www.vetario.co.uk

T40M and T50M

Thermal Life-support Cabinets

Medical intensive care unit for mammals, reptiles and birds.

Operating and Routine Service Manual

Contents

Biomaster PROTECTED
This product is treated with Biomaster silver biocide tested to ISO 22196:2011
Please use biocides responsibly

Read the instructions before use! **Do not cover!**

IMPORTANT NOTICE

Brinsea Products Ltd and its agents or distributors will not be responsible for loss of animals in the event of failure however caused and the user is advised to arrange his own insurance cover where loss of power or mechanical or electrical failure might result in unacceptable losses.

Original Instructions, English Language.

1 Important Safety Information

READ THE INSTRUCTIONS AND ALL SAFETY NOTICES BEFORE USE.
FAILURE TO FOLLOW THE INSTRUCTIONS MAY RESULT IN A HAZARDOUS SITUATION CAUSING SERIOUS INJURY OR DEATH OF THE USER OR PATIENT.

⚠ **All operatives must read and understand the precautions necessary when oxygen gas administration is to be performed (see section 11). Oxygen concentrations above normal atmospheric conditions create a greatly increased risk of fire, including immediately outside the apparatus. Materials that do not burn in air may react and burn vigorously in an oxygen enriched atmosphere.**

MEANING OF SYMBOLS:

Warning – identifies situations or actions that may affect patient or user safety. Disregarding this warning may result in patient or user injury.

Indicates a Fire Hazard

Do not cover the appliance

Read the operating manual

GENERAL SAFETY PRECAUTIONS:

⚠ **This incubator / animal intensive care unit / brooder should only be used by appropriately trained personnel and under the direction of qualified medical personnel familiar with currently known risks and benefits of incubator use. (Incorrect temperature or oxygen concentration may cause permanent harm or death of the patient).**

⚠ **Direct sunlight or other radiant heat sources can cause an increase in incubator temperature to dangerous levels. (Sunlight may move around onto the incubator or heating appliances may start unexpectedly).**

⚠ **Not suitable for use in the presence of a flammable anaesthetic mixture. (The incubator is not intended to be used in a location where flammable anaesthetics may be present. This would create a serious risk of fire or explosion).**

⚠ **Avoid alcohol based solutions and make sure that all disinfectant is thoroughly rinsed off plastic parts with clean water. Disinfectant solutions may cause severe cracking of plastic if not correctly rinsed off.**

⚠ **Perform routine safety service as detailed in section 14 of this document. Only use spare parts approved by Brinsea Products, use of unapproved parts will invalidate the warrantee and may create a safety hazard. Never bypass safety devices such as fuses or thermal cut-outs. Never deliberately block ventilation holes or slots. The on-going safety of the incubator depends on correct servicing using exactly specified parts.**

⚠ **The date of construction forms part of the serial number e.g. HDxxxx/130123yyy where xxxx is the model code, 130123 is year, month, day and yyy is the unique device number. The date as shown would be 23rd January 2013. The intensive care unit must be serviced and checked regardless of frequency of use and date of first use as some items degrade over time (i.e. have a limited shelf-life).**

⚠ **Do not cover the intensive care unit. (Blocking of ventilation slots/holes may lead to oxygen enrichment of air in unintended areas leading to an increased risk of fire. It may also lead to increased concentration of CO_2 in the animal cabinet. Covering the unit may lead to fire hazard due to reduced dissipation of heat).**

⚠ **For indoor use only. (This device is only intended to be used in a dry location with ambient temperature controlled between 20° - 25°C. Extremes of moisture or temperature may lead to dangerous malfunction).**

⚠ **This apparatus must be earthed. (The incubator must be connected to the power supply using a plug and socket with an earth termination. The mains wiring and the appliance should be periodically checked to ensure earth continuity).**

ADDITIONAL SAFETY PRECAUTIONS WHEN USED FOR OXYGEN THERAPY

⚠ **No auxiliary equipment shall be placed in the incubator. Only use patient connections that are designed for safe use in an oxygen enriched atmosphere. If in any doubt check with the manufacturer of the auxiliary equipment. (Fire may be caused by sparking contacts or hot surfaces in equipment not designed for oxygen service).**

⚠ **Even small quantities of flammable agents, such as ether and alcohol, left in the incubator can cause fire in connection with oxygen. (Never use flammable cleaners or disinfectants and ensure such agents are not introduced on a patient).**

⚠ **The incubator must only be used in a well-ventilated room away from potential sources of heat or ignition. NO SMOKING. Do not use in a confined location, the incubator needs at least 30cm free space above and to both sides. (Oxygen concentration in the air around the incubator may rise significantly if ventilation isn't provided or the space around the incubator is confined. This may create a fire hazard).**

⚠ **Remove all electrical devices (including the water pump) that are within 90cm of the incubator. Place the incubator at least 90cm away from power sockets. Ensure there are no power sockets or electrical items directly under the shelf or table supporting the incubator. (Oxygen gas may sink through air and cause fire in other equipment).**

⚠ **Before oxygen administration, disconnect any nebuliser and tube from the solution holder. (This is to prevent oxygen flowing into the nebuliser pump and creating a fire hazard).**

⚠ **If fitted, disconnect the water pump control lead and water delivery tube. (The pump is not intended for use during oxygen therapy and may create a fire hazard).**

⚠ **Always test the fan rotation and power failure alarms and check ventilation holes before using with oxygen gas. If the alarm sounds during use disconnect the oxygen supply, disconnect power and open the door to ventilate the care unit. Do not re-use until the fault has been investigated and rectified. (Failure of the ventilation fan or blocking of ventilation slots/holes may lead to oxygen enrichment of air in unintended areas leading to an increased risk of fire. It may also lead to increased concentration of CO_2 in the animal cabinet).**

⚠ **Do not exceed 1lpm (one litre per minute) oxygen flow rate. (The maximum safe long-term concentration of oxygen for canines and felines is achieved at this flow rate and increased flow may lead to permanent injury or death. Greater flow rates also increase the risk of oxygen leaking in the event of a fault and could create a fire risk).**

⚠ **The incubator contains no flow restriction or pressure regulator device. The oxygen supply must be reliably restricted to 400kPa (50psi). Always use a medical grade oxygen pressure regulator and flow meter that has been serviced in accordance with the manufacturer's instructions. Failure of an external device may create a fire or pressure hazard or prevent effective treatment. It is assumed the operator will be trained in the safe and correct use of such devices.**

⚠ **After oxygen administration, animals and any associated cloth materials must be allowed sufficient time in the chamber in normal air to allow trapped oxygen to disperse. This may take 30 minutes or more depending on the size of animal and amount of material. (Fabric and similar materials that trap oxygen enriched air may burn vigorously if ignited by a spark or other source of ignition).**

⚠ **Be sure to read and follow the material safety data available from your supplier of medical oxygen gas. Local regulations may apply; your oxygen gas supplier will be able to offer further guidance. (Some states may apply restrictions on sale or use of oxygen for medical purposes).**

⚠ **Do not obstruct ventilation holes. (Blocking of ventilation slots/holes may lead to oxygen enrichment of air in unintended areas leading to an increased risk of fire. It may also lead to increased concentration of CO_2 in the animal cabinet).**

2 Intended Use

The Vetario T40M and T50M are designed solely for the care of small animals under the supervision of trained medical staff in a Veterinarian Surgery or Hospital. The intensive care unit is to be attended in use (alarms shall be audible) to monitor patient condition and to verify continued correct operation.

Animal patients vary greatly in strength between species and individual cases. Larger animals may be placed in the unit but they must be closely supervised in case of becoming agitated. Although the cabinet is made of highly robust, impact resistant materials a large, frightened animal may cause damage if left unattended.

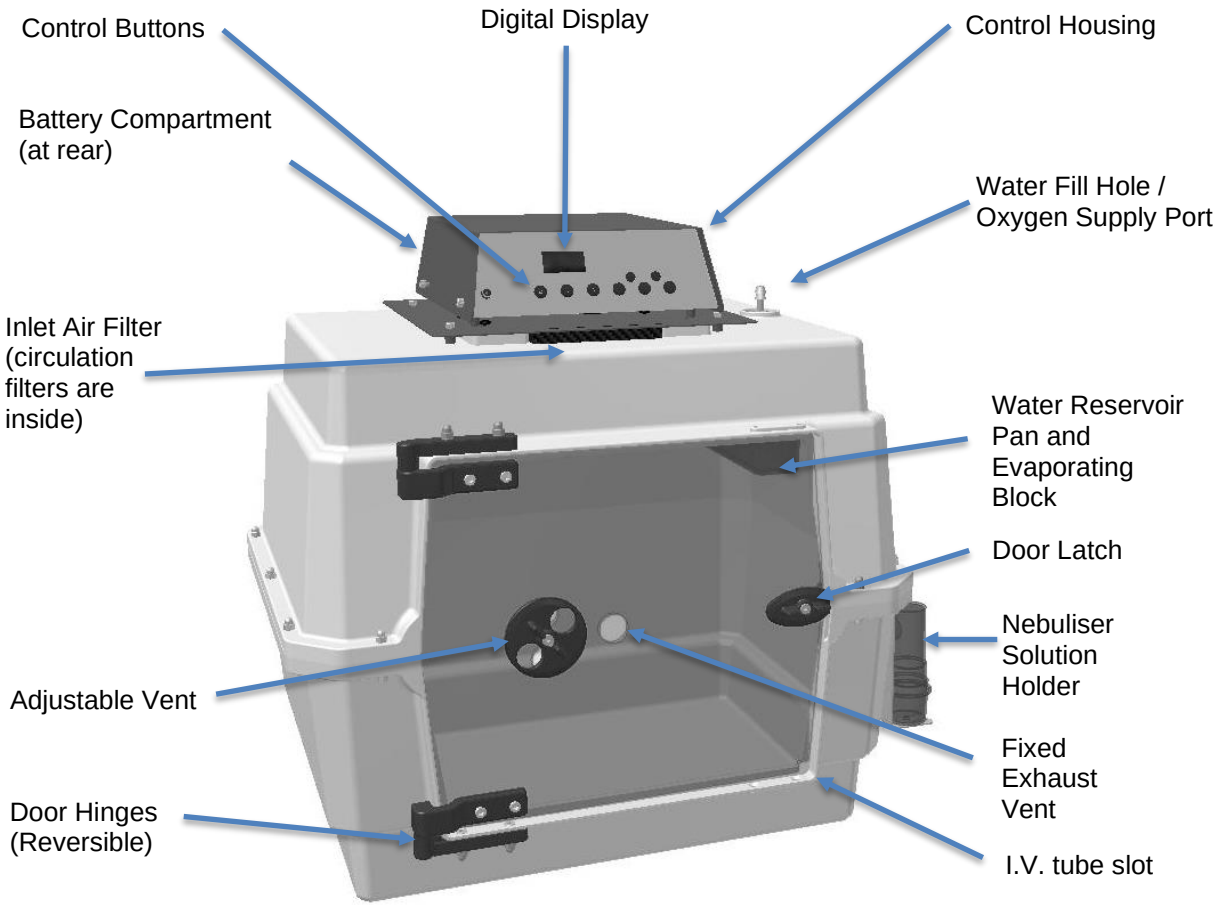
This manual provides instructions for the assembly, installation, use and operator maintenance of the intensive care unit. Brinsea Products cannot be responsible for the performance of the care unit if the user fails to follow the instructions and maintain the care unit in accordance with the instructions.

3 Introduction

The Vetario T40M and T50M provide the ideal veterinary intensive care environment for sick, injured or postoperative animals and birds sensitive to hypothermia, shock and other complications. These products give patients the best possible chance of a successful recovery.

These instructions detail the operation of your new Vetario intensive care unit. Please read them carefully before setting up your unit to achieve best results and keep these instructions safe for future reference. Your intensive care unit is designed to allow the user to vary the environmental conditions to suit recovery of a wide range of species and the specific set-up for every recovery scenario is beyond the scope of these instructions.

