

Brinsea

OCTAGON 10 INCUBATOR

USER INSTRUCTIONS

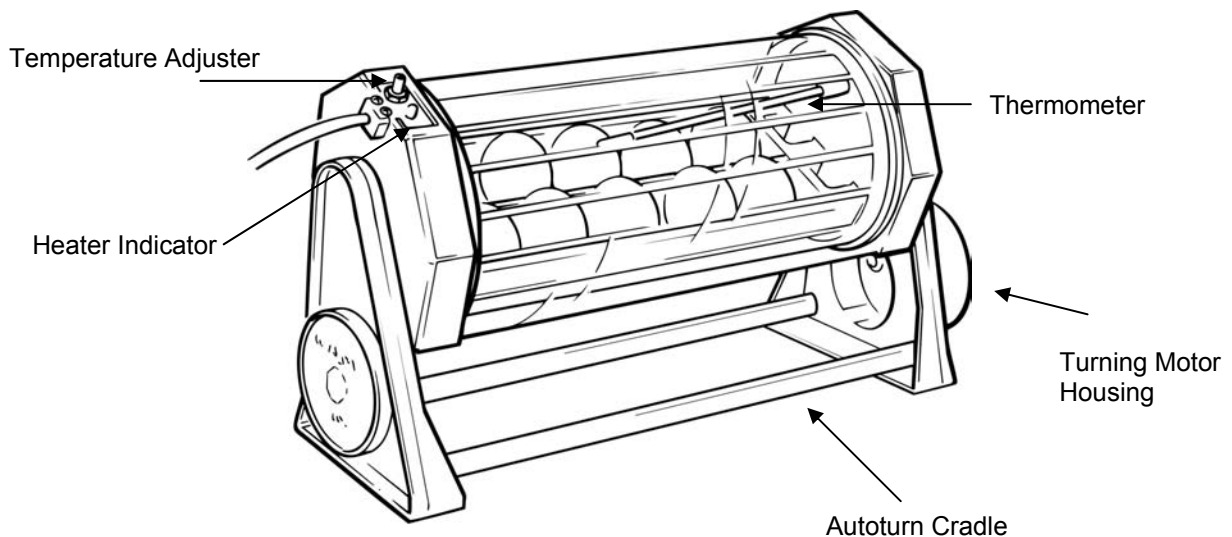
Contents

<u>Section</u>	<u>Subject</u>	<u>Page</u>
1	Introduction	2
2	Unpacking	2
3	Location and Installation	3
4	Storage of eggs	3
5	Temperature	4
6	Humidity and Ventilation	4
7	Egg Setting	6
8	Egg Turning	6
9	Hatching	6
10	Cleaning Up	7
11	Servicing	7
12	Troubleshooting	7
13	Specifications	9

1.0 Introduction

These instructions outline the essential procedure for successful incubation of most domesticated species in the Octagon 10 incubator and Autoturn cradle (if supplied). Please read these instructions carefully before setting up your machine to achieve best possible results and keep these instructions safe for future reference. For more information and for less common species, a variety of books is available. However, note particularly that the temperature settings for the Octagon 10 differ slightly from those usually quoted for conventional forced draught and still air incubators.

Fig. 1 *Functional features of the Octagon 10 and Autoturn cradle*



2.0 Unpacking

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

Your Octagon 10 will include as standard:	<u>Quantity</u>	<u>Item</u>
Incubator:	1	Incubator (including sliding tray)
	1	Set of two egg dividers
	1	Spirit thermometer
	1	Guarantee Card
Optional Autoturn Cradle	2	Black metal tubes
	1	Motorized cradle end
	1	Plain cradle end
	1	Set of four screws

