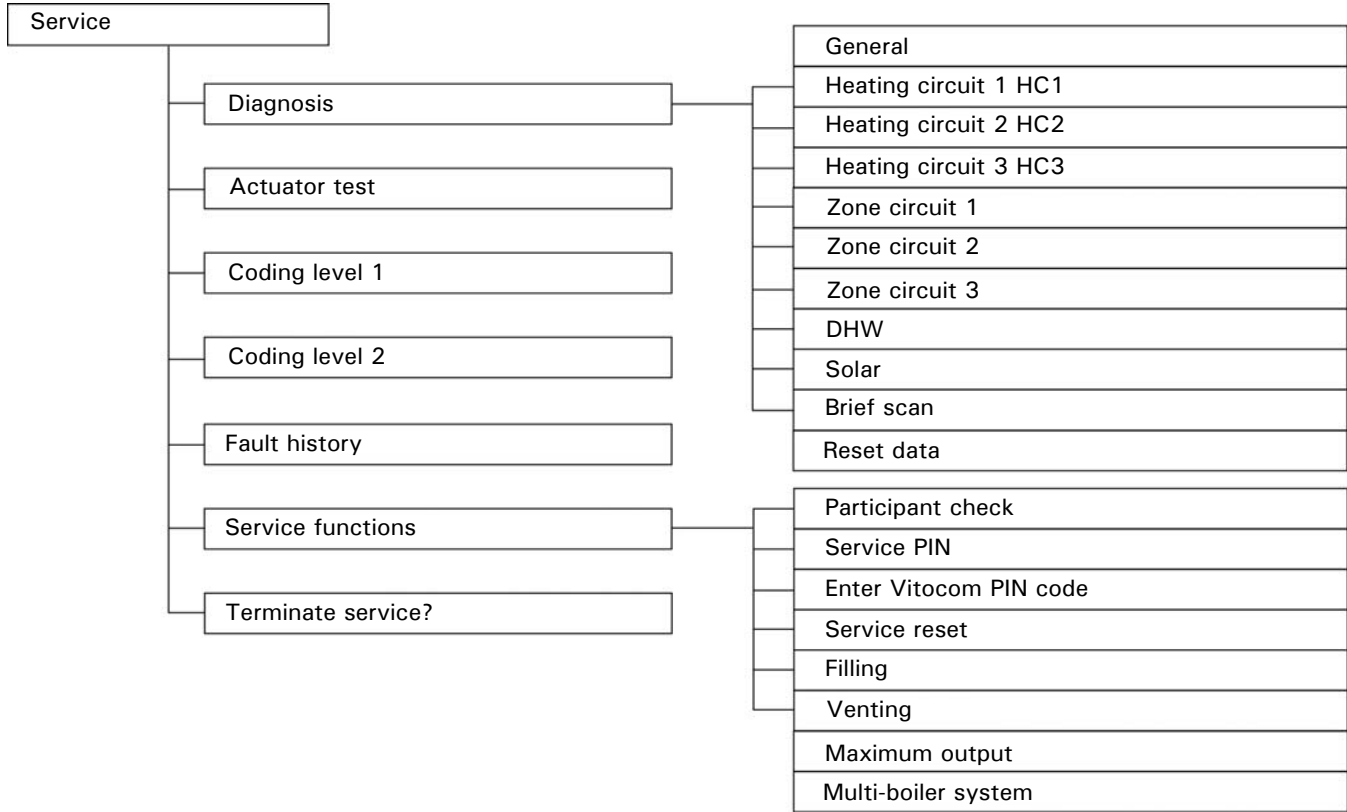
Note: Do not adjust menu item "Multi-boiler system". The menu item turns a weather-compensated control unit into a constant temperature control unit.

Exiting the service level

1. Select "Terminate service?".
2. Select "Yes".
3. Confirm with OK.

Note: The service level is automatically exited after 30 minutes.

Scanning operating data

- Operating data can be scanned in six areas.
  See "Diagnosis" in the service menu overview.
  Operating data on heating circuits with mixing valves and solar can only be scanned if the components are installed in the system. For further information on operating data, see chapter "Brief scan".

Note: "- - -" appears on the display if a sensor that has been scanned is faulty.

Refer to Operating instructions

Calling up operating data

1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Diagnosis"
3. Select required group, e.g. "General

Resetting operating data

Saved operating data (e.g. hours run) can be reset to 0. The value "Adjusted outside temp" is reset to the actual value.
1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Diagnosis"
3. "Reset data"
4. Select required value (e.g. "Burner starts") or "All details".

Brief scan

In the brief scan, you can call up temperatures, software versions and connected components, for example.
1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Diagnosis"
3. "Brief scan".
4. Press OK. The display shows 9 lines with 6 fields each.

Diagnosis Brief scan					
1:	1	F	0	A	1	2
2:	0	0	0	0	0	0
3:	0	0	0	0	0	0
4:	0	0	0	0	0	0
Select with ⬍					

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73

Diagnosis

The following values can be scanned, depending on the system installed:

Display screen	Explanation
Slope A1*1 - shift A1 Slope M2*2 - shift M2 Outdoor temperature adjustment Outdoor temperature actual Boiler temperature setpoint Boiler temperature actual DHW temperature setpoint DHW temperature actual Supply temperature Supply temperature actual Common supply temperature setpoint Common supply temperature actual Boiler coding card Brief scan 1 to 8	 The adjusted outdoor temperature can be reset to the actual outdoor temperature with "⧓". Heating circuit with mixing valve. Heating circuit with mixing valve. Low-loss header. Low-loss header.

For an explanation of the relevant values in the individual lines and fields, see the following table:

Line (brief scan)	Field					
	1	2	3	4	5	6
1:	System type 01 to 10		Software version control unit		Software version programming unit	
2:	0	0	Appliance version		Device identification ZE-ID	
3:	0		Number of KM BUS **participants**		Software version, solar control module SM1	
4:	Software version Burner control unit		Type Burner control unit		Burner control unit version	
5:	Internal details for calibration			0	Software version, extension AM1	Software version, extension EA1
6:	0	0	0	Flow rate sensor switching state 1: Flow rate too low or not present	0	0
7:	**LON Subnet address/system number**		**LON Node address**		**0**	
8:	**LON SBVT configuration**	**LON software version communication co-processor**	**LON Neuron chip software version**		**Number of LON participants**	

Diagnosis *(continued)*

For an explanation of the relevant values in the individual lines and fields, see the following table:

Line (brief scan)	Field					
	1	**2**	**3**	**4**	**5**	**6**
9:	**Heating circuit A1 (without mixing valve)**		**Heating circuit M2 (with mixing valve)**		**Heating circuit M2 (with mixing valve)**	
	Remote control 0: w/o 1: Vitotrol 200/200A/ 200 RF 2: Vitotrol 300/300A/ 300 RF or Vitohome	Software version remote control	Remote control 0: w/o 1: Vitotrol 200/200A/ 200 RF 2: Vitotrol 300/300A/ 300 RF or Vitohome	Software version remote control	Remote control 0: w/o 1: Vitotrol 200/200A/ 200 RF 2: Vitotrol 300/300A/ 300 RF or Vitohome	Software version remote control
10: (only for KM BUS circulation pumps)	**Internal circulation pump**		**Heating circuit pump, heating circuit M2**		**Heating circuit pump, heating circuit M3**	
	Variable speed pump 0: Without 1: Wilo 2: Grundfos	Software version, variable speed pump 0: No variable speed pump	Variable speed pump 0: Without 1: Wilo 2: Grundfos	Software version Variable speed pump 0: No variable speed pump	Variable speed pump 0: Without 1: Wilo 2: Grundfos	Software version Variable speed pump 0: No variable speed pump
11:	0	0	Software version Mixing valve extension heating circuit M2 0: No mixing valve extension	0	Software version Mixing valve extension heating circuit M3 0: No mixing valve extension	0

Checking Outputs (Relay Test)

1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Actuator test"

The following relay outputs can be controlled subject to system design:

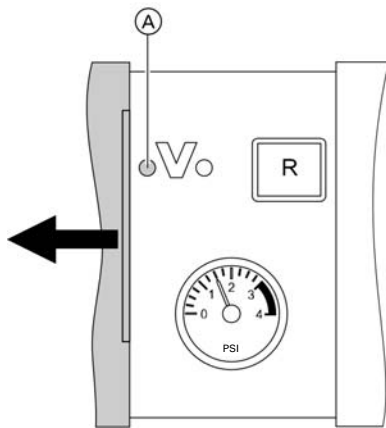| Display		Explanation
All actuators	Off	All actuators are off.
Base load	On	Burner operated at minimum output; circulation pump is started.
Full load	On	Burner operated at maximum output; circulation pump is started.
Output, internal	On	Output [20] active (boiler circuit pump).
Output 21/28	On	Output [21] active (circulation pump for DHW tank heating).
Htg circ pump HC2	On	Heating circuit pump output enabled (extension to heating circuit with mixing valve).
Mixing valve HC2	Open	"Mixing valve open" output enabled (extension to heating circuit with mixing valve).
Mixing valve HC2	Close	"Mixing valve close" output enabled (extension to heating circuit with mixing valve).
Htg circ pump HC3	On	Heating circuit pump output enabled (extension to heating circuit with mixing valve).
Mixing valve HC3	Open	"Mixing valve open" output enabled (extension to heating circuit with mixing valve).
Mixing valve HC3	Close	"Mixing valve close" output enabled (extension to heating circuit with mixing valve).
Outp. int. exten. H1	On	Output at internal extension enabled.
AM1 output 1	On	Output A1 at extension AM1 enabled.
AM1 output 2	On	Output A2 at extension AM1 enabled.
EA1 output 1	On	Contact P - S at plug [157] of extension EA1 closed.
Solar circuit pump	On	Solar circuit pump output [24] on solar control module SM1 active.
Solar circuit pump minimum	On	Solar circuit pump output on solar control module SM1 switched to minimum speed.
Solar circuit pump maximum	On	Solar circuit pump output on solar control module SM1 switched to maximum speed.
SM1 output 22	On	Output [22] on solar control module SM1 active.

Fault Display

In the event of a fault, red fault indicator A flashes.
"⚠" flashes on the display and "Fault" is shown.

The fault code is displayed with OK. For an explanation of the fault code, see the following pages.
For some faults, the type of fault is also displayed in plain text.

Acknowledging a fault

Follow the instructions on the display.
Note: The fault message is transferred to the standard menu. A fault message facility, if connected, will be switched OFF. If an acknowledged fault is not remedied, the fault message will be re-displayed the following day and the fault message facility restarted.

Calling up acknowledged faults

Select "Fault" in the standard menu.
The current faults will be displayed in a list.

Calling up fault codes from the fault memory (fault history)

The 10 most recent faults (including resolved ones) are saved and can be called up.
Faults are sorted by date.

1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Fault history"
3. "Display?"

Fault Codes

Fault code on display	Detailed fault code*2	System behavior*1	Cause	Corrective action
0F	-	Control mode	Code "0F" is only displayed in the fault history	Service required Note: After servicing select code "24:0"
10	-	Boiler operates based on outdoor temperature of 32°F (0°C)	Short circuit on outdoor temperature sensor	Check the outdoor temperature sensor (see page 85).
18	-	Boiler operates based on outdoor temperature of 32°F (0°C)	Outdoor temperature sensor cable broken	Check the outdoor temperature sensor (see page 85).
1A	-	Burner blocked	Flow sensor 1 faulty	Replace sensor (see page 86)
1B	-	Burner blocked	Flow sensor 2 faulty	Replace sensor (see page 86)
1F	-	Burner blocked	Differential flow rate too large	Clean heat exchanger by flushing
20	-	Regulates without supply temperature sensor (low-loss header)	Short circuit on system flow temperature sensor	Check the low-loss header sensor (see page 86).
28	-	Regulates without supply temperature sensor (low-loss header)	System supply temperature sensor cable broken	Check the low-loss header sensor (see page 86). If no low loss header sensor is connected, set code 52:0.

*1 Control mode: Boiler/burner fully operational (fault code must be verified and reset).
    Burner in fault mode: Boiler control requires manual reset before burner can resume operation.
    Burner blocked: If fault cause is corrected, burner resumes operation.
*2 Detailed fault code coding address 38:xx (if available).

Fault Codes (continued)

Fault code on display	Detailed fault code*2	System behavior*1	Cause	Corrective action
30	140	Burner blocked	Short circuit on boiler water temperature sensor	Check the boiler water temperature sensor (see page 86).
38	140	Burner blocked	Boiler water temperature sensor cable broken	Check the boiler water temperature sensor (see page 86).
40	-	Mixing valve closes	Heating circuit 2 with mixing valve supply short circuit on temperature sensor	Check the supply temperature sensor 2 (see page 86).
44	-	Mixing valve closes	Short circuit, flow temperature sensor, heating circuit 3 (with mixing valve)	Check flow temperature sensor (see page 86).
48	-	Mixing valve closes	Heating circuit 2 with mixing valve supply temperature sensor cable broken	Check the supply temperature sensor 2 (see page 86).
4C	-	Mixing valve closes	Flow temperature sensor cable broken circuit 3 (with mixing valve)	Check flow temperature sensor (see page 86).
50	-	No DHW heating	Short circuit on DHW tank temperature sensor 5	Check the DHW sensor 5 (see page 86).
58	-	No DHW heating	Tank temperature sensor 5 cable broken	Check the DHW sensor 5 (see page 86).
90	-	Control mode	Short circuit on temperature sensor 7	Check sensor 7 on solar control module.
91	-	Control mode	Short circuit on temperature sensor 10	Check sensor 10 on solar control module.
92	-	No solar DHW heating	Short circuit on collector temperature sensor 6	Check the sensor 6 at the solar control module.
93	-	Control mode	Short circuit on collector temperature sensor 6	Check the sensor 6 at the solar control module.
94	-	No solar DHW heating	Short circuit on tank temperature sensor 5	Check the sensor 5 at the solar control module.
98	-	Control mode	Tank temperature sensor 7 cable broken	Check sensor 7 on solar control module.
99	-	Control mode	Temperature sensor 10 cable broken	Check sensor 10 on solar control module.
9A	-	No solar DHW heating	Collector temperature sensor 6 cable broken	Check the sensor 6 at the solar control module.
9B DO NOT USE		Control mode	Tank temperature sensor cable broken	Check temperature sensor at connection S3 to the Vitosolic solar control.

*1 Control mode: Boiler/burner fully operational (fault code must be verified and reset).
    Burner in fault mode: Boiler control requires manual reset before burner can resume operation.
    Burner blocked: If fault cause is corrected, burner resumes operation.
*2 Detailed fault code coding address 38:xx (if available).

Fault Codes *(continued)*

Fault code on display	Detailed fault code *2	System behavior *1	Cause	Corrective action
9C	-	No solar DHW heating	Tank temperature sensor 5 cable broken	Check temperature sensor 5 on solar control module.
9E	-	Control mode	No flow rate in collector circuit or flow rate too low or temperature limiter has responded	Check solar circuit pump and solar circuit. Acknowledge fault message.
9F	-	Control mode	Solar control module faulty	Replace solar control module.
A3	-	Burner blocked	Flue gas temperature sensor not properly positioned	Properly install flue gas temperature sensor.
A4 DO NOT USE	-	Control mode	Max. system pressure exceeded	Check system pressure (max. system pressure 3 bar). Check the function and sizing of the diaphragm expansion vessel. Vent the heating system
A7	-	Control mode (stays in factory default setting)	Faulty programming unit	Replace the programming unit.
B0	141	Burner blocked	Flue gas temperature sensor shorted out	Check flue gas temperature sensor (see page 86).
B1	-	Control mode (stays in factory default setting)	Communication fault; programming unit (internal)	Check connections and replace programming unit if required.
B5	-	Control mode (factory default setting)	Internal fault	Replace the control unit.
B7	-	Burner blocked	Boiler coding card missing, faulty or incorrect boiler coding card	Plug in boiler coding card or replace if faulty.
B8	141	Burner blocked	Flue gas temperature sensor cable broken	Check flue gas temperature sensor (see page 86).
BA	-	Mixing valve regulates to a flow temperature of 68°F (20°C)	Communication fault - accessory kit for heating circuit 2 with mixing valve	Check extension kit connections and code.
BB	-	Mixing valve regulates to a flow temperature of 68°F (20°C)	Communication error, extension kit for heating circuit 3 (with mixing valve)	Check extension kit connections and code.
BC	-	Control mode without remote control	Communication error, remote control Vitotrol heating circuit 1 (without mixing valve)	Check connections, cable, coding address "A0" in "Heating circuit" group and remote control unit setting.

*1 Control mode: Boiler/burner fully operational (fault code must be verified and reset).
Burner in fault mode: Boiler control requires manual reset before burner can resume operation.
Burner blocked: If fault cause is corrected, burner resumes operation.

