



GB



Service manual Comfort 2923-2928



CE



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FOREWORD

This service manual is intended to assist with servicing and fault-finding in caravans, motor caravans and sheds equipped with Alde's LPG boilers, types 2923 and 2928. The handbook may also be of assistance in ordering spare parts, in understanding how the boilers operate, and how they are installed. It also includes general information on how our heating systems are designed, and some information on LPG and LPG installations.

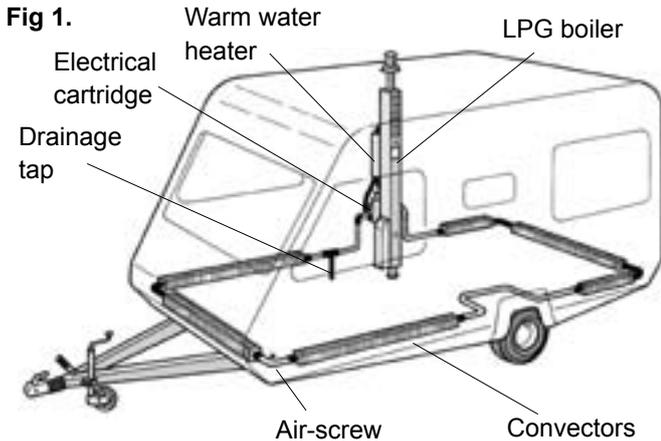
We hope that you will find this manual very useful, and that it will save you time during service and fault-finding on our boilers.

Alde International Systems AB
Service Department

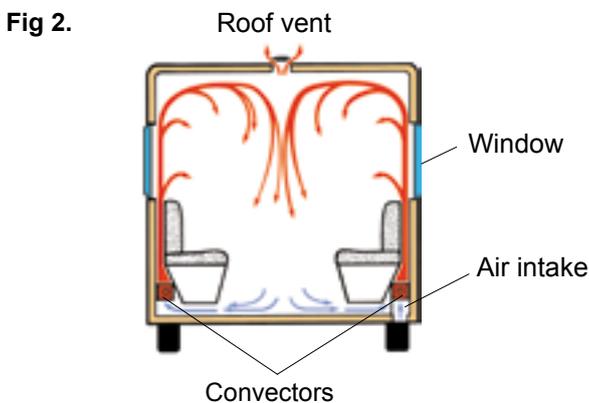
NOTE! We reserve the right to make changes after this manual has been printed.

1:0 ABOUT THE ALDE HEATING SYSTEM

The heating system consists of up to three heat sources, LPG boiler, 230 volt electrical cartridge, as well as a heat exchanger for motor caravans and boats. Alde's LPG boilers can be combined in many ways. Solely LPG - LPG boiler and electrical cartridge - LPG boiler and warm water heater or LPG boiler, electrical cartridge and warm water heater. The electrical cartridge and warm water heater do not take up any extra space when they are installed at the rear of the boiler.



The LPG boiler/electrical cartridge heats up a liquid mixture consisting of water (60%) and glycol (40%). With the help of a 12 volt circulation pump which is located in the expansion chamber of the boiler, or a 230 volt pump fitted to the electrical cartridge, the warm glycol/water is circulated round the system through pipes and radiators. The radiators, which are located along the outer walls, heat up the air which rises and warms the walls and furniture. Since warm air rises, it forms an air-barrier which keeps the cold away from the windows. The temperature inside the caravan is controlled by a 12 volt room thermostat. Thanks to the design of the boiler, and to the fact that it is fitted inside the caravan, incoming fresh air is warmed by the boiler's own heat.



1:1 OPERATING THE HEATING SYSTEM

Check the liquid level in the heating system regularly, in the expansion chamber of the boiler. The level should be approximately 10 mm above the min. line with the boiler cold. The system must be filled with a 40% glycol mix of the same type as is used in car engines.

If the heating installation has been exposed to a temperature below - 25° C, the glycol content must be increased, but not, however, above 50%. When topping up the liquid, the glycol concentration should be checked to prevent excess concentration. The glycol mix should be replaced every second year, since its properties, such as corrosion protection, degrade over time. The heating system must never stand empty of the glycol fluid.

The liquid in the system is drained through a drainage tap which is usually located under the caravan entrance.

Re-filling with liquid:

Ensure that the caravan or boat is level, and check that the air screws and drainage tap are closed. Remove the upper front plate on the boiler. Then slacken the plastic cap on the circulation pump and lift up the pump. Then carefully pour the glycol mix into the expansion chamber. When the system is being filled, air-pockets may form, depending on how the pipe-system was installed. (A good indications that there is air in the system is when the heat only travels a few metres along the pipe from the boiler, despite the fact that the circulation pump is operating). To make refilling simpler, use Alde's filling pump (fig 3) which both fills and bleeds the system automatically.

Bleeding the system (manually):

The LPG boiler must be operating and the circulation pump switched off. Begin by opening the air screws (see the builders instruction book for their location). Keep them open until liquid comes out of the spout at the air screw. Start the circulation pump and let it run for a few moments. Check whether the pipes and radiators all round the system are warm.

If the air has not know disappeared, proceed as follows: The LPG boiler must be operating, and the circulation pump switched off. If in a caravan lower jockey wheel as far as possible, so that the caravan tilts. Let it remain like that for several minutes, so that any air rises upwards in the system. Open the air screw at the highest point, and keep it open until all the air has escaped. Then wind the jockey wheel to its maximum position and repeat the procedure in that position. Then return the caravan to the level position and start the circulation pump. Check that heat is present all round the caravan. When bleeding a bogey wagon or motor caravan, it is easiest to park on a steep slope or to lift the vehicle up using a jack.

If in a boat consult the boat builders instructions. Ensure all radiators are bled after filling the system if a calorifier is incorporated check the bleed valve here if incorporated. Allow all air to escape before operating of pumps. Operate the boiler and circulation pump check once again for air pockets and ensure all the system reaches temperature.

Fig 3. Filling Pump
Art nr 1900 811



2:0 ABOUT LPG

LPG is a very clean burning fuel, officially called "Liquid Petroleum Gas". This international designation is normally shortened to LPG. It consists primarily of the gases butane and propane. Propane has the advantage that it gasifies down to -40°C , while butane performs badly below $+10^{\circ}\text{C}$. Propane as a gas is approximately 1.5 times heavier than air, and butane is approximately twice as heavy as air.

This is extremely important to bear in mind in the event of any gas leak, since the LPG remains in low-lying spaces. Pure LPG has no smell, but to enable any gas leak to be detected, a substance with a characteristic smell is added (it smells like sulphur). It can be stored in the cylinder for an unlimited time without any deterioration in quality.

LPG is non-toxic, but if bottled in concentrated form it will give rise to some anaesthetic effects, breathing difficulties and symptoms of suffocation and therefore may be avoided.

The LPG cylinder contains LPG both in liquid and in gas form. When the cylinder is filled, the gas turns to liquid through compression. When the cylinder valve is opened, and the pressure in the cylinder falls, the liquid turns into gas again. In a newly-filled LPG cylinder, approximately 80% of the LPG is in liquid form. In new and sometimes in newly-filled LPG cylinders, an air-cushion may form at the top of the cylinder. This can cause the LPG boiler to be difficult to light, when the cylinder has been changed. This air-cushion must be blown before the LPG-cylinder is connected to the LPG-system. Open the cylinder valve and blow in the air for 5-10 sek.

Note! Be careful when blowing the LPG-cylinder. Never blow against a person or near open fire or simular.

When LPG is burned completely, only carbon dioxide (CO_2) and water vapour (H_2O) are given off, just as in our own exhaled air. In the event of incomplete combustion, however, carbon monoxide (CO), which is an extremely toxic gas, is formed.

The flames from the burner must have a blue-green core, the primary flame, and a pale blue secondary flame around this. To ensure complete combustion, a good supply of air is required.

LPG burners normally work at a lower pressure than that in the cylinder. Alde's LPG boilers work at a pressure of 28/37 mbar. This reduction in pressure is achieved by passing the LPG through a reduction valve, which is screwed on top of the LPG cylinder, or on to an automatic LPG connector.

Pressure ranges

Low pressure Reduced pressure 0 - 50 mbar

Intermediate Reduced pressure above 50 mbar up to 2.0 bar. Low pressure and intermediate pressure are always reduced pressures which are regulated by a reducing valve.

High pressure Unreduced pressure or pressure over 2.0 bar. High pressure is used principally for camping equipment and special heating burners.

2:1 ABOUT LPG INSTALLATIONS

Alde 2923 and 2928 LPG boilers must be connected to the LPG cylinder with approved reducing valves with a pressure working the same as on the data sheet on the boiler. A shut-off valve, to shut off the LPG supply, must be fitted on the supply side of the boiler. The LPG is taken to the boiler with 8 mm pipes of copper or zinc-coated steel. If copper pipes are used, support-sleeves must be fitted at the connections. The pipes must be carefully clamped at 500 mm intervals with clamps which do not chafe the pipes. If the pipes go through walls, floors etc, they must be protected against chafing using a protector-sleeve of hose or similar. The pipes must also be protected against spark-overs from electrical cables.

LPG installations must always be pressure tested after installation or service. If there are any leaks, identified the position of the leak using a leak spray or soapy water

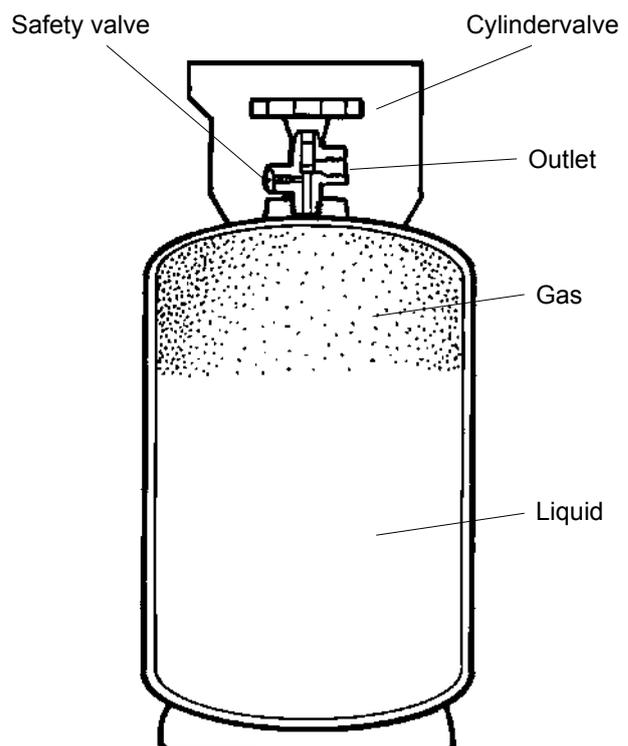
NOTE! Naked flames must not be used in searching for leaks.

For additional safety, we recommend the use of the Alde Leak Tester No. 4071.

Some important points to bear in mind:

- Only use CE approved components
- Always use support-sleeves with copper pipes.
- Never use force in tightening connections.
- Inspect the rubber packing on the reducing valve when changing cylinders.
- LPG pipes must be replaced when the rubber begins to crack.
- Consult the Recreational Craft Directive or Recreational Vehicle Directive regarding LPG installation.

Fig 6. Filled cylinder of LPG, cutaway diagram.



3:0 ABOUT COMFORT LPG BOILERS 2923 & 2928

Boiler layout (fig 9):

At the bottom of the LPG burner 2923 there is an inlet pipe which feeds in air from outside to the combustion chamber (fig 7). On the LPG boiler 2928, the air is led from the top of the flue via a hose down to the combustion chamber (fig 8). The LPG automatic unit and burner are attached to a removable plate screwed into the combustion chamber in the lower section of the boiler. The water jacket is fitted above the combustion chamber, and consists of an inner and outer pipe. The gap between these pipes provides the water reservoir. Inside the inner pipe there is a flame-damper, which consists of a folded stainless plate. This is intended to direct the warm combustion gases coming from the burner out towards the water jacket to heat the water. A pipe leads from the upper part of the water jacket to the expansion chamber. Inside the expansion chamber there is a 12 volt pump which circulates the heated liquid in the system. A control unit with thermostat knob, fuse, current inlet and change-over switch is located below the expansion chamber.

At the highest point of the boiler, there is an exhaust pipe for connecting to the flue, as well as a connection block for electrical connections to the boiler.

A ventilation drum is fitted alongside the boiler, and this takes in fresh air from outside and directs it on into the boiler. The fresh air is warmed up by radiant heat from the boiler casing, and is then passed out into the caravan via the ventilation grill in the front plate.

