



Truma Combi*

LP Gas Furnace with Supplementary Indirect Water Heating

FOR INSTALLER ONLY

To the consumer

Installing this Truma furnace can be hazardous due to LP gas and electrical components.

These installation instructions are only for use by trained and qualified technicians.

To the installer

The operating instructions for this Truma furnace are part of these installation instructions. The operating instructions are included with the furnace as a separate document.

Installation instructions



Conforms to ANSI Std. Z21.47
Certified to CSA Std. 2.3

* Patent Pending



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Trademark information

Truma Combi referred to as Combi below.

Intended use

The Combi LP gas furnace* with supplementary indirect water heating may be used only in recreational vehicles (RVs) for heating the room and the faucet water.

Recreational vehicles (RVs) are designed as temporary living quarters for recreation, travel and/or camping. RVs have their own power or are towed by another vehicle.

*Models

- Combi eco
- Combi eco plus
- Combi comfort
- Combi comfort plus

The Combi eco plus and Combi comfort plus furnaces also feature electrical heating elements for a supply voltage of 120 V.

Prohibited use

Any use other than the intended use (see above) is prohibited.

Examples of prohibited use:

- Use in a marine environment.
- Use as part of a space heating system.
- Use in mobile homes.
- Use in food trucks or roadside food vending vehicles.
- Use in construction trailers.

Mounting arrangement / Accessories

i This is a typical installation for illustration. The installation in your vehicle may vary. The illustration is not to scale.

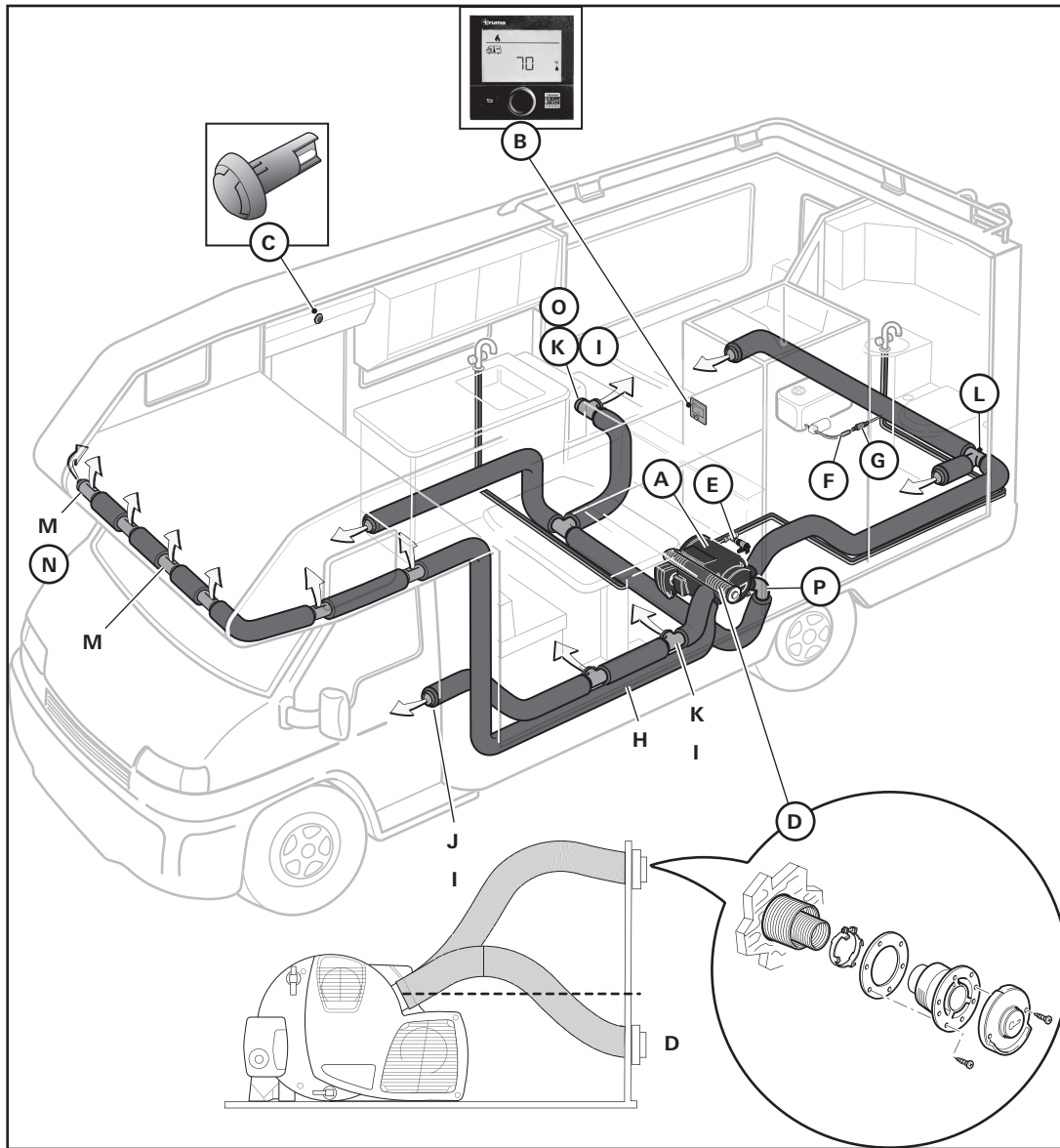


Fig. 1

Key

- | | | | |
|---|--|---|---------------------------------------|
| A | Combi furnace | I | Warm air end outlet with air throttle |
| B | CP plus control panel | J | End outlet nut |
| C | Room temperature sensor | K | Warm air T-pipe |
| D | Wall cowl with exhaust venting system (tube in tube) | L | Warm air T-piece |
| E | Truma pressure relief/drain valve | M | Wall outlet vent |
| F | Non-return valve | N | Reducer RZ 35 |
| G | Truma water pressure regulator | O | Blank cover |
| H | Warm air ducts with insulation sleeve | P | Warm air elbow |

Furnace diagram

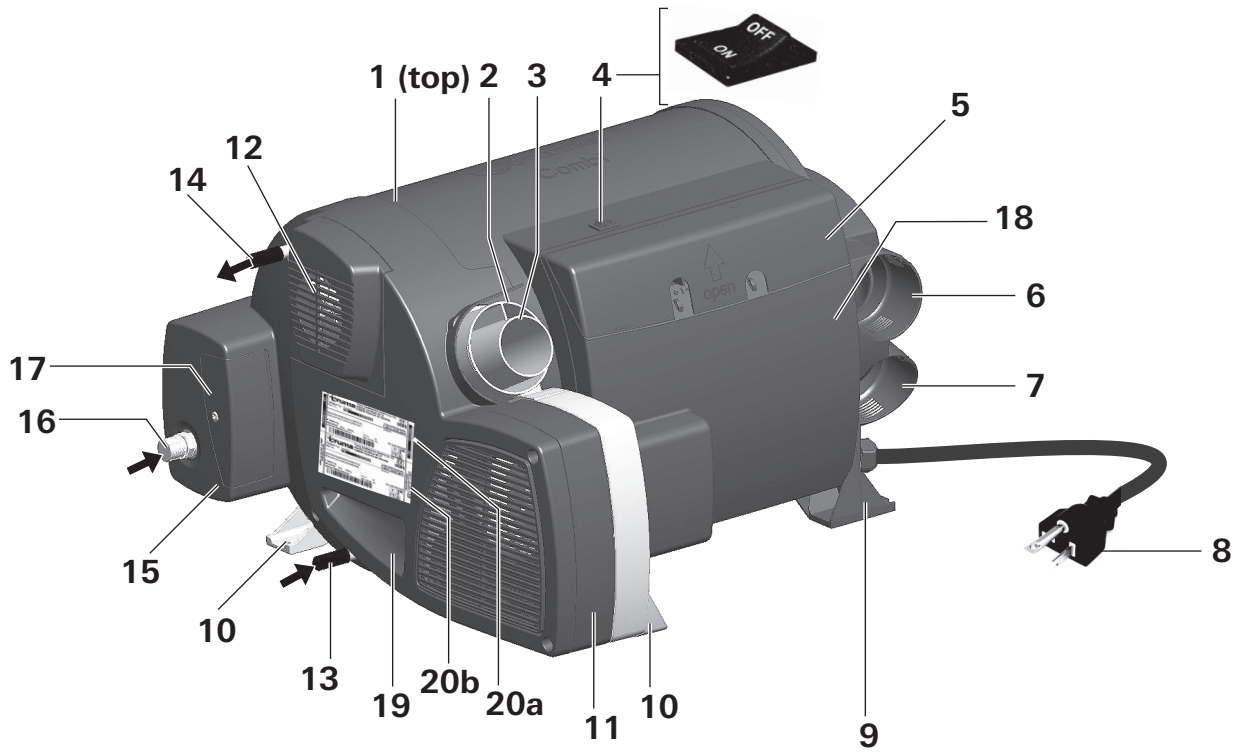


Fig. 2

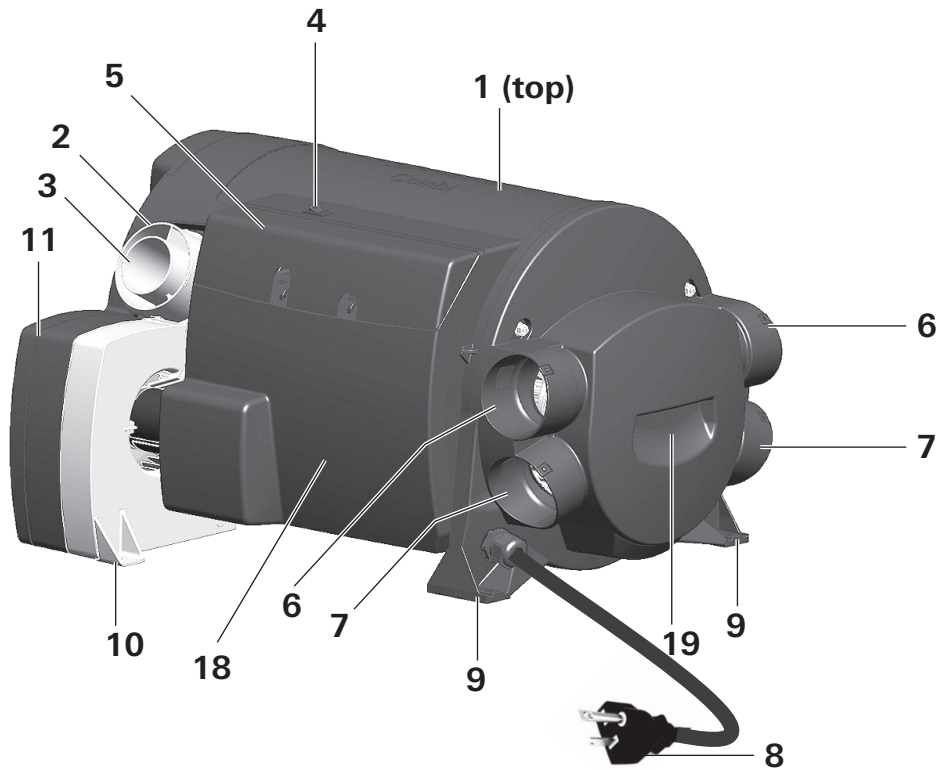


Fig. 3

Key

- 1 Combi furnace with supplementary indirect water heating
- 2 Connection for combustion air supply tube
- 3 Connection for exhaust tube
- 4 Switch for gas shut-off valve
- 5 Connection cover
- 6 Warm air outlets (upper)
- 7 Warm air outlets (lower)
- 8 2-pole, 3 wire 120 volt electrical plug (NEMA 5-20P)
(only on Combi eco plus and Combi comfort plus models)
- 9 Plastic frame feet
- 10 Aluminum frame feet
- 11 Circulated air fan
- 12 Fan for combustion air
- 13 Cold water connection (inlet)
- 14 Hot water connection (outlet)
- 15 Gas shut-off valve (behind the cover)
- 16 Gas connection (inlet)
- 17 Test connection (gas) (behind the cover)
- 18 Electronics housing cover
- 19 Recessed grips
- 20a Original type plate
- 20b Duplicate type plate

Installer Safety Information

This furnace design has been certified for installation in recreational vehicles (RVs) as a FSP Category III – direct vent forced air furnace.

Read, observe and follow these safety instructions to avoid injuries during installation or operation.

Safety symbols and signal words

▲ This is the safety alert symbol. This symbol alerts you to potential hazards that can kill or hurt you and others.

▲ DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

▲ WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

▲ CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE is used to address practices not related to physical injury.