Fig. 1 Functional features of the T40M and T50M (T40M model shown)



4 Unpacking

Your intensive care unit has been supplied in protective packaging. Please remove all tape, strapping and packing from the unit and parts. Retain the carton and packing materials to enable the unit to be repacked.

Your intensive care unit will include as standard:

Quantity	Item
1	Cabinet top assembly (with air filters fitted)
1	Cabinet base
1	Door
1	Hinge socket
1	Fastener and tool kit
1	Water pan
1	Evaporating block
1	Water funnel
1	Nebuliser solution holder
1	Nebuliser bracket
1	Hose barb (for oxygen administration)
1	Brass nut for hose barb (for oxygen administration)
1	Battery

Fastener and Tool Kit Contents:

Quantity T40M	Quantity T50M		Item
2	2		M5 x 16mm countersunk screws
2	2		M5 flat washers
2	2		M5 domed nuts
12	16		M4 x 30mm cap-headed screws
12	16		M4 star washers
12	16		M4 nuts
1	1		3mm hex key
1	1		4mm hex key
1	1		7mm / 8mm spanner

⚠ **Damaged appliances shall not be used. (Cracked or broken parts may create a risk of fire if oxygen can leak out or electric shock if water can leak in. Missing or damaged parts may expose live or hot parts).**

⚠ **The mains cable is specially prepared and may only be replaced by Brinsea or their authorised agent. Do not use if the cable becomes damaged.**

4.1 Please identify each part and check that they are all present and undamaged. If there are any parts damaged or missing please contact your retailer or Brinsea Products (at the address at the end of the document).

4.2 Note that if your intensive care unit has been ordered with additional options (such as the Brinsea Advance Humidity Pump) separate instructions and component lists apply.

4.3 Check also that the electrical supply matches the machine's requirements (marked on the technical label on top of the cabinet).

4.4 To register your new Vetario product please visit www.vetario.co.uk and follow the link on the right hand side of the home page to qualify for your free 3 year guarantee.

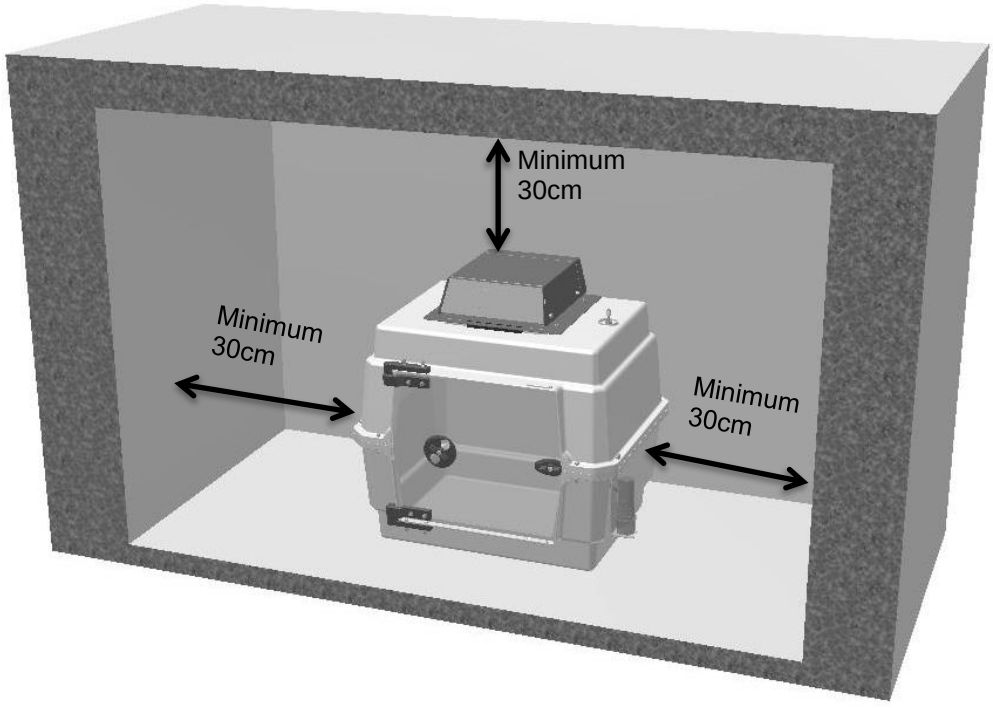
5 Location and Assembly

⚠ **Ensure that the room temperature cannot drop on a cold night. Ideally thermostatically control the room at between 20 and 25°C (68 and 77°F). Never allow the room temperature to drop below 15°C (59°F) and ensure that the unit cannot be exposed to direct sunlight.**

⚠ **The apparatus must only be used in a well-ventilated room away from potential sources of heat or ignition. NO SMOKING.**

⚠ **Do not use in a confined location – see figure 5.0 below. There must be a minimum 30cm free space to each side and above the unit. (Oxygen concentration in the air around the incubator may rise significantly if ventilation isn't provided or the space around the incubator is confined. This may create a fire hazard).**

Figure 5.0 – Minimum clearance to walls and other surfaces



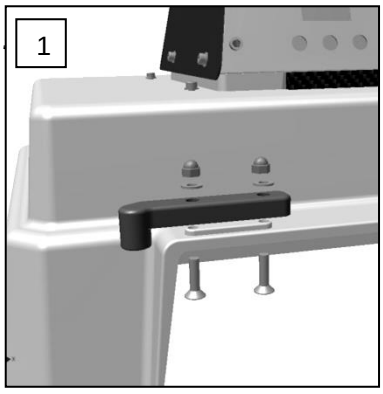
⚠ **Remove all electrical devices that are within 90cm of the incubator. Place the incubator at least 90cm away from power sockets. Ensure there are no power sockets or electrical items directly under the shelf or table supporting the incubator. (Oxygen gas may sink through air and cause fire in other equipment).**

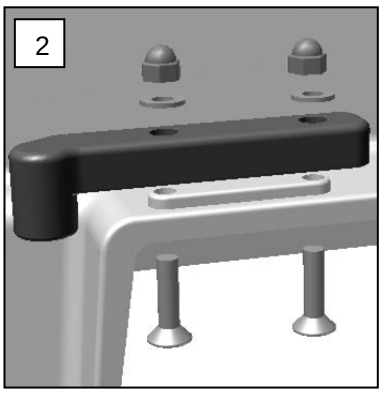
⚠ **Incorrect or incomplete assembly may allow oxygen gas to escape and create a fire hazard.**

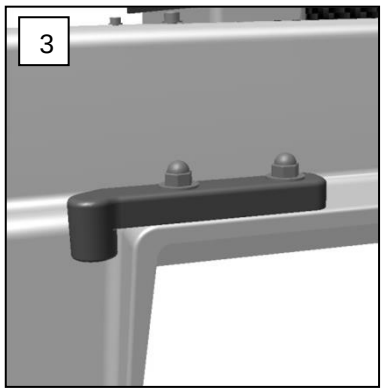
⚠ **The security of the animal chamber is dependent on the correct and complete use of all components and fasteners.**

5.1 Assemble the cabinet using the tools and fasteners provided. Follow the diagrams. Do not over-tighten fasteners.

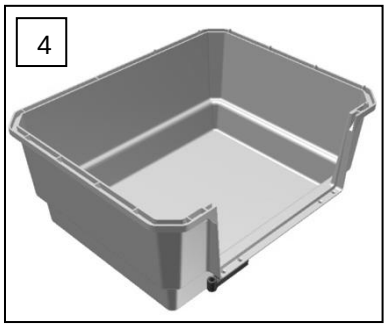
5.2 The door is hinged at the left as supplied but may be reversed to provide better access if required. Fit the top hinge socket to the cabinet using the M5 x 16mm countersunk screws, M5 flat washers and M5 dome nuts.

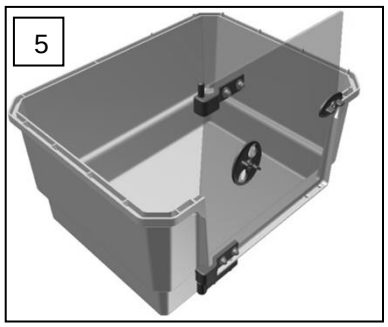


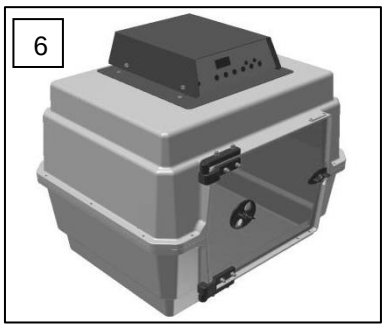




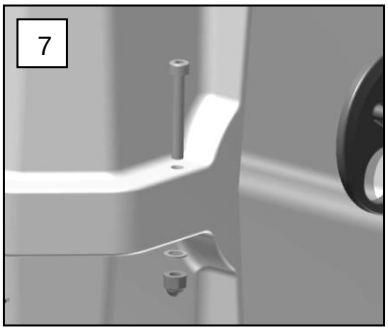
5.4 Place the door in the lower hinge and close the latch. Lower the top cabinet down onto the other parts.

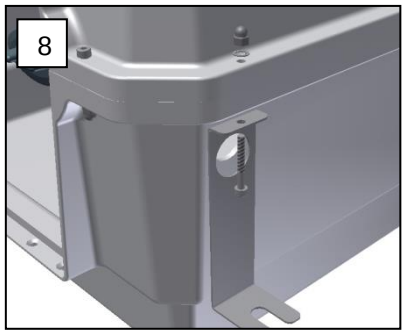




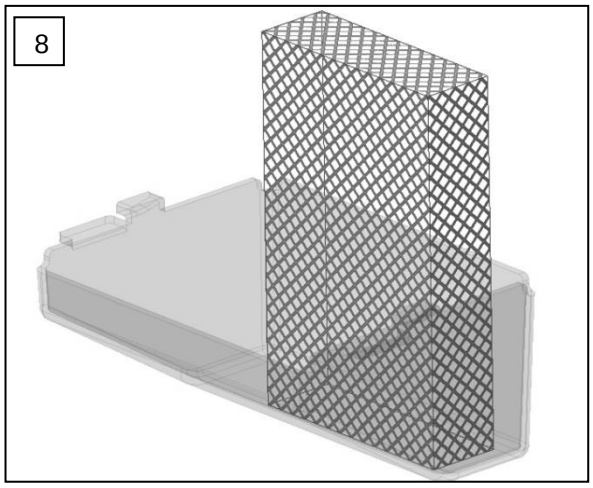


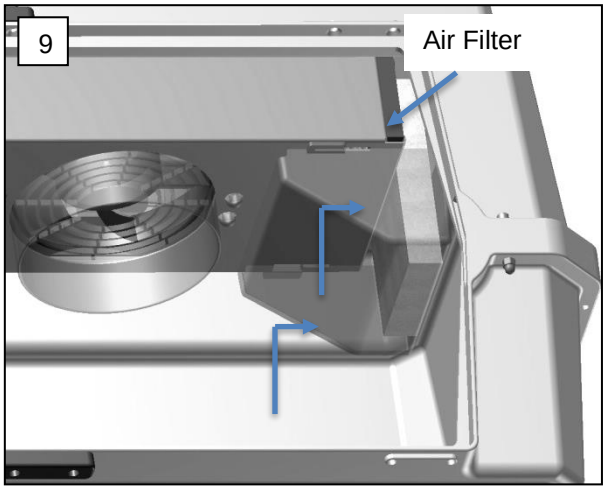
5.5 Fit the M4 x 30mm cap-headed screws, star washers and do nuts into each set of holes around the edge of the cabinet. Tighten enough to prevent them spinning. This creates an air tight seal around the cabinet. Fit the nebuliser bracket as shown.





5.6 Place the white evaporating block upright in the clear water pan. Open the door and lift the pan into position, it pushes up and across into two slots on the heater enclosure. The pad may need to be softened with a little water to help it flatten while the pan is fitted. The pan is located in this manner to help prevent accidental removal by animals.





5.7 Your intensive care unit is supplied with air filter media fitted at the air inlet (see fig 1) and at each end of the heater enclosure (see picture 9 above).