*2 Detailed fault code coding address 38:xx (if available).

Fault Codes *(continued)*

Fault code on display	Detailed fault code*2	System behavior*1	Cause	Corrective action
BD	-	Control mode without remote control	Communication error, remote control Vitotrol heating circuit 2 (with mixing valve)	Check connections, cable, coding address "A0" in "Heating circuit" group and remote control unit setting.
BE	-	Control mode with out remote control	Communication error, remote control Vitotrol heating circuit 3 (with mixing valve)	Check connections, cable, coding address "A0" in "Heating circuit" group and remote control unit setting.
BF	-	Control mode	Incorrect LON communication module	Replace LON communication module.
C1	-	Control mode	Communication fault extension EA1	Check connections.
C2	-	Control mode	Communication fault - solar control unit or Vitosolic	Check solar control or Vitosolic.
C3	-	Control mode	Extension AM1 communication fault	Check connections.
C4	-	Control mode	Communication fault, Open Therm extension	Check Open Therm extension.
C5	-	Control mode, max. pump speed	Communication error, variable speed internal pump	Check setting of coding address "30"
CD DO NOT USE	-	Control mode	Communication fault, Vitocom 100 (KM-BUS)	Check connections Vitocom 100 coding address "95"
CF	-	Control mode	Communication fault - LON communication module	Replace LON communication module.
D6	-	Control mode	Input DE1 reports a fault at extension EA1	Remove fault at appliance concerned.
D7	-	Control mode	Input DE2 reports a fault at extension EA1	Remove fault at appliance concerned.

*1 Control mode: Boiler/burner fully operational (fault code must be verified and reset).
    Burner in fault mode: Boiler control requires manual reset before burner can resume operation.
    Burner blocked: If fault cause is corrected, burner resumes operation.
*2 Detailed fault code coding address 38:xx (if available).

Fault Codes *(continued)*

Fault code on display	Detailed fault Code *2	System behavior *1	Cause	Corrective action
D8	-	Control mode	Input DE3 reports a fault at extension EA1	Remove fault at appliance concerned.
DA	-	Control mode without room influence	Short circuit on room temperature sensor, heating circuit 1 without mixing valve	Check the room temperature sensor, heating circuit 1 without mixing valve.
DB	-	Control mode without room influence	Room temperature sensor, shorted out heating circuit 2 with mixing valve	Check the room temperature sensor, heating circuit 2.
DC	-	Control mode without room influence	Short circuit, room temperature sensor, heating circuit 3 (with mixing valve)	Check room temperature sensor, heating circuit 3
DD	-	Control mode without room influence	Room temperature sensor cable broken, heating circuit 1 without mixing valve	Check the room temperature sensor, heating circuit 1 and the remote control setting (see page 86).
DE		Control mode without room influence	Room temperature sensor cable broken, heating circuit 2 with mixing valve	Check the room temperature sensor, heating circuit 2 and the remote control settings (see page 86).
DF	-	Control mode without room influence	Room temperature sensor cable broken, heating circuit 3 (with mixing valve)	Check room temperature sensor for heating circuit 3 and remote control settings (see page 86).
E0	-	Control mode	Fault external LON participant	Check connections and LON participants.
E1	202	Burner in a fault mode	Ionization current too high during calibration	Check gap between ionization electrode and burner gauze assembly (see page 26). In open flue mode, prevent very dusty conditions for the combustion air. Press reset button **R**.
E2 NOT USED	201	Burner in a fault mode	Heating water flow rate too low during calibration.	Ensure adequate circulation volume. Check boiler pump flow. Remove scaling, blockage. Press reset button **R**.
E3	204	Burner in a fault mode	Heat transfer too low during calibration. Temperature limiter caused shutdown.	Ensure adequate heat transfer. Press reset button **R**.

*1 Control mode: Boiler/burner fully operational (fault code must be verified and reset).
   Burner in fault mode: Boiler control requires manual reset before burner can resume operation.
   Burner blocked: If fault cause is corrected, burner resumes operation.
*2 Detailed fault code coding address 38:xx (if available).

Fault Codes (continued)

Fault code on display	Detailed fault code *2	System behavior *1	Cause	Corrective action
E4	-	Burner blocked	Fault, supply voltage 24V	Replace the control unit.
E5	226	Burner blocked	Fault flame amplifier	Replace control unit.
E7	192	Burner in a fault mode	Ionization current too low during calibration	Check ionization electrode: - Distance to burner gauze assembly (see page 26). - Contamination of electrode. - Connecting lead and plug-in connections. Check flue system; remedy flue gas recirculation if required. Press reset button **R**.
E8	189	Burner in a fault mode	The ionization current lies outside the permissible range	Check gas supply (gas pressure and gas flow limiter), gas valve and connecting lead. Check allocation of gas type (see page 19). Check ionization electrode: - Distance to burner gauze assembly (see page 26). - Contamination of electrode Press reset button **R**.
EA	193	Burner in a fault mode	The ionization current lies outside the permissible range during calibration (deviation from previous level too great)	Check flue system; remedy flue gas recirculation if required In open flue mode, prevent very dusty conditions for the combustion air. Press reset button **R**. Following several unsuccessful reset attempts, replace boiler coding card and press reset button **R**.
EB	194	Burner in a fault mode	Repeated flame loss during calibration	Check gap between ionization electrode and burner gauze assembly (see page 26). Check allocation of gas type (see page 19). Check flue system; remedy flue gas recirculation if required. Press reset button **R**.
EC	67 or 195	Burner in a fault mode	Parameter fault during calibration	Press reset button **R** or Replace boiler coding card and press reset button **R**.
ED	191	Burner in a fault mode	Internal fault	Replace control unit.

*1 Control mode: Boiler/burner fully operational (fault code must be verified and reset).
    Burner in fault mode: Boiler control requires manual reset before burner can resume operation.
    Burner blocked: If fault cause is corrected, burner resumes operation.
*2 Detailed fault code coding address 38:xx (if available).

Fault Codes *(continued)*

Fault code on display	Detailed fault code *2	System behavior *1	Cause	Corrective action
EE	132	Burner in a fault mode	At burner start, flame signal is missing or too weak	Check gas supply (gas pressure and gas regulator). Check gas train. Check ionization electrode and connecting cable. Check ignition: - Connecting leads to ignition module and ignition electrode. - Ignition electrode gap and contamination (see page 26). Check condensate drain. Press reset button **R**.
EF	138	Burner in a fault mode	Flame is lost immediately after it has built (during the safety time)	Check gas supply (gas pressure and gas regulator). Check flue gas/ventilation air system for flue gas recirculation. Check ionization electrode (replace if required): - Distance to burner gauze assembly (see page 26). - Contamination of electrode Press reset button **R**.
F0	-	Burner blocked	Internal fault	Replace the control unit.
F1	135	Burner in a fault mode	Maximum flue gas temperature exceeded 230ºF (110ºC) limit.	Check heating system fill level. Bleed air from system. Check circulation pump. Check boiler water temperature sensor and cable. Press reset button **R** after vent system has cooled down.
F2	129	Burner in fault mode	Fixed high limit switch open (activated)	Check heating system fill level. Check the circulation pump. Bleed air from the system. Check fixed high limit switch and connecting cables. Press reset button **R**.
F3	139	Burner in fault mode	Flame signal already present at burner start	Check the ionization electrode and connecting cable. Press reset button **R**.
F6	-	Burner in a fault state	Boiler water temperature sensor temperature values vary too widely from one another	Replace boiler water temperature sensors
F8	148	Burner in fault mode	Gas valve closes too late	Check the gas valve. Check both control wiring/ connections. Press reset button **R**.
F9	151 or 152	Burner in fault mode	Fan speed too low during burner start	Check the fan, the fan cables and power supply. Check the fan control. Press reset button **R**.

*1 Control mode: Boiler/burner fully operational (fault code must be verified and reset).
   Burner in fault mode: Boiler control requires manual reset before burner can resume operation.
   Burner blocked: If fault cause is corrected, burner resumes operation.
*2 Detailed fault code coding address 38:xx (if available).

Fault Codes *(continued)*

Fault code on display	Detailed fault code*2	System behavior*1	Cause	Corrective action
F9	151 or 152	Burner in fault mode	Fan speed too low during burner start	Check the fan, the fan cables and power supply. Check the fan control. Press reset button **R**.
FA	154	Burner in fault mode	Fan not at standstill	Check the fan, the fan connecting cables and fan control. Check the fan control. Press reset button **R**.
FC	190	Burner in fault mode	Gas valve faulty or faulty modulation valve control; or vent system blocked	Check the gas valve. Check the vent system. Press reset button **R**.
FD	227	Burner in a fault state and additional fault B7 is displayed	Boiler coding card is missing	Insert the boiler coding card. Press reset button **R**. Replace control unit if fault persists.
	-	Burner in a fault state	Fault, burner control unit	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the appliance. Press reset button **R**. Replace control unit if fault persists.
FE	158, 159, 162 or 225	Burner in fault mode	Damaged or incorrect boiler coding card or main PCB	Press reset button **R**. If the fault persists, check the boiler coding card or replace it or the control unit.
FF	224	Burner in fault mode	Internal fault or reset button **R** blocked	Restart the equipment. Replace the control unit if the equipment will not restart.
N/A	2	Burner in hold/wait state, boiler not displaying fault refer to coding address 38:XX	Gas supply - no/low gas pressure detected	Check gas supply pressure
	5		Flame failure during stabalization	Check ionization electrode
	6		Boiler temperature has exceeded the monitoring limit	Check boiler temperature sensor
	8		Flue gas temperature has exceeded the monitoring limit	Check flue gas temperature sensor
	29		Open circuit at terminals 1 and L on Multi terminal of the power pump module.	Check connection at terminals 1 and L (jumper or installed safety equipment of the Multi terminal of the power pump module.
	33		Power supply voltage, is below minimal operation level, internal fuse failure.	Check power, replace control

*1 Control mode: Boiler/burner fully operational (fault code must be verified and reset).
Burner in fault mode: Boiler control requires manual reset before burner can resume operation.
Burner blocked: If fault cause is corrected, burner resumes operation.
*2 Detailed fault code coding address 38:xx (if available).

5683 710 - 26

Corrective Action

Continuous boiler pump operation

When the Vitodens 200 B2HA boiler is switched from a single boiler operation to a multi-boiler operation, coding addresses 30:0 may automatically reset to 30:3. This will result in the boiler pump operating continuously. Verify that the coding address for each boiler is 30:0. Adjust to 30:0 if necessary. Refer to page 60.

Checking the outside temperature sensor

1. Pull plug "X3" from the control unit.

2. Test the resistance of the outside temperature sensor across terminals "X3.1" and "X3.2" on the disconnected plug and compare it with the curve.

3. Where actual values deviate severely from the curve values, disconnect the wires at the sensor and repeat test on the sensor itself.

4. Depending on the result, replace the lead or the outside temperature sensor. Sensor type: NTC 10 kΩ
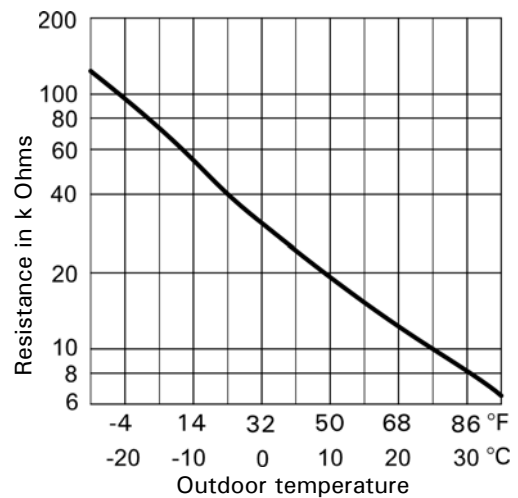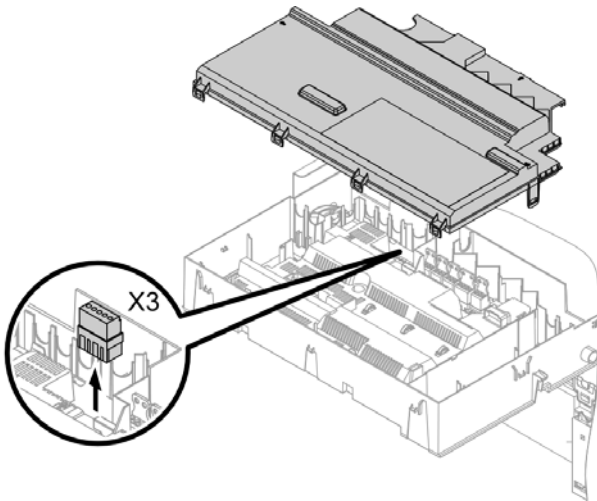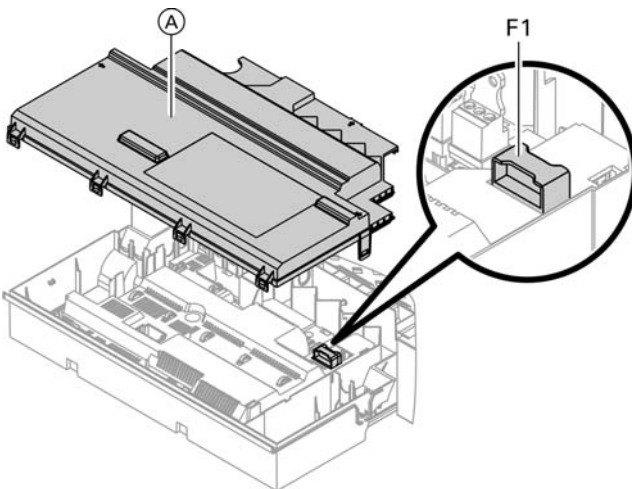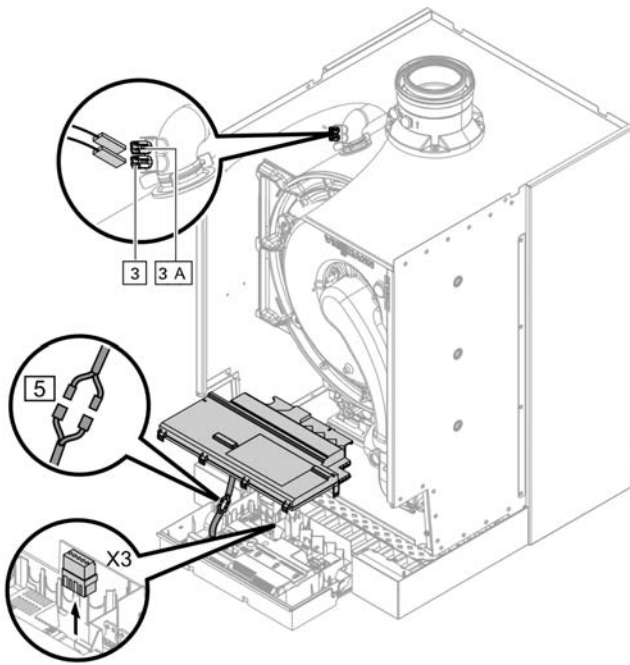

Check fuse

1. Switch OFF the power.
2. Release side latches and pivot the control unit down.
3. Remove cover Ⓐ.
4. Check fuse F1 (see wiring diagram on page 95).

Check fuses in the external accessories connection box

1. Switch OFF the power.
2. Open external accessories connection box and check fuses F1 and F2 (see wiring diagram on page 95).

Corrective Action *(continued)*

Checking the boiler temperature sensor and fixed high limit, DHW tank temperature sensor or flow temperature sensor for the low loss header

1. Boiler temperature sensor:
    Remove lead to boiler water temperature sensor 3
    or 3 A and check the resistance.

    DHW Tank temperature sensor:
    Pull plug 5 from the cable harness at the control unit and check the resistance.

    Supply temperature sensor or Low-loss header temperature sensor 2 :
    Pull plug "X3" from the control unit and check the resistance across terminals "X3.4" and "X3.5".
    Note: Only one temperature sensor 2 may be used.

2. Check the sensor resistance and compare the actual values with the curve.

3. Replace the sensor in the case of severe deviation.
   Sensor type: NTC 10 kΩ

> ⚠️ **WARNING**
>
> **The boiler water temperature sensors are immersed in the heating water (risk of scalding). Drain the boiler before replacing the sensor.**
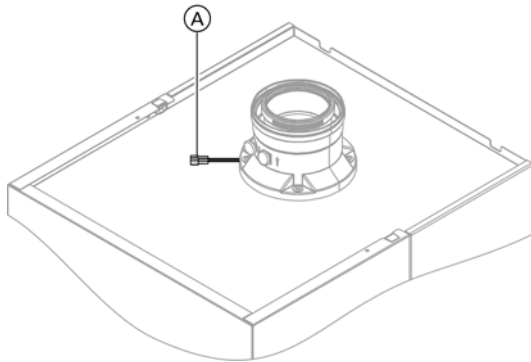
Check the flue gas temperature sensor

The flue gas temperature sensor locks out the boiler when the permissible flue gas temperature is exceeded. Reset the interlock after the flue system has cooled down by pressing reset button **R**.