Other important information or tips

Safety behavior and practices

- Installation and service must be performed by an authorized Truma-trained installer. Improper installation, alteration, service or maintenance can cause property damage, personal injury or loss of life.
 - Do not attempt installation as a Do-it-Yourself project.
- Install in recreational vehicles (RVs) only.
- Improper installation may result in a risk of explosion.
 - Read and follow the installation instructions.
 - Use the supplied parts.
- Switch off the vehicle's on-board power supply (12 VDC and 120 VAC) during installation and when connecting the Combi furnace.
- Close the vehicle's gas supply during installation and when connecting the Combi furnace.
- Always wear protective gloves to avoid injuries from sharp edges during installation and maintenance work.
- Always protect your eyes from injury. Wear protective eyewear whenever installing or handling the Combi furnace.
- Always use the recessed grips (Fig. 2 – 19 and Fig. 3 – 19) to grab, lift or handle the Combi furnace. Never lift or grab the furnace by any of its delicate exterior components.
- Make sure that all combustion air is supplied from outside the RV. Never supply air for combustion from occupied spaces.
- Provide adequate combustion and ventilation air to the furnace space as specified in "Installation position: wall cowl" on page 11 and the following and in "Circulated air intake" on page 14 of these instructions.
- Combustion products must be discharged outdoors. Connect this furnace to an approved venting system only, as specified in "Installation position: wall cowl" on page 11 and the following of these instructions.
- Always install the Combi furnace to operate within the furnace's intended temperature-rise range with a duct system which has an external static pressure within the allowable range, as specified in "Warm air distribution" on page 15 and the following of these instructions (see furnace rating plate).
- Any alteration to the furnace or its controls can cause unforeseen serious hazards.
- DO NOT alter the Combi furnace for a positive grounding battery system.
- DO NOT shorten the 120 volt power cord.

- DO NOT perform a hi-pot test on the Combi furnace unless the electronic ignition system (circuit board) has been disconnected. A hi-pot test applies a very high voltage between two conductors.
- DO NOT use a battery charger to supply power to the furnace, even when testing.
- DO NOT connect the 12 VDC power to the Combi furnace if the vehicle requires welding. Electrical welding will cause serious damage to the Combi furnace controller.
- DO NOT remove any labels or warnings fixed to the unit.

USA and CANADA

This furnace must be installed in accordance with the manufacturer's instructions and local codes or, in the absence of local codes, in accordance with the Standard for Recreational Vehicles, ANSI A119.2/NFPA 501C, NFPA 1192 or CAN/CSA-Z240 and in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 or the CSA B149.1, Natural Gas and Propane Installation Code.

Installation Instructions

Selecting an installation space

You must install the furnace in the RV's interior.

▲ WARNING

Risk of explosion!

An improperly secured Combi furnace can become dislodged in an RV accident and the gas line can become disconnected.

- The floor or false floor must bear the load of a secured furnace. There must be at least a distance of 1 in. (2.5 cm) between electrical lines and parts of the furnace.
- Properly secure the furnace; see "Securing the furnace" on page 9.
- Install the Combi furnace in a sturdy compartment (Fig. 16). If there is no suitable compartment, install a sturdy wood-slat or equivalent in front of the Combi furnace vertical to the direction of motion to avoid movements of the furnace in case of an accident (Fig. 4a – 2).

▲ WARNING

Fire hazard due to heat generated by operation of the Combi furnace!

- Maintain clearances as described between the furnace, RV parts and furniture (see "Dimensions and clearances" on page 8).
- Never install a furnace directly on a combustible material such as carpeting.

i Wood or PVC floors typically used in RVs can change color due to the temperature of the Combi furnace. Truma does not accept liability for this. Truma recommends removing the PVC in the area of the furnace.

NOTICE Damage to the Combi furnace caused by screwed-on parts! Never bolt or screw cables, cords or water pipes to the insulation or the cover of the Combi furnace.

NOTICE Underpressure caused by a switched-on circulating air fan! The Combi furnace can cause malfunctions in other gas devices in the same installation space! Install the Combi furnace in its own compartment.

Make sure that the installation space fulfills the following requirements:

- DO NOT install the Combi furnace in the same space with a heating device that requires room air.
- The opening for the circulated air intake (RV's interior, installation space) must be at least 23 ¼ in.² (150 cm²) free cross section.
- Service technicians must be able to readily access as well as easily remove and re-install the Combi furnace and the exhaust tube.
 - This applies to items such as service hatches and cabinet doors.
 - Truma recommends a seating dinette, closet or under-bed location.
- The Combi furnace must be mounted on a flat surface. It may not be mounted on a wall or in an inverted mounted position.
- It must be possible to access the switch for the gas shut-off valve (see Fig. 2 – 4).
- Comply with the permissible length of tube for the exhaust venting system; see "Permissible length of exhaust venting system" on page 11.
- Install the wall cowl in the proper place; see "Installation position: wall cowl" on page 11.
- Ensure that there is enough space for the warm air ducts and insulating sleeves; see "Warm air distribution" on page 15.
- Truma recommends installing the Combi furnace in the middle area of the RV. This allows the air to be distributed evenly throughout the vehicle.
- Make sure that no combustible material can fall on the Combi furnace.

Dimensions and clearances

Dimensions

Example: Furnace installed in direction of motion without front panel (not to scale).

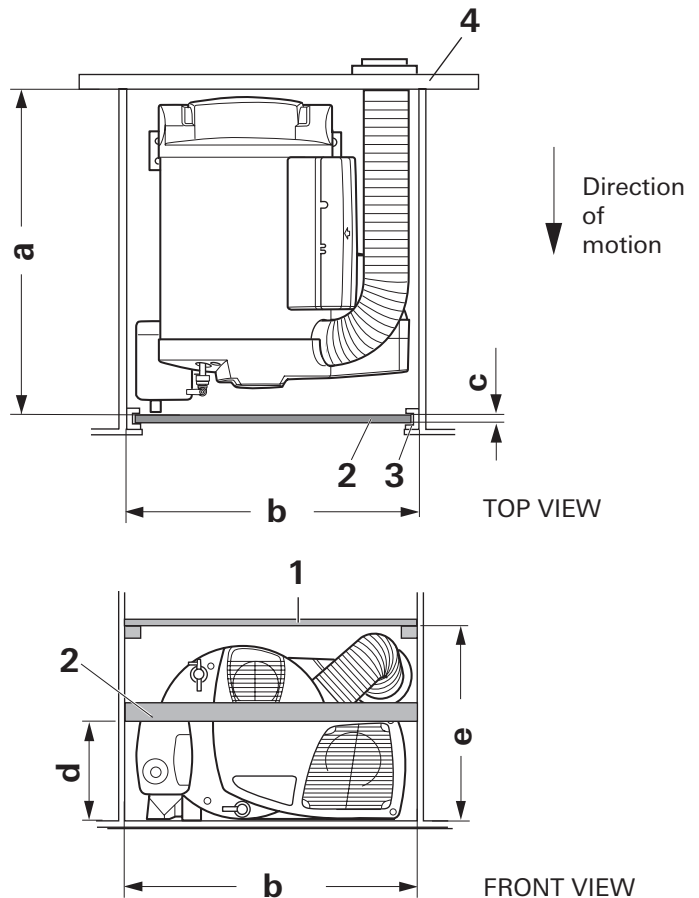


Fig. 4a

- 1 Cover plate
- 2 Sturdy ledge (wood slat or equivalent) (minimum of 1 ¼ in. x 2 in. (32 x 50 mm))
- 3 Profiled strip (or equivalent)
- 4 Exterior wall of RV

See Fig. 4a for the minimum installation dimensions.

Dimension	inches	mm
a	23.8	605
a *)	21.9	555
b	19.5	495
c	1.25	32
d	7.1	180
e	13.8	350

*) Minimum distance, if gas connection is not inside the installation compartment or if the compartment around the gas connection is open

Clearance from combustible materials

Example not to scale.

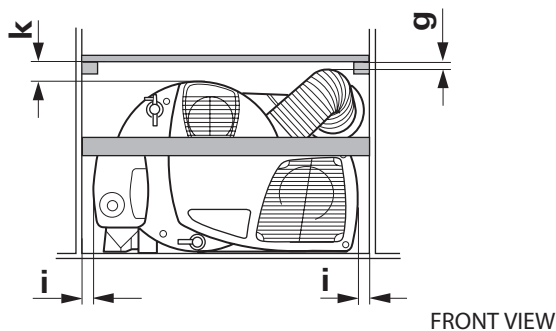
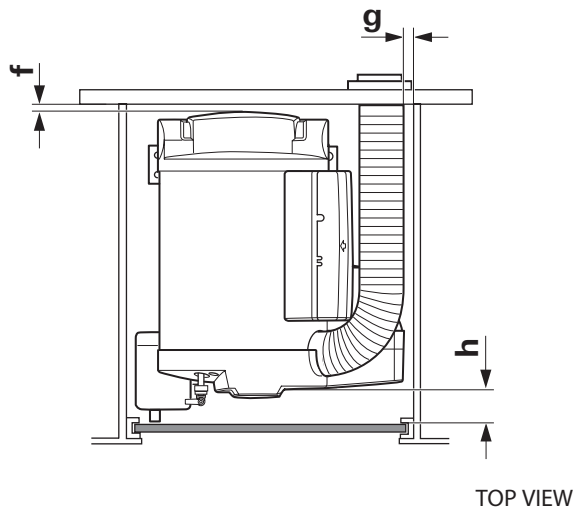


Fig. 4b

Consult Fig. 4b for the clearance.

Clearance		in.	mm
f	BACK (Duct Connection)	1	25
g *)	COMBUSTION AIR DUCT	1	25
h	FRONT (circulation air inlet)	4	100
h**)	FRONT (circulation air inlet)	2	50
i	LEFT SIDE / RIGHT SIDE	0.5	12
k	TOP	2	50
–	BOTTOM	0	0
–	WARM AIR DUCT insulated	0	0

*) Clearance along combustion air supply tube

***) Minimum distance, if gas connection is not inside the installation compartment

Securing the furnace

▲ WARNING

Risk of explosion!

An improperly secured Combi furnace can become dislodged in an RV accident and the gas line can become disconnected.

- The floor or false floor must bear the load of a secured furnace. Contact the Truma Service Center on 1-855-558-7862 if you are unsure whether the floor can bear the load of the furnace.
- Use the supplied or equivalent screws (Fig. 5 – 3).
- DO NOT use screws with a smaller core diameter under any circumstances.

1. Screw both aluminum frame feet (Fig. 5 – 1) to the floor or false floor.
2. Screw at least one plastic frame foot (Fig. 5 – 2) to the floor or false floor.

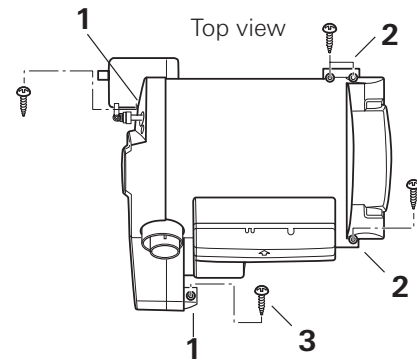


Fig. 5

- 1 Aluminum frame feet
- 2 Plastic frame feet
- 3 Panhead self-tapping screws #12 x 1 in. (5.5 x 25 mm) or equivalent screws (4 screws)

Exhaust venting system

Excessive exposure to contaminated combustion air will result in safety and performance-related problems.

There must be no exposure to substances listed in "Appendix A" on page 30.

Exhaust and combustion air are conveyed by means of an exhaust venting system (tube in tube): an exhaust tube AA3 (Fig. 6 – 1) and a combustion-air supply tube ZR (Fig. 6 – 2).

Exhaust accessories

The exhaust accessories are legally mandated pieces of furnace equipment. You must install the original exhaust accessories listed here.