5.8 Fit the nebuliser solution holder by inserting the "mouthpiece" through the hole in the cabinet and locating the solution holder pipe in the slot in the bracket.

5.9 Place the intensive care unit on a scratch and moisture resistant surface. Worktop height is ideal. Clear the area around the unit of any electrical equipment. Ensure the unit is not within 90cm of a power socket as oxygen gas may spread and cause a fire in power sockets or other equipment.

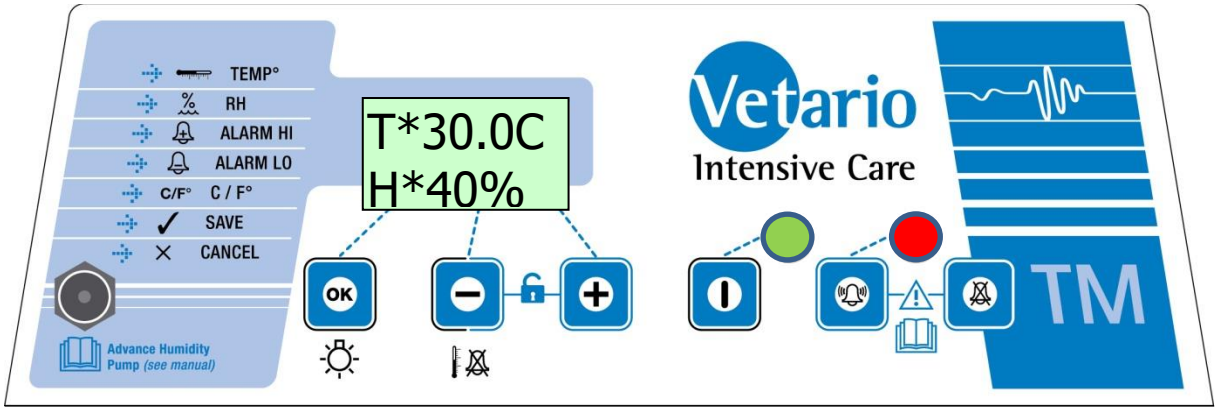
5.10 Fit a PP3 type battery in the compartment on the rear of the control housing (see section 11 for important safety information and details).

5.11 Connect the mains supply cord to a power socket that is easy to reach.

⚠ **The supply cord shall be placed or protected so as not to be accessible by animals.**

5.12 The intensive care unit is now ready for use. The next section of these instructions includes a checklist that should be photocopied so that it may be completed for each use.

6 Control and Alarm System Operation



Confirm a menu option or toggle the interior lighting on/off

Scroll through the menu options, reduce a setting or silence the incubation temperature alarm

Scroll through the menu options or increase a setting

Start (switch on the heater control system)

Test the power fail and fan condition alarm system

Silence the power fail and fan condition alarm system

⚠ **Please refer to the Start-up Check Sheet while familiarising yourself with these instructions. Each step of the Start-up Check is to ensure the safety of the animal and the operator. Failure to check each item could result in a hazard. If at any stage the behaviour of the control system is not as stated then call Brinsea Products for more information and discontinue use of the unit.**

⚠ **Never ignore or attempt to bypass the alarm system, this may result in a serious hazard.**

6.1 Check and sign off the first 13 steps of the Start-up Check Sheet which confirm the unit is in correct condition and a safe location. The control system alarm and safety systems must now be tested:

6.2 Apply power to the unit.

The ventilation fan must operate but the heating control system should not function.

The display and both indicator lamps must be off.

6.3 Press the start button .

The green indicator lamp will illuminate to show the heating control system is now active.

The incubation temperature alarm will sound momentarily with a pulsed tone to show the alarm sounder is functioning correctly.

After briefly showing the software version screen the display will revert to normal operation and show the current temperature and humidity in the cabinet.

6.4 Test the power failure and fan function alarm by pressing the alarm test button .

The alarm must sound in a continuous tone.

The green heater control indicator lamp must go off.

The red alarm indicator lamp must illuminate.

Open the door and confirm the fan is now blowing air that is getting cooler (the heating element is switched off).

6.5 Press the alarm silence button for at least 2 seconds .

6.6 Close the door and press the start button to reset the alarm and switch the heating control back on.

6.7 Check the set temperature is appropriate for the patient and circumstance (see section 7). Allow the appliance to run for at least 20 minutes to stabilise the temperature before introducing animals or starting oxygen supply. The unit is now ready for use.

⚠ **See section 11 for further checks when using the unit for administration of oxygen.**

⚠ **If any stage of the Start-Up Check results in a failed test or inspection do not use. Seek advice from Brinsea Products.**

The following part of this section describes the digital display modes and alarm system.

6.8 CHANGING SETTINGS – The Main Menu allows the various settings to be modified and saved. All changes are retained in the event of a power cut.

To access the Main Menu press the and buttons simultaneously to unlock the display. For full details of menu settings please refer to the guide on page 12.

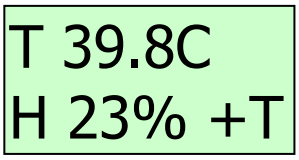
6.9 NORMAL OPERATION – Temperature and Relative Humidity are continuously displayed. The green heater control indicator is illuminated.

6.10 The asterisk “*” adjacent to the temperature reading shows when the heater power is on. When warming the asterisk will be continuously on, once warmed up the asterisk will slowly flash as the heater is pulsed to maintain the correct temperature. When reducing the temperature setting the asterisk may go off, this is normal.

The asterisk “*” adjacent to the relative humidity display is only on when the pump control output is on (see section 8) and is only applicable when using the optional Brinsea Advance Humidity Pump.

6.11 HIGH TEMPERATURE ALARM DISPLAY – If the measured temperature goes up by more than the figure in the ALARM HI screen, the alarm will sound immediately and “+T” will be displayed. Press the “-“ button to silence the alarm for 30 minutes.

Check the intensive care unit is not (and has not been) in direct sunlight or too near a heat source such as a room heater. An animal's metabolic heat may also cause temperature to increase beyond the set temperature if set close to room temperature conditions.

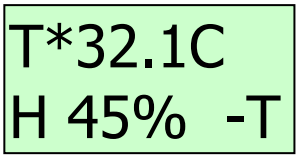


If the high temperature problem rectifies itself the “+T” remains on the display to show this has happened. Press ⊖ to clear the indicator.

If the cause is not immediately apparent discontinue use and contact Brinsea Products.

6.12 LOW TEMPERATURE ALARM DISPLAY – If the measured temperature goes down by more than the figure in the ALARM LO screen, after 30 minutes “-T” will be displayed and the alarm will sound. Press the “-“ to silence the alarm for 30 minutes.

Check the intensive care unit is not (and has not been) in a cold draught or that the room temperature has dropped significantly.

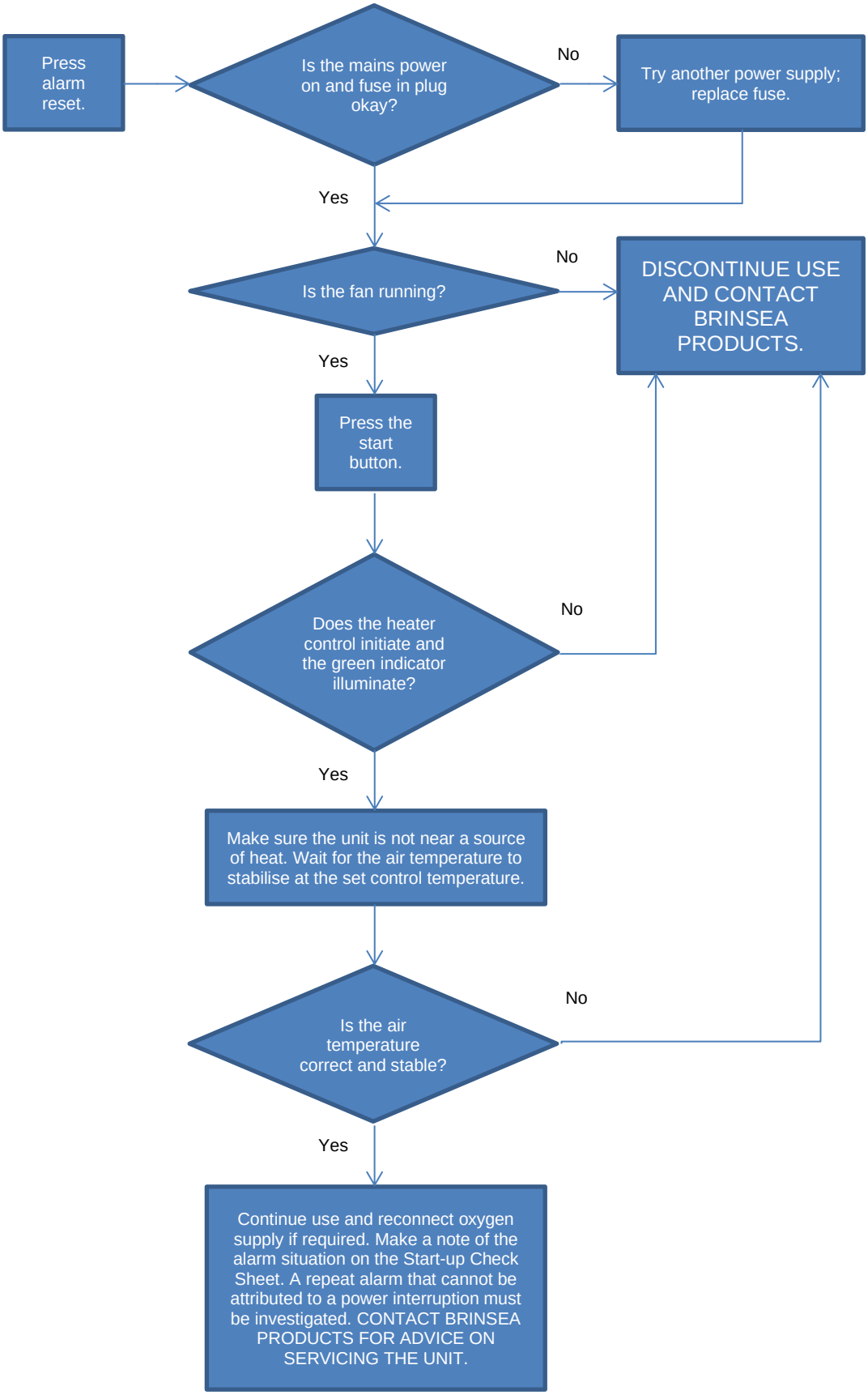


If the low temperature problem rectifies itself the “-T” remains on the display to show this has happened. Press ⊖ to clear the indicator.

If the cause is not immediately apparent discontinue use and contact Brinsea Products.