1. Pull leads from flue gas temperature sensor Ⓐ.

2. Check the sensor resistance and compare it with the curve.

3. Replace the sensor in the case of severe deviation.
    Sensor type: NTC 10 kΩ

Temperature sensors

5683 710 - 26
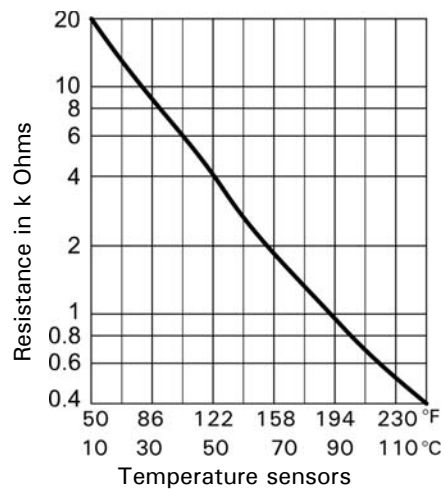
Corrective Action *(continued)*
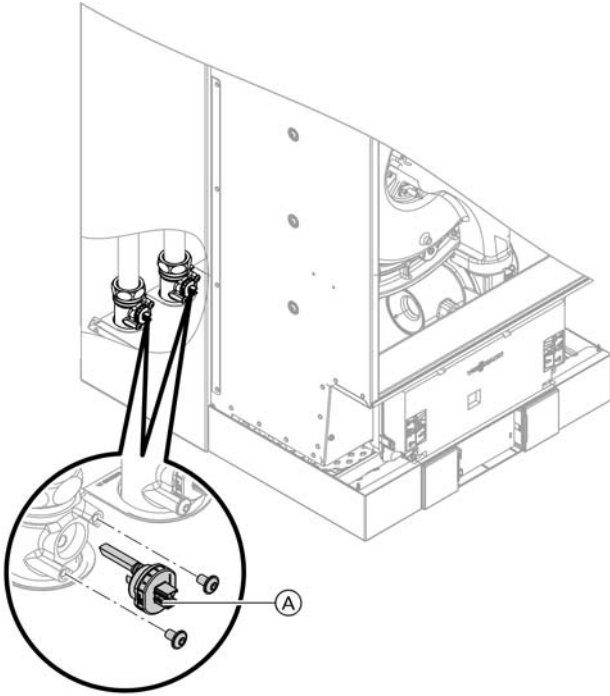
Replacing the flow rate sensor

Note: In the event of a fault, both sensors need to be replaced.

1. Drain the boiler on the heating water side.
2. Pull leads from flow rate sensor Ⓐ.
3. Undo screws and remove faulty flow rate sensor Ⓐ.
4. Install new flow rate sensor Ⓐ and secure with the screws.

Corrective Action (continued)

Heating circuit	Rotary selector S1 setting
Heating circuit with mixing valve M2 (heating circuit 2)	2
Heating circuit with mixing valve M3 (heating circuit 3)	4
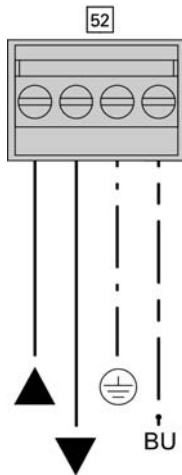
Extension kit for heating circuit with mixing valve

Checking the setting of rotary selector S1:
The rotary selector on the PCB of the extension kit defines the assignment to the relevant heating circuit.

Note: The rotational direction of the mixing valve motor during its self-test. Then set the mixing valve manually to "Open".

Note: The flow temperature sensor must now capture a higher temperature. If the temperature drops, either the motor is turning in the wrong direction or the mixing valve set is incorrectly fitted.

Checking the rotational direction of the mixing valve motor
After being switched on, the boiler implements a self-test. During this, the mixing valve is opened and closed again.

Changing the rotational direction of the mixing valve motor (if required)

1. Remove the upper casing cover of the extension kit.

> ⚠ **WARNING**
>
> **Electric shock hazard indicates an imminently hazardous situation which, if not avoided, may result in loss of life, serious injury or substantial product / property damage. Before opening the boiler, disconnect main power.**

2. At plug 52, switch the cores at terminals "▲" and "▼".

3. Refit the casing cover.

Checking the Vitotronic 200-H (accessories)
The Vitotronic 200-H is connected to the control unit via the LON. To test the connection, carry out a participant check at the boiler control unit (see page 43).

External Extensions AM1 (accessory)

Functions

One of the following circulation pumps can be connected to each of the connections A1 and A2:
- Heating circuit pump for the heating circuit without mixing valve, zone circuit pump
- Circulation pump for DHW tank heating
- DHW recirculation pump

Select the output functions by means of the codes on the boiler control unit.

Function assignment

Function	Code ("General" group)	
	Output A1	Output A2
DHW recirculation pump 28	33:0	34:0 (delivered condition)
Heating circuit pump 20	33:1 (delivered condition)	34:1
Circulation pump for DHW tank heating 21	33:2	34:2
Zone circuit pump 1	33:5	33:5
Zone circuit pump 2	33:6	33:6
Zone circuit pump 3	33:7	33:7

Refer to the AM1 module Installation Instructions.
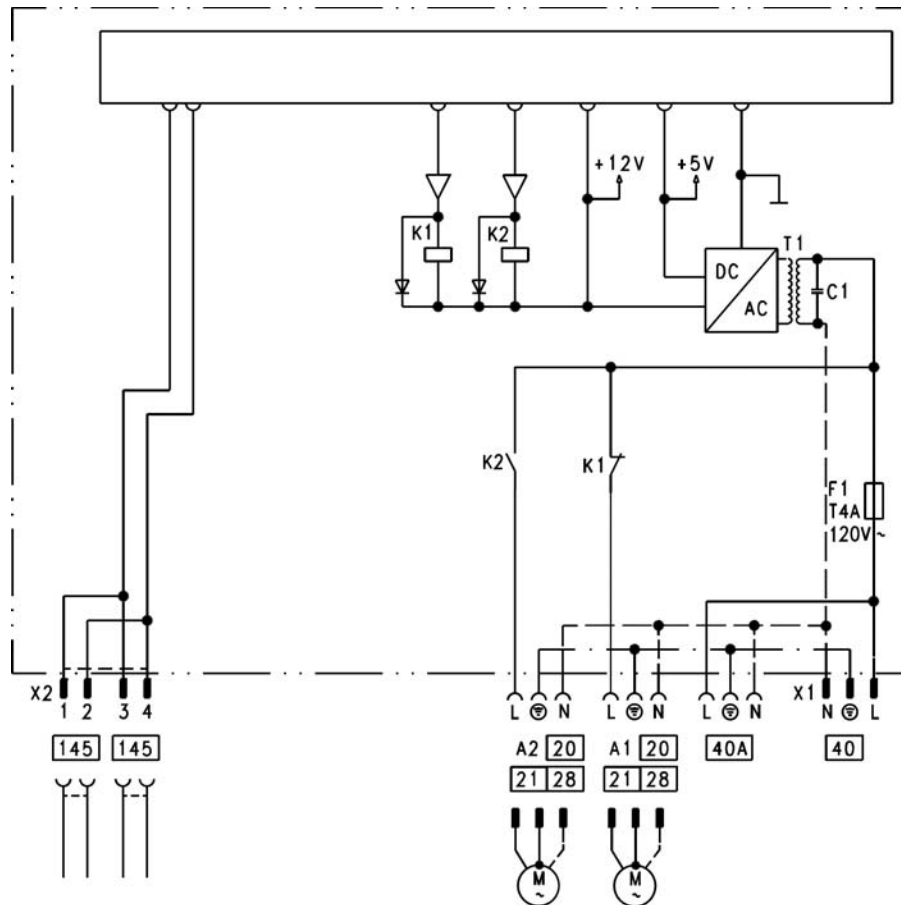
Legend

A1	Circulation pump
A2	Circulation pump
40	Power supply
40A	A Power supply for additional accessories pump (potential-free)
145	KM BUS

Internal Extensions EA1
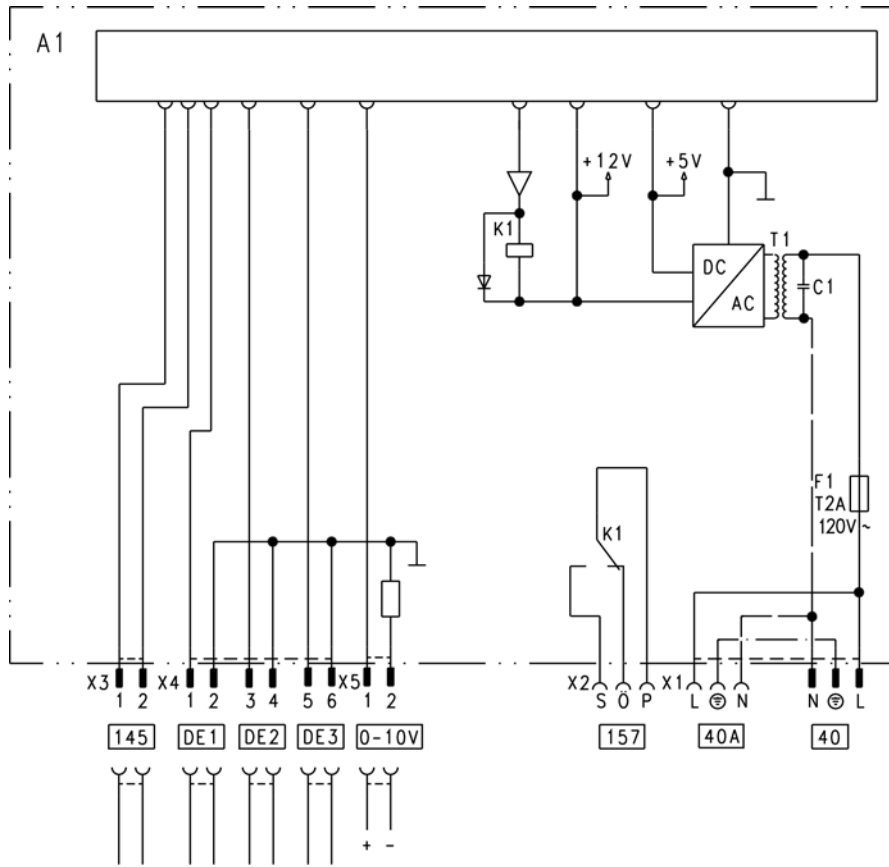
Legend

A1　　　PCB
F1　　　Fuse
DE1　　Digital input 1
DE2　　Digital input 2
DE3　　Digital input 3
0 − 10V　0 - 10V input
40　　　Power supply
40　　　Power supply for additional
　　　　accessories
157　　　Central fault message/
　　　　feed pump/DHW recirculation
　　　　pump (potential-free)
145　　　KM BUS

Internal Extensions EA1 *(continued)*

Digital data inputs DE1 to DE3

The following functions can be connected alternatively:

- External heating program changeover for each heating circuit
- External blocking
- External blocking with fault message input
- External demand with minimum boiler water temperature
- Fault message input
- Brief operation of the DHW recirculation pump
- Operation of zone circuit pump

External contacts must be floating.
When connecting external contacts, observe the requirements of safety category
II, i.e. 8.0 mm air and creep path or 2.0 mm insulation thickness to 'live' parts.

Input function assignment

Select the input functions by means of codes in the "General" group at the boiler control unit:

- DE1: Coding address 3A
- DE2: Coding address 3B
- DE3: Coding address 3C

Assigning the heating program changeover function to

the heating circuits

Select the heating program changeover function for the respective heating circuit via coding address D8 in the "Heating circuit" group at the boiler control unit:

- Changeover via input DE1: Code D8:1
- Changeover via input DE2: Code D8:2
- Changeover via input DE3: Code D8:3

The effect of the heating program changeover is selected via coding address D5 in the "Heating circuit" group.
The duration of the changeover is set via coding address F2 in the "Heating circuit" group.

Effect of the external blocking function on the pumps

The effect on the internal circulation pump is selected in coding address 3E in the "General" group.
The effect on the respective heating circuit pump is selected in coding address D6 in the "Heating circuit" group.
The effect on a circulation pump for DHW tank heating is selected in coding address 5E in the "DHW" group.

Effect of the external demand function on the pumps

The effect on the internal circulation pump is selected in coding address 3F in the "General" group.
The effect on the respective heating circuit pump is selected in coding address D7 in the "Heating circuit" group.
The effect on a circulation pump for DHW tank heating is selected in coding address 5F in the "DHW" group.

DHW recirculation pump runtime for brief operation

The DHW recirculation pump is started by closing the contact at DE1, DE2 or DE3 by means of a pushbutton. The runtime is adjusted via coding address "3D" in the "General" group.

Analog input 0 - 10V

The 0 - 10V hook-up provides an additional set boiler water temperature:
0 - 1V taken as "no default for set boiler water temperature"
1V ≙ set value 10°C
10V ≙ set value 100°C
Ensure DC separation between the ground conductor and the negative pole of the on-site voltage source.

Output 157

The following functions can be connected to output 157:

- DHW recirculation pump

or

- Fault message facility

or

- Zone circuit pump

Function assignment

Select the function of output 157 via coding address "36" in the "General" group at the boiler control unit.

Assigning zone circuit

Zone Circuit	Coding	
zone circuit 1 DE1	3A:7	Constant
	3A:8	Weather compensate
zone circuit 2 DE2	3B:7	Constant
	3B:8	Weather compensate
zone circuit 3 DE3	3C:7	Constant
	3C:8	Weather compensate

Control Functions

External heating program changeover

The "External heating program changeover" function is connected via input "EA1" in the EACB.
You can select which direction the heating program changeover takes in coding address "D5":

The "External heating program changeover" function is connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).
The function is selected via the following codes:

Heating program changeover	Coding
Input DE1	3A:1
Input DE2	3B:1
Input DE3	3C:1

Assign the heating program changeover function for the respective heating circuit with code D8 at the boiler control unit:

Heating program changeover	Coding
Changeover via input DE1	D8:1
Changeover via input DE2	D8:2
Changeover via input DE3	D8:3

You can select which direction the heating program changeover takes in coding address "D5".

Heating program changeover	Coding
Changeover towards "Permanently reduced" or "Permanent standby" mode (based on the selected setpoint)	D5:0
Changeover towards "Constant heating mode"	D5:1

The duration of the heating program changeover can be adjusted in coding address "F2":

Heating program changeover	Coding
No changeover	F2:0
Duration of the heating program changeover 1 to 12 hours	F2:1 to F2:12

The heating program changeover stays enabled for as long as the contact remains closed, but at least as long as the duration selected in coding address "F2".

External blocking

The "External blocking" and "External blocking and fault message input" functions are connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).
The function is selected via the following codes:

External blocking	Coding
Input DE1	3A:3
Input DE2	3B:3
Input DE3	3C:3
External blocking and fault message input	**Coding**
Input DE1	3A:4
Input DE2	3B:4
Input DE3	3C:4

The effect on the internal circulation pump is selected with code 3E. Select the effect on the respective heating circuit pump with code D6.

External demand

The "External demand" function is connected via extension EA1. There are 3 inputs available at extension EA1 (DE1 to DE3).
The function is selected via the following codes:

External demand	Coding
Input DE1	3A:2
Input DE2	3B:2
Input DE3	3C:2

The effect on the internal circulation pump is selected with code 3F. The effect on the respective heating circuit pump is selected with code D7.
The minimum set boiler water temperature in case of external demand is selected in coding address "9B".

Control Functions *(continued)*

Venting program

During the venting program, the circulation pump will be alternately switched on and off for 30 seconds respectively over a period of 20 minutes.
The burner is switched off during the venting program.
Activate venting program: See "Venting the heating system".

Bleeding air program

During the bleeding air program, the circulation pump will be alternately switched on and off for 30 seconds respectively over a period of 20 minutes.

The burner is switched off during the venting program. Activate venting program: See "Venting the heating system".

Fill program

If the system is to be filled with the control unit switched ON, code "2F:2" starts the pump. The burner shuts down if this function is enabled via coding address "2F".
The program is automatically disabled after 20 minutes and coding address "2F" is reset to "0".