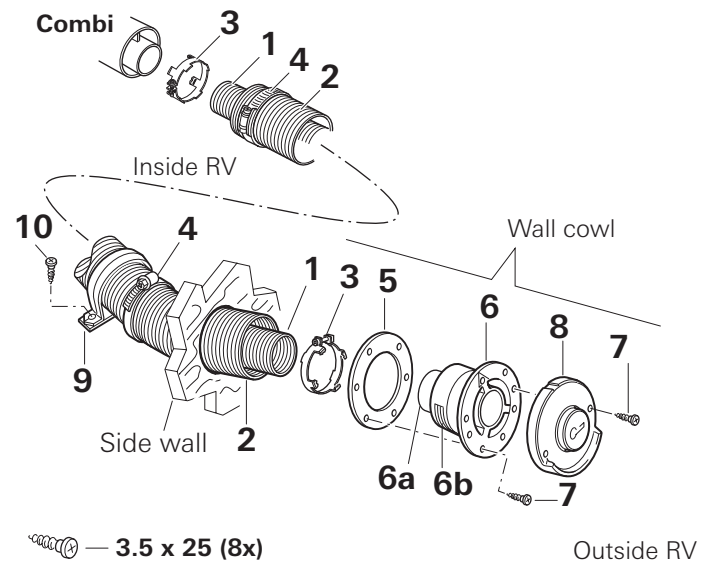


Fig. 6

Item	Quant.	Exhaust accessories
Exhaust venting system		
1	1	Exhaust tube AA3 (Al, Ø 2.2 in. (55 mm))
2	1	Combustion-air supply tube ZR (Al/black, Ø 33/16 in. (80 mm))
Wall cowl		
3	2	Exhaust tube clamp
5	1	Cowl seal
6	1	Wall cowl, inner part
6a	–	Connection for exhaust tube
6b	–	Connection for air supply tube
7	8	Screws B 3.5 x 25, stainless steel
8	1	Wall cowl, outer part
Fasteners		
4	2	Hose clamps 70 – 90
9	*	Clamp ZRS (part no. 39590-00)
10	*	Screw B 3.5 x 40 or equivalent (not part of scope of supply)

* at least one unit for exhaust venting system longer than 2 ft (60 cm)

Installation position: wall cowl

⚠ DANGER

Risk of carbon-monoxide poisoning due to improper installation position of the wall cowl!

If exhaust enters the RV, carbon monoxide in the exhaust can poison people and cause death.

- Install the wall cowl in a position so that no exhaust can enter the RV.
- The flue gas outlet must not terminate underneath a recreational vehicle. You must install the wall cowl in the side wall; see Fig. 7.
- The wall cowl must be ventilated by wind from all directions.

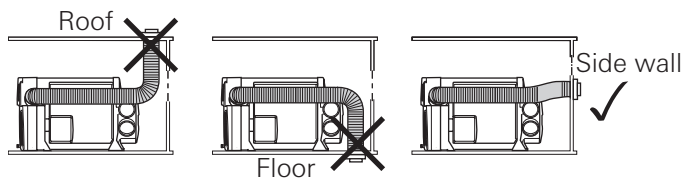


Fig. 7

Clearances to openings

- The wall cowl must be at least 3 ft (0.9 m) from any motor-driven air intake discharging into habitable areas of the RV.
- The wall cowl must not terminate within 3 ft (0.9 m) underneath an expandable portion (i.e. slide out) of an RV or the front bulkhead of a fifth-wheel trailer.
- The entire wall cowl must be at least 3 ft (0.9 m) from any gasoline filler spout on the RV if the inlet or outlet is located above or at the same level.
- If any portion of the wall cowl is below the spout, then the clearance must amount to the sum of the vertical distance below the spout plus 3 ft (0.9 m).

Description	USA	Canada
Clearance to a window that can be opened (according to ANSI 21.47a-2012(15A), CSA 2.3-2012)	9 in. (23 cm)	12 in. (30 cm)

The wall cowl's installation position in the RV must conform to local regulations. If there are no local regulations, then the installation position must be in compliance with NFPA 1192 (National Fire Protection Association), CSA 2.3 (Canadian Standards Association) or NFPA 54.

Permissible length of exhaust venting system

The minimum length of the exhaust venting system is 2 ft (60 cm), the maximum is 6 ft 7 in. (200 cm).

The exhaust venting system can be installed at an upward angle or at a downward angle with a drop no greater than 8 in. (20 cm).

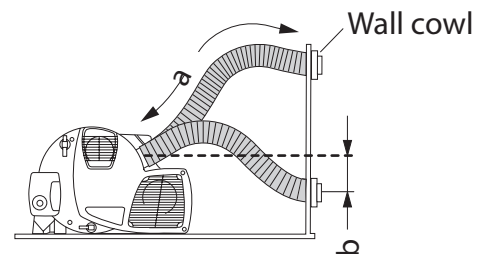


Fig. 8

See Fig. 8 for lengths of exhaust venting system regarding installation.

Dimension	feet (ft)	cm
a	2 ft – 6 ft 7 in.	60 – 200
b maximum	0.7 ft (8 in.)	20

The exhaust duct between the furnace and the wall cowl must not form a U-shaped trap (Fig. 9).

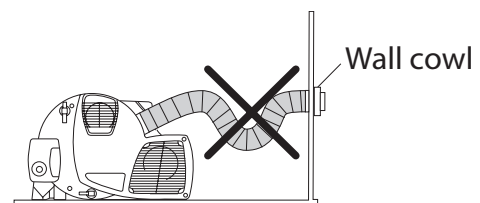


Fig. 9

Making the exhaust venting system

An exhaust venting system consists of a combustion-air supply tube (Fig. 10 – 2) and an exhaust tube (Fig. 10 – 1).

⚠ WARNING

Risk of carbon monoxide poisoning!

If the exhaust venting system is cut too short, stress may affect screw joints. Underpressure in the installation space can allow exhaust from outside to enter the warm air distributor, resulting in carbon-monoxide poisoning.

- Carefully select the proper length of the exhaust tube for installation; see “Permissible length of exhaust venting system” on page 11.
- The exhaust tube (Fig. 10 – 1) must be 10 % longer than the combustion-air supply tube (Fig. 10 – 2).

⚠ WARNING

Risk of injuries from sharp edges!

- Always wear protective gloves and eye-wear during installation and maintenance work.

1. Cut the exhaust tube and the combustion-air supply tube to length.
2. Squeeze each end of the exhaust tube (Fig. 10 – 1) inward, shortening it by approx. 1 in. (2 cm) at each end.
3. Slide the combustion-air supply tube over the exhaust tube.

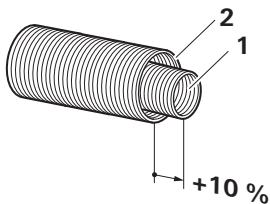


Fig. 10

- 1 Exhaust tube (inside)
- 2 Combustion-air supply tube (outside)

Installing the wall cowl

1. Drill a hole with a diameter of 3 1/4 in. (83 mm); see Fig. 11.
2. If necessary, line hollow spaces near the drill hole with wood or any other solid material to attach screws.

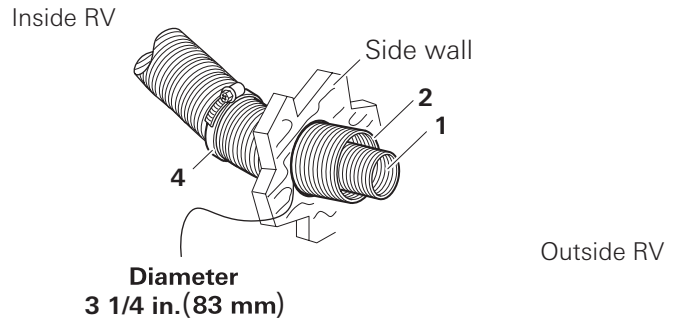


Fig. 11

3. Slide a hose clamp (Fig. 11 – 4) over the exhaust venting system.
4. Insert the exhaust venting system into the drill hole.

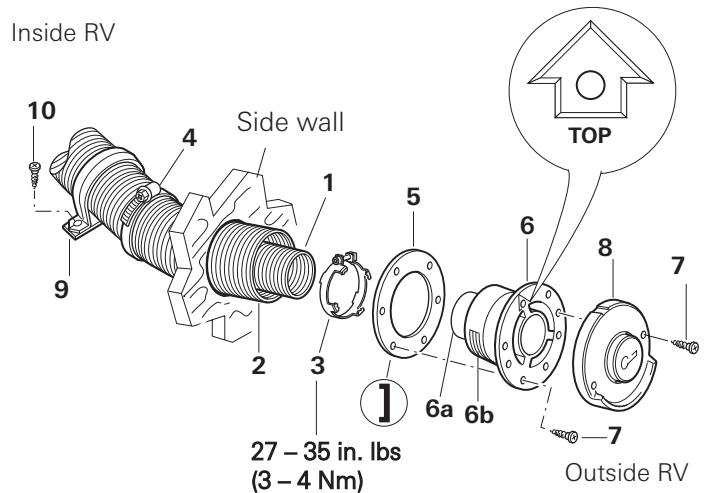


Fig. 12

5. Slide the rubber seal (Fig. 12 – 5) onto the inner part (Fig. 12 – 6) of the wall cowl. Make sure that the smooth side of the rubber seal faces the wall cowl, with the sealing lips facing the side wall.



- If the surface is not smooth (Fig. 13), coat it with a plastic sealant (e.g. sealing based on butyl) for vehicle bodies. Do not use silicone!
- If the supplied screws are too short because of the non-smooth surface structure, use equivalent tapping screws, that are long enough and that are made of stainless steel.

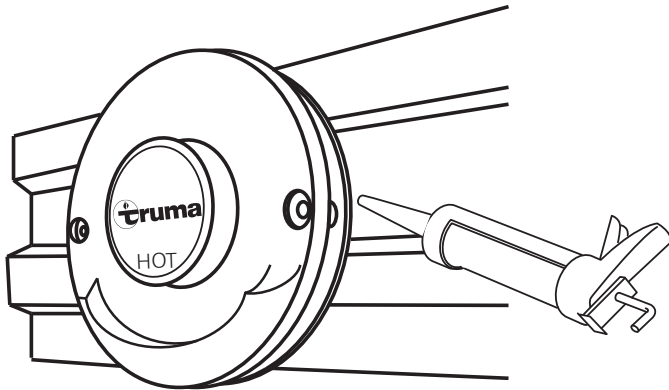


Fig. 13

Installing the inner part of the wall cowl

1. Slide the exhaust tube clamp (Fig. 12 – 3) with the claws facing the wall cowl over the exhaust tube (Fig. 12 – 1).
2. Slide the exhaust tube (Fig. 12 – 1) onto the connection (Fig. 12 – 6a) with the bend facing upwards until it fits snugly.
3. Slide the exhaust tube clamp (Fig. 12 – 3) onto the connection (Fig. 12 – 6a) until it fits snugly. The end stop of the connection must be surrounded by the clamp's claws.
4. Tightly screw the clamp.
Torque 27 – 35 in. lbs (3 – 4 Nm)
5. Insert the combustion-air supply tube (Fig. 12 – 2) onto the toothed connection (Fig. 12 – 6b).
6. Use 6 screws (Fig. 12 – 7) (B 3.5 x 25) to secure the inner part of the wall cowl (Fig. 12 – 6). Make sure that the arrow with the inscription "TOP" faces upwards.

7. Use the hose clamp (Fig. 12 – 4) to secure the combustion-air supply tube (Fig. 12 – 2) into the connection (Fig. 12 – 6b).
 - Use at least one ZRS clamp (Fig. 12 – 9) to secure sections longer than 2 ft (60 cm).
 - Make sure that a distance of 1 in. (2 cm) is guaranteed between wall and combustion-air supply tube.
 - A possibility is to put a spacer (Fig. 14 – 11) (not in scope of supply) underneath the ZRS clamp (Fig. 14 – 9) as shown in Fig. 14.

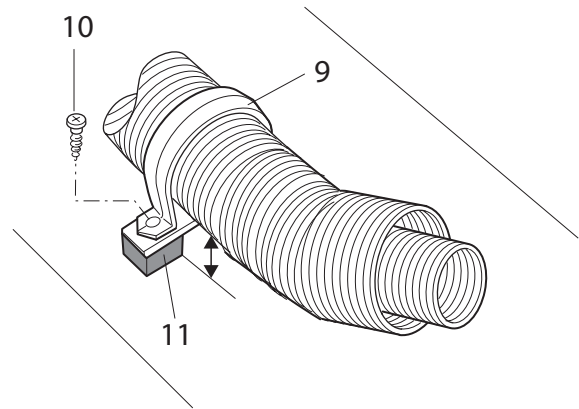


Fig. 14

Installing the outer part of the wall cowl

1. Use 2 screws (B 3.5 x 25) to fasten the outer part (Fig. 12 – 8) of the wall cowl in place.

Connecting the exhaust venting system to the Combi furnace

1. Slide the hose clamp (Fig. 15 – 4) onto the combustion-air supply tube (Fig. 15 – 2).
2. Slide the hose clamp (Fig. 15 – 4) with the claws facing the furnace over the exhaust tube (Fig. 15 – 1).
3. Slide the exhaust tube (Fig. 15 – 1) into the connection (Fig. 15 – 11) until it fits snugly.
4. Slide the exhaust tube clamp (Fig. 15 – 3) onto the connection until it fits snugly. The end stop must be surrounded by the clamp's claws.
5. Tightly screw the exhaust tube clamp (Fig. 15 – 3).
6. Slide the combustion-air supply tube (Fig. 15 – 2) into the connection (Fig. 15 – 12) and use the hose clamp (Fig. 15 – 4) to secure it.