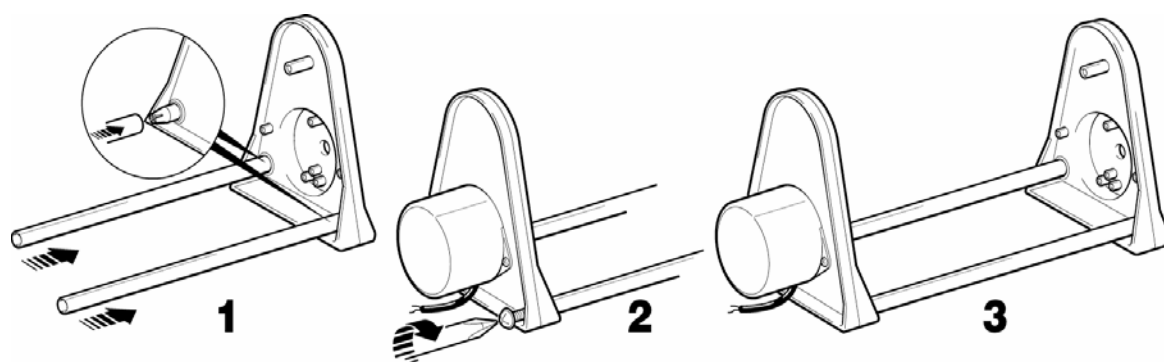
- 2.1 Please identify each part and check that they are all present and undamaged. If there are any parts damaged or missing please contact your retailer or Brinsea Products (at the address at the end of the document)
- 2.2 Check also that the electrical supply matches the machine's requirements (marked on the technical label on the side of the incubator and on the side of the autoturn cradle).
- 2.3 Complete and return your guarantee card to register for the free two year guarantee covering your incubator.
- 2.4 Go to www.Brinsea.co.uk and register as a free member of the Brinsea e-mail group to receive the latest news and information such as advance notice about new products, special offers, exclusive competitions and much more.

3.0 Location and Installation

Your incubator will give best results in a room free from wide temperature variations and with generous ventilation. 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 incubator cannot be exposed to direct sunlight.**

- 3.1 Assemble the autoturn cradle (if supplied) in accordance with the diagram below (Fig. 2) and place on a flat, level surface (table height is ideal). Place the incubator into the autoturn cradle as illustrated (Fig. 1). The cabinet is designed to locate onto the lugs at either end of the autoturn cradle. Take care to offer the incubator at the angle which matches that of the drive lug to avoid damage to the mechanism. Ensure full engagement in the slots in the ends of the incubator so that the incubator is level end to end.
- 3.2 If using without the autoturn cradle place the incubator upright on a flat level surface.

Fig. 2



- 3.3 Slide out the egg tray and fill one of the two water reservoirs with water or 100:1 Brinsea Incubation Disinfectant solution leaving the top of the liquid 20mm (3/4") from the top of the reservoir. Fit the back of the thermometer into the socket on the door and replace the tray.
- 3.4 Plug incubator and cradle (if supplied) mains supply cables into suitable outlets ensuring that the cables are not pulled tight. The incubator will start, the red LED on the temperature control housing will illuminate continuously. The cradle motor will start and the incubator will begin to turn. The turning is very slow – taking about half an hour to turn each way.
- 3.5 Allow the incubator to run for at least an hour to stabilise the temperature before making adjustments or setting eggs (see section 5.0 below).

4.0 Storage of eggs

- 4.1 Store eggs in cool, damp conditions. Most species may be safely stored for up to 14 days before serious reductions in hatch rates are likely. Daily turning of stored eggs also helps maintain hatchability.
- 4.2 Discard cracked, misshaped and heavily soiled eggs (if possible). Only wash soiled eggs using a branded egg wash solution such as Brinsea Incubation Disinfectant Concentrate following the manufacturer's instructions. It is essential to wash eggs in solution which is significantly warmer than the egg. Bear in mind that all solutions will remove the outer cuticle from the egg as well as the dirt and may leave the egg at greater risk from bacterial contamination in the future.

5.0 Temperature

Stable and correct temperature is essential for good results. Adjust with care.

Note: your incubator may not be set to the correct temperature from the factory and the following procedure must be followed before setting eggs.

- 5.1 As the incubator warms up and approaches its control setting the red LED will change from continuously on to flashing. Allow the incubator to stabilise for at least an hour before adjusting the temperature – check against the thermometer supplied.
- 5.2 Rotate the red adjustment spindle on top of the control housing with a small screwdriver – clockwise to increase temperature, anticlockwise to reduce it. 1°C (2°F) is about ¼ turn of the spindle.
- 5.3 When reducing temperature the red LED may go out while the incubator cools – this is normal.
- 5.4 Refer to the thermometer supplied to check temperature. Adjust temperature with care – small differences have large effects on hatching performance.

Recommended temperatures:			Incubation period
Hens	38.5°C	101.3°F	21 days
Pheasant	38.5°C	101.3°F	24 days
Quail	38.5°C	101.3°F	17 days
Geese	38°C	100.4°F	28-32 days
Ducks	38°C	100.4°F	28 days

- 5.5 Developing embryos are fairly tolerant of short term temperature drops and the user need not be concerned about cooling that occurs when inspecting eggs. Temperature variations (e.g. day to night) or constantly low temperatures can cause malformations or partial development of the embryo. Constantly high temperatures can quickly have a serious detrimental effect on hatch rates and must be avoided.