Reducing the heat-up time

During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or supply temperature will be raised in accordance with the selected heating curve. The boiler water or supply temperature can be automatically increased. The value and duration of the additional increase of the set boiler water temperature or supply temperature can be adjusted in coding addresses "FA" and "FB".
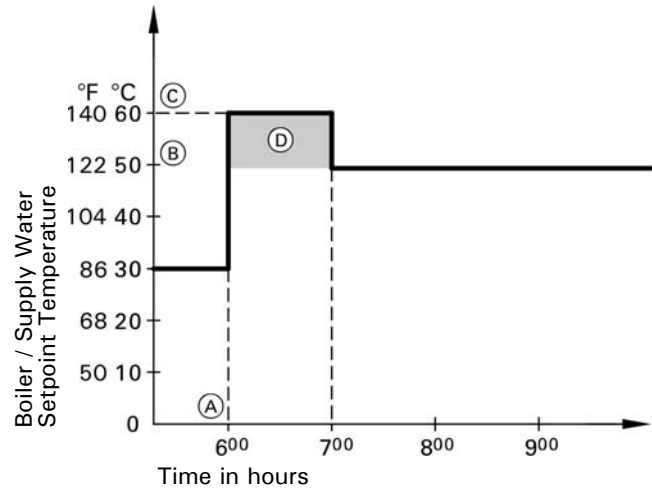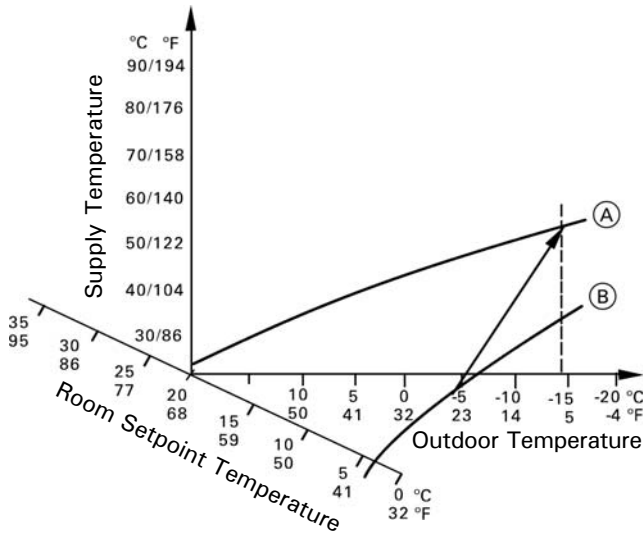

Ⓐ Start of operation with standard room temperature

Ⓑ Boiler water / supply temperature based on selected heating curve

Ⓒ Boiler water / supply temperature based on coding address "FA": 50°C + 20% = 60°C

Ⓓ Duration of operation with raised boiler water / supply temperature based on coding address "FB": 60 minutes

Control Functions *(continued)*

Raising the reduced room temperature

During operation with reduced room temperature, the reduced room setpoint temperature can be automatically raised based on the outdoor temperature.
The temperature is raised in accordance with the selected heating curve, but no higher than the standard room temperature setpoint. The outdoor temperature limits for the start and end of the temperature raising can be adjusted via coding addresses "F8" and "F9".

(A) Heating curve for operation with standard room temperature

(B) Heating curve for operation with reduced room temperature
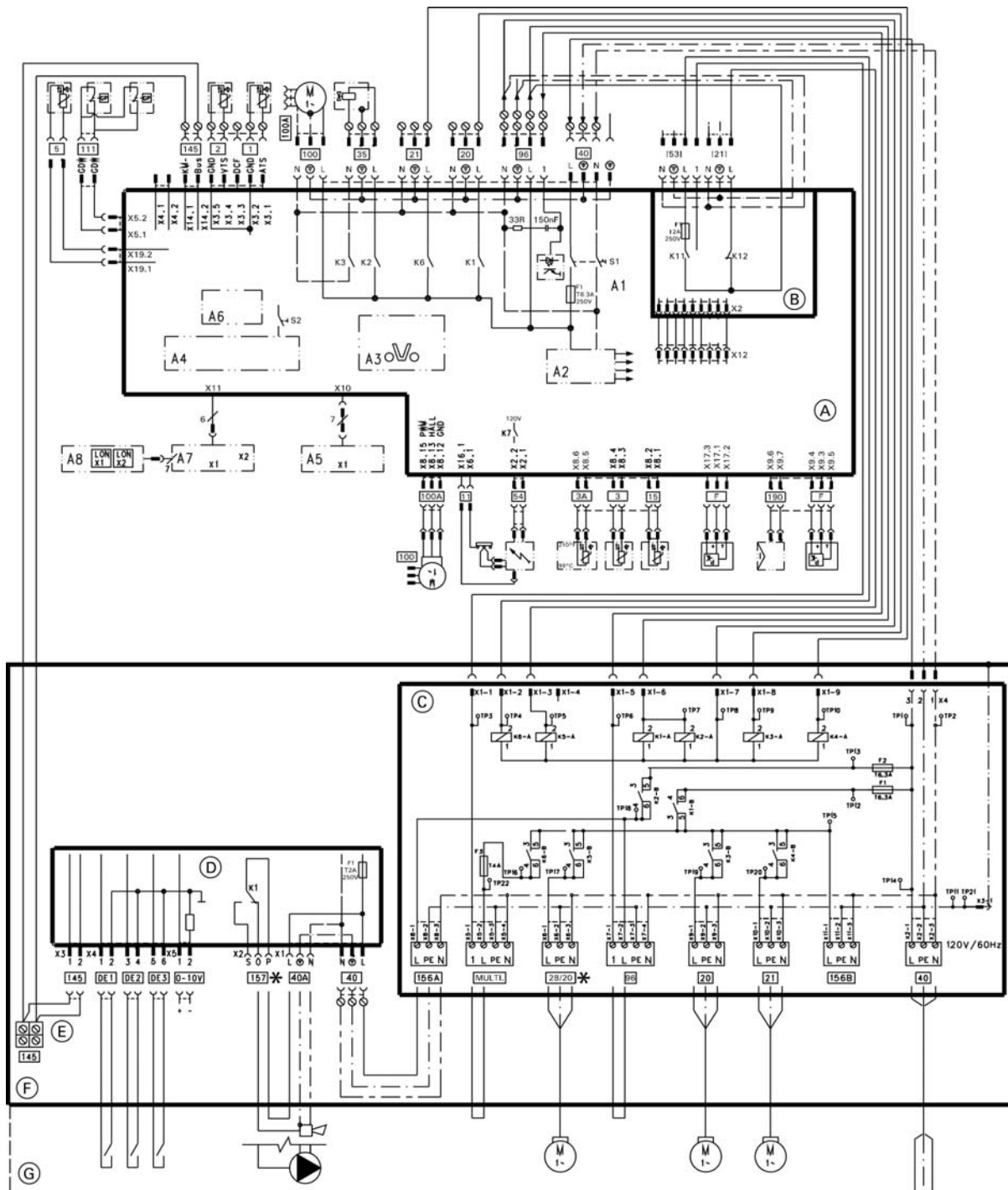
Allocating heating circuits to the remote control

The heating circuit allocation must be configured when commissioning the Vitotrol 200A or Vitotrol 300A.

Heating circuit	Configuration	
	Vitotrol 200A	Vitotrol 300A
The remote control affects the heating circuit without mixing valve A1	H1	HC1
The remote control affects the heating circuit with mixing valve M2	H2	HC2
The remote control affects the heating circuit with mixing valve M3	H3	HC3

Note: One heating circuit can be allocated to the Vitotrol 200A. Up to three heating circuits can be allocated to the Vitotrol 300A. Up to 2 remote controls may be connected to the control unit. If the heating circuit allocation is later cancelled, reset coding address A0 for this heating circuit to 0 (fault message BC, BD, BE).
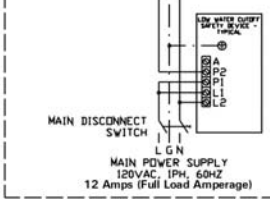
Wiring Diagram

> ⚠ **WARNING**
>
> **DISCONNECT POWER BEFORE SERVICING BOILER.**
>
> If any of the original wires as supplied with the appliance must be replaced, it must be replaced with the exact equivalent.

> ⚠ **CAUTION**
>
> **Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.**
>
> ∗ Only one function/accessory may be assigned to each connection.

Legend

1	Outdoor Temperature Sensor
2	Supply Temperature Sensor/Low Loss Header
3	Boiler Temperature Sensor/High Limit Sensor
3A	Boiler Temperature Sensor/High Limit Sensor
5	DHW Temperature Sensor
11	Ionization Electrode
15	Flue Gas temperature Sensor
20	Boiler Pump
21	DHW Pump
[21]	Pump Output Connection
28/20	Programmable Pump Output / zone circuit pump output*
35	Gas Valve
40	Power Supply
40A	Accessory Power Output
[53]	Powered Accessory Connection
54	Ignition Transformer
96	Powered Accessory Connection
100	Fan Motor
100A	Fan Motor Control
111	Low and High Pressure Gas Switches
145	KM BUS
Multi	Powered Accessory Connection
156A	Switched Output F2
156B	Switched Output F1
DE1	Digital Input 1 (Dry Contact)
DE2	Digital Input 2 (Dry Contact)
DE3	Digital Input 3 (Dry Contact)
0-10V	0-10VDC Input
157	Fault Alarm/DHW Recirc. Pump / zone circuit pump output*
190	Gas Modulation Coil
F	Flow Sensor

* See wiring diagram
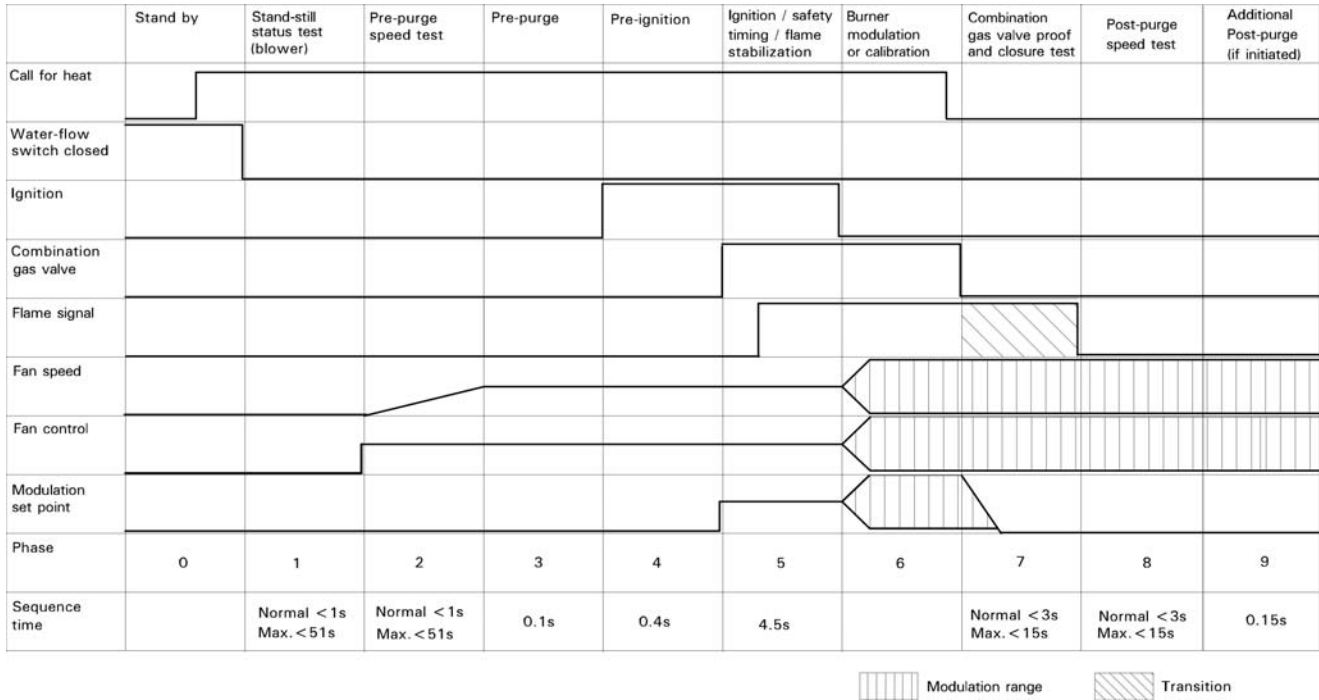
Ⓐ Boiler Control
Ⓑ External Accessory Connection Board
Ⓒ Pump Connection Interface
Ⓓ Extension Module EA1
Ⓔ KM-BUS for External Devices
Ⓕ Electrical Junction Box
Ⓖ Field Wiring Connections
A1 Main Board
A2 Internal Power Supply Unit
A3 Optolink
A4 Burner Control Unit
A5 Programming Unit
A6 Coding Card
A7 Connection Adaptor
A8 LON Communication Module
S1 ON/OFF Switch
S2 Reset Button
X.. Electrical Interface

IMPORTANT

Electrical installations must comply with the latest edition of:

■ **In the U.S.A., the National Electrical Code (NEC), ANSI/NFPA 70 and any other state, local codes and/or regulations.**

■ **In Canada, the Canadian Electrical Code (CEC), CSA C22.1 Part 1 and any other province, territory, local codes and/or regulations.**

5683 710 - 26

Burner Program Sequence of Operation

	Stand by	Stand-still status test (blower)	Pre-purge speed test	Pre-purge	Pre-ignition	Ignition / safety timing / flame stabilization	Burner modulation or calibration	Combination gas valve proof and closure test	Post-purge speed test	Additional Post-purge (if initiated)
Call for heat										
Water-flow switch closed										
Ignition										
Combination gas valve										
Flame signal										
Fan speed										
Fan control										
Modulation set point										
Phase	0	1	2	3	4	5	6	7	8	9
Sequence time		Normal <1s Max. <51s	Normal <1s Max. <51s	0.1s	0.4s	4.5s		Normal <3s Max. <15s	Normal <3s Max. <15s	0.15s

▦ Modulation range   ▨ Transition

Phase 0: Stand-by
Complete shutdown until the next call for heat. In this phase both the combination gas valve and the blower are not energized.

Phase 1: Stand-still status test (blower)
A call for heat initiates internal blower sensory communications to confirm that the blower is truly in stand-still position. Blower speed measured must be < 300 rpm within a 51 second period.

Phase 2: Pre-purge speed test
Controller sends and receives signal to / from fan speed controller to verify maximum rpm of the blower.

Phase 3: Pre-purge
Pre-purge cycle starts within the pre-programmed timing. Pre-purge timing is in addition to previous phase (2). The fan speed must be greater than and within the range of rpm requested by the controller.

Phase 4: Pre-ignition
The ignition spark is initiated and controlled.

Phase 5: Ignition / safety timing / flame stabilization
The gas valve opens during the safety timing period (4.5 seconds). If a flame is detected, this phase ends immediately in < 1.5 seconds. If the flame is not established after 3 trials, the burner will lock out and will require a manual reset. Controller required time for flame stabilization.

Phase 6: Burner modulation operation or calibration
At the end of the flame stabilization period (4.5 seconds.), a release for modulation occurs and the burner temperature controller will take over from the flame safeguard. Forced shutdown after 24 hours continuous operation. Automatic calibration may be initiated by the controller.

Phase 7: Combination gas valve proof of closure test
If during the normal operation of the burner a controlled (or uncontrolled) shut-down occurs, a complete mechanical and electrical gas valve proof of closure test will be performed by the flame safeguard. After a successful mechanical and electrical proof of closure test, the flame safeguard will expect that the flame is not present. If, however, the flame existed for a period of >15 seconds, the flame safeguard will go into permanent lock-out.

Phase 8: Post-purge speed test
Both gas valves are closed during this phase. End call for heat.
Post-purge occurs during the programmed period.

Phase 9: Additional post-purge
If the fixed high limit trips during normal operation, the blower will purge for 15 minutes to cool the heat exchanger.