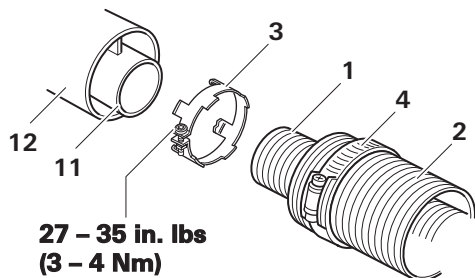


Fig. 15

Circulated air intake

The furnace draws in circulated air from inside the vehicle.

⚠ DANGER

Risk of carbon-monoxide poisoning!

If exhaust enters the RV, carbon monoxide in the exhaust can poison people and cause death.

- The opening for the circulated air intake must be installed in a position so that no exhaust from the vehicle's engine or from the furnace can be drawn into the RV.
 - Constructional measures must prevent contamination of the circulated air.
- There must be an opening for the circulated air intake between the RV's interior and the installation space. This opening must be at least 23.25 in.² (150 cm²).
 - Several small openings are permissible if their collective surface area amounts to at least 23.25 in.² (150 cm²).
 - If a grid is installed (Fig. 16 – 1), the same size requirement regarding cross-sectional area (23.25 in.² (150 cm²)) for drawing in air must be observed.

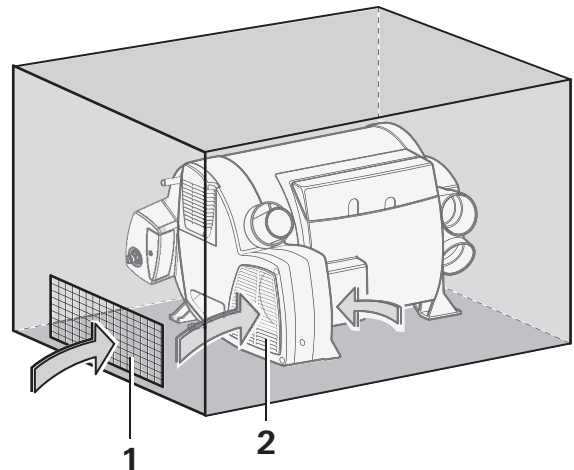


Fig. 16

- 1 Opening with grid (not included in scope of supply)
- 2 Circulated air fan

Warm air distribution

- Warm air is supplied to the RV's interior via flexible warm air ducts.
- The furnace will function properly only if the warm air ducts are installed properly.
- Duct static pressure:
Minimum 0.00 in. wc (0.00 mbar)
Maximum 0.65 in. wc (1.62 mbar)

Parts for warm air distribution

Various parts are available to ensure proper supply of heated air from the furnace (see Appendix B).

Warm air outlets

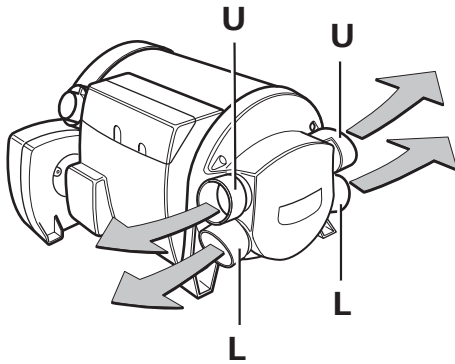


Fig. 17

U Upper warm air outlets
L Lower warm air outlets

The four warm air outlets on the Combi furnace are designed for the warm air duct with 2.56 in. (65 mm) outer diameter (Duct **AD 65**)

Maximum one of the two lower warm air outlets (Fig. 17 – L) may be closed with a **VD-Combi** blank cover.

i We recommend equipping all 4 warm air outlets with warm air ducts for ideal distribution of warm air in the RV.

- Force the blank cover into the warm air outlet until you hear it click and it fits tightly. Make sure that it is a tight fit.
- Each of the warm air ducts must have at least one end outlet.

Permissible warm air ducts

▲ WARNING

Fire hazard due to unsuitable warm air ducts, unsuitable or missing insulating sleeves, or incorrect installation!

- Always use **AD 65** or **AD 35** warm air ducts supplied by Truma.
- Always make sure that the warm air ducts are inserted all the way and check for a tight seat.
- Insulate **all** warm air ducts over their full length. Use 3 in. insulating sleeves supplied by Truma.

▲ WARNING

Risk of injuries from sharp edges!

- Always wear protective gloves and eye-wear during installation and maintenance work.

Installing warm air ducts

i For each warm air duct, the minimum length in front of the first outlet is 3.3 ft (1 m). Best heating results are achieved with all ducts having equal lengths. The longest duct strands should be attached to the upper warm air outlets (Fig. 17 – U). We recommend a maximum length of 3.3 ft (1 m) using the AD 35 warm air duct.

1. Avoid sharp bends or crushed ducts. Smallest allowable bend radius:
 - AD 65: 2.6 in. (65 mm)
 - AD 35: 1.4 in. (35 mm)
2. Stretch all ducts and run them directly to outlets, keeping number and angles of bends to a minimum.
3. To prevent undesirable heating of the vehicle due to convection (stack effect) while the water heating mode is activated, create a U-shaped trap near the warm air outlet of the Combi furnace (Fig. 18). Alternatively, install the first outlet at a height above the floor not exceeding:
 - the height of the warm air outlet the duct is attached to; for ducts with a length of more than 5 ft (1.5 m) in front of the first outlet.
 - 4 in. (100 mm) above the floor; for ducts with a length between 3.3 ft (1 m) and 5 ft (1.5 m) in front of the first outlet.

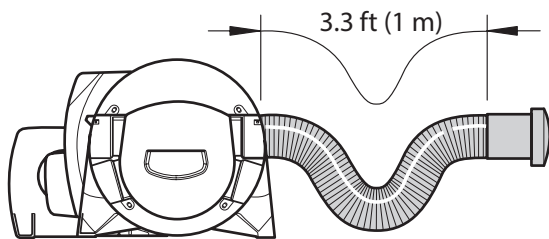


Fig. 18

4. Slide the 3 in. insulating sleeve (Fig. 19 – 3) and cable tie (Fig. 20 – 3) onto the warm air duct **AD 65** (Fig. 19 – 1). If necessary, use the tool supplied by Truma (Fig. 19 – 2) to do this.

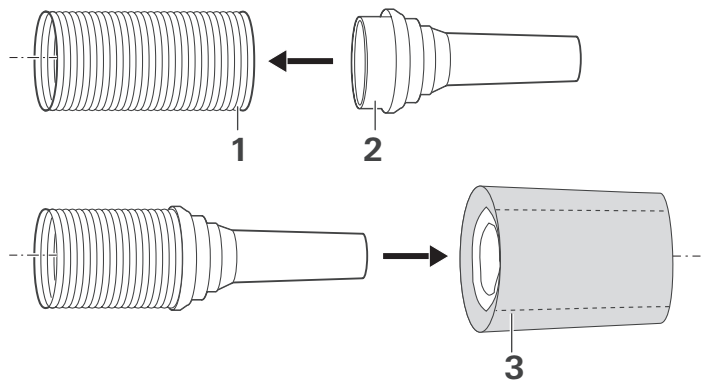


Fig. 19

- 1 Warm air duct **AD 65**
- 2 Tool for sliding the insulating sleeve on to the warm air duct
- 3 3 in. insulating sleeve

5. Insert the **AD 65** warm air duct (Fig. 20 – 1) into the furnace's warm air outlet until it fits snugly. Metal clips in the warm air outlets hold the ducts in place.

- Secure the insulating sleeve to the **AD 65** warm air duct (Fig. 20 – 1) tightly to avoid slipping of insulation around duct, for example by using cable ties (Fig. 20 – 3).

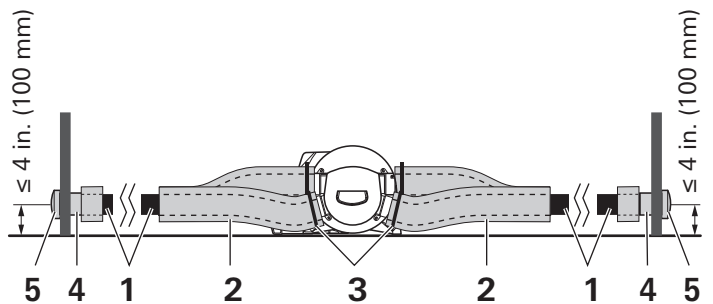


Fig. 20

- 1 Warm air duct **AD 65**
- 2 3 in. insulating sleeve
- 3 Cable tie
- 4 End outlet nut **EM**
- 5 End outlet **EN**

Installing end outlets

Making an installation opening

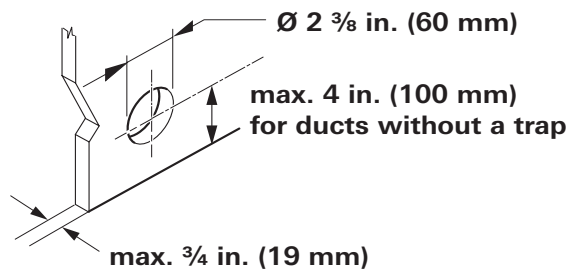


Fig. 21

1. Drill a hole with a diameter of 2 3/8 in. (60 mm). If there is no trap in the duct, the hole must be no more than 4 in. (100 mm) above the floor (Fig. 21).
2. If necessary, line hollow spaces near the drill hole with wood.

Installing an AD 65 warm air duct

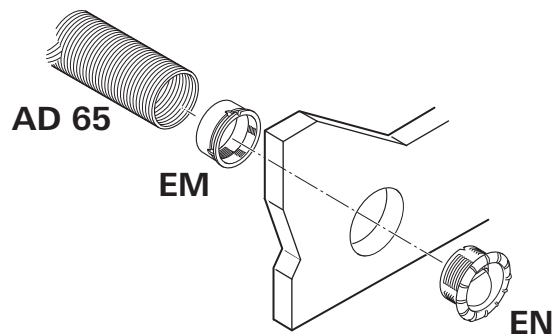


Fig. 22

1. Insert an **EN** end outlet into the drill hole (Fig. 22).
2. Tighten the end outlet by screwing on an **EM** end outlet nut from the other side.
3. Insert the **AD 65** warm air duct into the **EM** end outlet nut until it fits snugly. Teeth on the inside hold the duct in place..

i For an even more secure fastening, Truma metal clips can be used (see Appendix B).

Installing a T-pipe LT

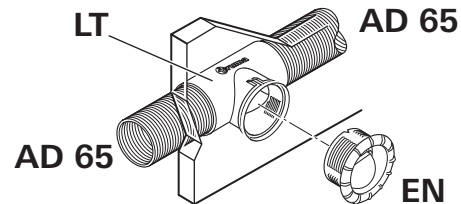


Fig. 23

1. Insert an **LT** T-pipe into the drill hole (Fig. 23).
2. Use an **EN** end outlet to tighten the **LT** T-pipe. Segmented threads allow you to push the end outlet against the wall before tightening it by turning. The insertion position is marked by notches on both parts.
3. Insert the **AD 65** warm air duct into the **LT** T-pipe until it fits snugly. Teeth on the inside hold the duct in place.

i For an even more secure fastening, Truma metal clips can be used (see Appendix B).

Gas connection

Connecting the gas line

⚠ WARNING

Risk of explosion or poisoning due to improper installation!

- Permit only a certified service technician to perform the installation.
 - The operating pressure of the gas supply must correspond to the operating pressure of the Combi furnace (11 – 13 in. wc (27.4 – 32.4 mbar)).
 - The gas line to the furnace must comply with NFPA1192 or CAN/CSA-Z240 and ANSI Z21.47-2012.
-
- The gas line to the furnace must have a shut-off valve outside the casing of the furnace.
 - A 1/8 in. NPT plugged tapping, accessible for test gauge connection, must be installed immediately upstream of the gas supply connection to the furnace (not included in scope of supply).

- If local codes allow the use of a flexible gas appliance connector, always use a new listed connector. Do not use a connector which has previously serviced another gas appliance.

NOTICE There is a risk of malfunction in the Combi furnace or damage to the gas valve due to dirt, chips, etc. in the gas line! Before connecting to the appliance, make sure that the gas line is free of dirt, chips, etc.

1. Make sure that the manual shut-off valve in the gas line of the appliance is closed.

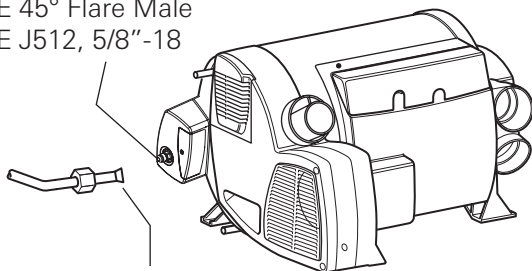
i The gas line to the furnace must be capable of supplying the maximum required quantity of gas ($\geq 20,400$ BTU/h (410 g/h)).