6.13 POWER FAILURE / HEATER CONTROL SYSTEM ALARM

⚠ **If the alarm sounds and the red alarm indicator lamp is illuminated disconnect the oxygen supply, and open the door to ventilate the care unit. Do not use until the fault has been investigated and cleared:**



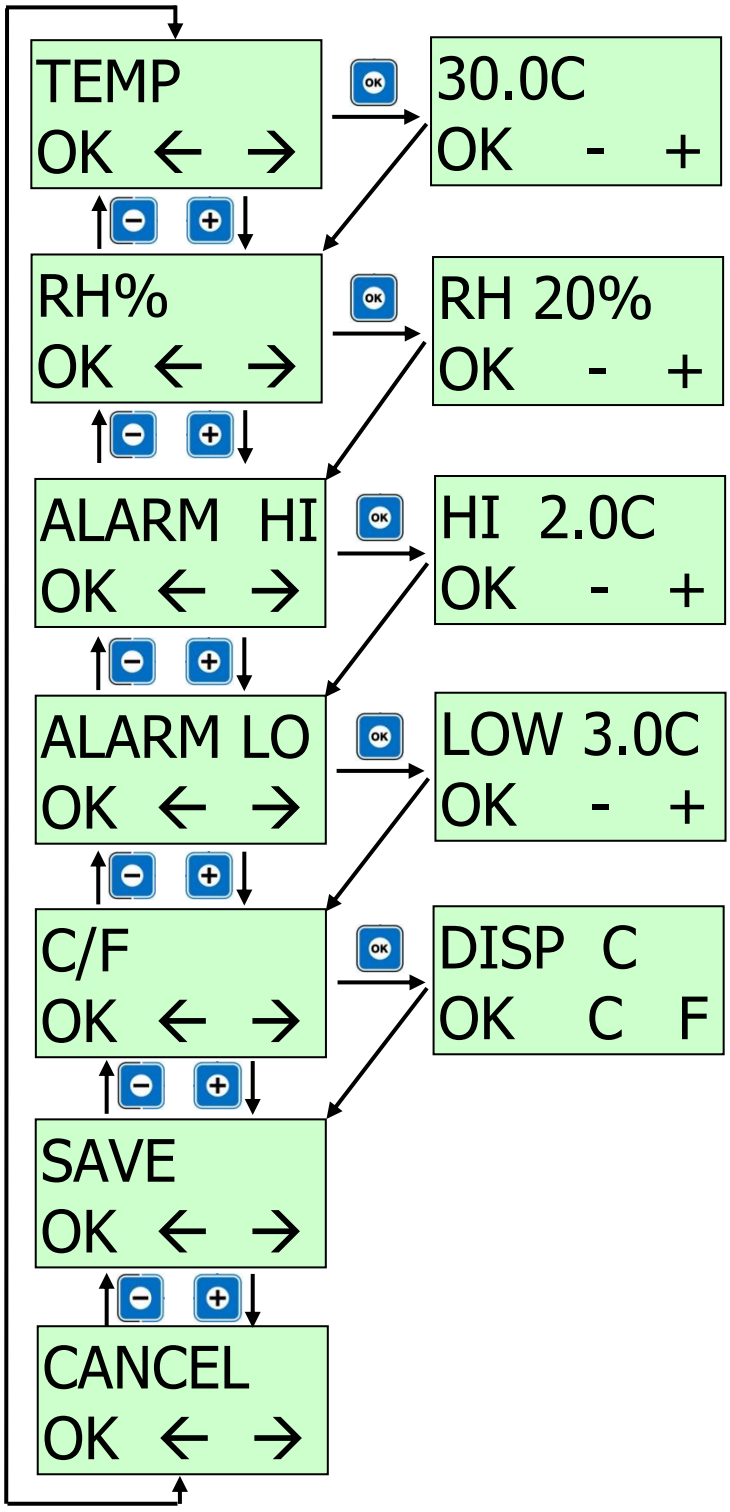
MAIN MENU

PRESS BOTH BUTTONS TO UNLOCK THE MAIN MENU

SELECT THE OPTION / RETURN TO THE MENU.

GO FORWARD ONE SCREEN / INCREASE THE VALUE / DISPLAY IN CELSIUS.

GO BACK ONE SCREEN / DECREASE THE VALUE / DISPLAY IN FAHRENHEIT.



TEMPERATURE.
RANGE 20.0 – 38.0°C (68.0 – 100.4°F).
DEFAULT 30.0°C (86.0°F).

RELATIVE HUMIDITY.
RANGE 20% – 80%.
DEFAULT 20%.
ONLY FOR USE WITH HUMIDITY PUMP – SEE SECTION 8.

HIGH TEMPERATURE ALARM. RANGE 1.0 – 5.0°C (1.8 – 9.0°F) ABOVE SET INCUBATION TEMPERATURE.
DEFAULT 2.0°C (3.6°F).

LOW TEMPERATURE ALARM. RANGE 1.0 – 5.0°C (1.8 – 9.0°F) BELOW SET INCUBATION TEMPERATURE.
DEFAULT 3.0°C (5.4°F).

CELSIUS / FAHRENHEIT DISPLAY.
SWITCHES ALL TEMPERATURE FIGURES BETWEEN °C AND °F.
DEFAULT °C.

SAVE.
ALL CHANGES ARE SAVED. RETURN TO NORMAL OPERATION SCREEN.

CANCEL.
ALL CHANGES ARE IGNORED. RETURN TO NORMAL OPERATION SCREEN.

Vetario T40M and T50M Start-Up Check Sheet. Issue 02, 19/06/2013

Date:		Sheet 1 of 2.
Checked by:		

⚠ **The following checks must be performed before every use to ensure the safety of patients and operators. Failure to perform these checks may lead to serious injury or death of the patient or operator.**

⚠ **Read the instruction manual before using the unit for the first time and periodically so that you are familiar with all functions and safety precautions.**

⚠ **Oxygen concentrations above normal atmospheric conditions create a greatly increased risk of fire, including immediately outside the apparatus. Materials that do not burn in air may react and burn vigorously in an oxygen enriched atmosphere.**

TICK the relevant box for a pass or fail. If any item is unclear or fails the inspection seek advice from the responsible person or Brinsea Products and do not use the intensive care unit.

Check cabinet for cracks or gaps that could allow oxygen gas to escape. Check the joint between the upper and lower cabinet halves for gaps. Check the electrical enclosure protective cover is secure and undamaged.	Pass:	Fail:
Check the room is ventilated (open window or door) or oxygen could build up and be a fire hazard. Do not use in a confined space, there must be 30cm of free space to both sides and above the unit.	Pass:	Fail:
Check there are no sources of heat near the unit (e.g. direct sunlight or heating appliance). Sunlight can move round a room. This could over-heat the animal inside.	Pass:	Fail:
Ensure there are no electrical devices in the unit such as heat pads. These can be a fire hazard if oxygen is being used.	Pass:	Fail:
Check there are no electrical devices within 90cm of the unit, including power sockets. These can be a fire hazard if oxygen is used.	Pass:	Fail:
Check there are no electrical devices or sockets under the table or shelf the unit stands on. Oxygen gas can sink through air and may cause fire in other electrical devices beneath the unit or its shelf.	Pass:	Fail:
Do not cover the unit. Make sure there is nothing that can fall onto the unit. This could cause a fire hazard.	Pass:	Fail:
Check there are no traces of liquid left in the cabinet. Clear fluids are difficult to see, wipe inside the base with tissue if necessary. Even trace amounts of flammable liquids such as ether or alcohol may cause fire or explosion in connection with oxygen.	Pass:	Fail:
Check the hinges and door latch are secure. Loose parts may allow an animal to escape.	Pass:	Fail:
Check all 3 filters are fitted and are clean. Blocked or missing filters will affect the temperature and could create a fire hazard.	Pass:	Fail:
Clean the water pan and replace evaporation block if dirty.	Pass:	Fail:
Fill the water pan (if humidifier is required).	Pass:	Fail:
Apply power, the fan must start but the lamps and display must be off.	Pass:	Fail:
Press start, the temperature alarm must pulse for several seconds. (The interior lights will briefly flash once).	Pass:	Fail:
The green indicator must be on. The red indicator must be off.	Pass:	Fail:

Continued on sheet 2

Vetario T40M and T50M Start-Up Check Sheet. Issue 02, 19/06/2013			
Date:		Sheet 2 of 2	
Checked by:			
Test the fan and power fail alarm system by pressing the alarm test button. The alarm must sound and red indicator lamp must illuminate.		Pass:	Fail:
Press the alarm silence button for 2 seconds. The alarm shall be silent.		Pass:	Fail:
Open the door and check the fan is now blowing air that is getting cooler (heater is off).		Pass:	Fail:
Close the door, press start and check the set temperature is correct.		Pass:	Fail:
Does the air temperature stabilise at the set temperature after approximately 20 minutes? Do not use if temperature is unstable, check set temperature if air temperature stabilises at unexpected figure. Note that the temperature may briefly overshoot depending on room condition and settings.		Pass:	Fail:
The intensive care unit may now be used for general therapy. Check the door latch is fastened. Perform the following additional checks before administration of oxygen gas:			
Remove the tube from the nebuliser solution holder if fitted. This prevents oxygen leaking back to a nebuliser pump and creating a fire hazard.		Pass:	Fail:
Disconnect the water pump control lead and water delivery tube if fitted.		Pass:	Fail:
Only use cotton based bedding as this reduces the risk of fire in oxygen.		Pass:	Fail:
Check the oxygen supply hose for splits or cracks that could leak and create a fire risk.		Pass:	Fail:
Ensure the oxygen supply hose connection “barb” is tightly fitted and therefore cannot leak or fall off.		Pass:	Fail:
Ensure the oxygen supply hose clamp is tight and that the hose cannot be pulled off.		Pass:	Fail:
Set the pressure regulator to a maximum of **400kPa (50psi)** – follow instructions supplied with the regulator.		Pass:	Fail:
Set the oxygen flow meter to **1 lpm (One litre per minute)** – follow instructions supplied with the flow meter. A sustained higher flow rate will increase the oxygen concentration to a level that may cause permanent injury to the animal or its death. A lower flow rate will make therapy ineffective.		Pass:	Fail:
Use only patient connections (e.g. pulse-oximeter) that are approved for use in an oxygen enriched atmosphere. Unapproved connections may cause a fire.		Pass:	Fail:
⚠ **Monitor the animal frequently.**			
⚠ **Ensure large, agitated animals do not damage the door or cabinet. Do not leave unattended until the animal is settled. Do not move the unit with an animal inside.**			
⚠ **Frequently check the exhaust ventilation hole on the door is not blocked.**			
⚠ **Frequently check the oxygen flow rate and supply pressure.**			
⚠ **If during use the alarm sounds or the red alarm indicator is illuminated disconnect the oxygen supply, disconnect power and open the door to ventilate the care unit. Do not re-use until the fault has been investigated and rectified (see section 6.13 in manual).**			

7 Temperature

⚠ **The metabolic heat from the patient(s) will contribute heat to the intensive care unit.**

⚠ **The intensive care unit may not control properly if the room temperature is less than 3ºC (10°F) lower than the temperature required inside the unit.**

7.1 Note: your intensive care unit may not be set to the correct temperature from the factory and the following procedure must be followed before introducing animals.

7.2 As the unit warms up and approaches its control setting the heater on asterisk "*" will change from continuously on to flashing.

7.3 Press the ⊖ and ⊕ buttons simultaneously to unlock the main menu. Press OK to select the temperature screen and adjust as necessary using the ⊖ and ⊕ buttons. Press OK to return to the Main Menu and then scroll down to Save. Press OK to save the changes. When reducing temperature the asterisk may go out while the intensive care unit cools – this is normal.

7.4 Refer to the digital temperature display to check temperature. The display shows the air temperature in increments of 0.1°.

7.5 The Display can be switched to show all temperature settings in degrees Fahrenheit. Press the ⊖ and ⊕ buttons simultaneously to unlock the main menu. Scroll to the C/F option and press OK to select the C/F display screen. Press the ⊕ button to select °F or the ⊖ button to select °C. Press OK to return to the Main Menu and then scroll down to Save. Press OK to save the changes.

7.6 For most applications involving intensive care the unit should be set to between 30 and 35ºC (86 and 95ºF). Depending on room temperature, it should take approximately 20 minutes to stabilise from cold. Note that the temperature should be gradually reduced to room temperature (20 – 25ºC or 68 – 77ºF) as the patient recovers to avoid sudden temperature change when the patient is removed.

7.7 The Vetario T40M and T50M have a built-in temperature alarm which warns of high or low incubation temperatures in the chamber. See section 6 for details.

7.8 In the unlikely event of a control failure the heater is automatically switched off by a safety thermostat. If this operates the alarm will sound and the red alarm indicator LED will illuminate. This must be investigated before further use. Switch off the oxygen supply, disconnect power and press the alarm reset button to silence the alarm. If oxygen has been supplied allow time for oxygen to disperse from the animals bedding and fur. Move the animal to an alternative unit and contact Brinsea Products for advice on testing the intensive care unit.