Parts Lists

Model No.   **Serial No.**
B2HA 112, 399 Boiler   7510835☐☐☐☐☐☐☐☐☐
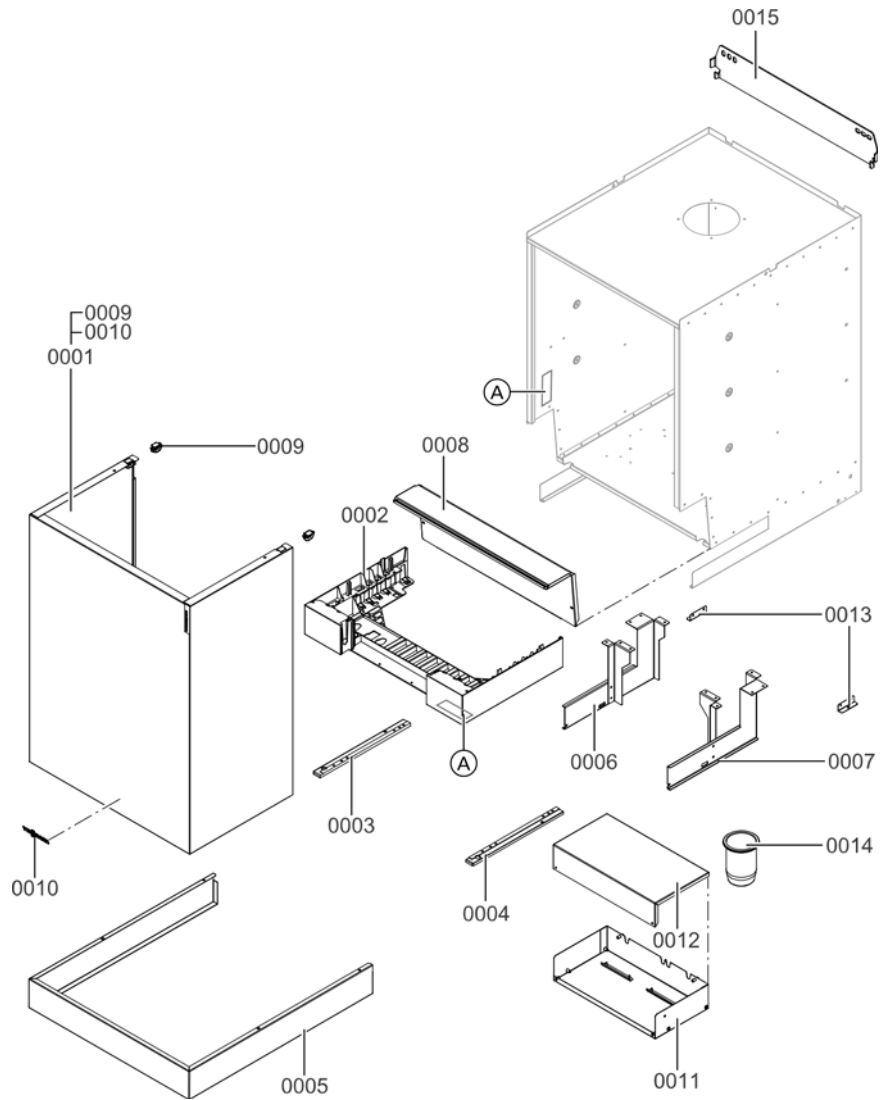B2HA 150, 530 Boiler   7510836☐☐☐☐☐☐☐☐☐

Ordering Replacement Parts:
Please provide model no. from rating plate Ⓐ and serial
no. when ordering replacement parts. Order replacement
components from your Viessmann distributor.

Parts for Main Enclosure Assembly
0001 Cover panel
0002 Control housing
0003 Mounting rail, left
0004 Mounting rail, right
0005 Cover panel for electronics
0006 Support bracket, left
0007 Support bracket, right
0008 Cover panel
0009 Mounting clip (Set of 2)
0010 Nameplate
0011 Electrical box
0012 Electrical box cover
0013 Support bracket for panel
0014 Grommet for p-trap
0015 Wall-mount bracket

Other Parts (not illustrated)
0401 Touch-up spray paint "Vitowhite"
0402 Touch-up paint stick "Vitowhite"
0403 Lubricant 6g

5683 710 - 26

Parts Lists *(continued)*

Model No.   **Serial No**.
B2HA 112, 399 Boiler   7510835☐☐☐☐☐☐☐☐☐☐
B2HA 150, 530 Boiler   7510836☐☐☐☐☐☐☐☐☐☐

Ordering Replacement Parts:
Please provide model no. from rating plate and serial no.
when ordering replacement parts. Order replacement
components from your Viessmann distributor.

Parts for Pressure Vessel Assembly
0001 Heat exchanger assembly with piping
0002 Gas valve CES-Big, 120/1/60
0003 MatriX cylinder burner assembly
0004 Vent pipe adaptor 110/150
0005 Flue gas sensor
0006 Combustion chamber door refractory
0007 Gasket, D = 150 mm for air intake
0008 Gasket, DN110 for flue gas
0009 Connection flange with gas ball valve
0010 Grommet, DN110 for flue gas
0011 Test port cap (Set of 2)
0012 P-Trap
0013 Condensate drain kit
0014 Flex pipe for gas
0015 Gas connection pipe
0016 Condensate hose
0017 Gasket, A32x44x2 mm (Set of 5)
0018 Gasket 1 in. (Set of 5)
0019 Gasket, 1¼ in. (Set of 5)
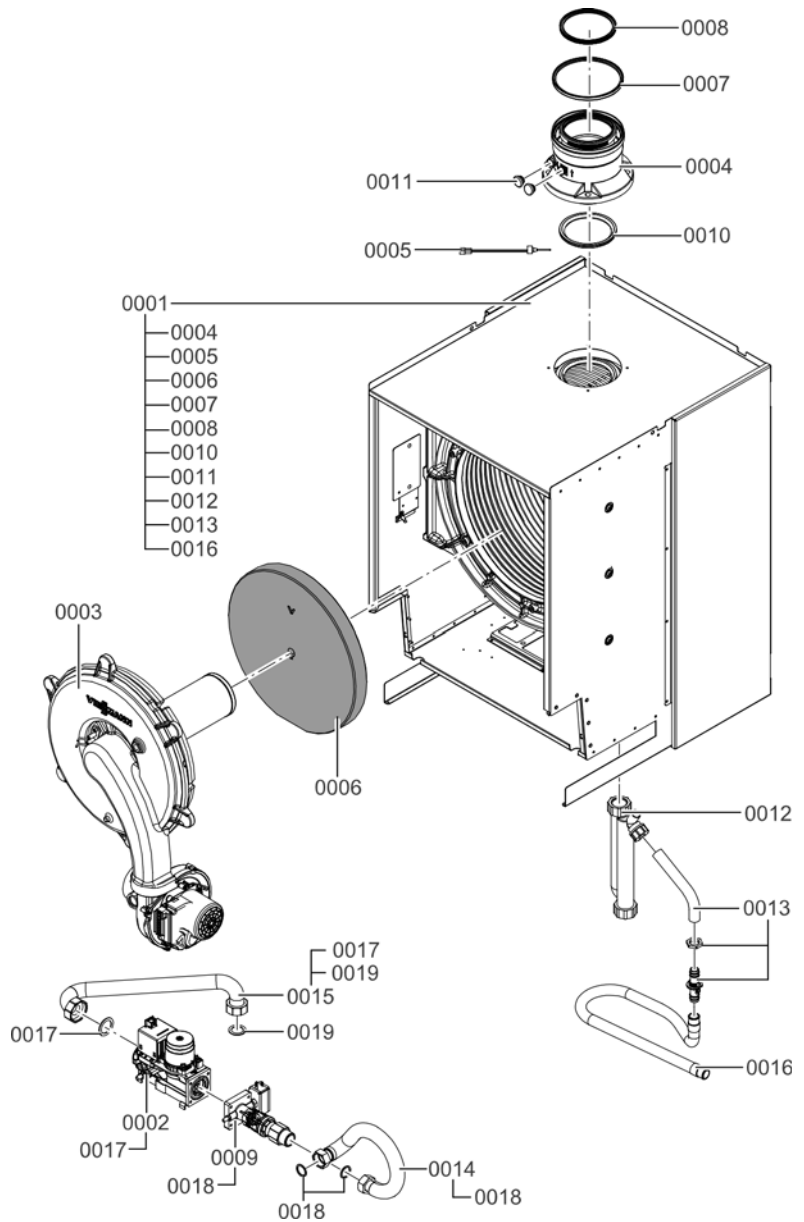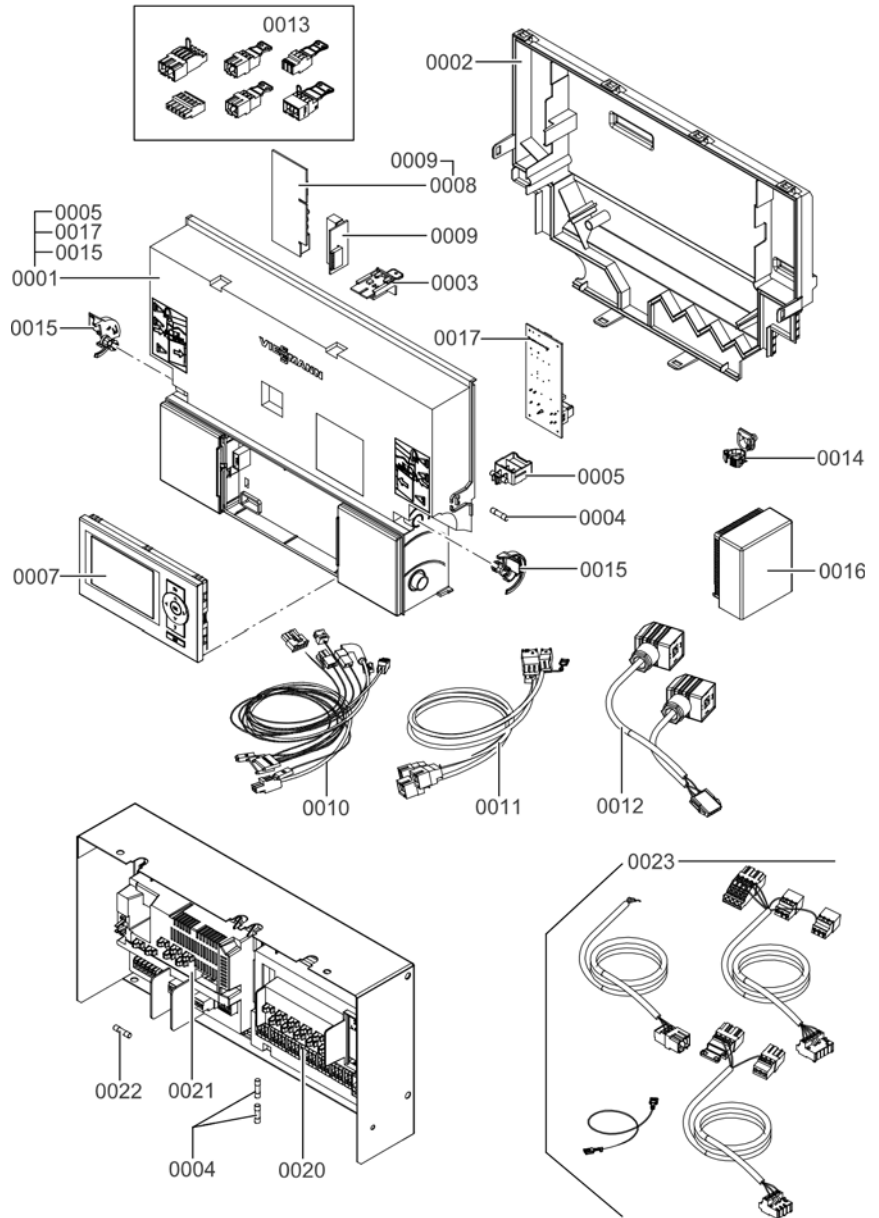
Parts Lists *(continued)*

Model No.   **Serial No**.
B2HA 112, 399 Boiler   7510835□□□□□□□□□□
B2HA 150, 530 Boiler   7510836□□□□□□□□□□

Ordering Replacement Parts:
Please provide model no. from rating plate and serial no.
when ordering replacement parts. Order replacement
components from your Viessmann distributor.

Parts for Burner Assembly
0001 Burner gasket, D408 mm
0002 Combustion chamber door refractory
0003 Burner tube, NG/LP
0004 Gasket for burner tube
0005 Burner mounting flange assembly
0006 Radial fan, NRG137
0007 Ionization electrode
0008 Ignition electrode with gasket
0009 Gasket for ignition electrode
0010 Gasket for ionization electrode
0011 Flapper
0012 Bracket (Set of 6)
0013 Ignition module
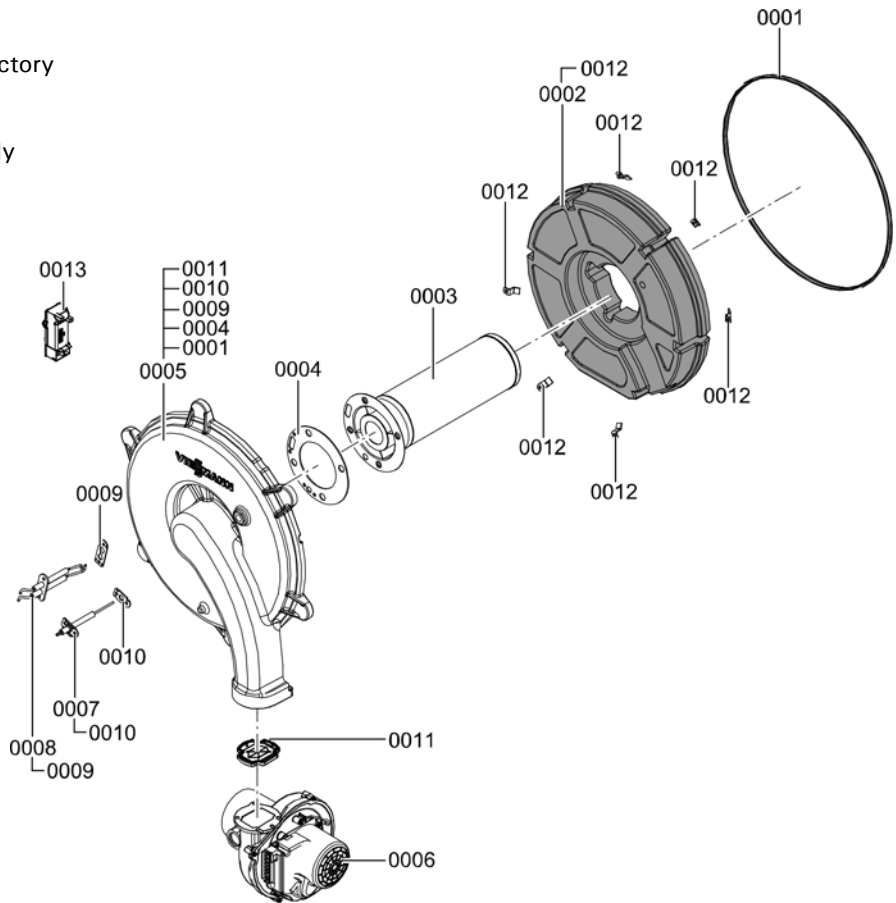
5683 710 - 26

Parts Lists *(continued)*

Model No.   **Serial No**.
B2HA 112, 399 Boiler 7510835☐☐☐☐☐☐☐☐☐
B2HA 150, 530 Boiler 7510836☐☐☐☐☐☐☐☐☐

Ordering Replacement Parts:
Please provide model no. from rating plate and serial no.
when ordering replacement parts. Order replacement
components from your Viessmann distributor.

Parts for Control Assembly
0001 Control console
0002 Control housing, rear
0003 Coding plug
0004 Fuse, 6.3A/250V (Pkg of 10)
0005 Fuse holder
0007 Vitotronic 200 HO1B
0008 LON communication module H01B
0009 Circuit board (LON module adaptor)
0010 Cable harness X8/X9/ioniz.
0011 Cable harness 100/35/54/PE
0012 Cable harness GDW1/GDW2
0013 Counter plug, Neptune
0014 Cable strain relief (Set of 10)
0015 Locking assembly (left/right)
0016 Outdoor temperature sensor, NTC
0017 Circuit board for internal expansion
0020 Power/pump control module
0021 Extension module EA1, 120/1/60
0022 Fuse, 2.0A/250V (Pkg of 10)
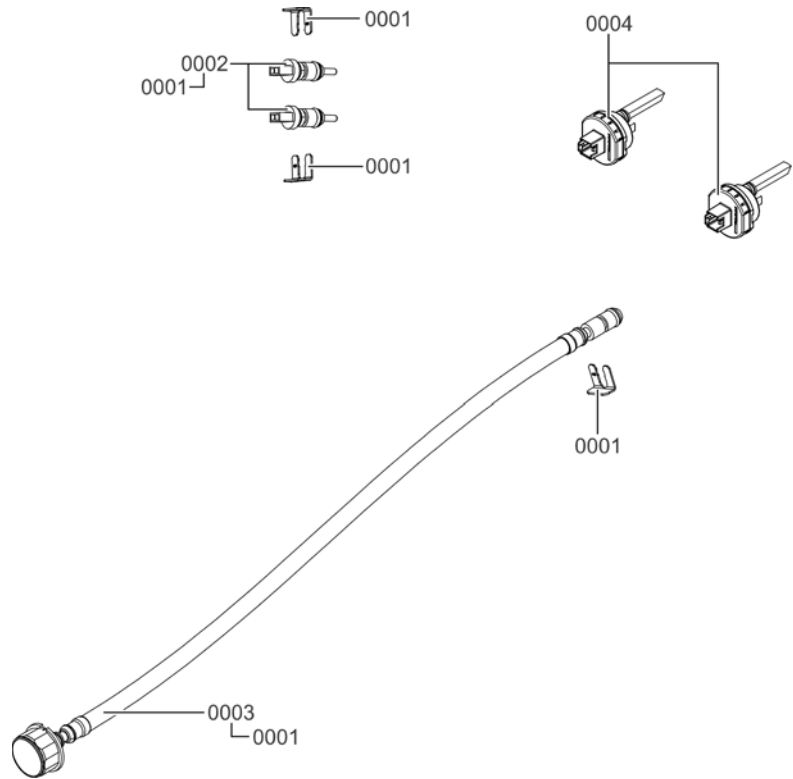0023 Harness set, ppc module

Parts Lists *(continued)*

Model No.   **Serial No**.
B2HA 112, 399 Boiler   7510835□□□□□□□□□□
B2HA 150, 530 Boiler   7510836□□□□□□□□□□

Ordering Replacement Parts:
Please provide model no. from rating plate and serial no.
when ordering replacement parts. Order replacement
components from your Viessmann distributor.