▲ WARNING

Risk of explosion or poisoning due to damaged grommet and/or gas line!

- Ensure sufficient length and flexibility of the gas line for a tension-free connection to the furnace gas connection.
- Make sure that the gas line has an SAE 45° flare female connector (Fig. 24).

SAE 45° Flare Male
SAE J512, 5/8"-18



SAE 45° Flare Female
SAE J512, 5/8"-18

Fig. 24

NOTICE Damage to the flare fitting! The flare fitting is a dry seal. Never use pipe dope on the flare fitting.

2. Screw the gas line's union nut (wrench size 3/4 in. (19 mm)) onto the Combi furnace's gas connection so it is finger-tight.

NOTICE Gas valve may be damaged during tightening! Use a second wrench to counterhold at the square end (wrench size 11/16 in. (17 mm), Fig. 25).

3. Use a torque wrench to tighten the union nut (nominal torque 15 lb-ft (20 Nm)).

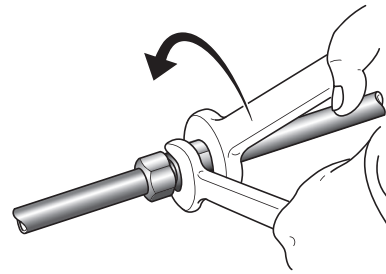


Fig. 25

Checking for gas leaks

▲ WARNING

Risk of death and personal injury through fire and/or explosion!

- DO NOT use matches, candles or other sources of ignition when checking for gas leaks.
- After the gas supply is connected, check for gas leaks at all gas connections as specified in NFPA 1192.

▲ CAUTION

Risk of overheating of the furnace and toxic exhaust due to incomplete combustion!

- DO NOT set the inlet pressure higher than the maximum indicated on the gas valve type plate (0.5 psi / 13.9 in. wc (34.5 mbar)).

1. Turn OFF the electrical power supply.
2. Turn on the gas.
3. Check the Combi furnace and all gas connections for gas leaks.
4. Repair gas leaks as needed.
5. Repeat check for gas leaks at all gas connections.

Water installation

Please note: This drawing is not intended to describe a complete system. It is up to the licensed, professional installer to determine the necessary components for and configuration of the system being installed. This diagram does not imply compliance with state or local code requirements or regulations. It is the licensed professional installer's responsibility to make sure that the installation fully complies with all state or local code requirements or regulations.

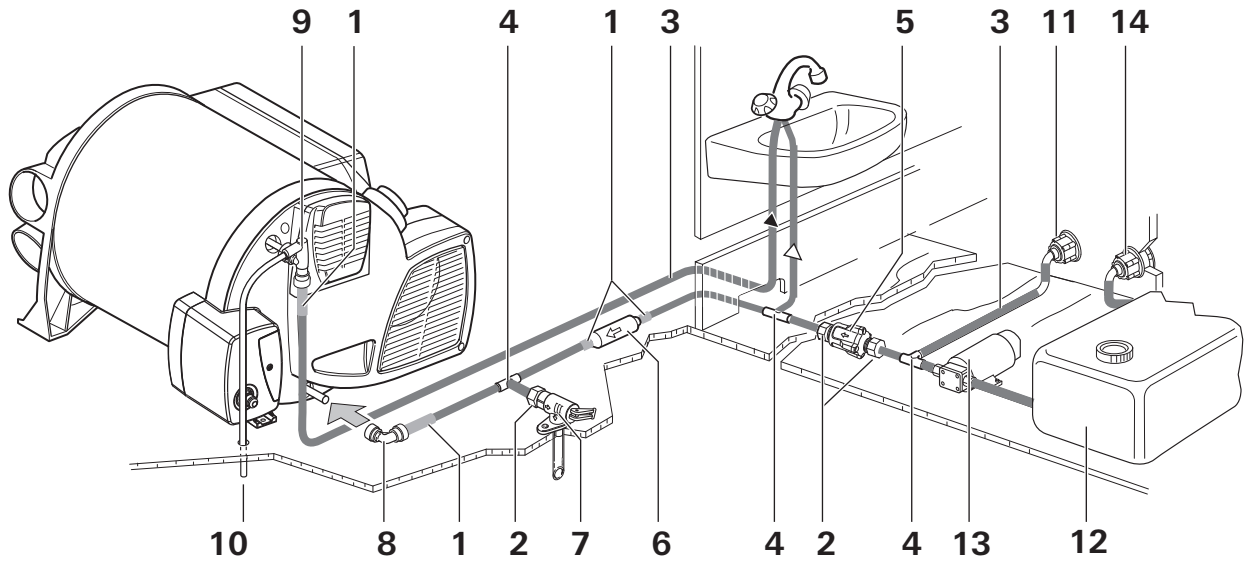


Fig. 26

- | | | | |
|---|---|----|--|
| 1 | Adaptor 12 mm to 1/2 in. CTS tube | 9 | Hot water connection |
| 2 | 1/2 in. PEX x 1/2 in. NPT female threaded adapter | | Elbow fitting (with aeration valve) – push-fit 12 mm |
| 3 | 1/2 in. CTS PEX tube | 10 | Venting hose, external diameter 11 mm |
| 4 | T-piece 1/2 in. CTS PEX tube (not included) | 11 | City water connection |
| 5 | Truma water pressure regulator | 12 | Fresh water tank |
| 6 | Non-return valve | 13 | Water pump |
| 7 | Truma pressure relief/drain valve (not included) | 14 | Water connection to the fresh water tank |
| 8 | Cold water connection | 15 | Winterizing Kit (example, not in scope of supply) |
| | Elbow fitting – push-fit 12 mm | | |

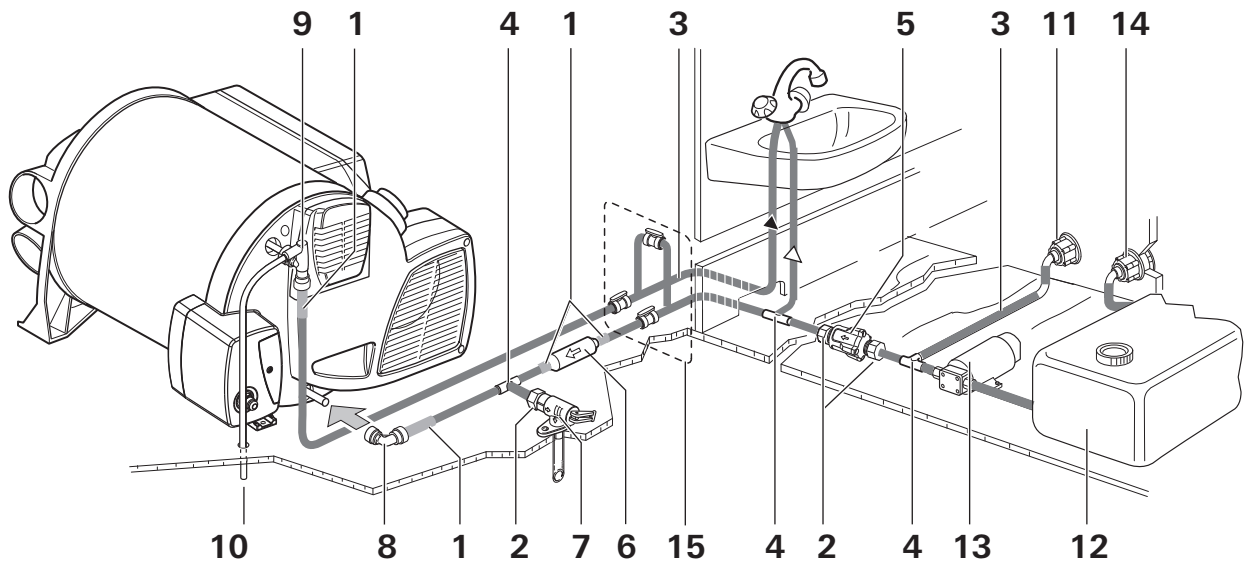


Fig. 27 Illustration for installation with a bypass kit for winterizing

Advice on water installation

- You need practical experience to make connections using push-fit systems (e.g. John Guest or equivalent).
- As regards furnace operation, pressure pumps and submersible pumps operating at pressures as high as 40.6 psi (2.8 bar) as well as hot/cold mixing faucets with or without an electrical switch can be installed.
- Truma recommends use of the Truma Water Pressure Regulator (Fig. 29 – 1) or a similar device which reduces pressures below 40.6 psi (2.8bar) to protect the Combi container from overpressure.
- Thermal expansion of water during heating can result in pressures as high as 65.25 psi (4.5 bar) before the pressure relief/drain valve responds.
- Water lines connected to the water container and the drain valve must withstand temperatures in excess of 176 °F (80 °C). They must also be suitable for potable water and must withstand pressures as high as 65.25 psi (4.5 bar).
- If a submersible pump is used, you must install a non-return valve (Fig. 26 – 6) between the pump and the first branch.
- If you use pressure pumps that exhibit considerable switching hysteresis, hot water can flow back via the cold water faucet. You must install a non-return valve (Fig. 26 – 6) between the outlet to the cold water faucet and the pressure relief/drain valve to prevent backflow. Install the water lines so as to ensure that all connected components function as intended. More specifically, water lines must be as short, kink-free, and unstressed as possible.
- Lay cold water lines higher than the pressure relief/drain valve. **Non-compliance will void warranty claims for frost damage.**
- There must be a clearance of 1 in. (2.5 cm) between water lines and sources of heat.
- The furnace's cold water supply must not come into contact with cold bridges such as the RV's side wall on account of the risk of frost.

- An adaptor must be installed at every junction between a 12 mm push-fit system and a 1/2 in. CTS tube; see "Installing a 12 mm / 1/2 in. CTS adaptor" on page 20.
- **All hose connections must be secured by means of clamps or crimp rings, even cold water.**

Installing a 12 mm / 1/2 in. CTS adaptor

An adaptor must be installed at every junction between a 12 mm push-fit system and a 1/2 in. CTS tube; see Fig. 28 – 1.

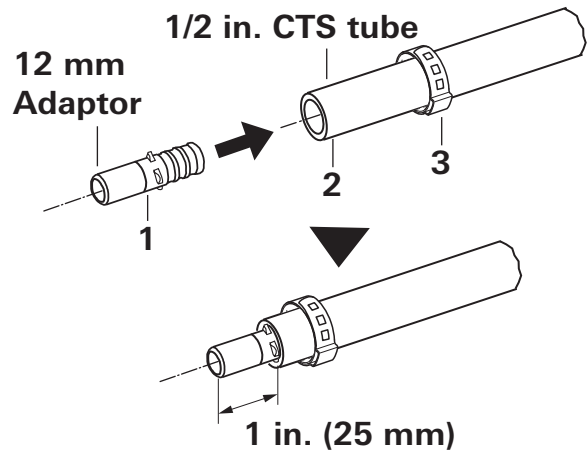


Fig. 28

- 1 Adaptor 12 mm to 1/2 in. CTS tube
- 2 1/2 in. CTS tube
- 3 Clamp or crimp ring (not included in scope of delivery)

Installing a water pressure regulator

A water pressure regulator protects the vehicle's water system against excessive supply pressure, as could happen when the system is connected to a city water supply. We recommend the Truma water pressure regulator (not included in scope of supply).

- The Truma water pressure regulator (Fig. 26 – 5 and Fig. 27 – 5) will ensure that the Combi water container will not be filled with a pressure exceeding 30 psi (2 bar).
- The water pressure regulator must be installed between the pressure relief/drain valve and the city water connection or water pump (Fig. 26 – 5).
- Install the water pressure regulator in the cold water line.
- Insert the water pressure regulator in the proper direction. Direction of flow is indicated by arrow.
- Screw the connecting parts (not in scope of delivery) with a nominal torque of 2.2 lb-ft (3 Nm) – hand-tight.

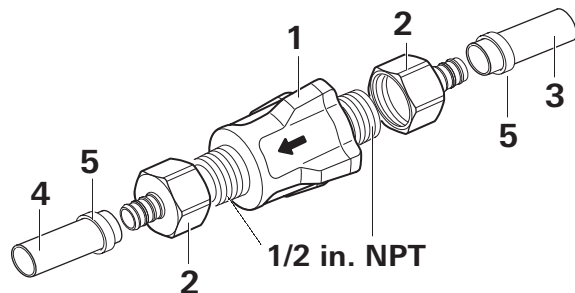


Fig. 29 Installation example

- 1 Truma water pressure regulator
- 2 1/2 in. PEX x 1/2 in. NPT female threaded adapter
- 3 Cold water line inlet 1/2 in. CTS PEX tube
- 4 Cold water line outlet 1/2 in. CTS PEX tube
- 5 Crimp ring or clamp

Installing a non-return valve

Installing a non-return valve (not included in scope of supply) between the outlet to the cold water faucet and the pressure relief/drain valve will prevent hot water from flowing back via the cold water faucet.