How the boiler works:

When the room thermostat demands heat, the circulation pump starts. The liquid in the system then begins to circulate, and cold water enters the boiler. A sensor fitted in the water jacket senses that the water is colder than the temperature set on the boiler thermostat. The pilot light ignites the main burner, which heats up the liquid and circulates it round the system. When the warmth in the caravan reaches the temperature set on the room thermostat, the circulation pump stops. A sensor on the boiler senses when the liquid has reached the temperature set on the boiler thermostat. It then closes down the main burner, and returns to the pilot light. When later the liquid temperature has fallen a few degrees in the boiler, the main burner is ignited again. This ensures that warm water is always available when the room thermostat demands heat

3:1 TECHNICAL DATA

Height:	1710 mm
Width:	132 mm
Depth:	220 mm
Weight 2923 complete:	18 kg
Weight 2928 complete:	19 kg
Output propane:	5,4 kW
Output butane:	6,2 kW
Gas pressure:	30 mbar(3 kPa)
Gas consumption propane:	max 420 g/h
Gas consumption butane:	max 480 g/h
Volume of liquid:	2,6 litre
System temperature:	35 - 75 °C

Fig 7.

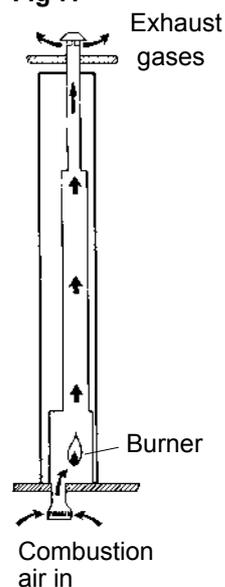


Fig 8.

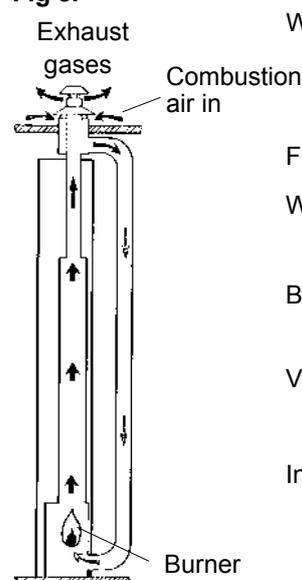
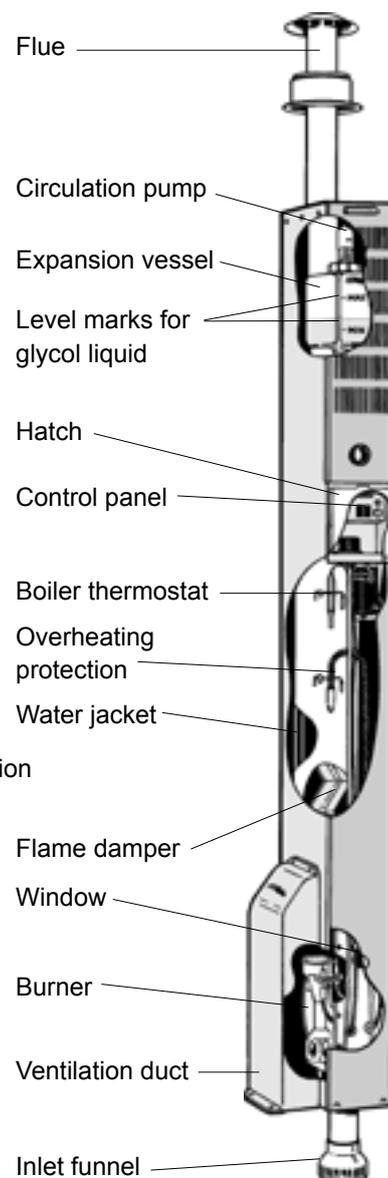


Fig 9 (Comfort 2923).



Fuse:	1 amp
Current consumption 12 V circ. pump:	150 - 200 mA
Connection pipes heating system:	Ø 22 mm

Minimum installation dimensions for 2923:

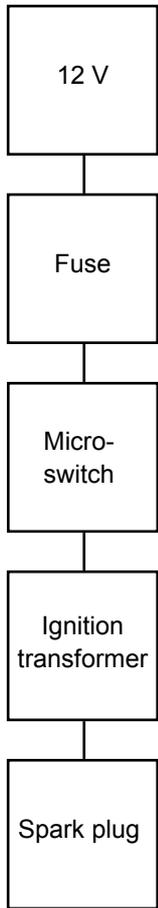
Height:	1820 mm
Width:	132 mm
Depth:	310 mm

Minimum installation dimensions for 2928:

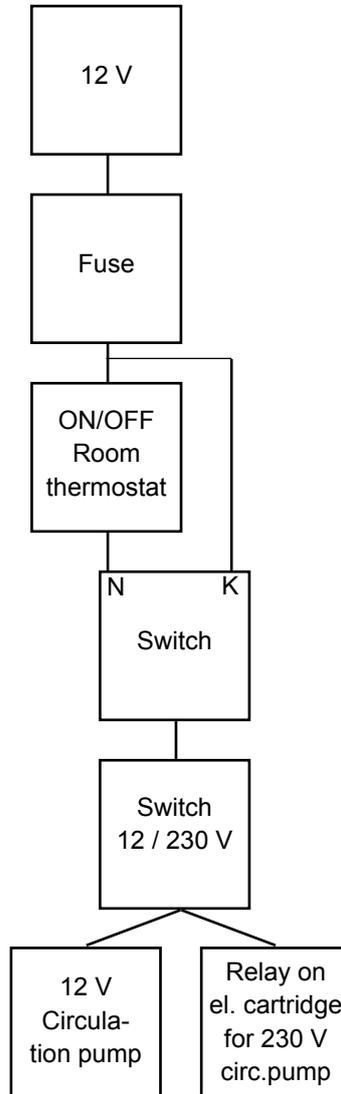
Height:	1850 mm
Width:	132 mm
Depth:	350 mm

4:0 FLOW CHART

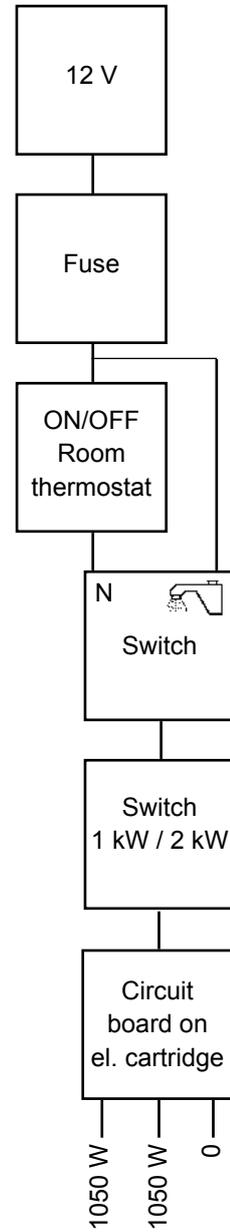
LPG Boiler



Circulation pump



Output electrical cartridge



5:0 FAULT-FINDING

5:1 GENERAL FAULT-FINDING

This guide to general fault-finding should be useful in rapidly establishing where in the heating system the fault may lie. This saves time in fault-finding. For more detailed fault-finding, see sections 5:2 - 5:15.

Fault	Possible fault in
Boiler does not start	Gas supply, fuse, ignition system
Boiler/electrical cartridge not warm	Temperature-settings, boiler thermostat, electrical cartridge thermostat
Boiler/electrical cartridge warm, but no heat in the caravan or boat	Circulation pump, air in heating system, warm water heater
Boiler/electrical cartridge boiling	Temperature-settings boiler thermostat, electrical cartridge thermostat
Noise in circulation pump 12/230 V	Liquid level, air in the system, foreign object in pump housing, pump motor, paddle wheel
Uneven temperature in the caravan or boat	Regulating equipment room therm., connections
Too little warm water	System temp, circulation pump, water-flow

5:2 IGNITION SPARK - NONE OR ONLY ONE

Cause:

- Voltage to ignition transformer absent or too low.
- Fault in ignition transformer.
- Insulation fault on spark plug.
- Insulation fault on ignition cable.
- Fouling/dirt on spark plug.

Remedial action:

- Check that there is 12 V voltage on the boiler connection block between pins 1 red (+) and 4 black (-).
- Check that the fuse in the control panel is intact.
- Check that the micro-switch trips when the thermostat knob is turned to the ignition position. Use a voltmeter to measure the voltage between the yellow (+) and black (-) cables on the ignition transformer. This must be > 9 V.
- Check the ignition transformer by removing the ignition cable from the connection and turning the thermostat knob to the ignition position. The ignition transformer should then produce a spark (click) and the indicator lamp should flash continuously. If not, the ignition transformer is faulty and must be replaced.

- If the ignition transformer produces a spark (click), but there is no spark at the spark plug, first check the ignition cable by removing it from the spark plug and making a connection approx. 3-5 mm from earthed material. If there is a spark between the connection and the material, there is no fault in the ignition cable, and the fault lies in the spark plug which must be replaced. If there is no spark, but a ticking is heard from the ignition transformer, the fault is in the ignition cable.
- If there is only one single spark (the lamp flashes once) this is due to the effect on the spark plug of dampness or condensation. The spark plug/ignition cable is then faulty, and must be replaced.

NOTE! When this fault occurs, the boiler can be jump-started by removing the ignition cable from the lighter and attaching it 3 - 5 mm from the connection pin so that it forms an extra spark gap. Start the boiler in accordance with the instructions. Remove the fuse and connect the ignition cable when the boiler starts. Replace the fuse.

5:3 THE IGNITION SPARK DOES NOT STOP AFTER IGNITION

Cause:

- The ignition cable has loosened at the connection to the lighter or the spark plug.
- Break in the ignition cable.
- Ignition electrode not in centre of pilot flame.
- Pilot flame too small.
- Fault in ignition transformer.

Remedial action:

- Check that the ignition cable is correctly connected or replace the ignition cable.
- Adjust the ignition electrode so that it is in the centre of the pilot flame.
- Check the gas supply and nozzle in the pilot burner.
- Replace the ignition transformer.

5:4 THE IGNITION SPARK STARTS WHEN THE BOILER IS SWITCHED OFF

Cause:

- Micro-switch wrongly adjusted.
- Thermostat knob turns too easily.
- Thermostat knob turns too slowly.

Remedial action:

- Adjust the micro-switch in accordance with chap. 6:10.
- Check that there is an o-ring in the groove on the shaft of the thermostat knob, and that there is not too much grease on the shaft and in the knob hub, wipe any excess away.
- If the knob feels springy (does not remain in the position in which it is released), lubricate the o-ring very sparingly with grease.
- Replace the thermostat knob.

NOTE! When the thermostat knob is removed, it must be re-fitted in the same position, otherwise the temperatures setting will change.

5:5 PILOT BURNER DOES NOT LIGHT

Cause:

- No ignition spark at the pilot burner.
- Gas supply absent or too little.
- Nozzle and/or burner clogged.

Remedial action:

- Check ignition in accordance with Chapter 5:2.
- Check the gas supply.
- Check that the cylinder valve and the main tap on the boiler are open and that the reducing valve provides the correct pressure (28/37 mbar). Check whether other LPG appliances, e.g., cookers, can be lit and burn normally at full output.
- Check and blow clean the pilot burner and nozzle.
- Replace the pilot burner.

5:6 PILOT BURNER BURNS YELLOW

Cause:

- Dirt in the nozzle and/or pilot burner.

Remedial action:

- Check and blow clean the pilot burner and nozzle.
- Replace the pilot burner.

5:7 THE PILOT BURNER GOES OUT WHEN THE THERMOSTAT KNOB IS RELEASED

Cause:

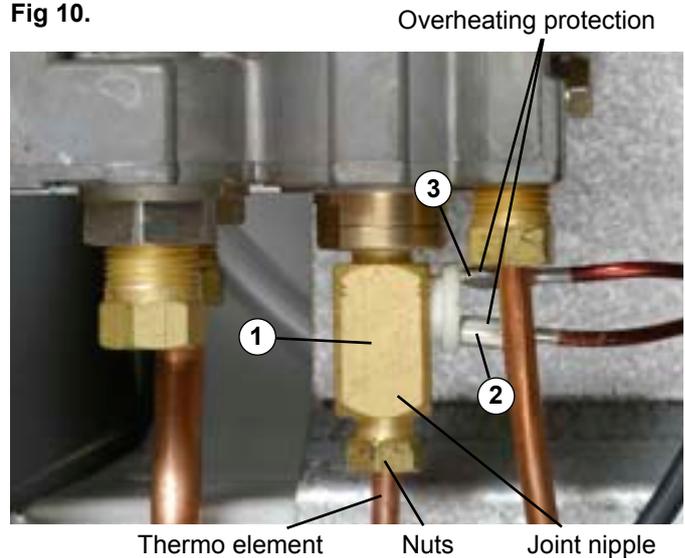
- Thermostat knob has not been pressed fully in.
- Thermostat knob has been released too early.
- Faulty thermo-element, produces no voltage or insufficient voltage.
- Thermo-element insufficiently heated as a result of weak (yellow) flame and/or wrongly-placed thermo-element tip.
- Contact between thermo-element and magnetic insert in the automatic unit poor or non-existent.
- Fault in overheating protection.
- Fault in automatic unit.