Parts for Hydronic Assembly
001   Clip D8 mm (Set of 5)
002   Boiler temperature sensor (Set of 2)
003   Pressure gage with clip and gasket
004   Flow sensor

Technical Data

Boiler Model No. B2HA		112, 399	150, 530 *A
CSA input Natural Gas (NG)	MBH	113-399	113-530
	(kW)	(33-117)	(33-155)
CSA input Liquid Propane Gas (LPG)	MBH	113-399	113-530
	(kW)	(33-117)	(33-155)
CSA output NG *3	MBH	103-375	103-495
	(kW)	(30-110)	(30-145)
CSA output LPG *3	MBH	103-375	103-495
	(kW)	(30-110)	(30-145)
DOE/AHRI Gross output	MBH	371	490
	(kW)	(109)	(144)
Net AHRI Rating *B	MBH	323	426
	(kW)	(95)	(125)
Heat exchanger surface area	ft.^{2}	36.78	36.78
	(m^2)	(3.41)	(3.41)
Min. gas supply pressure			
Natural gas	"w.c.	4	4
Liquid propane gas	"w.c.	10	10
Max. gas supply pressure *1			
Natural gas	"w.c.	14	14
Liquid propane gas	"w.c.	14	14
ANSI Z21,13/CSA 4.9			
Thermal efficiency	%	93.9	93.5
AHRI, BTS-2000 *C			
Combustion efficiency	%	93.5	93.0
Thermal efficiency	%	93.0	92.5
Weight	lbs	298	298
	(kg)	(135)	(135)
Boiler water content	USG	4	4
	(L)	(15)	(15)
Boiler max. flow rate *2	GPM	37.9	38
	(L/h)	(8600	(8600
Max. operating pressure	psig	80	80
at 210° F (99° C)	(bar)	(5.5)	(5.5)
Boiler water temperature			
- Adjustable high limit (AHL) range	°F	68 to 185	68 to 185
space heating (steady state)	(°C)	(20 to 85)	(20 to 85)
DHW production	°F	185	185
	(°C)	(85)	(85)
- Fixed high limit (FHL)	°F (°C)	210 (99)	210 (99)
Boiler connections			
Boiler heating supply and return	NPTM	2 in.	2 in.
Pressure relief valve	NPTF	¾ in.	¾ in.
Drain valve	(male thread)	¾ in.	¾ in.
Boiler supply/return for indirect-fired DHW storage tank (field supplied)	NPT	2 in.	2 in.
Gas valve connection	NPTF	1 in.	1 in.

*A   For high altitude installations 5,000 - 10,000 ft. (1500 m - 3000 m), the input for model B2HA 150, 530 will have an altitude de-ration of 14% for 5,000 ft. (1500 m) and 29% for 10,000 ft. (3000 m) average of 2.8% / 1,000 ft. (305 m). The input for model B2HA 112, 399 at 10,000 ft. (3000 m) will have an input de-rate of 13%.

*B   Net AHRI rating based on piping and pick-up allowance of 1.15.

*C   Tested to AHRI, BTS-2000 Testing Standard Method to Determine Efficiency of Commercial Heating Boilers.

*1   If the gas supply pressure exceeds the maximum gas supply pressure value, a separate gas pressure regulator must be installed upstream of the heating system.

*2   See "Waterside Flow" in the Installation Instructions.

*3   Output based on 180°F (82°C), 80°F (26°C) system supply/return temperature.

Technical Data *(continued)*

Boiler Model No. B2HA		112, 399	150, 530 *A
Dimensions			
Overall depth	inches	27.1	27.1
	(mm)	(689)	(689)
Overall width	inches	23⁵/₈	23⁵/₈
	(mm)	(600)	(600)
Overall height	inches	44½	44½
	(mm)	(1128) *8	(1128) *8
Flue gas *4			
Temperature (at boiler return temperature of 86ºF (30ºC)			
- at rated full load	ºF (ºC)	124 (51)	140 (60)
- at rated partial load	ºF (ºC)	102 (39)	102 (39)
Temperature (at boiler return temperature of 140ºF (60ºC)	ºF (ºC)	158 (70)	165 (74)
Max. condensate flow rate *5 for NG and LPG $T_S/T_R = 104/86$ºF (40/30ºC)	USG/h	4.35	5.28
	(L/h)	(16.5)	(20.0)
Condensate connection *6	hose nozzle Ø in.	¾ - 1	¾ - 1
Boiler flue gas connection *7	Ø in. (mm)	4³/₈ (110)	4³/₈ (110)
Combustion air supply connection (coaxial)	outer Ø in. (mm)	6 (150)	6 (150)
Sound Rating			
- at maximum input	dB	57	61
- at minimum input	dB	40	40
NOx @ 3% O2		< 20 PPM *9	

*A For high altitude installations 5,000 - 10,000 ft. (1500 m - 3000 m), the input for model B2HA 150, 530 will have an altitude de-ration of 14% for 5,000 ft. (1500 m) and 29% for 10,000 ft. (3000 m) average of 2.8% / 1,000 ft. (305 m). The input for model B2HA 112, 399 at 10,000 ft. (3000 m) will have an input de-rate of 13%.

*4 Measured flue gas temperature with a combustion air temperature of 68°F (20°C).

*5 Based on maximum input rate.

*6 Requires 1 inch (25 mm) tubing. See the Installation Instructions of the Vitodens 200-W, B2HA for details.

*7 For side wall vent installations (coaxial system):
Do not exceed max. equivalent length specified in the Installation Instructions of the Vitodens 200-W, B2HA Venting System.
Do not attempt to common-vent Vitodens 200-W with any other appliance.
Side wall co-axial vent installation must include Viessmann protective screen!
For details refer to the Installation Instructions for the Vitodens 200-W, B2HA Venting System.

*8 Add approximately 2½ inches (65 mm) for coaxial vent pipe transition adaptor.
*9 Optional low NOx certified by SCAQMD Natural Gas models available.

For information regarding other Viessmann System Technology componentry, please reference the documentation of each respective product.

Maintenance Record

Measurements		Service date: by:	Service date: by:	Service date: by:	Service date: by:	Service date: by:	Service date: by:	Setpoint value
Static pressure	"w.c.							max. 14 "w.c.
Running pressure (supply pressure)								
☐ Natural gas	"w.c.							4-14 "w.c.
☐ LPG	"w.c.							10-14 "w.c.
Check gas type								
Carbon dioxide content CO_2								
■ at lower end of rated input range	vol.-%							
■ at upper end of rated input range	vol.-%							
Oxygen content O_2								
■ at lower end of rated input range	vol.-%							
■ at upper end of rated input range	vol.-%							
Carbon monoxide content CO								
■ at lower end of rated input range	ppm							50 ppm air-free*
■ at upper end of rated input range	ppm							
Ionization current	µA							

*Fuel type, altitude, venting and other site parameters may change

Lighting and Operating Instructions

FOR YOUR SAFETY READ BEFORE OPERATING

W A R N I N G: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
WHAT TO DO IF YOU SMELL GAS
- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.

2. Set thermostat or other operating control to lowest setting.

3. Turn off all electric power to the appliance.

4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

Manual gas shutoff

Closed

Open

5. Close main gas shut-off valve.

6. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.

7. Open main gas shut-off valve.

8. Turn on all electric power to the appliance.

9. Set thermostat or other operating control to desired setting.

10. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Set thermostat or other operating control to lowest setting.

2. Turn off all electric power to the appliance if service is to be performed.
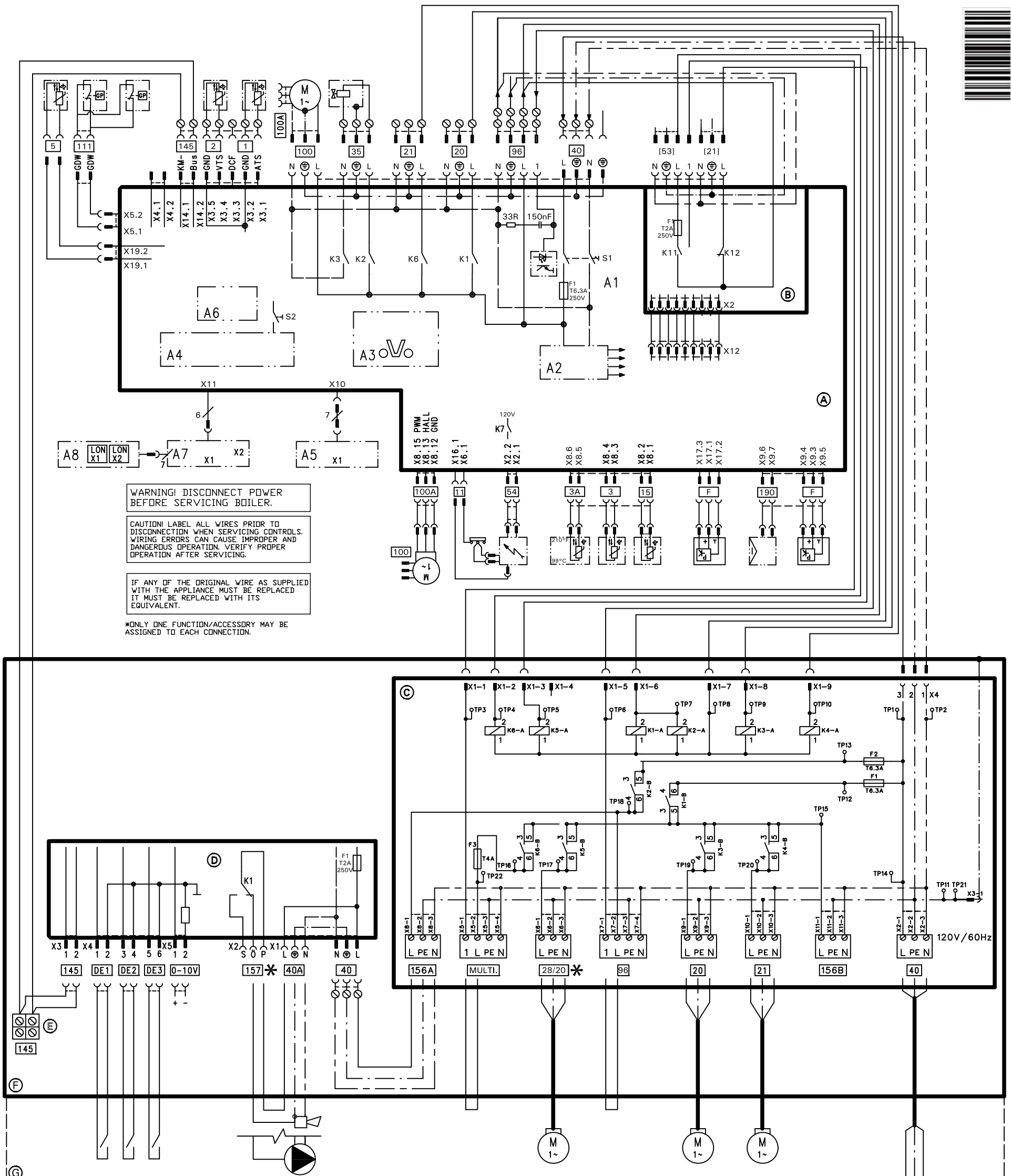
3. Close main gas shut-off valve.

5683 710 - 26

Printed on environmentally friendly
(recycled and recyclable) paper.

Technical information subject to change without notice.

Vitodens 200, B2HA Models 112/150/399/530

WARNING! DISCONNECT POWER BEFORE SERVICING BOILER.

CAUTION! LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION. VERIFY PROPER OPERATION AFTER SERVICING.

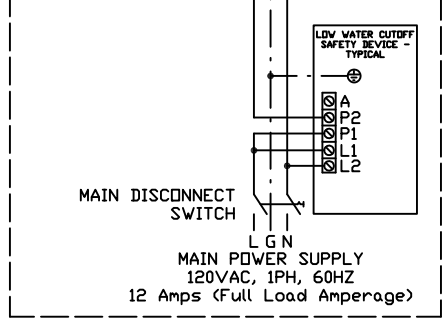IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED IT MUST BE REPLACED WITH ITS EQUIVALENT.

*ONLY ONE FUNCTION/ACCESSORY MAY BE ASSIGNED TO EACH CONNECTION.

120V/60HZ

Electrical Installations Must Comply With;

In the U.S.A. National Electrical Code (NEC), ANSI/NFPA 70 and any other national, state, and local codes and/or regulations.

In Canada, the Canadian Electrical Code (CEC), CSA C22.1 Canadian Electrical Code Part 1 and any other province, territory, local codes and/or regulations.

LOW WATER CUTOFF SAFETY DEVICE - TYPICAL

MAIN DISCONNECT SWITCH

L G N
MAIN POWER SUPPLY
120VAC, 1PH, 60HZ
12 Amps (Full Load Amperage)

Ⓐ Boiler Control
Ⓑ External Access. Con. Board
Ⓒ Pump Connection Interface
Ⓓ Extension Module EA1
Ⓔ KM-BUS for External Devices
Ⓕ Electrical Junction Box
Ⓖ Field Wiring Connections
A1 Main Board
A2 Internal Power Supply Unit

A3 Optolink
A4 Burner Control Unit
A5 Programming Unit
A6 Coding Card
A7 Connection Adapter
A8 LON Communication Module
S1 ON/OFF Switch
S2 Reset Button
X... Electrical Interface

1	Outdoor Temperature Sensor	35	Gas Valve	156A	Switched Output F2
2	Flow Temperature Sensor/Low Loss Header	40	Power Supply	156B	Switched Output F1
3	Boiler Temperature Sensor/High Limit Sensor	40A	Accessory Power Output	DE1	Digital Input 1 (Dry Contact)
3A	Boiler Temperature Sensor/High Limit Sensor	[53]	Powered Accessory Connection	DE2	Digital Input 2 (Dry Contact)
5	DHW Temperature Sensor	54	Ignition Transformer	DE3	Digital Input 3 (Dry Contact)
11	Ionization Electrode	96	Powered Accessory Connection	0-10V	0-10VDC Input
15	Flue Gas Temperature Sensor	100	Fan Motor	157	Fault Alarm/DHW Recirc. Pump*
20	Boiler Pump	100A	Fan Motor Control	190	Gas Modulation Coil
21	DHW Pump	111	Low and High Pressure Gas Switches	F	Flow Sensor
[21]	Pump Output Connection	145	KM-BUS		
28/20	Programmable Pump Output*	Multi	Powered Accessory Connection		

08-2017

5683 903 - 10

Operating Instructions

for use by heating contractor

VIESSMANN

Vitodens 200-W, B2HA Models 45 to 530
Wall-mounted, gas-fired condensing boiler in conjunction
with the Vitotronic 300-K MW2C cascade control
For operation with natural gas and liquid propane gas
Heating input: 61 to 530 MBH
18 to 150 kW

Vitocrossal 300, CU3A Models 26 to 199
Floor mounted, gas-fired condensing boiler in conjunction
with the Vitotronic 300-K MW2C cascade control
For operation with natural gas and liquid propane gas
Heating input: 19 to 199 MBH
5.5 to 58 kW

Vitodens 200-W, B2HB Models 45, 57, 160, 199
Wall-mounted, gas-fired condensing boiler in conjunction
with the Vitotronic 300-K MW2C cascade control
For operation with natural gas and liquid propane gas
Heating input: 32 to 199 MBH
9 to 58 kW

VITOTRONIC® 200

With KW6B/HO1B User Interface - Constant temperature control mode

⚠ **WARNING**

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS
- **Do not try to light any appliances.**
- **Do not touch any electrical switches, do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

⚠ **WARNING**

Improper installation, adjustment, and/or operation could cause carbon monoxide poisoning resulting in injury or loss of life.