- Install the non-return valve in the cold water line.
- Insert the non-return valve in the proper direction.

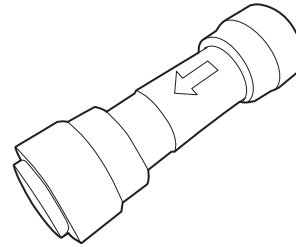


Fig. 30

Installing a pressure relief/drain valve

The Combi furnace with indirect supplementary water heating must be installed with a pressure relief/drain valve (Fig. 31 – 1) that complies with the standard for Relief Valves for Hot Water Supply Systems, ANSI Z21.22 / CSA 4.4. We recommend installing the Truma pressure relief/drain valve (65.25 psi (4.5 bar) – not included in scope of supply).

- The pressure relief/drain valve must be accessible for servicing or replacement.
- The drain and test lever (Fig. 31 – 2) must likewise be accessible.
- Install the pressure relief/drain valve in the cold water line – between the non-return valve and the Combi furnace.

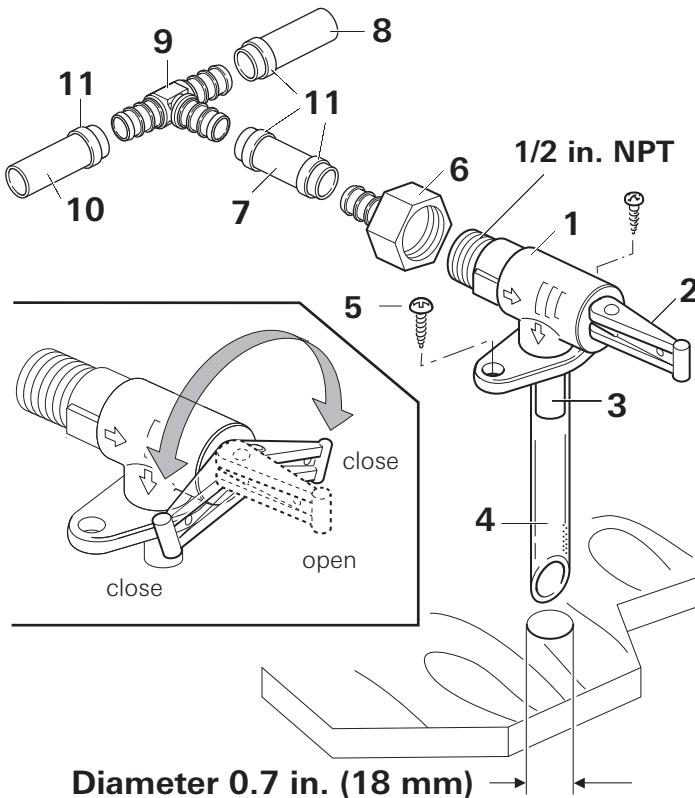


Fig. 31 Installation example

- 1 Truma pressure relief/drain valve
- 2 Drain and test lever
- 3 Drainage socket
- 4 Drainage hose
- 5 Screws B 5.5 x 25 mm (2 screws)
- 6 1/2 in. PEX x 1/2 in. NPT female threaded adapter
- 7 1/2 in. CTS PEX tube
- 8 Cold water line inlet 1/2 in. CTS PEX tube
- 9 1/2 in. x 1/2 in. x 1/2 in. PEX tee
- 10 Cold water line outlet 1/2 in. CTS PEX tube
- 11 Crimp ring or clamp

1. Drill a hole in the floor.
2. Slide the hose (Fig. 31 – 4) onto the drainage socket (Fig. 31 – 3).
3. Install the drainage hose (Fig. 31 – 4) in a straight line to outdoors, where it must terminate in a splash-proof position. Install a splash guard, if necessary.
4. Use 2 screws (Fig. 31 – 5) to secure the pressure relief/drain valve.

Laying water lines

- Connect built-in components of the water system to the water lines; see "Water installation" on page 19.
- Regarding 1/2 in. CTS water lines for connections to 12-mm push-fit system: Install an adaptor; see "Installing a 12 mm / 1/2 in. CTS adaptor" on page 20.

Connecting the water container

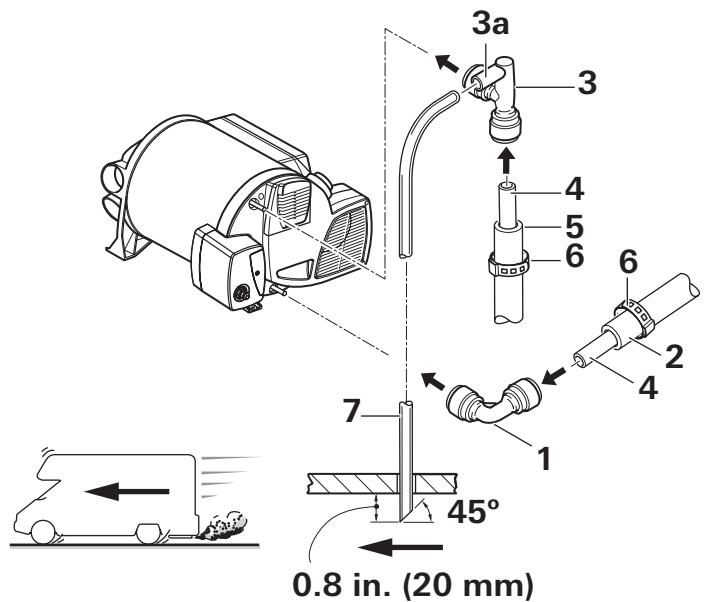


Fig. 33

- 1 Cold water connection
Elbow fitting (push-fit 12 mm; blue)
- 2 Cold water line – 1/2 in. CTS
- 3 Hot water connection
Elbow fitting (with aeration valve; push-fit 12 mm; red)
- 3a Hose nozzle of the aeration valve
- 4 Adaptor 12 mm to 1/2 in. CTS
- 5 Hot water line – 1/2 in. CTS

- 6 Clamp or crimp ring (not included in scope of supply)
- 7 Venting hose, external diameter 7/16 in. (11 mm)

Connecting the cold water line

1. Insert the prepared 1/2 in. CTS cold water line with adaptor (Fig. 33 – 2) into the elbow fitting (Fig. 33 – 1) until it fits snugly.
2. Insert the elbow fitting (Fig. 33 – 1) into the lower connection (cold water supply) of the water container until it fits snugly.

Connecting the hot water line

1. Insert the prepared 1/2 in. CTS hot water line with adaptor (Fig. 33 – 5) into the elbow fitting (Fig. 33 – 3) until it fits snugly.
2. Insert the elbow fitting (Fig. 33 – 3) into the upper connection (hot water outlet) of the water container until it fits snugly.

Installing a venting hose

1. Drill a hole (Ø 7/16 in. (11 mm)) in the RV's undercarriage.
2. Slide the venting hose (Fig. 33 – 7) onto the hose nozzle of the aeration valve (Fig. 33 – 3a).
3. Angle the venting hose (Fig. 33 – 7) downward, ensuring there are no kinks.
 - Minimum radius of curve: 1 1/2 in. (40 mm).
4. Make sure that the venting hose extends only 0.8 in. (20 mm) beneath the RV's undercarriage. Cut the end of the hose at a 45-degree angle (Fig. 33).

Final tasks

- Pull on all the water connections to ensure that they are securely connected.
- Check all water connections for leaks.
 - Repair leaks as needed.
 - Repeat check for leaks and take any necessary steps to repair the leaks at all water connections.

Installing the CP plus control panel

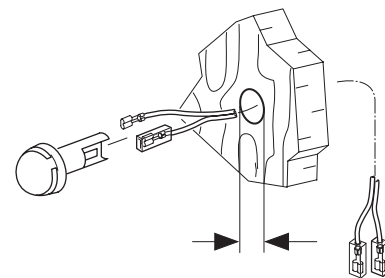
Please refer to the installation instructions supplied with the CP plus control panel for further information on how to install the control panel.

Installing the room temperature sensor

NOTICE The room temperature sensor must be connected, otherwise the Combi furnace will malfunction.

We recommend installing the room temperature sensor in the following way to maintain a steady room temperature:

- Do not subject it to direct heat.
- Install it above the main door.
- Install it on a vertical wall. The room temperature sensor must be completely exposed to room air.



Diameter 25/64 in. (10 mm)

Fig. 34

1. Drill a hole.
2. Feed the end of the cable with one insulated connector from the rear through the drill hole.
3. Connect the connector cable to the sensor. Polarity is not a concern.
4. Insert the room temperature sensor. Run the end of the cable with two insulated connection plugs to the Combi furnace.

i If necessary, the connector cable can be extended using cables (2 x AWG 20 (2 x 0.5 mm²)). The overall length must not exceed 33 ft (10 m).

Electrical connections

The furnace must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70, and/or the Canadian Electrical Code, CSA C22.1, Part 1, if an external electrical source is utilized.

⚠ WARNING

Hazard due to electrical current!

Improper installation can cause property damage, personal injury or loss of life.

- Installation must be performed by a licensed electrician as per national/local regulations.
- Before work can begin, the power supply must be switched off and all poles disconnected.

⚠ WARNING

Fire hazard and risk of short circuit due to unsuitable or improperly installed connector cables!

- Due to temperatures in excess of 221 °F (105 °C), never attach or run connector cables near
 - metal surfaces of equipment,
 - aluminum frame feet,
 - exhaust tubes, or
 - warm air ducts.
- Install connector cables in a way that they cannot fray. In the case of sharp edges (such as leadthroughs of metal walls) use leadthrough bushings or edge protectors.
- All lines that extend outside the RV must be splash-proof at the RV's side wall.
- Use the specified cable cross-sections only.
- Never connect additional electrical components to the connector cables.
- Connector cables and lines must be securely fastened; they must not become loose or be disconnected due to vibration.
- Electric lines, switching equipment, and control units for the Combi furnace must be arranged in such a way in the RV that they will function flawlessly under normal operating conditions.

Electrical connections are underneath the furnace's connection cover (Fig. 35 – 39). While detaching or reattaching the connection cover, take care to neither dislodge nor pinch the connector cables.

1. Remove the connection cover by simultaneously depressing and sliding it as indicated by the arrow.

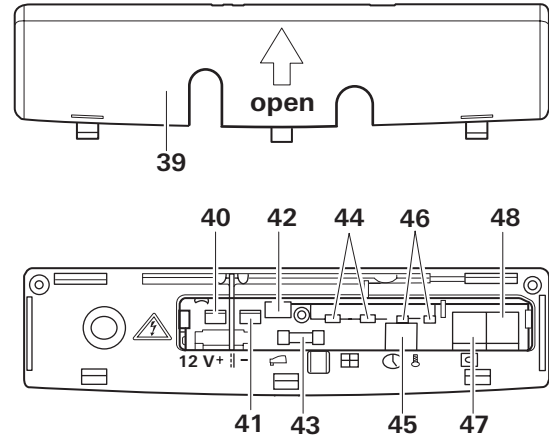


Fig. 35

- 39 Connection cover
- 40 Input voltage +12 V
- 41 Input voltage ground
- 42 Unassigned
- 43 T10A time-delay fuse, 12 V
- 44 Wire bridge
- 45 Unassigned
- 46 Room temperature sensor
- 47 CP plus control panel / Diagnostic connector*
- 48 CP plus control panel / Diagnostic connector*

* Alternative connections

- All electrical connections to the furnace must consist of sagging connector cables. This will prevent condensation from water seeping into the furnace via the connector cables.

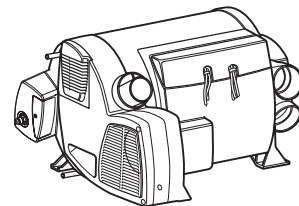


Fig. 36

- The connector cables and connectors must not be subjected to any strain.
 - Use a cable tie to bundle each set of connector cables and secure them to the housing to provide strain relief (Fig. 37).

- Use a cable tie tool to fix the cable ties.

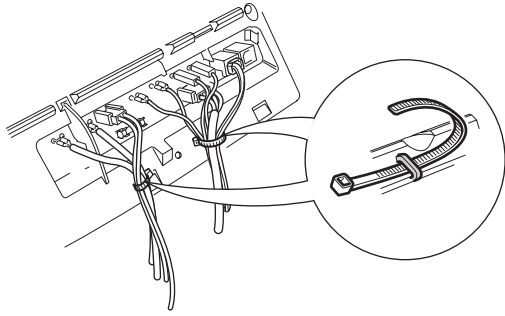


Fig. 37

Setting up a 12-volt connection

i The Combi furnace features reverse polarity protection. Even in case of an improper connection, the furnace can resume operation once proper polarity has been established.

i Power supply units must reliably provide an output voltage between 11 V and 15 V. The AC voltage ripple must not exceed 1 Vpp.