8 Humidity and Ventilation

⚠ **Check the water level at least daily to avoid the air becoming too dry (low relative humidity).**

⚠ **Avoid spillage of water near electrical parts, use the funnel provided. Clean up any spilled water from the top of the unit immediately.**

⚠ **Inspect air filters before and after each use for dust / dirt and clean as necessary (see section 13). Blocked filters restrict air flow and may lead to increased CO_2 level, incorrect temperature and incorrect oxygen concentration. Dirty filters may hold bacteria.**

⚠ **Do not use without the heater enclosure air filters in place. Dust and dirt will rapidly contaminate the heater and sensor surfaces and create a possible fire hazard.**

⚠ **Inspect the evaporation block weekly and replace if dirty. The block can provide a breeding ground for bacteria. In addition to the use of water-based disinfectant in the water, it is recommended that the block is replaced every 2 months of use.**

⚠ **Empty the water pan after each use and disinfect to avoid bacterial growth.**

8.1 Elevated air temperatures in the intensive care unit will reduce the relative humidity level (RH) and can cause dehydration. A water reservoir is fitted to counteract this effect.

8.2 The care unit is fitted with a water reservoir (see fig.1) which humidifies air as it is drawn into the heater enclosure. Use a solution of proprietary water-based disinfectant (diluted in accordance with the manufacturer's instructions) in the water reservoir (pan) to inhibit bacterial build-up. It is recommended that the reservoir is topped up with solution daily to reduce dehydration. This can be a particular problem with very young birds.

8.3 The unit and its occupants need not be disturbed to fill the water pan. Use the funnel provided to pour water through the water fill point in the top of the unit (see fig. 1) directly onto the evaporating block and into the water pan. Push the funnel down gently into the hole to make sure the water pours directly in. Clean up any spilled water from the top of the unit immediately.

8.4 To further increase humidity levels within the unit the water reservoir is fitted with an evaporating block of absorbent paper mesh as standard. This block may be set across the water pan (instead of upright) or removed entirely to give lower humidity levels if condensation forms. The block can provide a breeding ground for bacteria. In addition to the use of water-based disinfectant in the water, it is recommended that the block is replaced every 2 months of use.

8.5 An adjustable vent is fitted to the door which may be opened or closed to give greater control of humidity (close vent to increase) and fresh air flow. The vent may be fully closed as fixed ventilation is also provided.

8.6 The Brinsea Advance Humidity Pump is available as an option for the Vetario TM models. The digital control system not only reads the humidity in the unit but it provides a control signal to operate the water pump and accurately maintain the humidity level at the desired level.

9 Introducing your patients

⚠ **The intensive care unit relies on mains power. Monitor the intensive care unit frequently and switch off the oxygen supply if electrical power fails. Remove the animal if the power failure continues for a prolonged period. In critical situations use an uninterruptible power supply (UPS) with “true sine wave” output suitable for use with medical devices. Always verify the UPS and intensive care unit operate correctly together as some UPS devices may cause poor temperature regulation.**

⚠ **Only introduce patients once the correct temperature has been established and is stable.**

⚠ **Be sure to check the door latch is secured correctly. An unsecured latch may allow the animal to escape and lead to a consequent fall or other injury.**

⚠ **Do not lift the unit with an animal inside. This may damage the cabinet and allow oxygen to leak, or may cause the animal distress.**

⚠ **A large animal that is very agitated may cause damage to the cabinet parts or door. Do not leave unattended until the animal has settled. Broken or cracked parts may allow oxygen gas to escape and create a fire hazard. Broken or cracked door hinges or latch may allow the animal to escape and lead to a consequent fall or other injury.**

⚠ **Monitor patients and device settings / displays frequently so that incorrect operation or deterioration of patient condition is detected promptly. Remain within hearing distance of alarms.**

⚠ **Wipe up fluid spillages in the animal chamber promptly to avoid splashed liquid entering the heater enclosure.**

9.1 Patients of similar age and size can be placed together directly in the base of the cabinet and benefit from the warmth and comfort.

9.2 If disparity in size is too great a smaller patient is at risk of being crushed or smothered and it may be necessary to place patients in separate tubs within the cabinet.

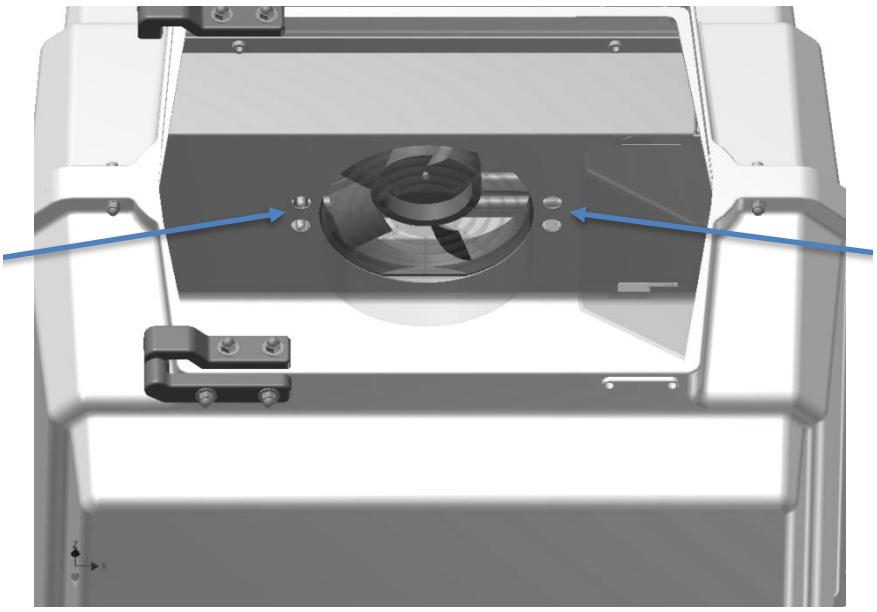
9.3 In order to maintain maximum air-flow the air filters should be checked once a week for dust or down, and cleaned if necessary.

10 Internal Lighting

10.1 The Vetario TM brooders are equipped with gentle, internal LED lighting for night-time inspection of animals and birds. The LED lamps are energy efficient, do not affect temperature and would not normally require replacement. Amber colour LED's do not produce UV light often associated with "white" LED's.

10.2 The LED lights are located to the left of the fan diffuser in the T40M size model and on both sides of the fan diffuser in the larger T50M model.

10.3 The lights may be switched on and off by pressing the OK button. This has a toggle action.



11 Oxygen Administration

⚠ **WARNING. RISK OF SERIOUS INJURY OR DEATH OF OPERATOR OR PATIENT:-**

⚠ **VETARIO TM INTENSIVE CARE UNITS HAVE BEEN SPECIFICALLY DESIGNED AND TESTED FOR SAFE OPERATION WITH INCREASED OXYGEN CONCENTRATION OF AIR WITHIN THE CABINET. ALL OPERATIVES MUST READ AND UNDERSTAND THE SAFETY INSTRUCTIONS.**

⚠ **Complete a Start-Up Check Sheet each time the unit is used for oxygen service.**

⚠ **Oxygen concentrations above normal atmospheric conditions create a greatly increased risk of fire, including immediately outside the apparatus. Materials that do not burn in air may react and burn vigorously in an oxygen enriched atmosphere.**

⚠ **No auxiliary equipment shall be placed in the incubator. Only use patient connections that are designed for safe use in an oxygen enriched atmosphere. If in any doubt check with the manufacturer of the auxiliary equipment. (Fire may be caused by sparking contacts or hot surfaces in equipment not designed for oxygen service).**

⚠ **Even small quantities of flammable agents, such as ether and alcohol, left in the incubator can cause fire in connection with oxygen. (Never use flammable cleaners or disinfectants and ensure such agents are not introduced on a patient).**

⚠ **The incubator must only be used in a well-ventilated room away from potential sources of heat or ignition. NO SMOKING. Do not use in a confined location, the incubator needs at least 30cm of free space above and to both sides. (Oxygen concentration in the air around the incubator may rise significantly if ventilation isn't provided or the space around the incubator is confined. This may create a fire hazard).**

⚠ **Remove all electrical devices (including the water pump) that are within 90cm of the incubator. Place the incubator at least 90cm away from power sockets. Ensure there are no power sockets or electrical items directly under the shelf or table supporting the incubator. (Oxygen gas may sink through air and cause fire in other equipment).**

⚠ **Always test the fan rotation and power failure alarms and check ventilation holes before using with oxygen gas. If the alarm sounds during use disconnect the oxygen supply, disconnect power and open the door to ventilate the care unit. Do not re-use until the fault has been investigated and rectified. (Failure of the ventilation fan or blocking of ventilation slots/holes may lead to oxygen enrichment of air in unintended areas leading to an increased risk of fire. It may also lead to increased concentration of CO_2 in the animal cabinet).**

⚠ **Not suitable for use in the presence of a flammable anaesthetic mixture. (The incubator is not intended to be used in a location where flammable anaesthetics may be present. This would create a serious risk of fire or explosion).**

⚠ **Before oxygen administration, disconnect any nebuliser and tube from the solution holder. (This is to prevent oxygen flowing into the nebuliser pump and creating a fire hazard).**

⚠ **If fitted, disconnect the water pump control lead and water delivery tube. (The pump is not intended for use during oxygen therapy and may create a fire hazard).**

⚠ **Do not cover the intensive care unit. (Blocking of ventilation slots/holes may lead to oxygen enrichment of air in unintended areas leading to an increased risk of fire. It may also lead to increased concentration of CO_2 in the animal cabinet. Covering the unit may lead to fire hazard due to reduced dissipation of heat).**

⚠ **Do not obstruct ventilation holes. (Blocking of ventilation slots/holes may lead to oxygen enrichment of air in unintended areas leading to an increased risk of fire. It may also lead to increased concentration of CO_2 in the animal cabinet).**

⚠ **Do not exceed 1 lpm (litre per minute) oxygen flow rate. (The maximum safe long-term concentration of oxygen for canines and felines is achieved at this flow rate and increased flow may lead to permanent injury or death. Greater flow rates also increase the risk of oxygen leaking in the event of a fault and could create a fire risk).**

⚠ **The incubator contains no flow restriction or pressure regulator device. The oxygen supply must be reliably restricted to 400kPa (50psi). Always use a medical grade oxygen pressure regulator and flow meter that has been serviced in accordance with the manufacturer's instructions. Failure of an external device may create a fire or pressure hazard or prevent effective treatment. It is assumed the operator will be trained in the safe and correct use of such devices.**

⚠ **After oxygen administration, animals and any associated cloth materials must be allowed sufficient time in the chamber in normal air to allow trapped oxygen to disperse. (Fabric and similar materials that trap oxygen enriched air may burn vigorously if ignited by a spark or other source of ignition). Use only pure cotton materials to reduce the risk of static electricity sparks.**

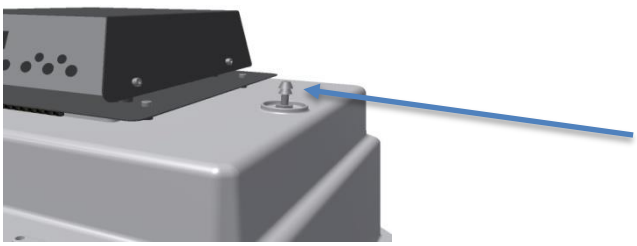
Perform the following tests and safety checks before EVERY use for oxygen administration and fill in the Start-Up Check Sheet.

11.1 Check the cabinet, door and hinges/lock for cracks, damage or loose parts that may allow oxygen gas to escape and create a fire hazard. Check for gaps between the upper and lower halves of the white cabinet.

11.2 If fitted, disconnect the flexible tube from the nebuliser solution holder to prevent any flow of oxygen to a nebuliser pump. This could create a fire hazard.

11.3 Remove the water pan and evaporating block. Disconnect the Brinsea Advance Humidity Pump tube and electrical cable if fitted. Please note that it is not practical to use the pump during oxygen administration due to capacity restraints. A hydrated oxygen supply is commonly used and helps humidify the animal chamber.

11.4 Fit the oxygen hose barb to the inlet hole using the locknut supplied. Check for tightness if already in place, there must be no gap or oxygen gas could leak and create a fire hazard. The hose barb is suitable for hoses with a 6mm (1/4 inch) bore size. Always use a hose clamp device and ensure it is tightly fitted so that the hose cannot possibly fall off.