This product must be installed and serviced by a professional service technician who is experienced and qualified in hot water boiler installation and gas combustion.

Product may not be exactly as shown

IMPORTANT

Read and save these instructions for future reference.

Certified as a component part for Viessmann boilers

Safety, Installation and Warranty Requirements

Please ensure that these instructions are read and understood before commencing installation. Failure to comply with the instructions listed below and details printed in this manual can cause product/property damage, severe personal injury, and/or loss of life. Ensure all requirements below are understood and fulfilled (including detailed information found in manual subsections).

■ **Product documentation**
Read all applicable documentation before commencing installation. Store documentation near boiler in a readily accessible location for reference in the future by service personnel.

▶*For a listing of applicable literature, please see section entitled "Important Regulatory and Safety Requirements".*

■ **Warranty**
Information contained in this and related product documentation must be read and followed. Failure to do so renders the warranty null and void.

■ **Licensed professional heating contractor**
The installation, adjustment, service and maintenance of this equipment must be performed by a licensed professional heating contractor.

▶*Please see section entitled "Important Regulatory and Installation Requirements".*

■ **Contaminated air**
Air contaminated by chemicals can cause by-products in the combustion process, which are poisonous to inhabitants and destructive to Viessmann equipment.

▶*For a listing of chemicals which cannot be stored in or near the boiler room, please see subsection entitled "Mechanical room" in the "Installation Instructions".*

■ **Advice to owner**
Once the installation work is complete, the heating contractor must familiarize the system operator/ultimate owner with all equipment, as well as safety precautions/requirements, shutdown procedure, and the need for professional service annually before the heating season begins.

> ⚠ **WARNING**
>
> **Installers must follow local regulations with respect to installation of carbon monoxide detectors. Follow the Viessmann maintenance schedule of the boiler contained in this manual.**

Operating and Service Documentation

It is recommended that all product documentation such as parts lists, operating and service instructions be handed over to the system user for storage. Documentation is to be stored near boiler in a readily accessible location for reference by service personnel.

■ **Carbon monoxide**
Improper installation, adjustment, service and/or maintenance can cause flue products to flow into living space. Flue products contain poisonous carbon monoxide gas.
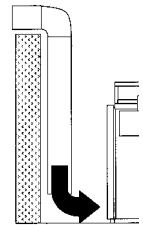
▶*For information pertaining to the proper installation, adjustment, service and maintenance of this equipment to avoid formation of carbon monoxide, please see subsection entitled "Mechanical room" and "Venting requirements" in the "Installation Instructions".*

■ **Fresh air**
This equipment requires fresh air for safe operation and must be installed ensuring provisions for adequate combustion and ventilation air exist.

▶*For information pertaining to the fresh air requirements of this product, please see subsection entitled "Mechanical room" in the "Installation Instructions".*

■ **Equipment venting**
Never operate boiler without an installed venting system. An improper venting system can cause carbon monoxide poisoning.

▶*For information pertaining to venting and chimney requirements, please see section entitled "Venting Connection". All products of combustion must be safely vented to the outdoors.*

> ⚠ **WARNING**
>
> **This boiler requires fresh air for safe operation and must be installed with provisions for adequate combustion and ventilation air (in accordance with local codes and regulations of authorities having jurisdiction).**
>
> **Do not operate this boiler in areas with contaminated combustion air. High levels of contaminants such as dust, lint or chemicals can be found at construction sites, home renovations, in garages, workshops, in dry cleaning/laundry facilities, near swimming pools and in manufacturing facilities.**
>
> **Contaminated combustion air will damage the boiler and may lead to substantial property damage, severe personal injury and/or loss of life. Ensure boiler/burner is inspected and serviced by a qualified heating contractor at least once a year in accordance with the Service Instructions of the boiler.**

5547 199 - 05

Page

About these Instructions

⚠ **Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include "WARNING", "CAUTION", and "IMPORTANT". See below.**

⚠ WARNING
Indicates an imminently hazardous situation which, if not avoided, could result in loss of life, serious injury or substantial product/property damage.

▶ *Warnings draw your attention to the presence of potential hazards or important product information.*

⚠ CAUTION
Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product/property damage.

▶ *Cautions draw your attention to the presence of potential hazards or important product information.*

IMPORTANT

▶ *Helpful hints for installation, operation or maintenance which pertain to the product.*

▶

▶ *This symbol indicates that additional, pertinent information is to be found.*

▶ *This symbol indicates that other instructions must be referenced.*

For your Safety

Operation

Before operating the boiler, make sure you fully understand its method of operation. Your heating contractor should always perform the initial start-up and explain the system. Any warranty is null and void if these instructions are not followed.

Working on the equipment

All personnel working on the equipment or the heating system must have the proper qualifications and hold all necessary licenses.

Ensure main power to equipment, heating system, and all external controls has been deactivated. Close main gas supply valve. Take precautions in all instances to avoid accidental activation of power during service work.

Maintenance and cleaning

Regular inspection and service by a qualified heating contractor is important to the performance of the Viessmann Vitodens 200-W and Vitocrossal 300 CU3A. Neglected maintenance impacts on warranty; regular inspection ensures clean, environmentally friendly and efficient operation. We recommend a maintenance contract with a qualified heating contractor.

Flue gas smell

- Deactivate heating equipment.
- Open windows and doors.
- Inform your heating contractor.

Dangerous conditions

- Deactivate main power immediately.
- Close gas supply valve.

Technical information

Literature applicable to all aspects of the Vitodens 200-W and Vitocrossal 300 CU3A:
- Technical Data Manual
- Installation Instructions
- Service Instructions

Additional applicable literature:
- Installation/Service Instructions Vitotronic 300-K MW2C
- Operating Instructions Vitotronic 300-K MW2C

4

For your Safety *(continued)*

Carbon monoxide

The U.S. Consumer Product Safety Commission strongly recommends the installation of carbon monoxide detectors in buildings in which gas-burning equipment is installed. Carbon monoxide (CO) is a colorless, odorless gas, which may be produced during incomplete combustion of fuel and/or when the flame does not receive an adequate supply of combustion air.

Carbon monoxide can cause severe personal injury or loss of life.

Therefore, carbon monoxide detectors that are in compliance with a nationally recognized standard (e.g. ANSI/UL 2034, CSA 6.19 latest edition) should be installed and maintained in buildings that contain gas-burning equipment.

Note: Viessmann does not test any detectors and makes no representation regarding any brand or type of detector.

For safe operation

We recommend that you frequently:
- Check for debris which could obstruct the flow of flue gases. The vent or chimney must not be blocked. A blocked or partially blocked vent or chimney can cause flue gases to leak into the structure. Flue gases leaking into the house can cause injury or loss of life. Blocked or partially blocked chimneys must have the blockage removed by a qualified heating contractor.
- Check pressure gage for correct system (water) pressure. Check for water on the floor from the discharge pipe of the pressure relief valve or any other pipe, pipe joint, valve or air vent.
- Check for moisture, water, or appearance of rust on the flue gas pipes, their joints as well as vent dampers, or side wall vent terminals (if so equipped).
- Ensure that nothing is obstructing the flow of combustion and ventilation air and no chemicals, garbage, gasoline, combustible materials, flammable vapors and liquids are stored (not even temporarily) in the vicinity of the boiler.
- Do not allow unsupervised children near the boiler.

Service/inspection of the boiler and the system is recommended once a year. Maintenance, service and cleaning are specified in the Installation Instructions.

Before the heating season begins, it is recommended that the boiler and burner be serviced by a qualified heating contractor. Service contracts may be established through gas suppliers or other licensed contractors in your area.

> ⚠️ **WARNING**
>
> As there are no user-serviceable parts on the boiler, burner or control, the end-user must not perform service activities or adjustments of any kind on system components. Failure to heed this warning can cause property damage, severe personal injury, or loss of life.

> ⚠️ **WARNING**
>
> Improper installation, adjustment, service, or maintenance can cause flue products to flow into living space. Flue products contain poisonous carbon monoxide gas which can cause nausea or asphyxiation resulting in severe personal injury or loss of life.

> ⚠️ **CAUTION**
>
> Should overheating occur or the gas supply fail to shut off, do not disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the appliance.

> ⚠️ **WARNING**
>
> The operator/ultimate owner is required to have the heating boiler, burners, and controls checked, as a minimum once per year, by the original installer or by a competent heating contractor familiar with the equipment. Defects must be corrected immediately.

> ⚠️ **CAUTION**
>
> Do not use this boiler if any part has been under water. Immediately call a qualified heating contractor to inspect the boiler and to replace any part of the control system and any gas control which has been under water.

Frozen water pipe hazard

> ### ⚠ WARNING
>
> **Failure to protect against frozen pipes could result in burst water pipes, serious property damage and/or personal injury. Boiler may shut down. Do not leave your home unattended for long periods of time during freezing weather conditions without turning off the water supply and draining water pipes or otherwise protecting against the risk of frozen pipes.**

Your heating boiler is designed to provide a warm and comfortable living environment. It is not designed to ensure against freezing of water pipes. The boiler is equipped with several safety devices that are designed to shut down the boiler and to prevent it from restarting in the event of various unsafe conditions.

If your boiler remains off for an extended period of time during cold weather, water pipes may freeze and burst, resulting in extensive water damage and conditions in which mold could grow. Certain molds are known to cause respiratory problems, as well as to pose other serious health risks. In case of water damage, immediate measures should be taken to dry out affected areas as quickly as possible to prevent mold from developing.

If your home will be unattended for an extended period of time during cold weather, you should…

■ Shut off the water supply to the building, drain the water pipes and add an antifreeze for potable water to drain traps and toilet tanks. Open faucets where appropriate.

Or..

■ Have someone check the building frequently during cold weather and call a qualified service agency if required.

Or…

■ Install a reliable remote temperature sensor that will notify somebody of freezing conditions within the home.

Replacement components, spare and wear parts

> ### IMPORTANT

Components which are not tested with the heating system may damage the heating system, or affect its functions. Installation or replacement may only be carried out by a qualified heating contractor.

Installation area conditions

> ### ⚠ WARNING
>
> **Incorrect ambient conditions can lead to damage to the heating system and put safe operation at risk.**

■ Ensure ambient temperatures are higher than 32°F (0°C) and lower than 104°F (40°C).

■ Prevent the air from becoming contaminated by halogenated hydrocarbons (e.g. as contained in paint solvents or cleaning fluids) and excessive dust (e.g. through grinding or polishing work). Combustion air for the heating process, and ventilation of the boiler room must be free of corrosive contaminants. To that end, any boiler must be installed in an area that has no chemical exposure. The list to the right indicates the main, currently known sources.

■ Avoid continuously high levels of humidity (e.g. through frequent drying of laundry).

■ Never close existing ventilation openings.

Sources of combustion and ventilation air contaminants
Areas likely to contain contaminants:
■ New building construction
■ Swimming pools
■ Remodelling areas, hobby rooms
■ Garages with workshops
■ Furniture refinishing areas
■ Dry cleaning/laundry areas and establishments
■ Auto body shops
■ Refrigeration repair shops
■ Metal fabrication plants
■ Plastic manufacturing plants
■ Photo processing plants
■ Beauty salons

Products containing contaminants:
■ Chlorine-type bleaches, detergents and cleaning solvents found in household laundry rooms
■ Paint and varnish removers
■ Hydrochloric acid, muriatic acid
■ Chlorine-based swimming pool chemicals
■ Spray cans containing chlorofluorocarbons
■ Chlorinated waxes and cleaners
■ Cements and glues
■ Refrigerant leaks
■ Calcium chloride used for thawing
■ Sodium chloride used for water softening salt
■ Permanent wave solutions
■ Adhesives used to fasten building products and other similar items
■ Antistatic fabric softeners used in clothes dryers

Where to Find the Controls

Each boiler is equipped with its own control unit for constant temperature operation.
These control units are regulated by a higher weather-compensated cascade control unit.

■ Control unit in constant temperature mode on the boiler: Vitotronic 200

Controls, Vitotronic 200

Vitotronic 200, type HO1B

⇍ Takes you to the previous step in the menu or cancels a setting that has been started.
⊹ Cursor keys
 To scroll through the menu or to set values.
OK Confirms your selection or saves the setting.
? No function.
≡ Enables you to call up the menu for settings and scanning.

How to Use the Controls, Vitotronic 200

In multi boiler systems, each Vitotronic 200 indicates the boiler number on the standard display. The following example shows the boiler water temperature as indicated by boiler 4.
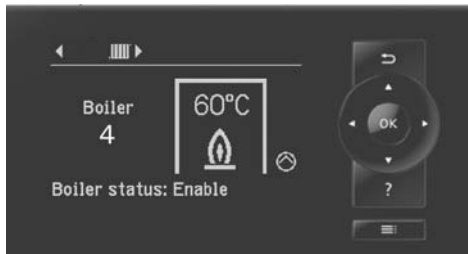
Press ≡.
This takes you to the menu for settings and scanning.

Note: If a boiler is not in operation, the following appears in the display of the corresponding control unit:

Symbols

These symbols are not always displayed, but appear subject to the system version and the operating state. Flashing displays indicate that modifications can be made.

Menu

i Information
♂ Further adjustments
🖋 Emissions test mode

Heating program

⏻ Standby mode with frost protection monitoring
▥ The boiler is available to the cascade control unit for heat production.

Messages

🔧 Service message
⚠ Fault message
⇪ Burner fault

Displays

⊘ Circulation pump at output 20 is running
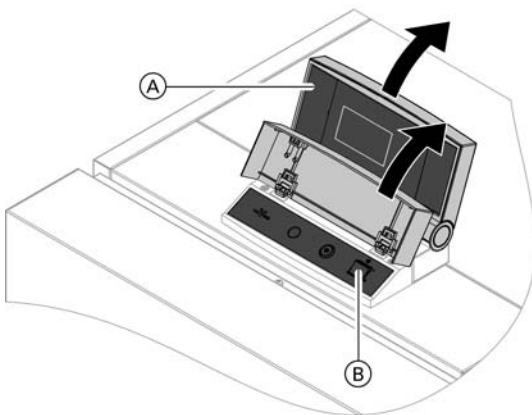▷ Burner in operation
⪥ Factory settings

Controls Overview

Vitodens 200-W controls with side panels open

Legend
Ⓐ Fault indicator (red)
Ⓑ ON indicator (green)
Ⓒ Reset button
Ⓓ ON/OFF switch
Ⓔ Pressure gauge (pressure display)
Ⓕ Vitotronic 200, type HO1B user interface

Vitocrossal 300 CU3A controls with panel covers open

Legend
Ⓐ Vitotronic 200, type HO1B user interface
Ⓑ Vitotronic 200, type KW6B
Ⓒ Fault indicator (red)
Ⓓ On indicator (green)
Ⓔ Reset button
Ⓕ ON/OFF switch

Start-up/Standby/Shutdown

Starting the heating system

1. Check the heating system pressure at the pressure gauge. The system pressure is too low if the indicator is below 14 psi. In this case, top up with water or notify your local heating contractor.

2. Check that the ventilation apertures of the installation room are open and unrestricted.

   Note: With room air dependant operation, the combustion air is drawn from the installation room.

3. Open the gas shut-off valve.

4. Switch ON the power supply, e.g. at a separate MCB/fuse or a main electrical disconnect.

5. Switch ON the ON/OFF switches at the Vitotronic 200 (see chapter "Controls" overview). After a short time, the following is shown on the display:
   ■ Vitotronic 200: the standard display (see page 8)

   The green ON indicator illuminates.
   The boiler is now ready for heat production.

Note: On every Vitotronic 200, "IIII" must be selected, otherwise the Vitotronic 300-K cannot use the corresponding boiler to produce heat.

For additional start-up, standby and shutdown instructions related to the Vitotronic 300-K and the system, refer to the Vitotronic 300-K MW2C Operating Instructions,.

Placing each boiler in standby with frost protection monitoring

At the relevant Vitotronic 200, press the following keys:

1. ≡ for settings; "IIII" flashes.
2. **OK** to confirm; "⏻🚰IIII" flashes.
3. **OK** to confirm; "🚰IIII" flashes.
4. ◄ until "⏻" flashes.
5. **OK** to confirm.

Note: The boiler pumps are briefly started every 24 hours to prevent them from seizing up.

To end the heating program "Standby mode" select another heating program.