- The furnace must be connected to the RV's fused electrical system (central electrical system: 10 A).
- The power supply cable must have a diameter of at least:
 - 2 x AWG 14 (2 x 2.1 mm²) up to 16 ft length (5 m)
 - 2 x AWG 12 (2 x 3.3 mm²) up to 19 ft length (6 m)
 - For lengths > 19 ft (6 m), contact Truma Service.

i Drops in voltage in the supply line must be taken into consideration.

- Connect the negative wire to the central ground. If connected directly to the battery, the positive wire and the negative wire must be fuse-protected:
 - Use fully insulated flat connectors only owing to the risk of short circuit concerning connections (Fig. 35 – 40 and Fig. 35– 41).
 - Size of spade connectors: 0.25 in. x 0.032 in. (6.3 x 0.8 mm) TE - PIDG FASTON 250 series
- DO NOT connect any other load to the 12 V connection.

Connecting the room temperature sensor

- Insert the connector cable into the connection (Fig. 35 – 46). Polarity is not a concern.

Connecting the CP plus control panel

- Fully insert the connector cable into one of the connections (Fig. 35 – 47, 35 – 48).

Setting up a 120 V connection

(Combi eco plus and Combi comfort plus models with electrical heating elements only)

Use the 2-pole, 3-wire NEMA electrical plug (5-20P) to connect the furnace to the power supply.

▲ WARNING

Hazard due to electrical current!

Improper installation can cause property damage, personal injury or loss of life.

- Installation must be performed by a licensed electrician as per national/local regulations.
- The customer must install a 2-pole, 3-wire NEMA 5-20P socket:
 - Make sure that the socket is connected by means of a ground fault circuit interrupter (GFCI) with all-pole disconnection (contact clearance of at least 0.14 in. (3.5 mm)).
 - Make sure that the socket is grounded and fused at 20 A as a minimum.
 - Also ensure that L (phase conductor) and N (neutral conductor) are connected properly.

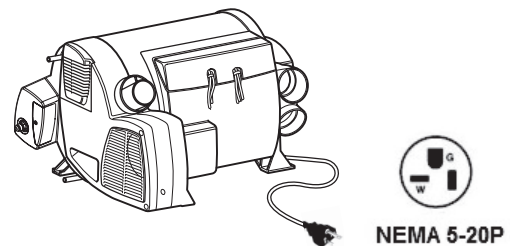


Fig. 38

- 120 V lines must be kept completely separate from 12 V lines.
- Secure all lines with clamps.

Final tasks

A duplicate type plate with a removable bar code is included in the scope of supply.

If the original type plate is not readily visible following installation of the furnace, the duplicate type plate must be affixed to a readily visible position on the furnace.

i The duplicate type plate is valid only in conjunction with the original type plate.

Warning labels

Check the warning labels for intactness and completeness; see figures in the Appendix of the operating instructions.

System checks

Propane gas pressure test

The Combi furnace and any individual shut-off valve must be disconnected from the gas supply piping system during pressure testing of the system at pressures of more than 0.5 psi (34 mbar).

Before the Combi furnace is connected, the piping systems must be checked for leaks. The test must maintain air pressure of at least 6 in. of mercury or 3 psi (200 mbar) for at least 10 minutes.

The entire piping system must be maintained within a range of 11 – 13 in. wc (27.4 – 32.4 mbar) with all appliances in operation. Test gas connections for leakage with a leak test solution.

Functional test

1. Conduct a comprehensive functional test in accordance with the Combi furnace's operating instructions.
 - Test water connections (water lines and joints) for leakage.
 - Be absolutely certain that all water drains properly. **No warranty claims will be accepted for frost damage.**
2. Hand over the operating instructions to the owner of the RV.

Ignition control test

There are two possibilities to detect the flame:

- Measurement with voltmeter or
- Optical detection

1. Measurement with voltmeter:

The voltage at the flame plug can be measured at connector X7, between pin 8 and ground (metallic case or pin 9). Only the DC component is measured by a digital multimeter.

The combustion performs faultlessly, if the voltage gains -0.5 V or less 5 seconds after the gas valve has opened.

Important:

This kind of measurement can only be done with a multimeter with high internal resistance like a FLUKE 73 III Multimeter with 32 M Ω .

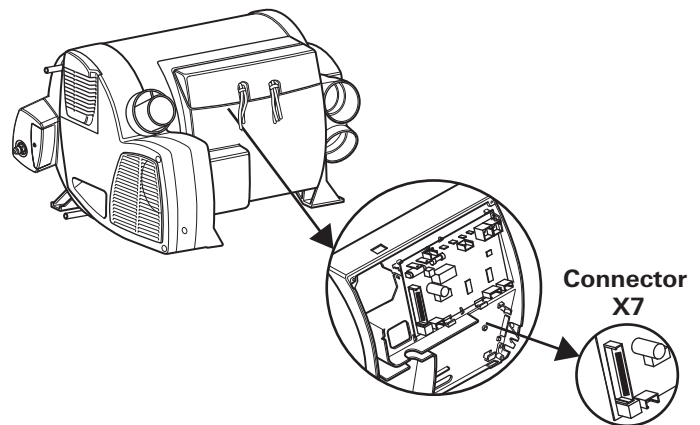


Fig. 39

1. Remove the connection cover.
2. Remove the electronic housing cover.
 - Disconnect the cables.
 - Remove two screws underneath the connection cover.
 - Remove the electronic housing cover.
 - Connect the cables to guarantee the function of the heating.
3. Set the mode to "voltage DC (VDC)" at the digital multimeter.
4. Connect the ground wire (black) of the multimeter with alligator clips to the metallic case.
5. Connect the test prod (red) with connector X7, pin 8 (IO signal of flame plug).
6. Start the Combi furnace in hot water mode. Measure voltage 5 seconds after the gas valve opens (clearly audible noise).

2. Optical detection:

The red LED on the board is lit if the flame is good, which is an indication of proper combustion.


1. Remove the connection cover.
2. Observe the LED labeled S.
3. Start the Combi furnace in hot water mode.
4. If the LED becomes red 5 seconds after the gas valve opens (clearly audible noise), combustion is good.

Static pressure test


The Combi furnace has an automatic fan speed control.

Truma recommends that all 4 warm air outlets should be fitted with warm air ducts.

1. For testing, close all warm air outlets but one. The static pressure should be below 0.65 in. wc (1.6 mbar).
2. Repeat this for each duct connector.

 Contact Truma Service, if you need further recommendations and specifications for optimized performance and proper operation.

Final check of installation

 For the final check of the installation, refer to the installation checklist supplied by Truma.

Connection diagram 12 volt (Control_PCB)

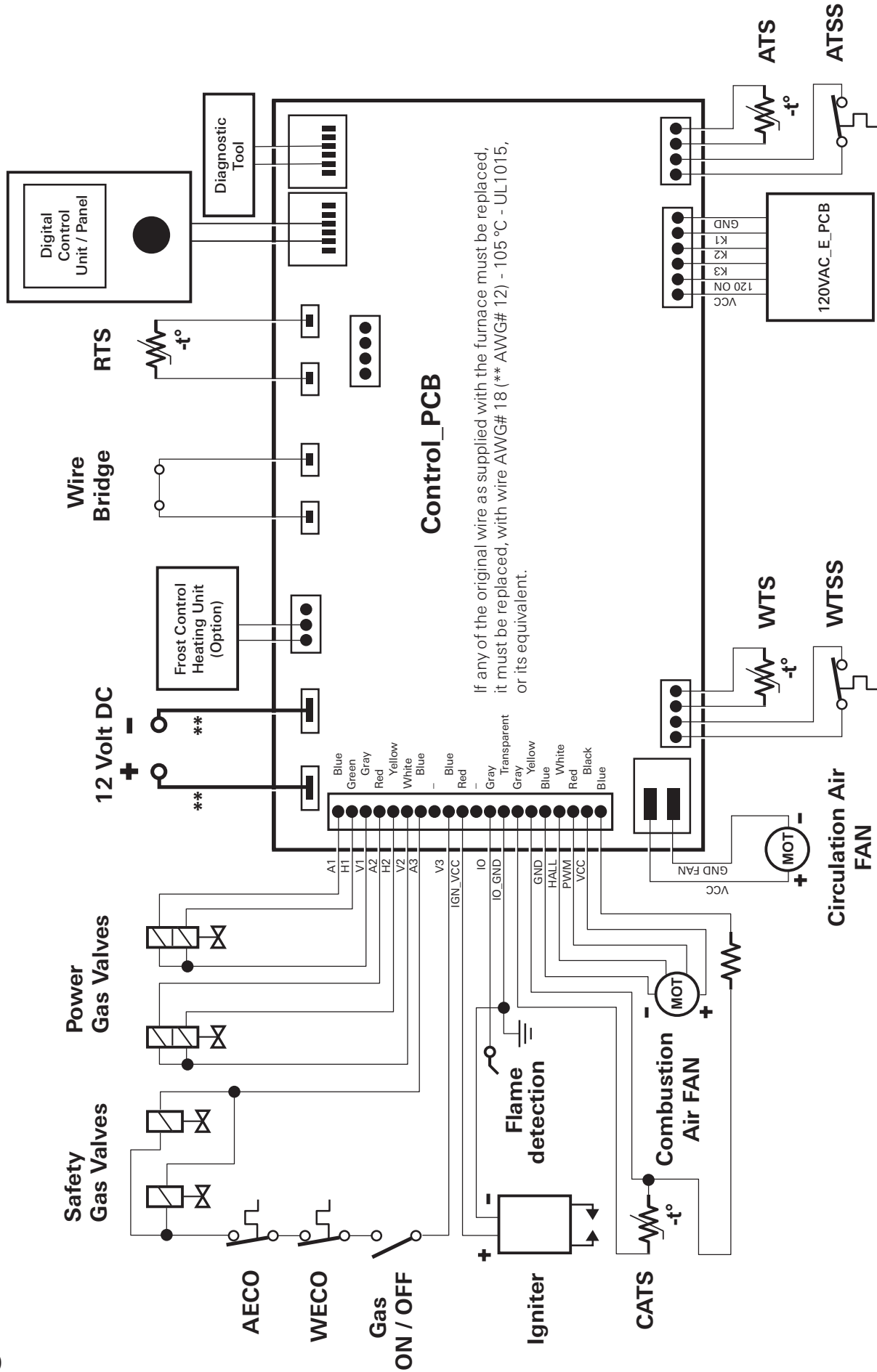


Fig. 40

Connection diagram 120 volt AC (120 VAC_E_PCB)