Remedial action:

- Check that the thermostat knob is pushed fully in and is held for a minimum of 15 sec after the indicator lamp has stopped flashing.
- Check the gas supply and the pilot burner in accordance with 5:6. The pilot burner must burn with a clear blue flame without yellow peaks.
- Check that the tip of the thermo-element is in the centre of the pilot flame. Adjust if necessary by carefully bending the bracket.
- Check, and, if necessary, clean the contact surfaces in the joint nipple between the thermo-element, the overheating protection and the magnetic insert in the automatic unit, and that the nuts on the thermo-element are tight.
- Check the operation of the thermo-element by measuring the voltage (see fig 10) between point 1 and the lower pin of the over heating protection, point 2. It must be > 15 mV. If the voltage is lower than this the thermo-element must be replaced.

- Check the operation of the overheating protection by measuring voltage between points 1 and 3 (there is a voltage drop of approx. 5 mV compared with points 1 and 2). If a measuring instrument is not available, short circuit the upper and lower pins (2 and 3) with a screwdriver, for example. If the pilot flame goes out when the screwdriver is removed, the overheating protection must be replaced.
- Replace the automatic unit.

Fig 10.



5:8 THE PILOT BURNER GOES OUT WHEN THE THERMOSTAT KNOB IS TURNED UP

Cause:

- Fault in gas supply.
- Fault in air supply.
- Fault in flue.

Remedial action:

- Check that the cylinder valve and the main tap in the boiler are fully open and that the reducing valve gives the correct pressure (30 mbar). Check that other LPG appliances, e.g. cookers, can be lit and burn normally at full output.
- Check that the air inlet pipe/hose and funnel for the boiler are undamaged and that the funnel is not clogged and is fitted correctly.
- Check that the boiler exhaust flue and cowl are undamaged and are not clogged.

5:9 THE BOILER OVERHEATS THE WATER

Cause:

- Max temp setting too high.
- Faulty boiler thermostat/sensor.
- Sensor not fixed to boiler casing.
- No heat-conducting paste between sensor and boiler.

Remedial action:

- Check in the expansion chamber that the heating system is filled to the correct level with 40% glycol mix.
- Check that the sensor is attached, with heat-conducting paste between the boiler and the sensor, and that the capillary tube is not damaged.
- Turn the thermostat knob to position 1 and check that the main flame goes out, and if it does, lower the max temp setting. If the flame does not go out, replace the sensor or automatic unit.

NOTE! When using the heating system at high altitude (more than 1000 m above sea-level) the boiling point of the glycol mix is reduced through lower atmospheric pressure, and this may cause boiling if the thermostat knob is in its maximum position (7). Turn down to position 6 or 5 to avoid boiling.

5:10 THE BOILER DOES NOT HEAT UP

Cause:

- The main burner does not ignite/burns with insufficient output.
- Main burner goes out (breaks) too early.

Remedial action:

- Check that the nozzle in the main burner is not clogged and has the correct rating (220 for 28/37 mbar and 190 for 50 mbar gas pressure) Remove, blow clean or replace nozzle if necessary.
- Check the boiler temperature, if necessary adjust the temperatures setting.
- Replace the automatic unit.

5:11 IGNITION FLASH IN MAIN BURNER

Cause:

- Faulty or wrongly-adjusted pilot burner.
- Faulty main burner/nozzle.
- Modulating screw in automatic unit wrongly set.

Remedial action:

- Check that the pilot burner is as low down as possible on the main burner, so that the ignition flame sweeps close to the top of the main burner. Adjust the height if necessary by slackening the two screws in the pilot burner bracket.
- Check that the pilot burner burns with a blue flame at the outlet hole towards the main burner. Replace the pilot burner if necessary.
- Check that the screens at the top of the main burner are intact and firmly attached, and that the main nozzle is intact. Replace burner and/or nozzle if necessary.
- Adjust the modulating screws on the automatic unit by screwing down (clockwise) until the boiler lights softly (see fig 11)

NOTE! If the modulating screw is adjusted down, the main burner lights and switches off with reduced output, "modulation", which gives a more gentle start. If this has been done, check that the main flame burns silently and steadily at reduced output (after start and before stopping the main burner may begin to vibrate if the setting is wrong). The standard setting is approx. 1/2 turn open.

5:12 NOISE IN MAIN BURNER (ROARING)

Cause:

- Exhaust cowl wrongly fitted or missing.
- Inlet pipe/hose wrongly fitted or missing.
- Faulty main burner or nozzle.
- Modulating screw on automatic unit wrongly set.

Remedial action:

- Check that the exhaust cowl is correctly fitted in accordance with the installation instructions.
- Check that the inlet funnel is black and is correctly fitted. (The inlet funnel on the type 2923 burner has a smaller through-flow of air and is manufactured in black material to avoid confusion with the grey unit which fits type 2920 and 2921 boilers).
- Replace the main burner. If a new standard burner does not help, a special burner can be fitted, which has a greater hole diameter on the burner screen (can be ordered after discussion with Alde service).
- Adjust the modulating screws on the automatic unit by screwing out (anti-clockwise) until the vibrations disappear (see fig 11). The standard setting is approx. 1/2 turn open.
- Replace the automatic unit.

5:13 IMPOSSIBLE TO SHUT BOILER OFF

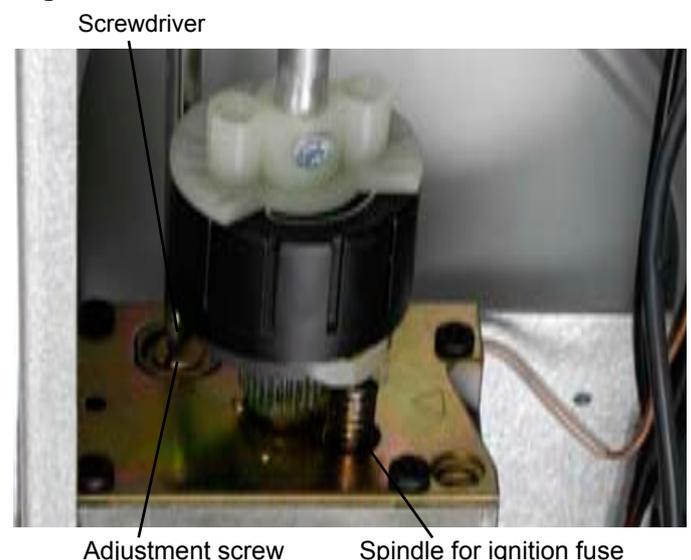
Cause:

- The spindle for the ignition fuse is stuck in the depressed position.

Remedial action:

- Lubricate the spindle (see fig 11) with silicone oil.
- Replace the automatic unit.

Fig 11



5:14 CIRCULATION PUMP DOES NOT START

Cause:

- No voltage to boiler.
- Switch on room thermostat off.
- Temperatures setting too low (room thermostat has tripped).
- Room thermostat wrongly calibrated or faulty
- Switch for circulation pump on control panel in wrong position/faulty.
- Cable connections not attached to motor.
- Pump motor faulty.

Remedial action:

- Check voltage and fuse.
- Check that the switch on the room thermostat is in the "ON" position.
- Check that the temperature setting on the room thermostat is higher than the temperature in the caravan.
- Calibrate the room thermostat in accordance with 6:18.
- Check that the switch for the circulation pump on the control panel is in the 12 V position and that it is not faulty.
- Check the cable connections and voltage at the pump motor, if necessary replace motor.

5:15 NOISE OR VIBRATION IN CIRCULATION PUMP

Cause:

- Wear in motor/bearing - bearing dry.
- Rubber coupling between motor and pump shaft faulty.
- Pump shaft bent.
- Paddle wheel in pump housing does not rotate freely.

Remedial action:

- Lubricate the upper bearings of the motor with one drop of sewing machine oil, if necessary replace motor.
- Check that the rubber coupling is straight, and does not move about during operation and that the pump shaft is straight. Slacken the nut which hold the pump, turn the pump slightly and re-tighten the nut.
- Check that the pump housing is clean and free from foreign objects.

6:0 REPLACING COMPONENTS

This Chapter shows the easiest way of replacing components in an Alde Comfort boiler.

NOTE! Work on the automatic gas unit may only be carried out by Alde's service department or authorised personnel.

6:1 REPLACING THE COMPLETE BURNER UNIT

1. Close the main gas tap to the boiler.
2. Remove the hatch on the control panel by opening it straight out and carefully bending it upwards in the centre so that the pegs are released (see chapter 6:12).
3. Remove the lower front plate (see fig 12). Lever with a screwdriver in the groove on the bottom of the plate until the tabs are clear. Then pull outwards/downwards until the plate is free and can be removed.
4. Switch off the main current switch or remove the fuse on the control panel. Set the thermostat knob in the ignition position. Remove screw (fig 15 A) which holds the rod in the automatic knob. Press the knob down and carefully lift the rod from the knob.
5. Unfasten the springs (fig 13 A) which hold the sensor (fig 13 B) and overheating protection (fig 13 C) and remove these from the boiler casing, see fig 14. Disconnect the ignition cable from the ignition transformer (fig 13 D), as well as the screw to the earthed connection (fig 15 B).
6. Remove the remainder of the screws, 13 off B6 x 9 (fig 15 C) in the burner plate.
7. Disconnect the inlet gas pipe to the automatic unit (fig 15 D) and remove the burner unit from the boiler, see fig 16.
8. Check that the front packing (fig 16 A) is intact before the burner unit is replaced. Fasten the burner unit and earth cable. Attach the inlet gas pipe to the burner unit and tighten. Install the overheating protection, sensor and ignition cable. Ensure that there is heat-conducting paste between the sensor and the boiler. Check that the capillary tube to the boiler thermostat, overheating protection and ignition cable are correctly installed to the right of the automatic unit, and are not trapped or damaged.
9. Fit the rod in the automatic knob and insert the screws. Carefully turn the knob to the stop position and check that the micro-switch "clicks", switches off.
10. Fit the fuse and switch on the main switch. Turn the thermostat knob to the ignition position and check that the indicator lamp flashes and that there is a spark at the spark plug. Press down the thermostat knob and turn to no. 7 on the scale. Check that the arm of the micro-switch does not drag against the knob hub. (If necessary adjust the micro-switch, see Chapter 6:10). Turn to the stop position and check that the spark is switched off and that the lamp stops flashing.
11. Install the lower front plate (fig 12), push the upper parts under the edge of the control box, press the plate inwards/downwards so that the tabs grip the boiler foot. Fit and close the hatch.

12. Open the main gas tap to the boiler. Remove the hose from the reducing valve on the gas tube, fit a manometer and pressure test the LPG installation in accordance with instructions. Attach the hose, open the gas pipe and test-run the boiler. Check that sparks cease when the boiler lights!

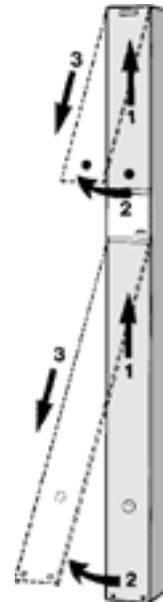


Fig 12

Fig 13

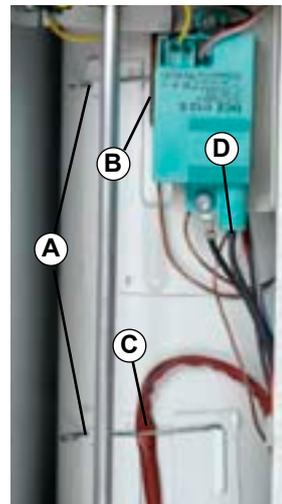


Fig 14



Fig 15

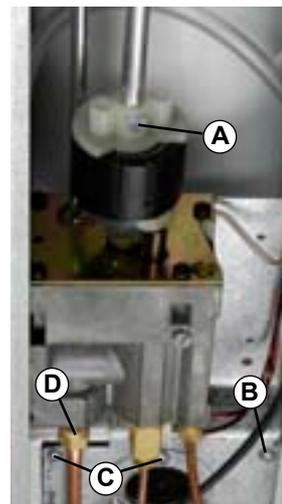


Fig 16



6:2 ADJUSTING THE BOILER TEMPERATURE

1. Remove the hatch on the control panel by opening it straight out and carefully bending it in the middle so that the pegs are released (see Chapter 6:12).
2. Remove the lower front plate (see fig 12).
3. Switch off the main power switch, set the thermostat knob in position 2, so that the hole with the figure 5 on the automatic unit knob is straight ahead. Unfasten the screws (fig 17 A) on both sides of the plastic conductor on the rod. Push the rod and knob to the side. Remove the white plastic plug, press down the nozzle and remove the screw with a 7 mm spanner, (with serial numbers from 21425, a special tool is required for removing the screw.) Remove knob and spring (see fig 17).
4. **Temperature adjustment:** Note the scale on the edge of the plastic wheel (corresponds to the scale on the knob) and the index on the cover. Lift the plastic wheel approximately 10 mm (see fig 18). Turn anti-clockwise to reduce the temperature and clockwise to increase it. Carefully push the plastic wheel down so that the teeth engage, every tooth movement is equivalent to approx. 3°C change in temperature.
5. Fit the spring, knob and screw. Turn the knob to the stop position, switch on the main switch/insert fuse. Start and test-run the boiler at max temp (knob in position 7) with the circulation pump switched off. Check that the boiler switches off (main burner goes out) at the correctly set system temperature. If necessary, make further adjustments.