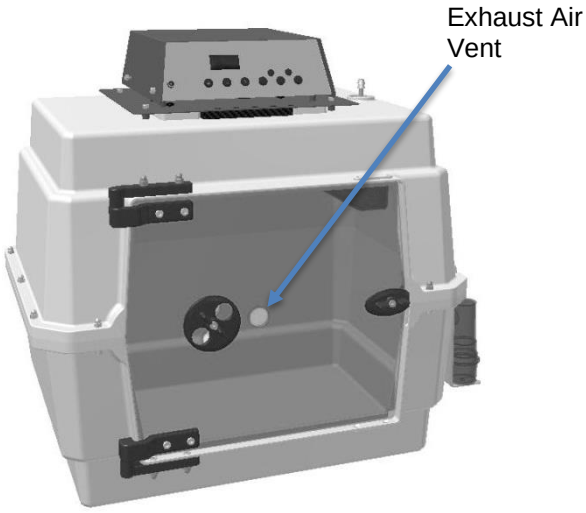
Hose Barb. (Fit locknut on inside of cabinet).

11.5 Check the condition of the oxygen hose. It must not have any splits or cracks that could allow oxygen gas to escape and create a risk of fire.

11.6 Check the inlet and recirculation air filters are present and clean (3 in total).

11.7 Fill and re-fit the water pan if required.

11.8 Check the exhaust vent is open and not obstructed by any materials or the animal. This must be checked periodically during treatment.



11.9 Ensure the room is well ventilated to prevent possible build-up of oxygen gas. This could create a serious fire hazard.

11.10 Ensure no other electrical equipment is placed inside, or within 90cm intensive care unit. Do not place the intensive care unit within 90cm of a power socket-outlet. Oxygen concentration in the air immediately around the unit may be slightly raised and the majority of electrical equipment is not designed or safe to be operated in this situation. Oxygen gas sinks in still air and high concentrations may occur under or on a table the intensive care unit is placed on.

11.11 Do not cover the intensive care unit for any reason as this may cause the unit to overheat or cause oxygen to collect around electrical parts. This would create a serious fire hazard.

Ensure no items can fall onto the intensive care unit.

11.12 Only use patient connections that are designed for safe use in an oxygen enriched atmosphere. If in any doubt check with the manufacturer of the auxiliary equipment. (Fire may be caused by sparking contacts or hot surfaces in equipment not designed for oxygen service).

11.13 Test the alarm systems as follows:

- Apply power, the fan must start but the lamps and display must be off.
- Press start, the incubation temperature alarm must pulse for several seconds. The green indicator must be on. The red indicator must be off.
- Press the alarm test button. The alarm must sound and the red indicator lamp must illuminate. If the alarm fails to sound replace the battery and repeat the test sequence.
- Press the alarm silence button for 2 seconds. The alarm shall be silent.
- Open the door and check the fan is now blowing air that is getting cooler (heater is off).
- Close the door, press start and check the set temperature is correct.

⚠ **If the alarm system does not behave as specified DO NOT USE. Contact Brinsea Products for further advice.**

11.14 Allow the unit to warm to working temperature and stabilise before administration of oxygen.

11.15 Only once the unit is prepared, the alarms tested and the unit is warmed and stable at operating temperature may the oxygen supply be connected.

Use an approved and serviced medical flow meter and pressure regulator. In-line humidifier devices are available to increase the humidity of the oxygen before it is added to the air in the intensive care unit. Check with your medical oxygen supplier for more details. Set the regulator according to the instructions supplied with the flow meter.

11.16 Adjust the flow rate to 1 lpm (litre per minute) which provides approximately 40 - 45% oxygen concentration.

⚠ **Long term concentrations higher than this may cause permanent injury or death of the patient. Lower concentrations will reduce the effectiveness of treatment.**

For higher concentrations it is recommended to place a mask directly on the animal. In either case do not exceed 1 lpm.

⚠ **Monitor frequently for correct pressure and flow rate of oxygen and for correct incubation temperature. Frequently check the vent is not obstructed.**

11.17 Under normal conditions the maximum sound level in the unit is 55dBA. Note that administration of oxygen may increase the noise level for the animal in the unit.

11.18 CO_2 concentration will not exceed 0.4% under steady state conditions.

11.19 When oxygen administration is finished switch off the flow of oxygen. Oxygen may remain in animal hair / fur and in blankets for some time (30 minutes or more). Leave the unit running with the animal inside for sufficient time for the oxygen to disperse.

⚠ **If the alarm sounds during use disconnect the oxygen supply, disconnect power and open the door to ventilate the care unit. Do not re-use until the fault has been investigated and rectified.**

⚠ **Never ignore or attempt to bypass the alarm system, this may result in a serious hazard.**

12 Nebuliser

12.1 The nebuliser solution holder may be connected to a nebuliser pump for administering treatments directly to the animal chamber.

12.2 Do not use a nebuliser pump at the same time as oxygen administration. This is to prevent oxygen flowing back into the air pump if a fault developed.

13 Cleaning and Disinfection

⚠ **This unit is not supplied sterile.**

⚠ **Even small quantities of flammable agents, such as ether and alcohol, left in the incubator can cause fire in connection with oxygen. Never use flammable cleaners or disinfectants.**

⚠ **Disconnect the oxygen supply and ventilate the unit before performing cleaning or maintenance. The presence of oxygen may create a fire or explosion risk during cleaning.**

⚠ **Disconnect the intensive care unit from the mains power supply during cleaning. Risk of electric shock! Ensure that all electrical parts are kept dry.**

⚠ **Ensure all removable parts are replaced and fasteners tightened before use. Check parts for cracks, damage or distortion that may affect air-tightness. Failure to follow these checks may allow oxygen to leak out and create a fire hazard.**

⚠ **Only use water-based cleaners and disinfectants that are suitable for use on acrylic (PMMA), polyamide (PA6) and acrylonitrile butadiene styrene (ABS) type plastics. The cabinet or door parts may become brittle and fail unexpectedly allowing the animal to escape or leakage of oxygen gas. Disinfectant solutions may cause severe cracking of plastic if not correctly rinsed off.**

⚠ **The heating element may be hot enough to cause a burn if exposed immediately after use. Allow at least 10 minutes to cool before removing the cover.**

13.1 Following each use of your Vetario intensive care unit remove all debris from the floor. Wipe all internal surfaces with a soft cloth soaked in water-based disinfectant solution (diluted according to the manufacturer's instructions).

13.2 Filters should be inspected before and after each use and cleaned if necessary. Remove all three filters and gently hand wash in warm water then allow them to dry before use. Filters need replacing every six months. The exterior of the unit may be cleaned with a damp cloth.

13.3 It is not possible to sterilise the water evaporation block. Inspect weekly and replace if dirty. Replacement filters, evaporating blocks and disinfectant solution are all available from Brinsea Products at the address at the end of this document or from your Vetario agent.

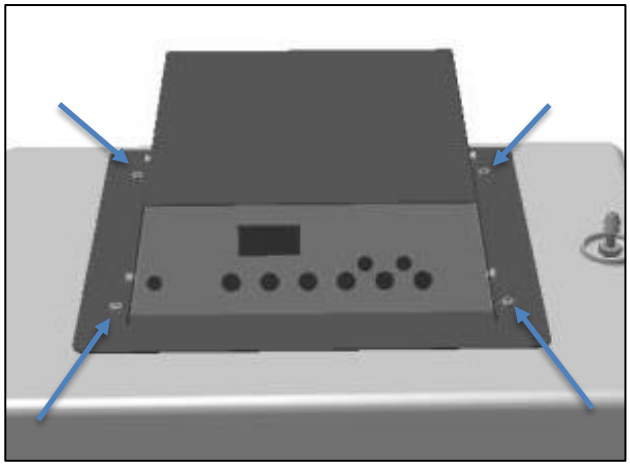
13.4 Always clean the unit before storage and ensure that the unit is totally dry inside and out or damage may occur to the components.

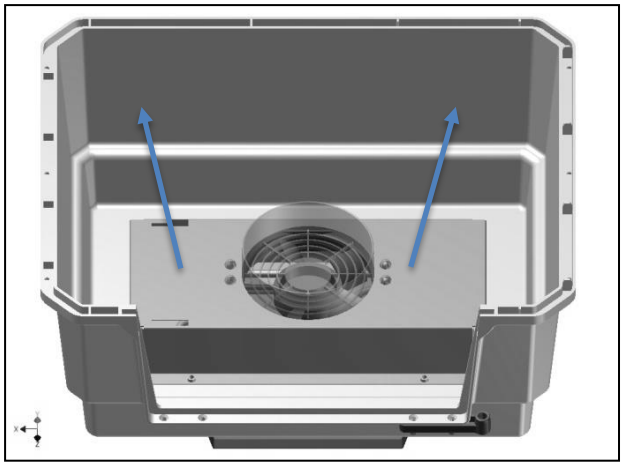
13.5 For deeper cleaning the base of the cabinet and the door may be removed by releasing the fasteners. See section 4 for assembly guide. The cabinet base and the door may be wet-cleaned with mild detergent and then disinfected with water based disinfectant solution.

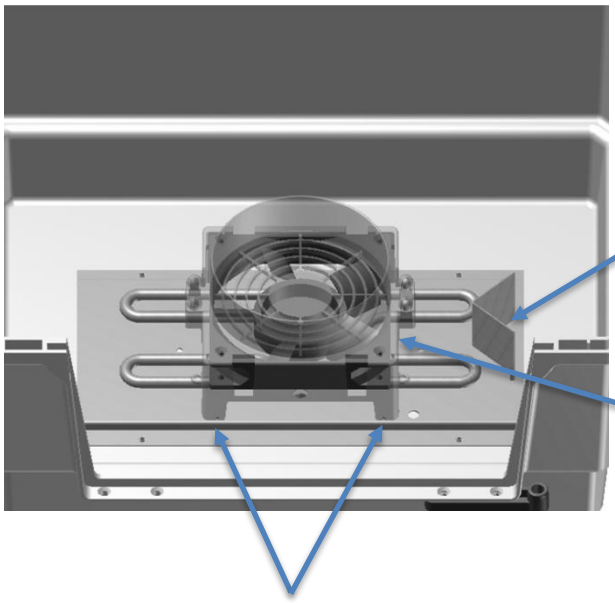
13.6 The heater enclosure should be removed to allow the heating element and fan to be cleaned every 2 months. Disconnect the power lead and allow the unit to cool for 10 minutes. Remove the water pan. Loosen the 4 cap-head screws (on top of the metal baffle plate, not the control box) as shown and then finally remove each one while supporting the metal enclosure inside. The metal enclosure will fall if not held and may damage the intensive care unit.

13.7 Carefully place the intensive care unit on its top and then lift out the metal heater enclosure. The fan guard and lighting assembly may then be hinged over toward the front of the machine so that the heating element and fan blades may be dusted with a soft brush and wiped with a cloth made damp with a water-based disinfectant solution. USE NO LIQUIDS. DO NOT DISTURB THE TEMPERATURE SENSOR.

⚠ **It shall be ensured that the heating element especially is kept clear of dust or other dirt particles.**







DO NOT DISTURB SENSOR

Fan guard assembly may be hinged out on its cables to allow fan and heater to be dusted with a soft brush

Fan assembly is located by 4 pegs in the feet of the clear moulding

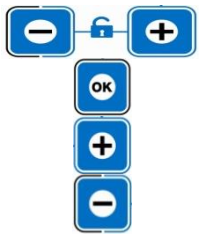
13.8 Once the heater area has been dusted and disinfected the fan guard assembly must be relocated by ensuring the 4 pegs on the clear moulding fit into the corresponding holes in the metal base plate.

13.9 ENSURE THE LED WIRES ARE NOT TOUCHING THE HEATING ELEMENT

13.10 Replace the metal cover so that the water pan slots are at the correct end. Hold the cover in place and fit the 4 cap-head screws. Do not over-tighten.