Shutting down the heating system without frost protection monitoring

1. Switch OFF the ON/OFF switches at all Vitotronic 200.
2. Close the gas shut-off valve.
3. Isolate the heating system from its main power supply, e.g. at a separate MCB/fuse or a mains isolator.
4. Where outside temperatures of below 37°F (3°C) are anticipated, please take suitable measures to protect the heating system against frost. If necessary, contact your heating contractor.

Information on a prolonged shutdown

■ Circulation pumps may seize up as they are not supplied with power.

Setting the Display Contrast

Extended menu:

1. ≡⋮
2. "Settings"
3. "Contrast"
4. Set the required contrast.

Setting the Display Brightness

If you would like the texts in the menu to be more clearly legible, change the brightness for "Control".
You can also alter the screen saver brightness.

Extended menu:

1. ≡⋮
2. "Settings"
3. "Brightness"
4. "Control" or "Screen saver"
5. Set the required brightness.

Selecting the Language

Sprache	
Deutsch	DE ☑
Cesky	CZ ☐
Dansk	DK ☐
English	GB ☐
Wählen mit ⬍	

At the commissioning stage, the display is in German.

1. "Sprache" (Language) Deutsch DE (German)
2. Select the required language with ▲/▼
3. Accept by pressing OK.

To change the language
Extended menu:

1. ≡⋮
2. "Settings"
3. "Language"
4. Select the required language with ▲/▼
5. Accept by pressing OK.

Setting the Time and Date

The time and date are factory-set. If your heating system has been shut down for a long time, it may be necessary to set the time and date.

Extended menu:
1. ≡⋮
2. "Settings"
3. "Time/Date"
4. Set the time and date.

Setting the Temperature Unit (°C/°F)

Factory setting: °C

Extended menu
1. ≡⋮
2. Settings"
3. "Temperature unit"
4. Select the temperature unit "°C" or "°F".

Restoring Factory Settings

You can simultaneously reset all changed values to the factory settings.

Extended menu
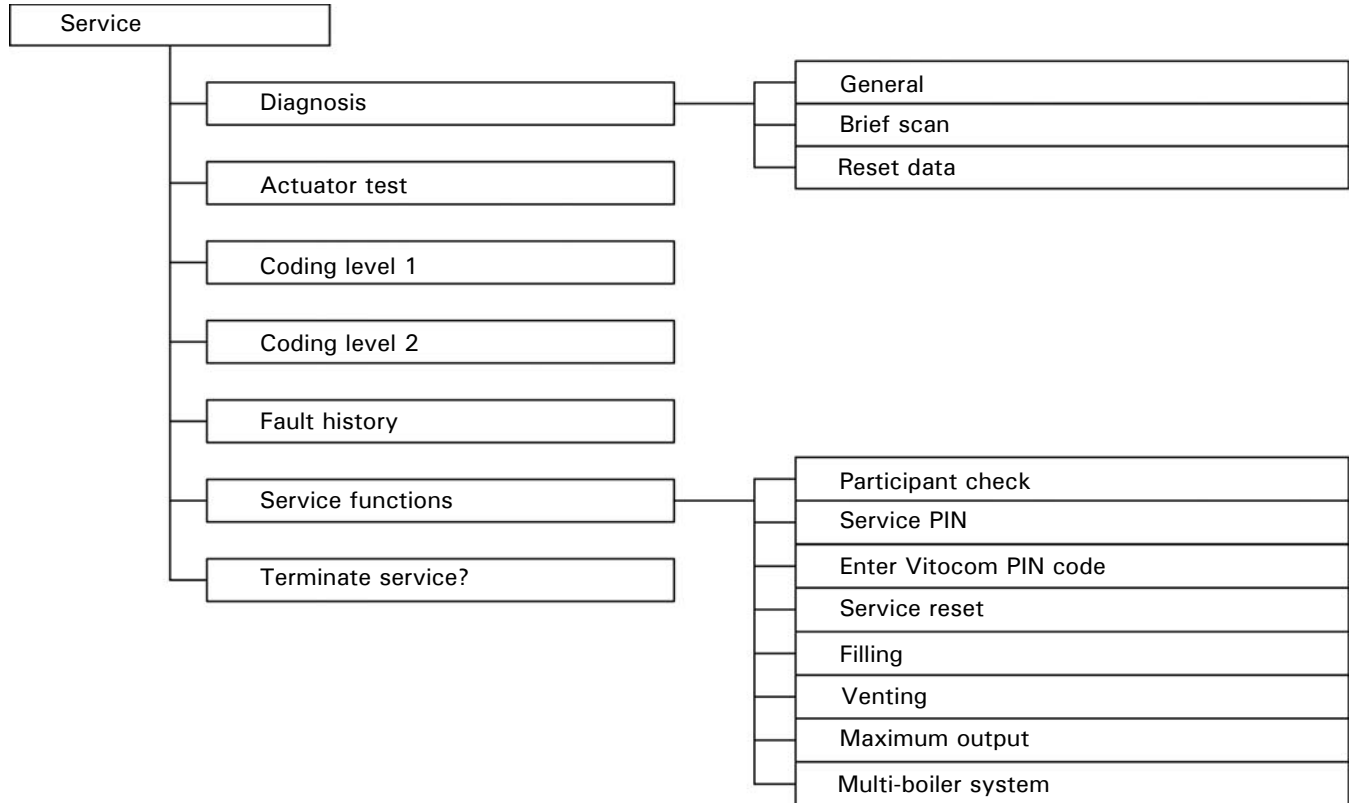1. ≡⋮
2. "Settings"
3. "Standard setting"

Factory settings:
- Heating program: "▥"
- Temperature unit: °C

Calling up the Service Level

Press OK and ☰ simultaneously for approximately 4 seconds.

Note: Do not adjust menu item "Multi-boiler system". The menu item turns a constant temperature control unit into a weather-compensated control unit.

Service menu overview

```
┌──────────────────┐
│ Service          │
└──┬───────────────┘
   │   ┌──────────────────────────────┐         ┌──────────────────────────────┐
   ├───│ Diagnosis                    │─────────│ General                      │
   │   └──────────────────────────────┘         ├──────────────────────────────┤
   │                                            │ Brief scan                   │
   │                                            ├──────────────────────────────┤
   │                                            │ Reset data                   │
   │   ┌──────────────────────────────┐         └──────────────────────────────┘
   ├───│ Actuator test                │
   │   └──────────────────────────────┘
   │   ┌──────────────────────────────┐
   ├───│ Coding level 1               │
   │   └──────────────────────────────┘
   │   ┌──────────────────────────────┐
   ├───│ Coding level 2               │
   │   └──────────────────────────────┘
   │   ┌──────────────────────────────┐
   ├───│ Fault history                │
   │   └──────────────────────────────┘
   │   ┌──────────────────────────────┐         ┌──────────────────────────────┐
   ├───│ Service functions            │─────────│ Participant check            │
   │   └──────────────────────────────┘         ├──────────────────────────────┤
   │                                            │ Service PIN                  │
   │   ┌──────────────────────────────┐         ├──────────────────────────────┤
   └───│ Terminate service?           │         │ Enter Vitocom PIN code       │
       └──────────────────────────────┘         ├──────────────────────────────┤
                                                │ Service reset                │
                                                ├──────────────────────────────┤
                                                │ Filling                      │
                                                ├──────────────────────────────┤
                                                │ Venting                      │
                                                ├──────────────────────────────┤
                                                │ Maximum output               │
                                                ├──────────────────────────────┤
                                                │ Multi-boiler system          │
                                                └──────────────────────────────┘
```

Exiting the service level

1. Select "Terminate service?".
2. Select "Yes".
3. Confirm with OK.

Note: The service level is automatically exited after 30 minutes.

Scanning operating data

- Operating data can be scanned in six areas.
  See "Diagnosis" in the service menu overview. Operating data on heating circuits with mixing valves and solar can only be scanned if the components are installed in the system. For further information on operating data, see chapter "Brief scan".

Note: "- - -" appears on the display if a sensor that has been scanned is faulty.

Calling up operating data

1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Diagnosis"
3. Select required group, e.g. "General

Resetting operating data

Saved operating data (e.g. hours run) can be reset to 0. The value "Adjusted outside temp" is reset to the actual value.

1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Diagnosis"
3. "Reset data"
4. Select required value (e.g. "Burner starts") or "All details".

Diagnosis

Diagnosis Brief scan
1:	1	F	0	A	1	2
2:	0	0	0	0	0	0
3:	0	0	0	0	0	0
4:	0	0	0	0	0	0
Select with ⬍						

Brief scan

In the brief scan, you can call up temperatures, software versions and connected components, for example.
1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Diagnosis"
3. "Brief scan".
4. Press OK. The display shows 9 lines with 6 fields each.

The following values can be scanned, depending on the system installed:

Display screen
- Boiler temperature setpoint
- Boiler temperature actual
- Boiler coding card
- Brief scan 1 to 8

For an explanation of the relevant values in the individual lines and fields, see the following table:

Line (brief scan)	Field					
	1	2	3	4	5	6
1:	0	System design	Software version control unit		Software version programming unit	
2:	0	0	Appliance version		Device identification ZE-ID	
3:	0	0	Number of KM BUS participants		0	0
4:	Software version burner control unit		Type Burner control unit		Burner control unit version	
5:	Internal details for calibration			0	Software version AM1 extension	Software version EA1 extension
6:	0	0	0	* Flow rate sensor switching state operation 1: Flow rate too low or no flow	0	0
7:	LON Subnet address system number		LON Node address		0	0
8:	LON SBVT configuration	LON software version communication co-processor	LON Neuron chip software version		Number of LON participants	
9:	0	0	0	0	0	0
10:	0	0	0	0	0	0
11:	0	0	0	0	0	0

* Only for Vitodens 200-W which are equipped with internal flow sensing device(s).

Checking Outputs (Relay Test)

1. Press OK and ☰ simultaneously for approximately 4 seconds.
2. "Actuator test"

The following relay outputs can be controlled subject to system design:

Display		Explanation
All actuators	Off	All actuators are off.
Base load	On	Burner operated at minimum output; circulation pump 20 is started.
Full load	On	Burner operated at maximum output; circulation pump 20 is started.
Output, internal	On	Output 20 active.
Output 21/28	On	Output 21 active.
Outp. int. exten. H1	On	Output 28/20 active.
EA1 output 1	On	Contact P - S at plug 157 of extension EA1 closed.

Scanning Service Messages

After a certain number of burner hours run, e.g. 05500 h

```
Service

Burner                    05500 h




Acknowledge with        OK
```
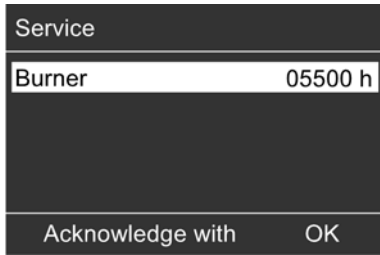
If your heating system is due for a service, the symbol "🔧" flashes on the Vitotronic 200 display, and the following displays are shown.
Your heating contractor can schedule maintenance work as follows:

Scanning Fault Messages

```
              Fault

             ⚠


Continue with           OK
```
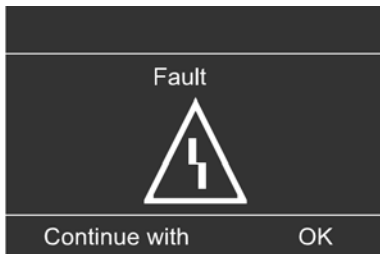
If any faults have occurred in a boiler, the symbol ⚠ flashes on the display and "Fault" is shown.
The red fault indicator also flashes (see chapter "Controls").

1. Notify your heating contractor of the fault code. This enables the heating contractor to be better prepared for the service call and may save additional travelling costs.

2. Acknowledge the fault message with **OK**. The symbol ⚠ no longer flashes.
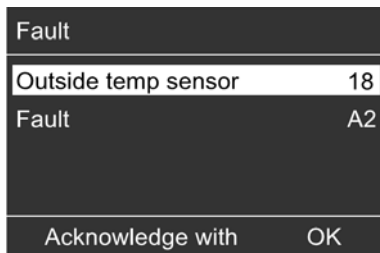
Note:

■ If you have connected up signalling equipment (e.g. a buzzer) for fault messages, this is deactivated when the fault message is acknowledged.

■ If the fault can only be fixed at a later point in time, the fault message will reappear the following day.

```
Fault

Outside temp sensor        18
Fault                      A2



Acknowledge with        OK
```

Calling up an acknowledged fault message

Press **OK** for approx. 4 sec.

Note: If there are several fault messages, you can scan these in sequence by pressing ▼/▲.

Note:

■ If you have connected up signalling equipment (e.g. a buzzer) for fault messages, this is deactivated when the fault message is acknowledged.

■ If the fault can only be rectified at a later date, the fault message will be displayed again the next day and the signalling equipment will be switched on again.

```
Menu

Fault
Boiler sequence          ⚠
Heating
DHW
Continue with           OK
```

Calling up an acknowledged fault message

Extended menu

1. ☰

2. "Fault"

📖 Refer to the appropriate Vitodens 200-W and Vitocrossal 300 CU3A Service Instructions for fault codes.

Emissions Test Mode

Emissions test mode for testing flue gas with boiler water temperature raised briefly. This test mode should only be activated by your service technician during the annual inspection.

Test mode must be activated at the Vitotronic 200 of the boiler to be tested and also, for heat transfer, at the Vitotronic 300-K cascade control unit.

Refer to the Vitotronic 300-K MW2C Operating Instructions.

Press the following keys:

1. ☰
2. "test mode".
3. **Use ▲/▼ to select "ON"**
4. **OK** to confirm.
5. '⮌' to exit

Ending emissions test mode

Press the following keys:

1. ☰ for settings; "▥" flashes.
2. ► until "⚡" flashes.
3. **OK** to confirm; "OFF" flashes.
4. **OK** to confirm.

Emissions test mode ends automatically after 30 min.

"OFF" is Displayed at the Vitotronic 200

Cause	Remedy
The heating program is enabled or the boiler is shut down externally.	Set the heating program ▥. If necessary, notify your heating contractor.

"⚒" is Displayed at the Vitotronic 200

Cause	Remedy
The time for a service, as specified by your heating contractor, has arrived.	Proceed as described on page 16.

"⚠" is Displayed at the Vitotronic 200

Cause	Remedy
Heating system fault.	Proceed as described on page 16.

"⮕" is Displayed at the Vitotronic 200

Cause	Remedy
A limit temperature has been reached.	Press "R" (see chapter "Controls"). Acknowledge the fault message with **OK**. Notify your heating contractor of the fault code if the fault reoccurs.

Maintenance

Cleaning

All equipment can be cleaned with a commercially available domestic cleaning agent (non-scouring). You can clean the front of the programming unit with a microfibre cloth.

Inspection and maintenance

Regular maintenance ensures trouble free, energy efficient, environmentally responsible and safe heating. Your heating system must be serviced by an authorized contractor at least every 2 years. For this, we advise you to arrange an inspection and maintenance contract with your local heating contractor.

Boiler

Increasing boiler contamination raises the flue gas temperature and thereby increases energy losses. For that reason, all boilers should be cleaned annually.

Damaged connecting cables

If connecting cables of the appliance or externally installed electrical accessories are damaged, replace them with special connecting cables. Replace only with Viessmann cables. Contact your local heating contractor.

Terminology

Heating program

With the heating program you determine whether the boiler is available for heat production to the Vitotronic 300-K MW2C or if the boiler is in standby with frost protection active.

You can select the following heating programs:

- "Heating"
  The boiler is available to the Vitotronic 300-K for heat production.
- "Standby mode"
  Frost protection for the boiler.

Heating circuit pump

Circulation pump for the circulation of the heating water in the heating circuit.

Actual temperature

Current temperature at the time of the scan; e.g. actual boiler temperature.

Room air dependant operation

The combustion air is drawn from the room where the boiler is installed.

Direct vent operation

The combustion air is drawn from outside the building.

Safety valve

A safety device that must be installed by your heating contractor in the cold water pipe. The safety valve opens automatically to prevent excess pressure in the DHW tank.

Set temperature

Default temperature that should be reached; e.g. set boiler temperature.

Quick Reference

°C	°F
-40	-40
-35	-31
-25	-13
-20	-4
-18	0
-16	+3
-14	+7
-12	+10
-10	+14
-9	+16
-8	+18
-7	+19
-6	+21
-5	+23
-4	+25
-3	+27
-2	+28
-1	+30
0	+32
+1	+34
+2	+36
+3	+37
+4	+39
+5	+41
+6	+43
+7	+45
+8	+46
+9	+48
+10	+50
+12	+54
+14	+57
+16	+61
+18	+64
+20	+68
+25	+77
+30	+86
+35	+95
+40	+104
+50	+122
+60	+140
+70	+158
+80	+176
+90	+194
+100	+212
+110	+230

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