Basic setting of temperature: With the sensor in a water bath, temperature 70°C, turn the thermostat knob from position 7 towards 1, switching, "ticking" occurs between positions 6½ - 4½. On burner unit with serial numbers > 28798, the water bath must be at 65°C.

6. Press in the plastic plug, fit the rod with the plastic adapted, (NOTE! The figure 5 must be visible in the hole). Turn to the stop position, check that the spark shuts off and that the lamp stops flashing.
7. Fit the lower front plate (see fig 12). Install and close the hatch.

Fig 17

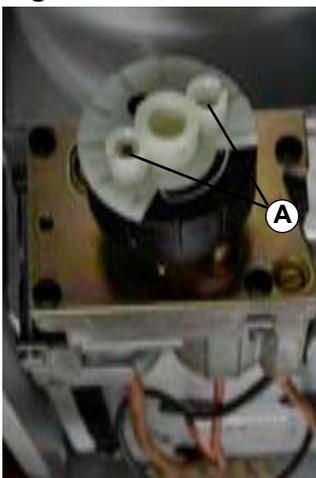
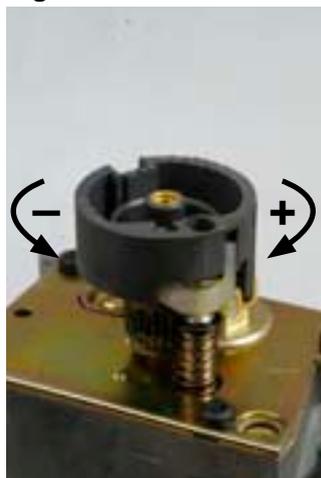


Fig 18



6:3 REPLACING THE OVERHEATING PROTECTION

1. Remove the lower front plate (see fig 12).
2. Unfasten the springs (fig 13 A) which hold the sensor (fig 13 B) and overheating protection (fig 13 C) to the boiler casing.
3. Unwind the sensor from the overheating protection.
4. Slacken the nuts on the thermo-element (fig 19 A) a couple of turns in the joint nipple (fig 19 B) below the automatic unit and then pull the overheating protection straight out of the joint nipple (see fig 20). Check that the joint metal is free from oxidation, if necessary clean or replace it.
5. Fit the new overheating protection into the joint nipple. Tighten the nuts from the thermo element, but not too much. Check that the cables for the overheating protection are not lying against the gas pipe.
6. Wind the sensor wire round the new overheating protection and attach the sensor with spring in the recess in the boiler casing. Check that there is heat-conducting paste on the sensor.
7. Tilt the overheating protection at the top and push it down into the holder. Attach it with the spring.
8. Start the boiler in accordance with instructions. Check that the boiler continues to burn when the thermostat knob is released. Fit the lower front plate (see fig 12)

Fig 19

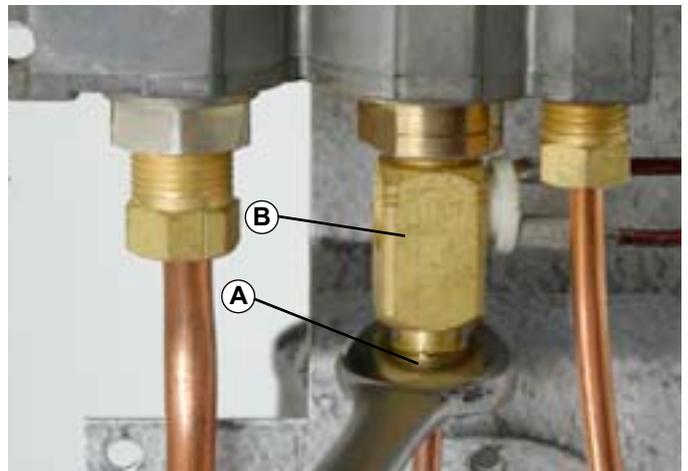
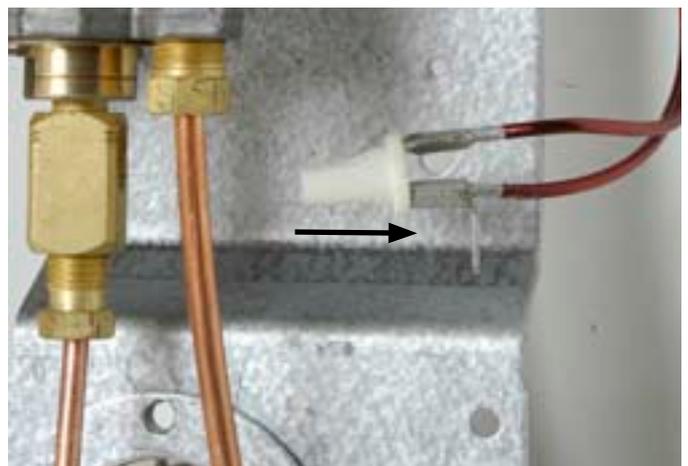


Fig 20



6:4 REPLACING THE THERMO-ELEMENT

1. Remove the burner unit in accordance with Chap. 6:1.
2. Slacken the nut (fig 21 A) a few turns and pull the thermo-element (fig 21 B) down out of the holder.
3. Unscrew the nut (fig 19 A) from the joint nipple (fig B) below the automatic unit and pull out the thermo-element through the cable opening on the front plate of the burner unit.
4. Check the contact surfaces on the joint nipple and the overheating protection, clean or replace joint nipple if necessary.
5. Install the new thermo-element in reverse order.
NOTE! The tip of the thermo-element must be pressed up as far as it will go in the holder, before the nut is tightened. Check the distance, see fig 21.
6. Then fit the burner unit in accordance with Chapter 6:1.

6:5 BYTE AV TÄNDSTIFT

1. Remove the burner unit in accordance with Chap. 6:1.
NOTE! Inlet gas pipes do not always need to be removed, but if necessary must be pushed to the side to gain access to the screws. The bulb and overheating protection do not need to be removed. This saves both time and unnecessary work.
Carefully press the burner unit down and fold out at the upper edge far enough to allow the pilot burner and spark plug to be seen.
2. Slacken the nut (fig 21 C) on the spark plug and unscrew. Pull down the spark plug, nut and cable with silicone sleeve and take them out at the side. Remove the plug from the cable and nut, and destroy it immediately by bending the electrode so that it cannot be confused with a new plug.
3. Fit the nut to the new plug and connect the cable. Pull the silicon sleeve (fig 21 D) over the joint, approximately 5 - 8 mm on to the plug. Insert the spark plug in place and tighten the nut carefully. Check the distans, see fig 21.

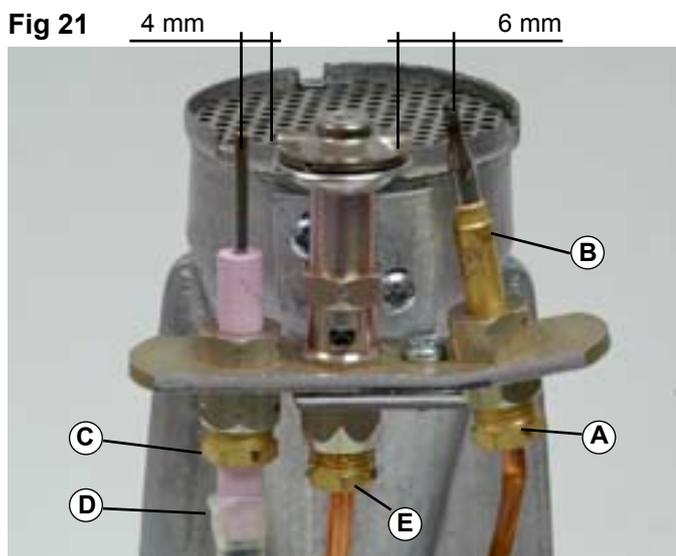


Fig 21

4. Insert the burner unit into the boiler and install it in accordance with Chapter 7:1. Check that the capillary tube to the boiler thermostat, the temperature limiter and ignition cable are aligned correctly, to the right of the automatic unit, and not trapped or damaged.

6:6 REPLACING THE PILOT BURNER

1. Remove the burner unit in accordance with Chap. 6:1.
2. Slacken the nut on the gas pipe (fig 21 E) on the pilot burner and pull down the pipe.
3. Slacken the nut (fig 21 A) to be thermo-element a few turns and pull it down out of the holder.
4. Unscrew the nut (fig 21 C) which holds the spark plug and pull it down from the holder.
5. Remove the pilot burner from its bracket (fig 23 A) by slackening the screw (fig 22 A) from the holder and lifting up the pilot burner, see fig 23.
NOTE! The tip of the thermo-element must be pushed up as far as possible in the holder, before the nut is tightened.
Check the distans to the spark plug and thermoelement.
7. Then re-fit the burner unit in accordance with Chap. 6:1.

Fig 22

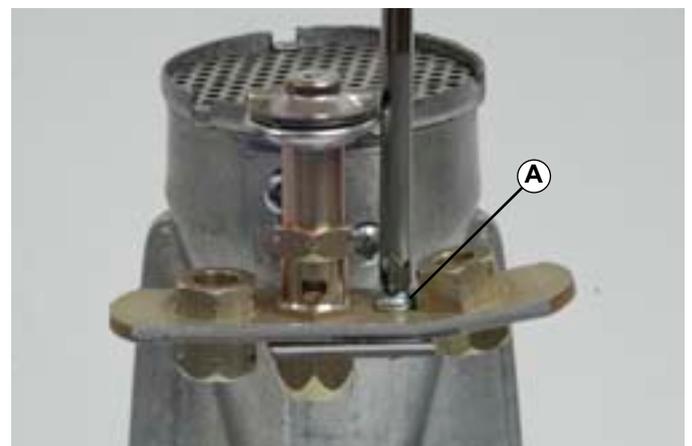
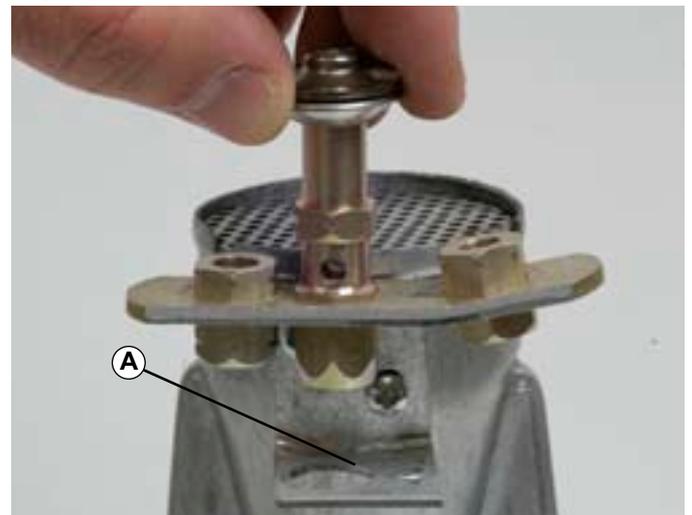


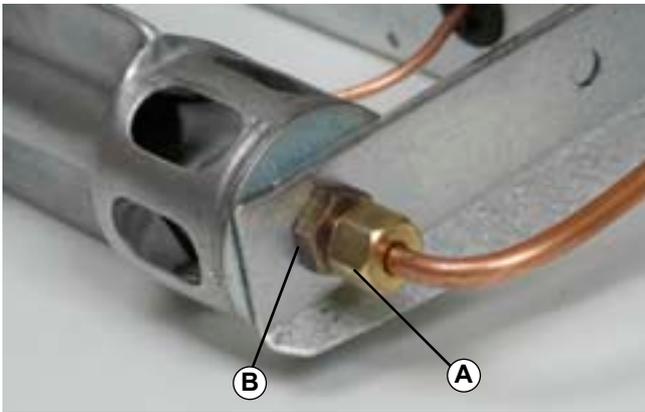
Fig 23



6:7 REPLACING THE MAIN BURNER

1. Remove the burner unit in accordance with Chap. 6:1.
2. Remove the pilot burner in accordance with Chap. 6:6.
3. Slacken the nut on the gas pipe below the main burner (fig 24 A) and pull the pipe out for a short distance. Then slacken the nut which holds the main burner (fig 24 B) with a 17 mm spanner. Remove the main burner.
4. Transfer the angle bracket (fig 23 A), which holds the pilot burner, on to the new main burner and attach the pilot burner.
5. Install the main burner and tighten the nut and then the gas pipe.
6. Fit the spark plug, gas pipe and thermo-element to the pilot burner.
7. Fit the burner unit and test-run in accordance with Chapter 6:1.