14 Safety Inspection, Maintenance and Calibration

CALIBRATION MENU

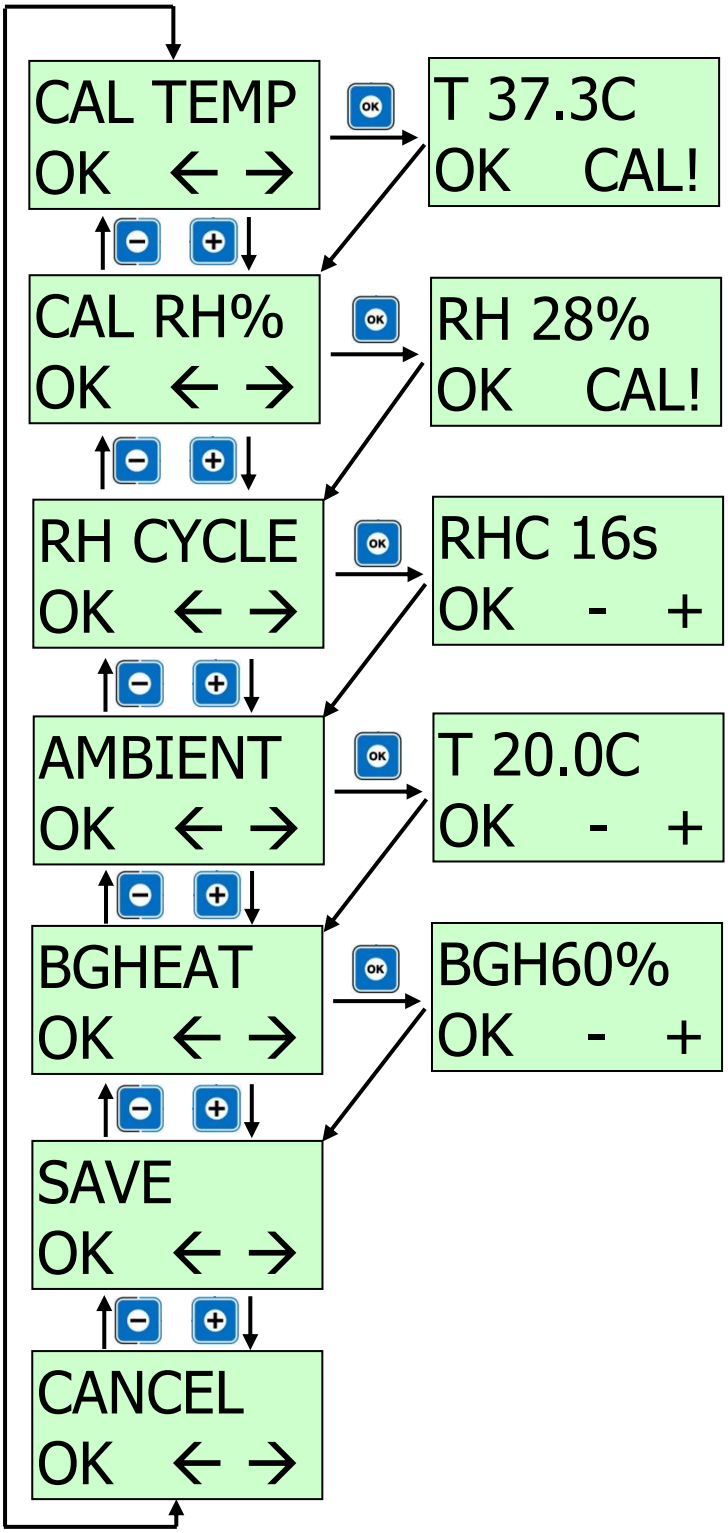


PRESS BOTH BUTTONS TO UNLOCK THE CALIBRATION MENU.

SELECT THE OPTION / RETURN TO THE MENU.

GO FORWARD ONE SCREEN / INCREASE THE VALUE.

GO BACK ONE SCREEN / DECREASE THE VALUE.



CALIBRATE THERMOMETER. TAKE READINGS AT SEVERAL PLACES 40mm ABOVE THE BASE OF THE EMPTY UNIT AND CALCULATE THE AVERAGE.

CALIBRATE HYGROMETER. PLACE HYGROMETER IN BASE OF UNIT WITH NO WATER IN THE RESERVOIR PAN.

HUMIDITY PUMP CYCLE TIME. ONLY APPLICABLE WHEN USED WITH THE BRINSEA ADVANCE HUMIDITY PUMP.

AMBIENT TEMPERATURE COMPENSATION. AMBIENT TEMPERATURE USED IN HEATER CONTROL ALGORITHM. ONLY ADJUST IF TYPICAL ROOM TEMPERATURE IS GREATER THAN 4°C (9°F) DIFFERENT.

BACKGROUND HEATING LEVEL. HEATER POWER ADJUSTMENT USED IN HEATER CONTROL ALGORITHM. ONLY ADJUST WITH ADVICE FROM BRINSEA PRODUCTS.

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⚠ **Print and fill in this inspection record for each 12 month safety inspection. Check for any update of these instructions at www.vetario.co.uk**

The date of construction forms part of the serial number e.g. HDxxxx/130123yyy where xxxx is the model code, 130123 is year, month, day and yyy is the unique device number. The date as shown would be 23rd January 2013.

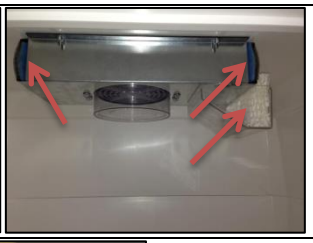
The intensive care unit must be serviced and checked regardless of frequency of use and date of first use as some items degrade over time (i.e. have a limited shelf-life).

⚠ **Only use spare parts approved by Brinsea Products, use of unapproved parts will invalidate the warrantee and may create a safety hazard. Never bypass safety devices such as fuses or thermal cut-outs. Never deliberately block ventilation holes or slots. The on-going safety of the incubator depends on correct servicing using exactly specified parts.**

⚠ **All servicing must be carried out only by a suitably qualified person to ensure on-going safety of the intensive care unit.**

⚠ **Risk of electric shock. Disconnect power supply before removing covers. The larger circuit board has a combination of un-shrouded mains voltage parts and low voltage parts.**

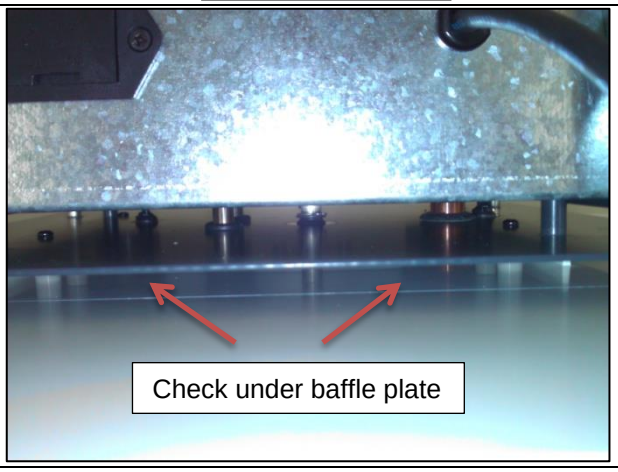
14.1 Remove 3 air filters and water evaporation block. Discard.



14.2 Remove the battery and place in a recycling facility. Do not dispose of in fire or general waste. The battery holder is on the rear of the control enclosure.

14.3 Examine all cabinet parts for cracks, splits or deformities. Use a torch or similar light to view under the front and back of the grey painted metal baffle plate to check the white cabinet surface for cracks or distortion.

Contact Brinsea Products in the event the cabinet is damaged. Damage may allow oxygen gas to escape and create a fire hazard.



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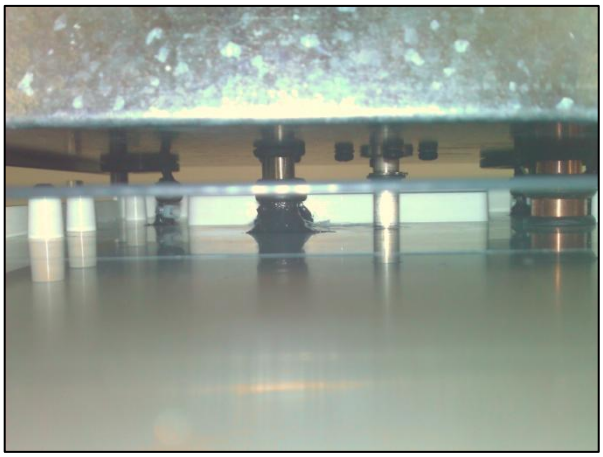
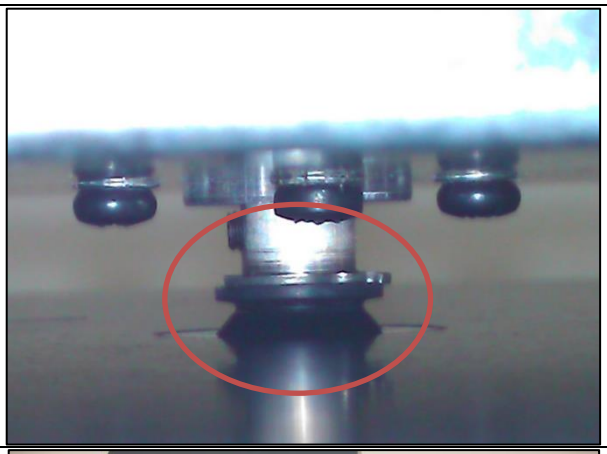
14.4 Visually check the cable grommets under the baffle plate, through the baffle plate and through the control enclosure for signs or cracking or deterioration. Also check the black sealant material around the heater bushings and in cable grommets is still pliable (not crumbling or flaking) by carefully pressing with the tip of a blunt object. Contact Brinsea Products in the event the grommets or sealant need replacement due to aging. Cracked or missing grommets and sealant may allow oxygen gas to escape and create a fire hazard.	
14.5 Check the motor shaft seal is present and makes light contact with the baffle plate. Contact Brinsea Products in the event that the seal requires replacement. A missing seal may allow oxygen gas to escape and create a fire hazard.	
14.6 Check the product safety information label is present and legible.	

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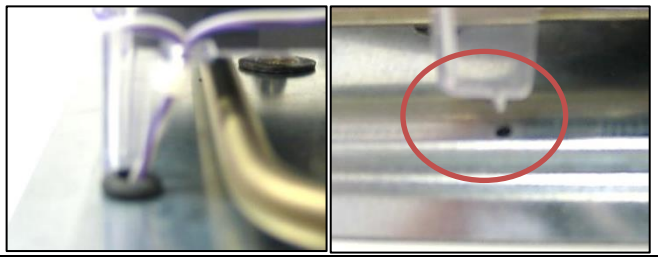
14.7 Remove heater enclosure (4 x M4 cap-screws). Support the enclosure while fixings are removed or it will drop and may be damaged. See page 24 of operation manual.

Clean all surfaces of dust. Disinfect with water-based disinfectant only. Use a damp cloth. Do not touch sensor unit as this may be damaged by cleaning agents.

Ensure especially that the heating element is kept clear of dust or other dirt particles.

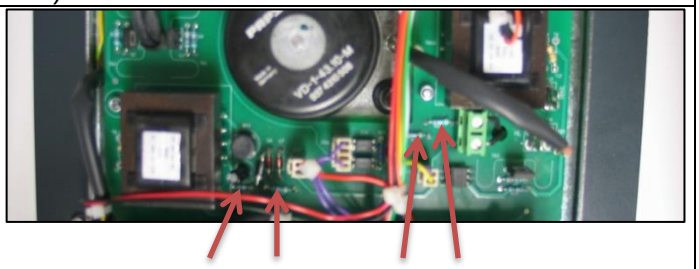
Re-locate the fan guard pegs in their holes on the heater plate. Ensure the LED power cables are clear of the heating element. Replace the metal enclosure cover and tighten cap-screws.