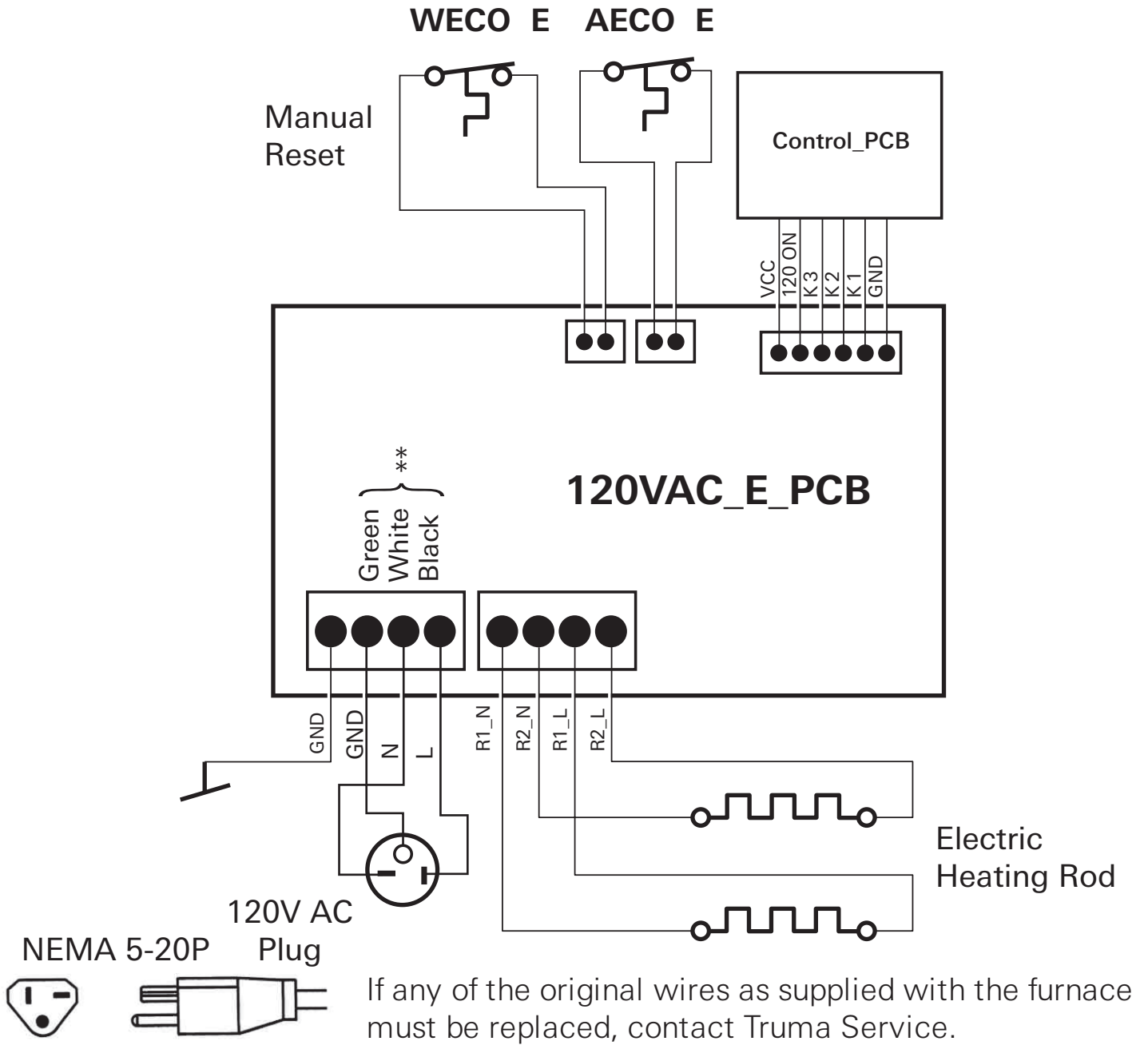


Fig. 41

Appendix A

Combustion Air Quality (List of Contaminants)

There must be no exposure to substances listed below:




- Permanent wave solutions
- Chlorinated waxes and cleaners
- Chlorine-based swimming pool chemicals
- Water softening chemicals
- De-icing salts or chemicals
- Carbon tetrachloride
- Halogen type refrigerants
- Cleaning solvents (such as perchloroethylene)
- Printing inks, paint removers, varnishes, etc.
- Hydrochlorid acid
- Cements and glues
- Antistatic fabric softeners for clothes dryers
- Masonry acid washing materials
- Automobile exhaust

Appendix B



Optional accessories for optimum warm air installation in individual floor plans

Product	Part number single pack	Part number bulk pack	Description	Purpose
	40230-04 (3.3 ft. (1m))	40230-54 (bulk 4 x 66 ft. (4 x 20 m))	Duct AD 65 (Ø 2.56 in. (65 mm))	Regular warm air duct
	40410-01 (3.3 ft. (1m))	40410-51 (bulk 5 x 66 ft. (5 x 20 m))	Duct AD 35 (Ø 1.38 in. (35 mm))	Small warm air duct
	–	40420-51 (bulk 10 ft. (3.05m))	Insulation sleeve (Ø 3 in. (76.2 mm))	Insulation sleeve 3 in. x 10 ft. for warm air ducts
	40241-02	40241-52 (bulk 800 pieces)	Clamp UES (Ø 2.56 in. (65 mm))	Clamp for holding the warm air duct AD 65
	40331-02	40331-52 (bulk 2,500 pieces)	Clamp IS (Ø 1.38 in. (35 mm))	Clamp for holding the warm air duct AD 35
	39590-00	39590-51 (bulk 100 pieces)	Clamp ZRS (Ø 3.15 in. (80 mm))	Clamp for holding the warm air duct AD 65 with insula- tion sleeve
	40171-11	40171-61 (bulk 200 pieces)	End outlet EN brown	Closable warm air outlet. Air throttle can be rotated 360° to direct and regulate warm air flow. Air throttle can be removed by pushing it side- ways and pulling it out.
	40171-12	40171-62 (bulk 200 pieces)	End outlet EN black	
	40171-13	40171-63 (bulk 200 pieces)	End outlet EN white	
	40171-14	40171-64 (bulk 200 pieces)	End outlet EN-O black	End outlet EN-O without air throt- tle, for lamella insert LA.
	40171-15	40171-65 (bulk 200 pieces)	End outlet EN-O white	
	40171-16	40171-66 (bulk 200 pieces)	End outlet EN-O brown	
	40721-10	40721-60 (bulk 350 pieces)	Lamella insert LA, black	Lamella insert LA for attachment to end outlet EN-O, can be rotated to control the direc- tion of the air flow.
	40721-11	40721-61 (bulk 350 pieces)	Lamella insert LA, white	
	40721-12	40721-62 (bulk 350 pieces)	Lamella insert LA, brown	

Product	Part number single pack	Part number bulk pack	Description	Purpose
	40181-02	40181-52 (bulk 200 pieces)	End outlet nut EM	For securing the end outlet EN and holding the duct AD 65
	40151-04	40151-54 (bulk 80 pieces)	T-pipe LT	T-pipe as wall outlet (in combination with end outlet EN)
	40151-03	40151-53 (bulk 60 pieces)	T-piece TS	To branch off another warm air duct AD 65
	40701-02	40701-52 (bulk 100 pieces)	Wall outlet vent WL	To release a small flow of warm air along the wall
	40191-02	40191-52 (bulk 55 pieces)	Y-piece	To branch off another warm air duct AD 65
	40161-02	40161-52 (bulk 100 pieces)	Straight coupling UEM	To connect two warm air ducts AD 65
	40301-02	40301-52 (bulk 60 pieces)	Branch AB 35	To branch off a warm air duct AD 35 from a warm air duct AD 65
	40381-02	40381-52 (bulk 200 pieces)	Reducer RZ 35	To connect a duct AD 35 to a duct AD 65
	40353-03	–	Blank cover VD	To close the end of a warm air duct (in combination with T-pipe LT and wall outlet vent WL)

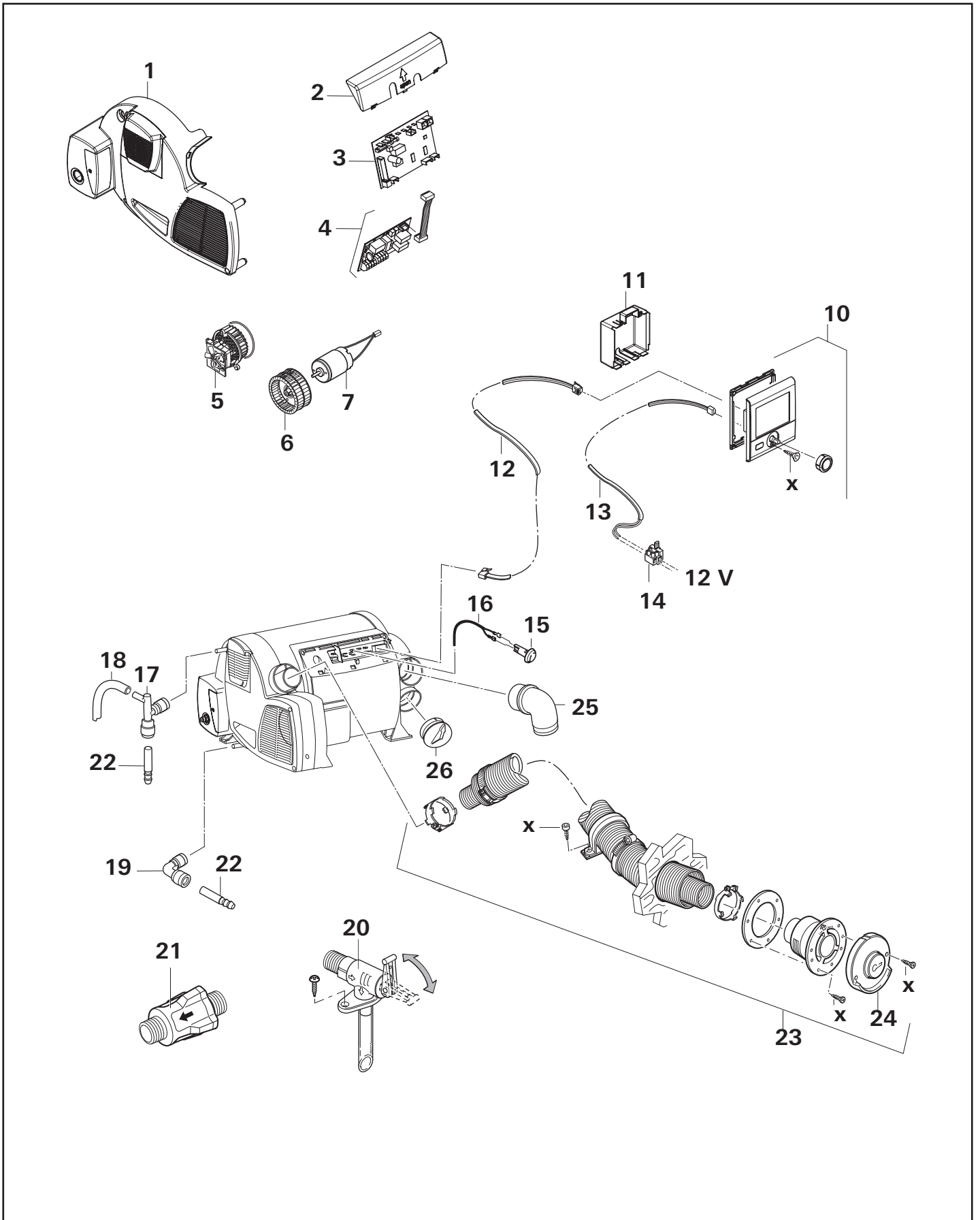
Product	Part number single pack	Part number bulk pack	Description	Purpose
	34091-02	–	Elbow BGC	To divert warm air ducts AD 65 immediately downstream from the warm air outlets of the Combi in confined spaces
	34020-24000	–	Clips, 4 pcs	For end outlet nut EM, T-piece TS, T-pipe LT, and Combi for secure fastening of air duct AD 65
	34310-02	34310-52 (bulk 200 pieces)	Blank cover VD-Combi	To close one of the lower warm air outlets of the Combi eco

Special Tools

Product	Part number	Description	Purpose
	30030-33000	Duct bender	Facilitates inserting the 3 in. insulating sleeve on to the warm air duct AD 65
	30030-08000	Cutting device for ducts	For cutting the warm air duct AD65

Appendix C

Exploded view of spare parts and accessories



List of spare parts and accessories

Pos. no.	Part number	Description	Information
01	34020-00059	Cover	including grill
02	34020-06500	Truma Combi connection cover	
03	34020-00058	PCB Truma Combi comfort / comfort plus	
03	34020-00057	PCB Truma Combi eco / eco plus	
04	34020-00060	Power PCB, 120 V	with cable
05	34020-00078	Combustion air motor	with round cord seal and screws
06	34000-04700	Air circulation fan wheel	including threaded bolt
07	34020-61300	D.C. motor	
10	47000-00056	CP plus UC	
11	34030-35600	CP plus cover	
12	36110-03	Control panel cable, 29.5 ft (9 m)	
13	34030-28700	Connecting cable CP plus	
14	50020-27800	Fuse holder	with fuse 1 A
15	34000-69700	Room temperature sensor	
16	34000-71900	Cable for room sensor, 13.1 ft (4 m)	
17	34020-00178	Elbow fitting with aeration valve	for rigid piping Ø 12 mm
18	34000-17700	Condensation tube	3 ft (0.9 m) long
19	34020-00177	Elbow fitting	for rigid piping Ø 12 mm
20	70143-18	Truma pressure relief/drain valve	65.25 psi (4.5 bar)
21	36503-01	Truma water pressure regulator	30 psi (2 bar)
22	34030-72600	Adaptor Ø 12 mm to 1/2 in. CTS kit	2 pieces
23	36230-04	Wall cowl kit CW black	3.3 ft (1 m) long
23	36230-02	Wall cowl kit CW pure white	3.3 ft (1 m) long
24	34020-00181	Cowl outer part black	
24	34020-00180	Cowl outer part pure white	
25	34091-02	Elbow BGC	
26	34310-02	Blank cover VD-Combi	for blocking one of the lower warm air outlets of the Combi eco (plus)
x	34020-00088	Screw / nut set	
y	34030-25600	Seal set	not illustrated

USA In case you encounter any problems,
please contact the Truma Service Center
at 855-558-7862 or one of our authorized
service partners. For details see:
www.truma.net

Please have the model number and serial
number (on furnace's type plate) handy
when you call.

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