Fig 24



6:8 REPLACING THE IGNITION CABLE

1. Remove the burner unit in accordance with Chap. 6:1.
NOTE! Inlet gas pipes do not always need to be removed, but if necessary must be pushed to the side to gain access to the screws. The sensor and overheating protection do not need to be removed. This saves both time and unnecessary work.
Carefully press the burner unit down and fold out the upper edge far enough to allow the pilot burner and spark plug to be seen.
2. First remove the ignition cable from the ignition transformer and then from the spark plug and pull it out through the table opening on the front plate of the burner unit.
3. Fit the new ignition cable and connect it to the spark plug and ignition transformer. Don't forget the silicone sleeve.
4. Push the burner unit into the boiler and install it in accordance with Chapter 6:1. Check that the capillary tube to the boiler thermostat, the temperature limiter and the ignition cable are correctly aligned, to the right of the automatic unit, and are not trapped or damaged.

6:9 REPLACING THE IGNITION TRANSFORMER

Ignition transformer 2923 119 replaces with 2923 125.

1. Switch off the main power switch or remove the fuse on the panel.
2. Remove the lower front plate (see fig 12).
3. Pull out the ignition cable (fig 25 A) and connection cables (fig 25 B) from the ignition transformer. Cut off both bracket clips (fig 25 C) which hold the ignition transformer.
4. Fit the new ignition transformer and connect the earth cable (in mounting kit 2923 225) in the screw below (fig 26 A). Drill a \varnothing 4 mm hole through the control box for the upper screw (fig 26 B) and thightend the ignition box.
5. Connect the earth cable in the burner unit. If the boiler already has the earth cable in the wiring loom from the black ignition transformer, shall it be removed and cut off (see fig 26 C).
6. Connect the cables on the new ignition transformer, black at left, yellow in the middle and green at the right. below. Connect the ignition cable (fig 26 D).
7. Fit the fuse or switch on the main power switch. Light the boiler, check that the spark ceases when the boiler has ignited!
8. Fit the lower front plate (see fig 12).

Fig 25

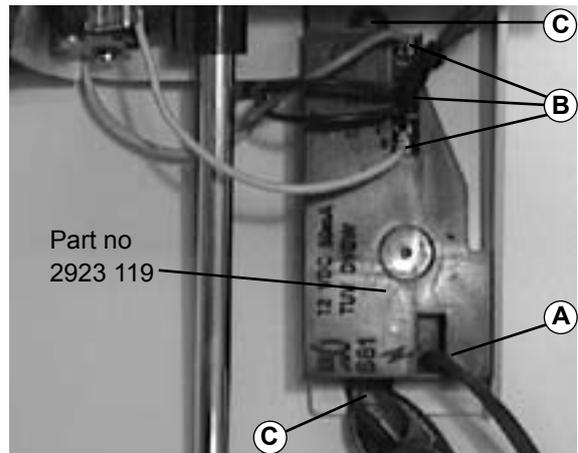
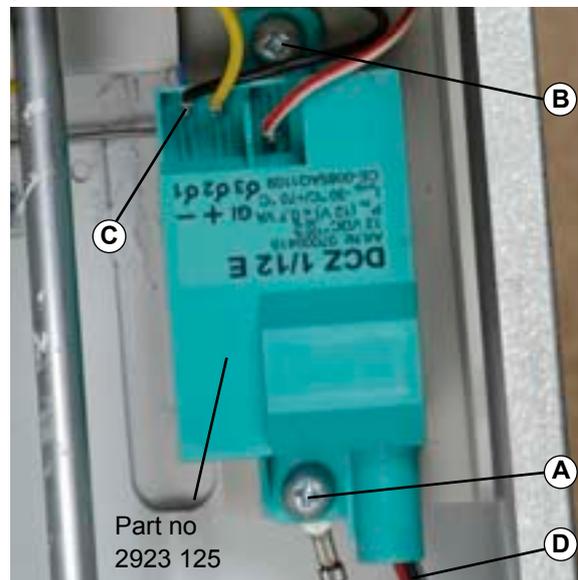


Fig 26



6:10 REPLACING/ADJUSTING THE MICRO-SWITCH (NOT 2923 980 OCH 2928 980)

1. Remove the hatch in accordance with Chapter 6:11.
2. Remove the lower front plate (see fig 12).
3. Switch off the main power switch or remove the fuse on the control panel. Set the thermostat knob in the ignition position. Remove the screw (fig 15 A) which holds the rod in the automatic unit knob. Press the knob down and **carefully** lift the rod out of the knob.
4. Slacken the inner screw on the micro-switch (fig 27 A) a couple of turns (adjustment screw), remove the outer screw (fig 27 B). Removed the micro-switch, note the location of the cables, move cables and adjustments screws to the new switch, fit and tighten the screws.
5. Fit the rod in the automatic knob and replace the screw.
6. **Adjustment:** Set the thermostat knob in the ignition position. Slacken the adjustment screw and place the switch with its arm as close to the boss on the knob hub as possible (see fig 28). Tighten the adjustment screw.
7. Turn the knob to the stop position and check that the switch "clicks", switches off (see fig 29). Turn back to the ignition position, check the operation and that the arm does not rub against the hub when the knob is turned.
8. Switch on the main power switch or insert the fuse, check that ignition/shut-off functions reliably. If necessary, make further adjustments to the micro-switch.
9. Fit the lower front plate, (see fig 12). Install and close the hatch.

FIG 28

Position of micro-switch at start position

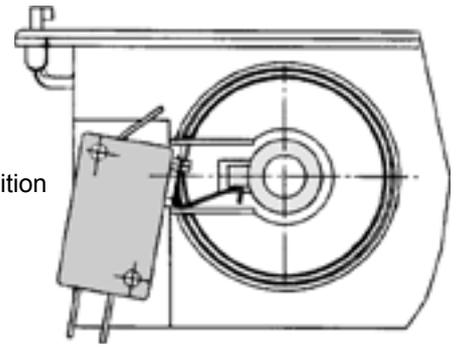


FIG 29

Position of micro-switch at stop position

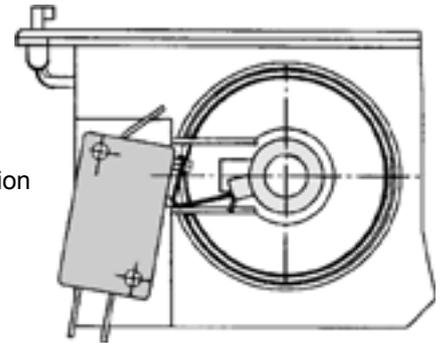


FIG 30

Position of micro-switch at maximum position

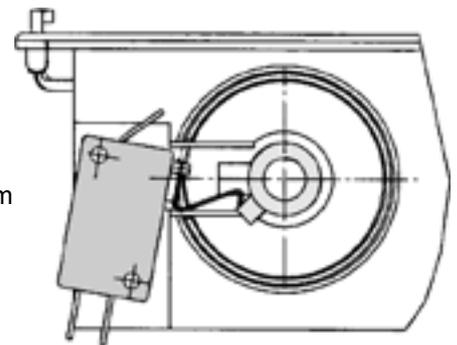
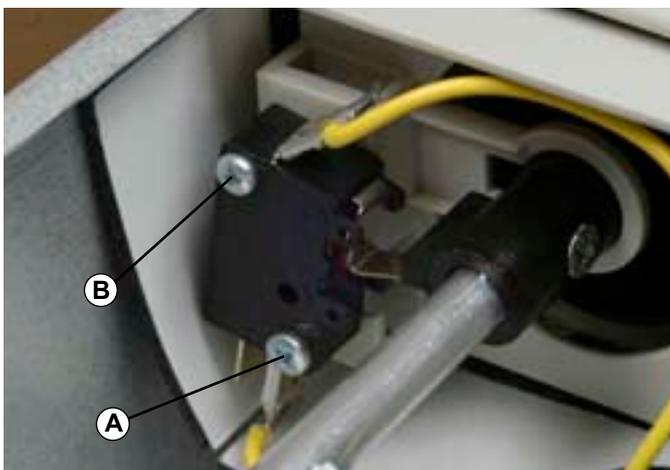


Fig 27



6:11 REPLACING THE HATCH

1. Remove the hatch on the control panel by opening it straight out and carefully bending it in the middle so that the pegs are released..

Fig 31



6:12 REPLACING THE PANEL

1. Remove the hatch in accordance with Chapter 6:11.
2. Switch off the main power switch.
3. Remove the lower front plate (see fig 12).
4. Pull the electrical contact from the top cover. Unfasten the connection block and the earthed connection on the top cover, the earth cable on the burner unit, as well as the cables on the circulation pump. Pull out the connection block from the electrical cartridge, pull forward and unfasten the cables and ignition cable from the clips.
5. Remove the panel by pressing downwards with a screwdriver in the groove on the upper edge of the panel (see fig 32 A), so that the locking bosses (fig 32 B) release and the panel and its cables can be pulled out, see fig 33.
6. Assembly takes place in reverse order. Then switch on the main power switch, turn the thermostat knob to be ignition position and check that the indicating lamp flashes and that there are sparks at the spark plug. Then carry out a complete functional inspection of the control panel to ensure that all functions are OK.
7. Fit the lower front plate (see fig 12). Fit and close the hatch

Fig 32

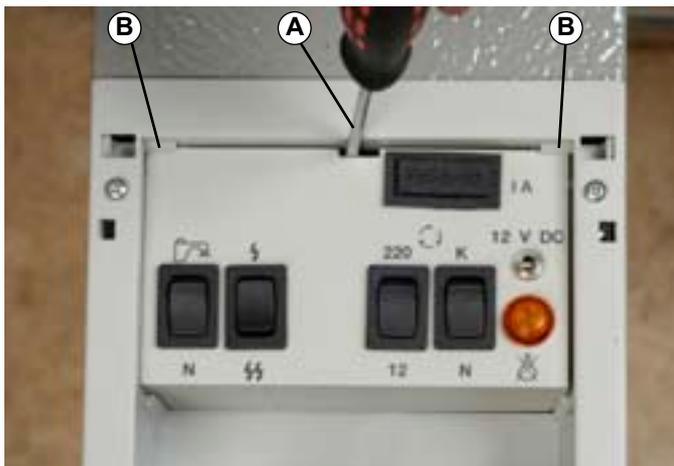


Fig 33



6:13 REPLACING THE CONTROL BOX

1. First remove the panel in accordance with Chap. 6:12. (1-5).
2. Set the thermostat knob in the ignition position. Remove the screw which holds the rod to the automatic knob (see fig 15 A). Press the knob and **carefully** lift the rod from the knob.
3. Carefully push the rod up with the knob towards the control panel. Remove the screw (fig 34 A) and take away the knob and rod.
4. Remove the control box by unscrewing the screws (fig 35 A) and pressing the catches (fig 35 B) inwards.
5. Transfer the ignition transformer and the micro-switch to the new control box, note the location of the cables, fit the cables. Then fit the panel into the control box.
6. Fit the connection block and the earthed connections in the top cover, earth cable on the burner unit, the cables to the 12 V circulation pump, as well as the connection block to the electrical cartridge.
7. Install the control box by pressing it into the metal sweep of the boiler until the catches in the box lock. Drill four new holes in the control box and attach it with screws through the plate sweep.
8. Fit the top knob and screw it on to the rod. Then screw the rod into the lower automatic unit knob. Check that the setting on the upper knob corresponds to the setting on the lower knob (it may be turned one-half rev wrong).
9. Connect the electrical contacts in the top cover of the boiler. Switch on the main power switch, turn the thermostat knob to the ignition position and check that the indicator lamp flashes, and that there are sparks at the spark plug. If necessary, adjust the micro-switch. Carry out a complete functional check on the control panel to ensure that all functions are OK. Test-start the boiler and check that the thermostat knob can rotate freely.
10. Fit the front plates (see fig 12) and close the hatch.