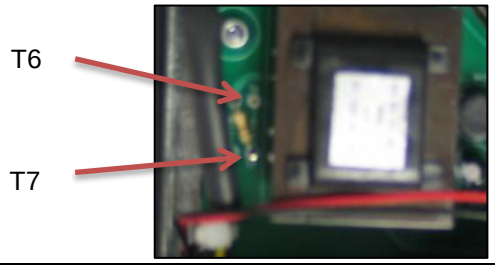


14.8 Check electrical enclosure and cover for impact damage or distortion and replace as necessary.

Remove control enclosure cover (4 x M4 cap-screws).

14.9 Check safety critical components on the power supply board (BPL84) and record results below. Correct values are critical to the safety of the device and any values outside of tolerance must be investigated and rectified before further use.





Fuse FU1	10A, 250V, ceramic (HBC)
Fuse FU2	2A, 250V, ceramic (HBC)
R19 = 4R7 ±1%	Measured value -
R20 = 4R7 ±1%	Measured value -
R22 = 470R ±1%	Measured value -
R23 = 470R ±1%	Measured value -
Heater = 340 to 370 ohm (220-240V model)	Measured value -

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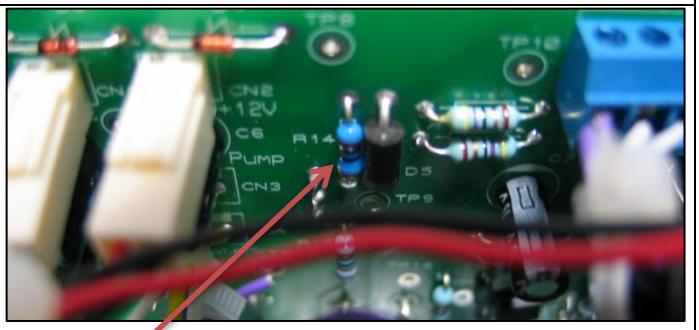
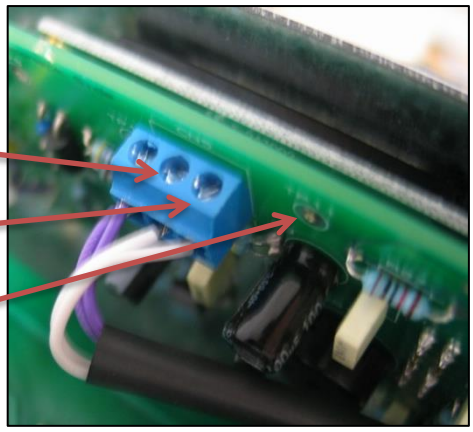
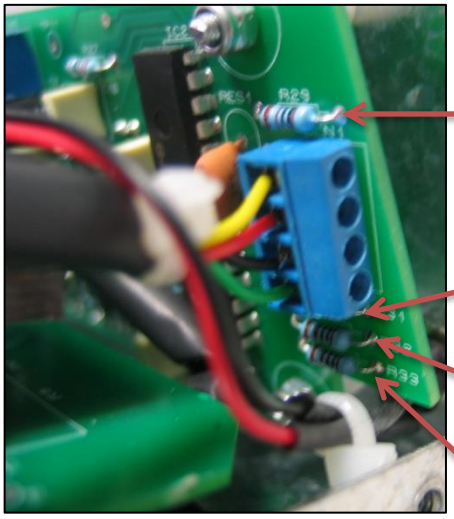
Triac TR1 shall be open circuit (check T13 “L” live input terminal to T7 link by side of TX2)	Measured value -
Triac TR2 shall be open circuit (check T14 “N” neutral input terminal to T6 link by side of TX2)	Measured value -
14.10 Check safety critical components on the heater controller board (BPL83) and record results below. Correct values are critical to the safety of the device and any values outside of tolerance must be investigated and rectified before further use.	 R14  CN5-2 CN5-3 TP11  R29 R31 R32 R33

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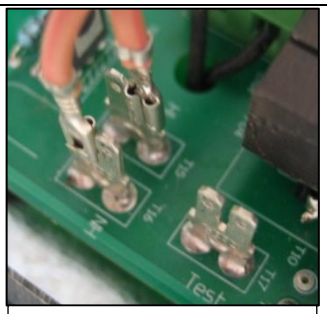
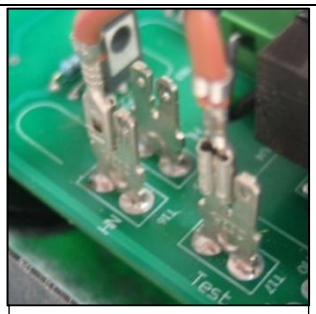
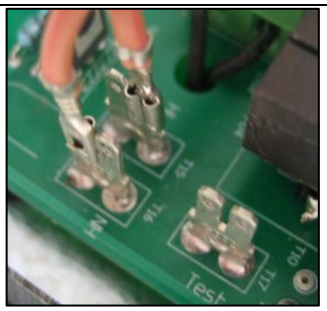
R14 = 15R ±1%	Measured value -
R17 + R19 = 94R ±1% (TP11 to CN5-2)	Measured value -
R16 + R18 = 94R ±1% (TP11 to CN5-3)	Measured value -
R29 = 1K ±1%	Measured value -
R31 = 1K ±1%	Measured value -
R32 = 1K ±1%	Measured value -
R33 = 1K ±1%	Measured value -
14.11 The heating element is controlled by electronic double-pole disconnection. In order to correctly test the insulation resistance of the heater it is necessary to temporarily fit the heater live terminal (HL) wire to the Test terminal.	 Normal connection  Connection for insulation test only
14.12 Replace control enclosure cover and perform earth continuity and electrical insulation tests.	
Earth continuity	Measured value -
Insulation resistance	Measured value -
14.13 Remove control enclosure cover and move the heater wire back from the Test terminal to the HL terminal.	
14.14 Replace control enclosure cover.	
14.15 Repeat electrical insulation tests.	
Insulation resistance	Measured value -
14.16 Fit a new 9 volt PP3 type battery in the compartment in the back of the control enclosure. Check polarity with markings in the pull-out tray.	

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14.17 Check security of all fasteners on the cabinet, hinges and door. Loose parts may allow oxygen gas to leak and create a fire hazard or may allow animals to escape.	
14.18 Fit new air filters	
14.19 Close door and apply power to the unit. Record the operation below, incorrect function must be investigated before the unit is used.	
Fan is ON	Record (yes/no) -
Heater is OFF	Record (yes/no) -
Digital display is OFF	Record (yes/no) -
Red and green LED's both OFF	Record (yes/no) -
Audible alarms OFF	Record (yes/no) -
14.20 Press the start button. Record the operation below, incorrect function must be investigated before the unit is used.	
Alarm sounds for approximately 5 seconds	Record (yes/no) -
Display shows code version then current air temperature and humidity values.	Record (yes/no) -
Red LED is OFF	Record (yes/no) -
Green LED is ON	Record (yes/no) -
Heater ON (air temperature rises)	Record (yes/no) -
14.21 Press the alarm test button. Record the operation below, incorrect function must be investigated before the unit is used.	
Green LED is OFF	Record (yes/no) -
Red LED is ON	Record (yes/no) -
Alarm sounds continuously	Record (yes/no) -
Digital display is OFF	Record (yes/no) -
Heater OFF (air temperature drops)	Record (yes/no) -

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14.22 Press the silence button for 2 seconds. Record the operation below, incorrect function must be investigated before the unit is used.	
Green LED is OFF	Record (yes/no) -
Red LED is OFF	Record (yes/no) -
Audible alarms OFF	Record (yes/no) -
14.23 The temperature display calibration must be checked and adjusted as necessary at least every 12 months. An inaccurate reading may create a thermal hazard for the patient. Support a reference thermometer of known accuracy 100mm above the centre of the cabinet floor. Connect the power, press the power button and set the temperature to 36.0°C. Allow at least an hour for the temperature to stabilise. If adjustment is necessary press the OK, - and + buttons simultaneously to access the calibration menu. Select the first option “CAL TEMP” and adjust the display figure to match the reference thermometer. Press OK and scroll to “SAVE” then press OK again to save the adjustment in the non-volatile memory.	
14.24 Note that the digital control system may be reset to factory defaults by applying mains power to the unit and then pressing the start button while holding the OK button. Hold the OK button until the display shows “LOADING DEFAULTS”. The thermometer system will need to be recalibrated.	
14.25 On completion of the inspection record the details of the responsible person and the date of service. Affix a label on the intensive care unit that states when the next inspection is due.	
Serviced by:	
Date of service:	

15 Specification

	Vetario T40M	Vetario T50M
Overall height	470mm (18.5")	550mm (21.5")
Overall width	485mm (19")	690mm (27")
Overall depth	385mm (15")	490mm (19.5")
Floor area	400x300mm (15.5 x 12")	600x400mm (23.5x15.5")
Effective volume	40L	100L
Weight	6.7Kg (15lbs)	8.7Kg (19lbs)
Power consumption	85W typical, 160W max	100W typical, 160W max
Power supply	220 - 240V ac	
Alarm backup battery	9V PP3. Batteries should be recycled. Do not dispose of in fire.	

16 Disposal

16.1 The expected useful life of this device is 10 years from date of manufacture. Do not use after this period as safety may be compromised.

16.2 Clean and disinfect the unit before disposal.

16.3 **Information on Disposal for Users of Waste Electrical & Electronic Equipment.**

Used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product to a designated collection point where it will be accepted free of charge.

Alternatively, in some countries you may be able to return your product to your local retailer upon purchase of an equivalent new product.

Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling.

Please contact your local authority for further details of your nearest designated collection point. Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.

For business users in the European Union: If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union:
This symbol is only valid in the European Union. If you wish to discard this product please contact your local authorities or dealer and ask for the correct method of disposal.

Brinsea Products Ltd, 32-33 Buckingham Road, Weston Industrial Estate,
Weston-super-Mare, N. Somerset, BS25 5RA
Tel: +44 (0) 345 226 0120 Fax: +44 (0) 1934 708177
e-mail: sales@brinsea.co.uk, website: www.Brinsea.co.uk

Declaration of Conformity

We: BRINSEA PRODUCTS LTD.
32-33 Buckingham Road
Weston Industrial Estate
Weston-super-Mare
North Somerset
BS24 9BG

Declare under our sole responsibility the products:

Animal Brooders:

Vetario T40M (Serial numbers HD453x/xxxxxxxxx)
Vetario T50M (Serial numbers HD463x/xxxxxxxxx)

to which this declaration relates are in conformity with the following UK regulations:

Supply of Machinery (Safety) Regulations 2008

Electromagnetic Compatibility Regulations 2016

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The relevant sections of the following Standards have been used:

BS EN 60335-1:2012+A13:2017 BS EN 60335-2-71:2003+A1:2007 BS EN 55014-1:2006+A2:2011
BS EN 55014-2:1997+A2:2008 BS EN 50581:2012

The technical documentation for the products is available from the above address.

Authorised Representative: Ian Pearce, Managing Director

Signature:

Date of Issue: 8th April 2021

Place of Issue: 32-33 Buckingham Road, Weston Industrial Estate, Weston-super-Mare, North Somerset, BS24 9BG, United Kingdom.

Declaration of Conformity

We: BRINSEA PRODUCTS LTD.
32-33 Buckingham Road
Weston Industrial Estate
Weston-super-Mare
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BS24 9BG

Declare under our sole responsibility the products:

Animal Brooders:

Vetario T40M (Serial numbers HD453x/xxxxxxxxx)
Vetario T50M (Serial numbers HD463x/xxxxxxxxx)

to which this declaration relates are in conformity with the following EU Directives:

2006/42/EC Machinery Directive
2014/30/EU Electromagnetic Compatibility Directive
2011/65/EU Restriction on the use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations

The relevant sections of the following Standards have been used:

EN 60335-1:2012+A13:2017 EN 60335-2-71:2003+A1:2007 EN 60601-1:2006/A1:2013
EN 55014-1:2006/A2:2011 EN 55014-2:1997/A2:2008 EN 50581:2012

The technical documentation for the products is available from the above address.

Authorised Representative: Ian Pearce, Managing Director

Signature:

Date of Issue: 05/2020

Place of Issue: 32-33 Buckingham Road, Weston Industrial Estate, Weston-super-Mare, North Somerset, BS24 9BG, United Kingdom