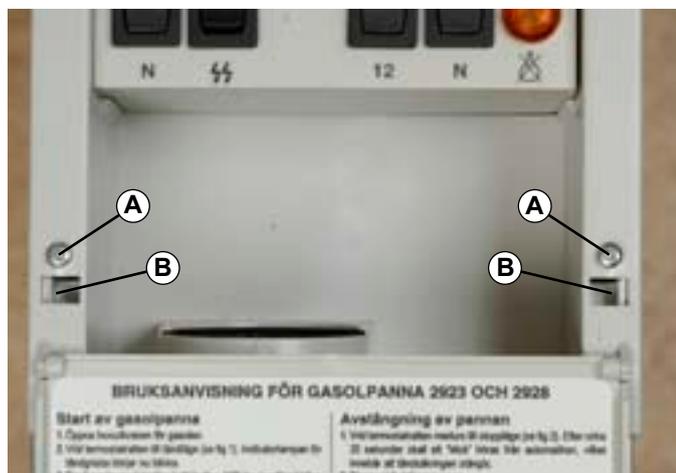
Fig 34



6:14 REPLACING A COMPLETE CONTROL BOX WITH PANEL

1. Remove the hatch (6:11) and front plates (see fig 12).
2. Switch off the main power switch and set the thermostat knob in the ignition position. Remove the screw which holds the rod to the automatic knob (see fig 15 A). Press the knob and **carefully** lift the rod from the knob.
3. Carefully push the rod up with the knob towards the control panel. Remove the screw (fig 34 A) and take away the knob and rod.
4. Pull the electrical contact from the top cover. Unfasten the connection block and the earthed connection on the top cover, the earth cable on the burner unit, as well as the cables on the circulation pump. Pull out the connection block from the electrical cartridge, pull forward and unfasten the cables and ignition cable from the clips.
5. Remove the control box by unscrewing the screws (fig 35 A) and pressing the catches (fig 35 B) inwards.
6. Transfer the ignition transformer to the new control box, note the location of the cables, fit the cables.
7. Fit the connection block and the earthed connections in the top cover, earth cable on the burner unit, the cables to the 12 V circulation pump, as well as the connection block to the electrical cartridge.
8. Install the control box by pressing it into the metal sweep of the boiler until the catches in the box lock. Drill four new holes in the control box and attach it with screws through the plate sweep.
9. Fit the top knob and screw it on to the rod. Then screw the rod into the lower automatic unit knob. Check that the setting on the upper knob corresponds to the setting on the lower knob (it may be turned one-half rev wrong).
10. Connect the electrical contacts in the top cover of the boiler. Switch on the main power switch, turn the thermostat knob to the ignition position and check that the indicator lamp flashes, and that there are sparks at the spark plug. If necessary, adjust the micro-switch. Carry out a complete functional check on the control panel to ensure that all functions are OK. Test-start the boiler and check that the thermostat knob can rotate freely.
11. Fit the front plates (see fig 12). Fit and close the hatch.

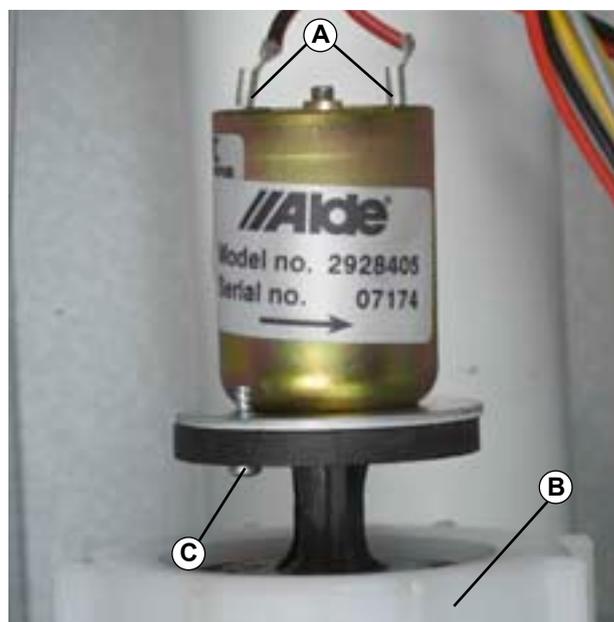
Fig 35



6:15 REPLACING THE 12V CIRCULATION PUMP

1. Remove the upper front plate (see fig 12).
2. Disconnect the connection cables (fig 36 A) on the top of the circulation pump or at the connection block.
3. Slacken the plastic nut (fig 36 B) and lift up the circulation pump from the expansion chamber.
4. Transfer the nut to the new pump and connect the cables. **NOTE!** Polarity.
5. Lower the pump into the expansion chamber and tighten the nut.
6. Start the circulation pump and check the direction of rotation in accordance with the arrow on the motor. If the direction of rotation is wrong, shift the cables on the connections.
7. Fit the front plate.

Fig 36



6:16 REPLACING THE MOTOR ON THE 12 V CIRCULATION PUMP

1. Remove the circulation pump in accordance with Chapter 6:15, paragraphs 1-3.
2. Unfasten the screws (fig 36 C) and pull out the motor including the rubber coupling from the pump shaft.
3. Install the new motor including rubber coupling by first pressing it on to the pump shaft and then attaching the motor with the screws.
4. Re-install the circulation pump in accordance with Chapter 6:15, paragraphs 4-7.

6:17 REPLACING THE EXPANSION VESSEL

1. Drain the heating system of approx. 2 litres of liquid.
2. Remove the upper front plate (see fig 12).
3. Slide the front jubilee clip (fig 38 A) backwards on the rubber joint away from the outlet pipe on the expansion vessel.
4. Unscrew the plastic nut (fig 36 B) and lift up the circulation pump and support (fig 37 A).
5. Detach the bleed hose (fig 37 B) from the top cover, and the drain hose (fig 37 C) from the bottom of the boiler.
6. Unscrew the nut (fig 38 B) and then lift the vessel from the pipe bend (fig 38 C) and remove it.
7. The o-rings (2 off) at the top of the pipe bend must be replaced at the same time as the expansion vessel.
8. Fit the rubber connection on the connection pipe before the vessel is fastened properly. Then pressed the new expansion vessel down on to the pipe bend and tighten the nut (fig 38 B) a few turns. Attach the support (fig 37 A) and then tighten the nut. Fit the hoses.
9. Close the drainage tap and top up the liquid in the expansion vessel. Lower the circulation pump into the vessel and screw on the plastic nut (fig 36 B). Attach the pump. Fit the front plate.

Fig 37

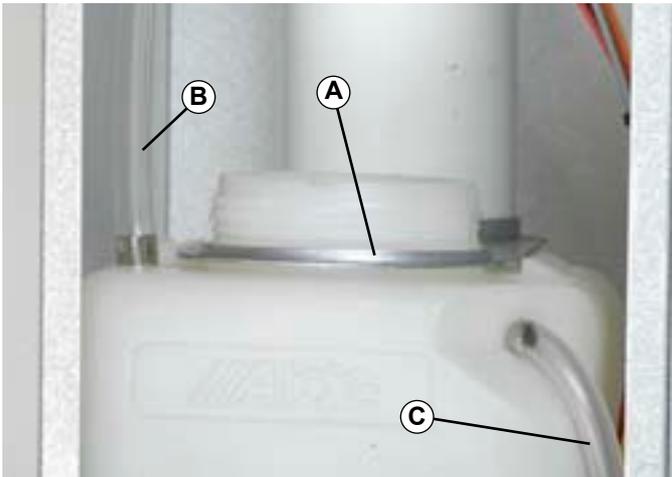


Fig 38



6:18 CALIBRATING THE ROOM THERMOSTAT

1. Check the temperature in the caravan with an accurate thermometer.
2. Remove the cover by pressing in the clip on the left side of the room thermostat, see fig 39.
3. Pull out the knob (fig 40 A) and move it the number of degrees corresponding to the difference. Press in the knob and check that it trips at the correct temperature (at click should be heard at the right temperature when the thermostat knob is turned from max to min).
4. Re-fit the cover.

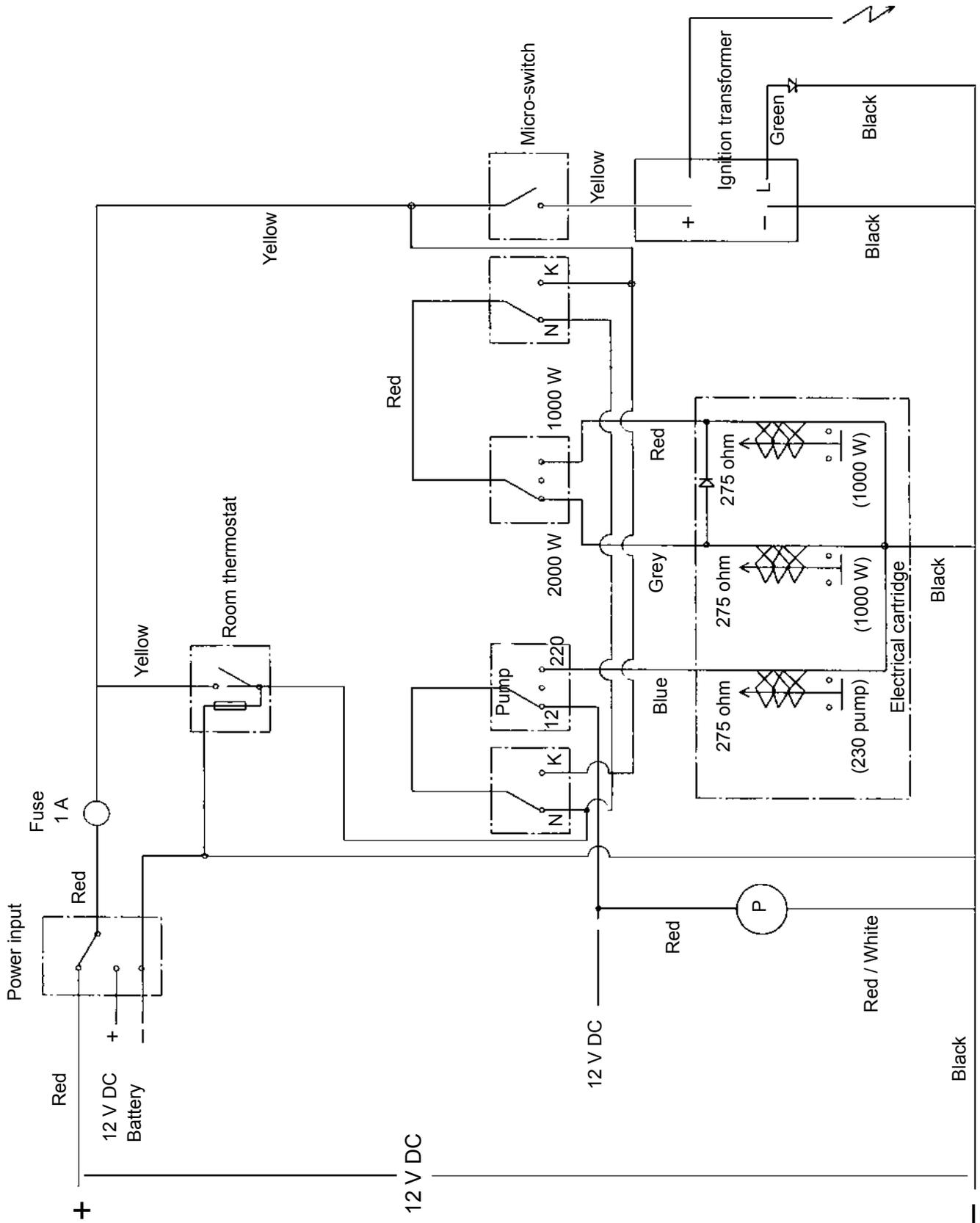
Fig 39

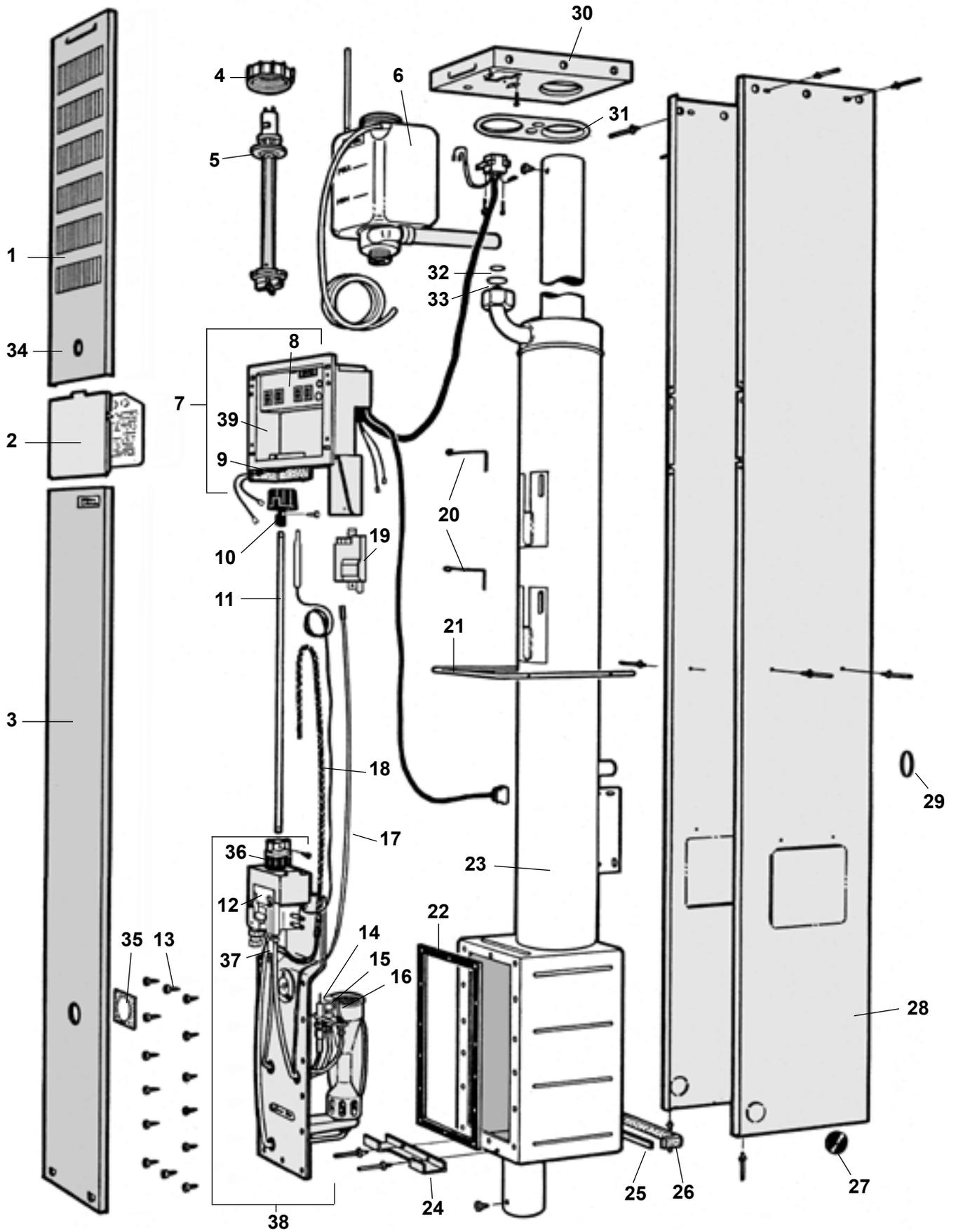


Fig 40

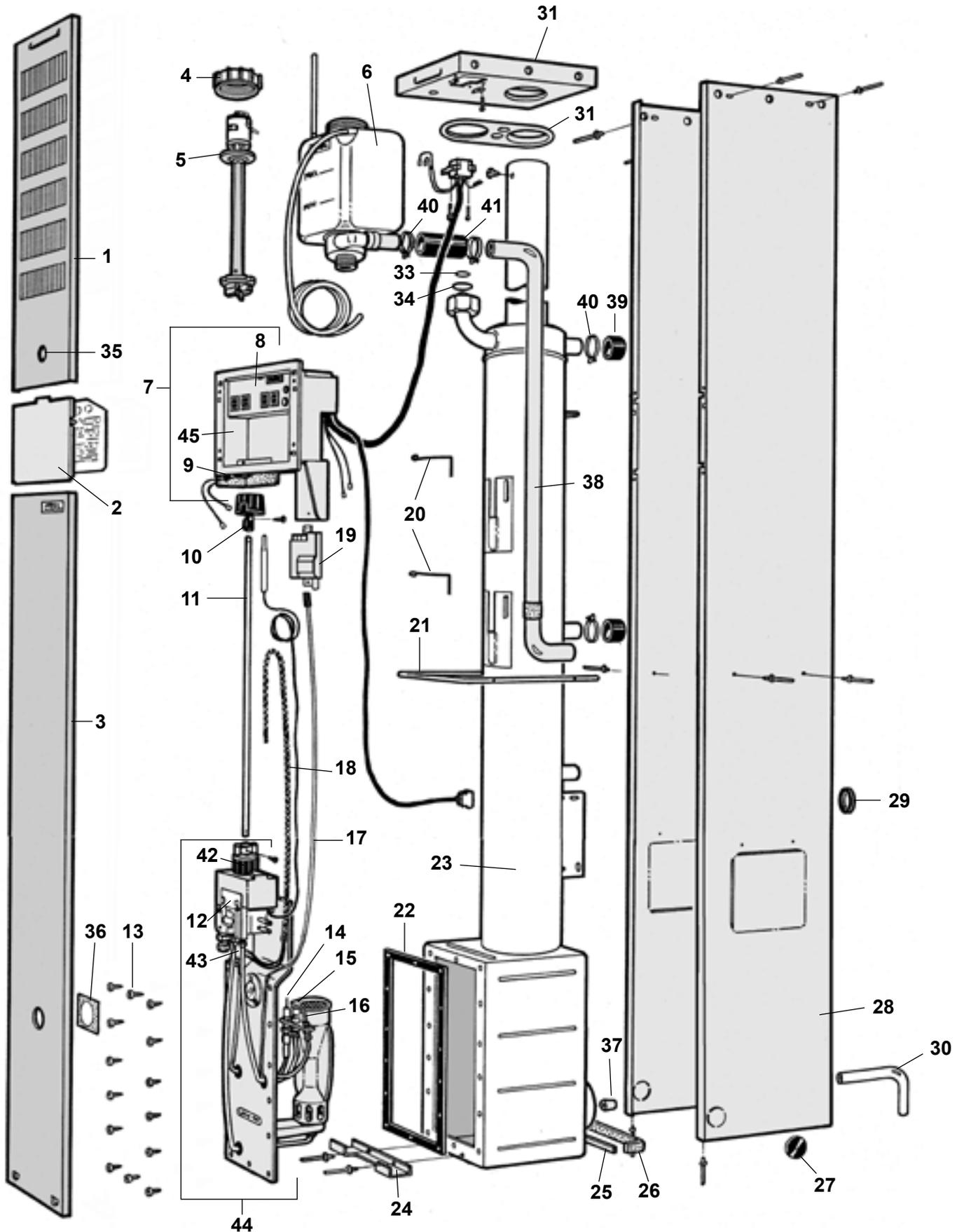


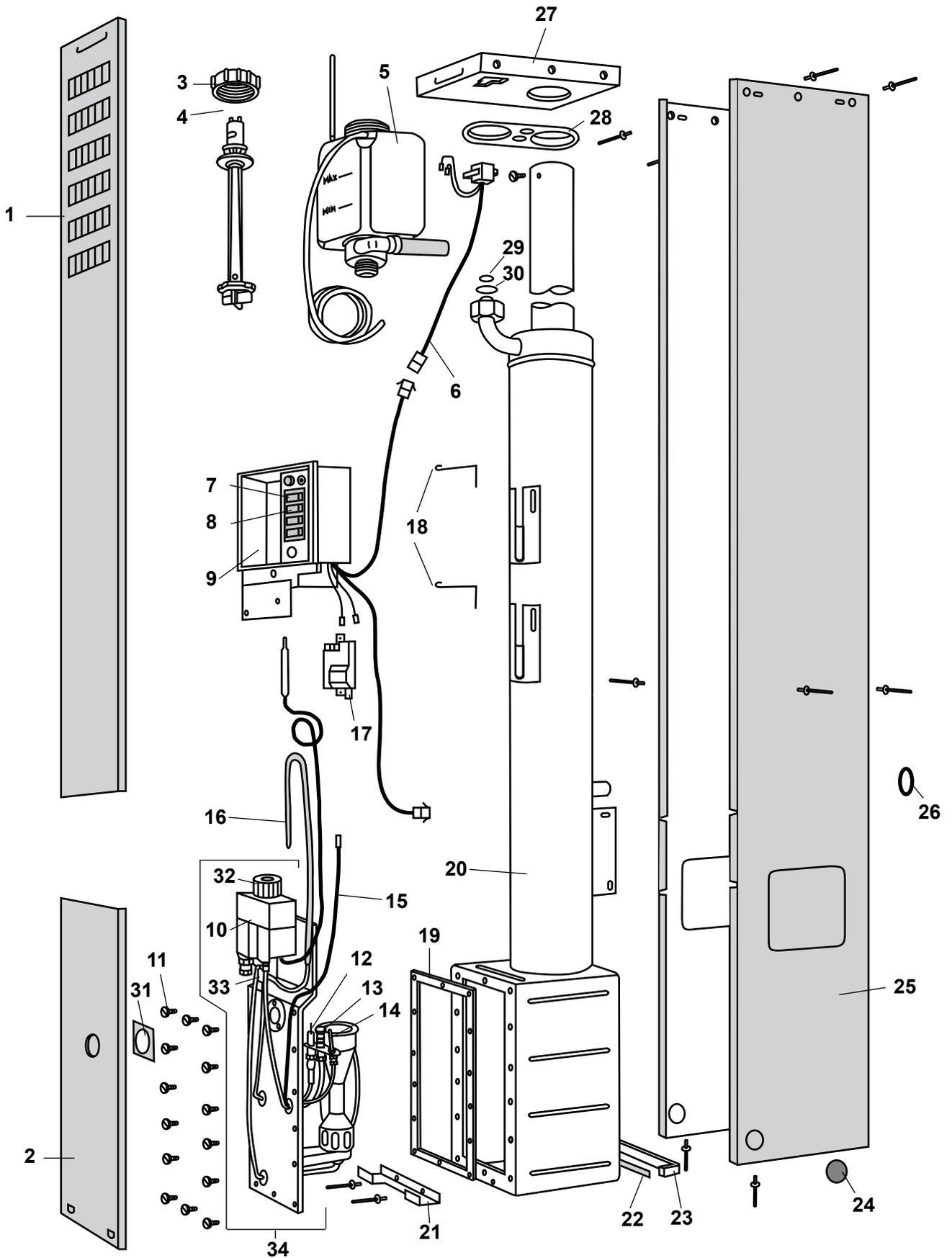
7:0 CIRCUIT DIAGRAM 2923 & 2928





9:0 EXPLODED VIEW 2928





11:1 ARTICLE NUMBERS TO EXPLODED VIEW

2923 page 20

No	Part.no	Designation
1.	2923 154	Front plate upper complete
2.	2923 111	Hatch
3.	2923 153	Front plate lower complete
4.	2930 423	Plastic nut
5.	2920 410	Circulation pump complete (Dunker)
6.	2930 410	Expansion vessel complete
7.	2923 200	Control box complete (4 switches)
8.	2923 210	Panel complete (4 switches)
9.	2923 114	Micro-switch
10.	2923 113	Knob
11.	2923 121	Knob shaft
12.	2920 270	Gas valve compl.
13.	2900 258	Plate screw
14.	2923 207	Spark plug
15.	2923 201	Pilot burner
16.	2920 245	Thermo-element
17.	2923 208	Ignition cable
18.	2920 230	Overheating protection
19.	2923 125	Ignition transformer compl.
20.	2930 133	Spring
21.	2923 159	Handle
22.	2930 236	Front packing
23.	2923 101	Boiler casing standard
	2923 301	Boiler casing for 2959 warm-water supply
24.	2923 025	Bracket
25.	2923 173	Spacer
26.	2923 174	Spacer strip
27.	2920 123	Plug
28.	2923 166	Plate sweep
29.	2923 197	Escutcheon plate
30.	2930 134	Top cover
31.	2930 119	Expansion chamber holder
32.	2930 131	O-ring
33.	2930 132	O-ring
34.	2923 196	Plastic bush
35.	2920 142	Window
36.	2920 275	Knob compl.
37.	2900 271	Joint plug for overheating protection
38.	2923 500	Burner unit without ignition transformer and ignition cable
39.	2923 112	Control box

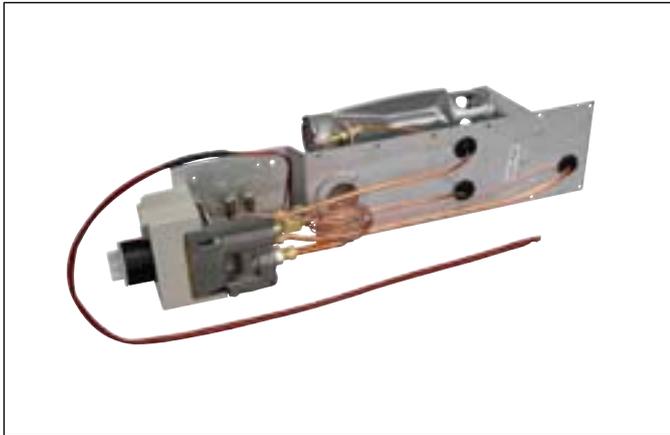
2928 page 21

No	Part.no	Designation
1.	2923 154	Front plate upper complete
2.	2923 111	Hatch
3.	2923 153	Front plate lower complete
4.	2930 423	Plastic nut
5.	2928 405	Circulation pump complete (Airpax)
6.	2930 413	Expansion vessel complete
7.	2923 200	Control box complete (4 switches)
8.	2923 210	Panel complete (4 switches)
9.	2923 114	Micro-switch
10.	2923 113	Knob
11.	2923 121	Knob shaft
12.	2920 270	Gas valve compl.
13.	2900 258	Plate screw
14.	2923 207	Spark plug
15.	2923 201	Pilot burner
16.	2920 245	Thermo-element
17.	2923 208	Ignition cable
18.	2920 230	Overheating protection
19.	2923 125	Ignition transformer compl.
20.	2930 133	Spring
21.	2923 159	Handle
22.	2930 236	Front packing
23.	2928 201	Boiler casing for 2959 warm-water supply
24.	2923 025	Bracket
25.	2923 173	Spacer
26.	2923 174	Spacer strip
27.	2920 123	Plug
28.	2923 166	Plate sweep
29.	2923 197	Escutcheon plate
30.	3118 000	Drain hose 0,3 m
31.	2930 134	Top cover
32.	2930 119	Expansion chamber holder
33.	2930 131	O-ring
34.	2930 132	O-ring
35.	2923 196	Plastic bush
36.	2920 142	Window
37.	2925 154	Sleeve
38.	2923 171	Pipe
39.	1900 030	Rubber plug
40.	1900 120	Jubilee clip
41.	1900 112	Rubber connector
42.	2920 275	Knob compl.
43.	2900 271	Joint plug for overheating protection
44.	2923 500	Burner unit without ignition transformer and ignition cable
45.	2923 112	Control box

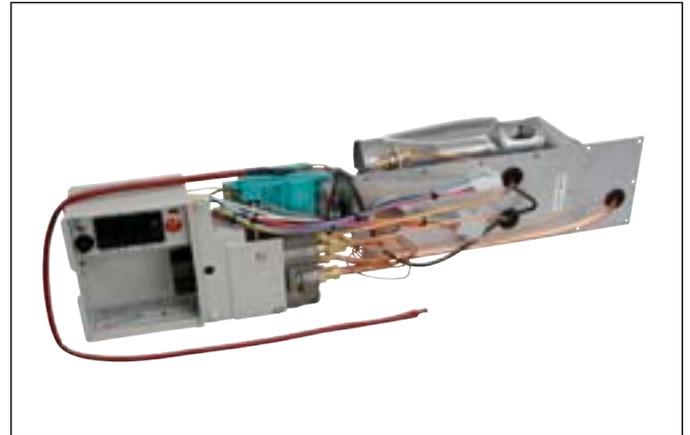
2923 / 2928 980 page 22

No	Part.no	Designation
1.	2920 131	Front plate upper complete
2.	2920 181	Front plate lower complete
3.	2930 423	Plastic nut
4.	2928 410	Circulation pump complete
5.	2930 413	Expansion vessel complete
6.	2921 125	Wiring with connector
7.	2923 410	Panel complete (4 switches)
8.	2921 215	ON-OFF
	2921 219	ON-OFF-ON
9.	2920 215	Control box
10.	2920 270	Gas valve compl.
11.	2900 258	Plate screw
12.	2923 207	Spark plug
13.	2923 201	Pilot burner
14.	2920 245	Termoelement
15.	2923 208	Ignition cable
16.	2920 230	Overheating protection
17.	2923 125	Ignition transformer compl.
18.	2930 133	Spring
19.	2930 236	Front packing
20.	2923 301	Boiler casing for 2959 warm-water supply
	2928 201	Boiler casing for 2959 warm-water supply
21.	2923 025	Bracket
22.	2923 173	Spacer
23.	2923 174	Spacer strip
24.	2920 123	Plug
25.	2920 167	Plate sweep
26.	2923 197	Escutcheon plate
27.	2930 134	Top cover
28.	2930 119	Expansion chamber holder
29.	2930 131	O-ring
30.	2930 132	O-ring
31.	2920 142	Window
32.	2920 275	Knob compl.
33.	2900 271	Joint plug for overheating protection
34.	2923 400	Burner unit without ignition transformer and ignition cable

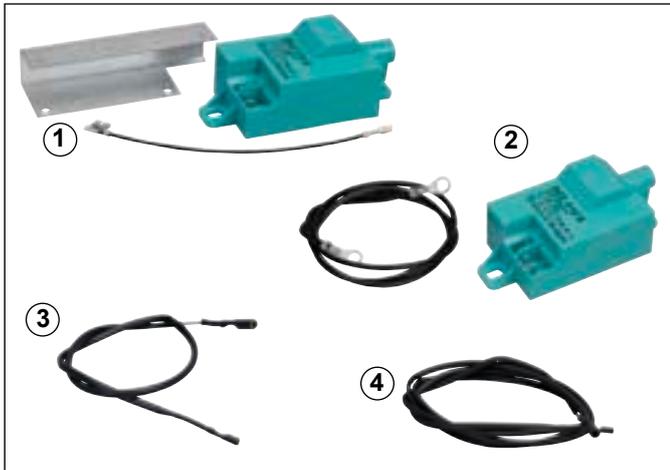
12:0 SPARE PARTS



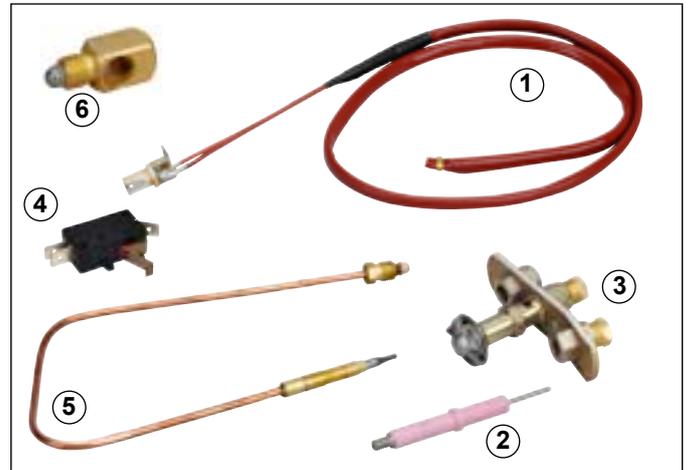
2923 500 Burner unit 2923 and 2928



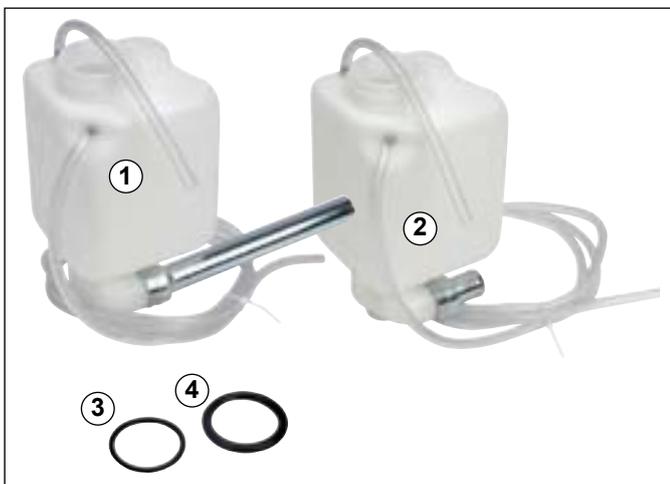
2923 400 Burner unit 2923 980 and 2928 980



1. **2921 216** Ignition transformer compl. 2923 980 and 2928 980
2. **2923 225** Ignition transformer compl. 2923 and 2928
3. **2923 417** Ignition cable. 2923 980 och 2928 980
4. **2923 208** Ignition cable. 2923 och 2928



1. **2920 230** Overheating protection.
2. **2923 207** Spark plug.
3. **2923 201** Pilot burner.
4. **2923 114** Micro-switch (not mod. 980)
5. **2920 245** Thermo element.
6. **2900 271** Joint plug.

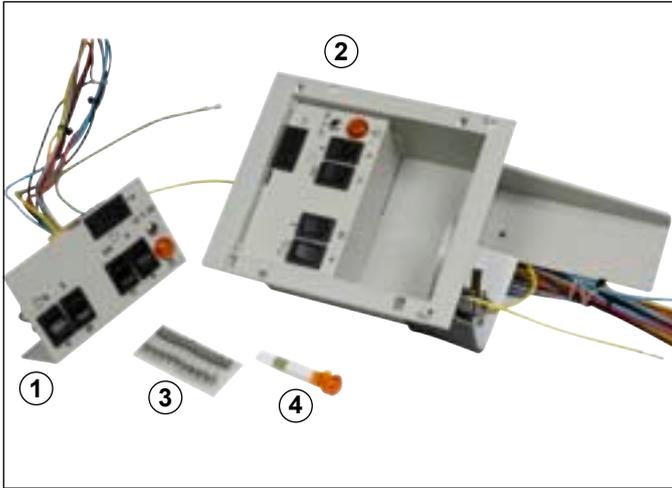


1. **2930 410** Expansion vessel, long pipe.
2. **2930 413** Expansion vessel, short pipe.
3. **2930 131** O-ring.
4. **2930 132** O-ring.

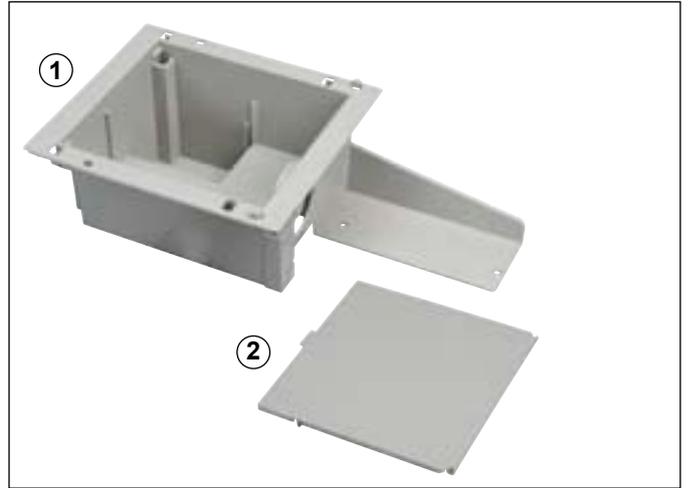


1. **2928 421** Cirkulation pump compl
2. **2920 410** Cirkulation pump compl
3. **2920 320** Motor to 2920 410 (Dunker).

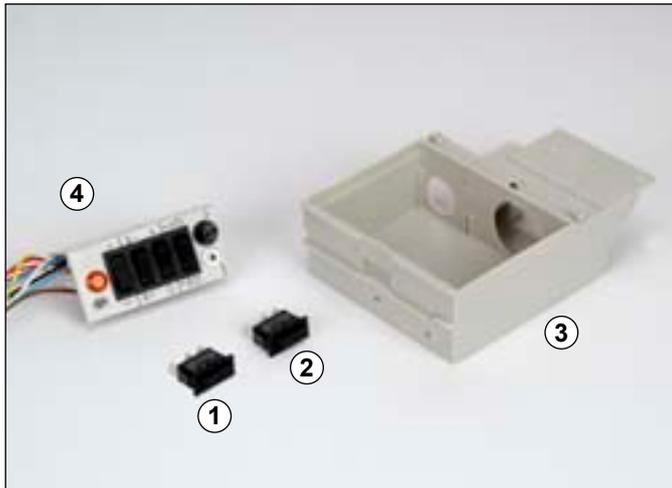
12:0 SPARE PARTS



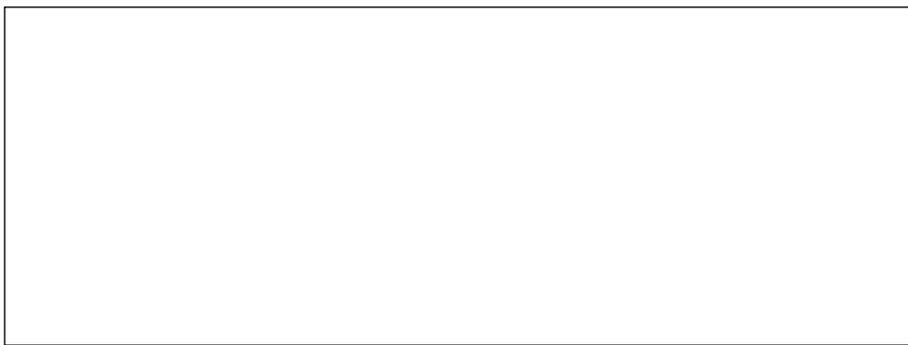
- 1. **2923 210** Panel compl.
- 2. **2923 200** Control box compl.
- 3. **2921 217** Fuse 1 A.
- 4. **2923 115** Ignition lamp



- 1. **2923 112** Control box.
- 2. **2923 111** Hatch



- 1. **2921 215** Switch ON-OFF.
- 2. **2921 219** Switch ON-OFF-ON.
- 3. **2920 215** Control box (2923/2928 980).
- 4. **2923 410** Panel (2923/2928 980).



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