6.0 Humidity and Ventilation

Short term variations in humidity are not important. The average humidity over the incubation period needs to be near optimum to achieve the ideal weight loss. High humidity for the day or two of hatching is also important. Beware chronic, excessive humidity.

- 6.1 Two factors affect incubation humidity: water evaporation within the cabinet (from eggs as well as from additional water) and levels of ventilation. The water content of the air being drawn through the incubator will also have an effect.
- 6.2 There are two methods available to achieve correct humidity levels in still air incubators:
 - a) Follow manufacturers guidelines for water and ventilation levels (see below).
 - b) Monitor egg weight loss which varies as a direct result of humidity and correct against published weight loss figures for the species.
 - a) As a general guide for poultry and waterfowl set the eggs with 100:1 Brinsea Incubation Disinfectant solution in just one reservoir (moulded into the yellow tray just inside the door). Check and top up water in that reservoir every few days during incubation and add water to the second reservoir 2 days before the eggs are due to hatch. Higher humidity levels are needed for hatching to prevent membranes drying too quickly. **Never block both vents.**
The recommendation above will give good results in most conditions but humidity can be varied by running the incubator dry for periods to reduce average humidity, or with both pans for increased humidity. Blocking one vent with tape will also increase humidity – NEVER BLOCK BOTH VENTS.
Caution: excessive humidity can cause problems!

Incorrect humidity usually results in death at or just before hatching. To solve this try running the incubator with reduced humidity first, particularly if the problem is linked to warmer weather, by running the incubator dry for the first week. Only if this does not improve results try increasing humidity.

- b) Measuring humidity accurately is particularly difficult in “still air” incubators. DO NOT USE HYGROMETERS – they are rarely accurate enough and the relative humidity will be higher at the bottom where the temperature is lower giving different readings in different places. Preferably weigh eggs because humidity affects their weight loss. High humidity reduces weight loss and vice-versa. Eggs lose moisture through their shells and the rate of evaporation depends on the humidity levels around the eggs and the shell porosity. During incubation eggs need to lose a fixed amount of water which corresponds to a loss in weight of around 12-14% depending on species. By weighing eggs periodically during incubation it is possible to monitor and, if necessary, correct humidity levels to achieve the correct weight loss.

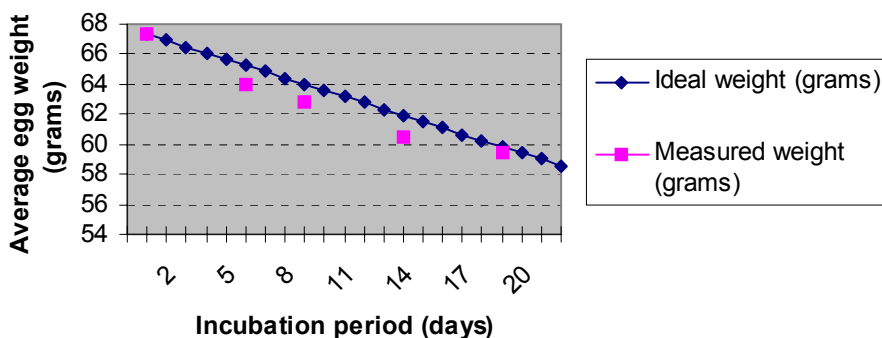
Weigh the eggs on the day they are set in the incubator, take the average weight and plot this on a graph (see example below). The ideal weight loss line can be plotted by joining the point representing initial average weight with the ideal hatch weight (12-14% less depending on species) with the x-axis representing the incubation period (in days).

By measuring actual average weights every few days the actual weight loss can be plotted and compared to the ideal weight loss line and corrections can be made. For example if the actual weight loss was greater than ideal (see graph below) then the air has been too dry and humidity levels need to be increased to compensate.

Typical ideal weight losses for species groups:

Poultry	12%
Waterfowl	14%

Egg weight loss chart



For more information on the effects of humidity on eggs and ways of avoiding incubation problems associated with humidity, including weight loss analysis, phone for Brinsea's free 'Humidity in Incubation' information sheet.

- 6.3 Alter ventilation and have water in neither, both or one of the water reservoirs to change the humidity level (see section 6.2a above)
- 6.4 In all cases the humidity for hatching needs to be high. Because of the short duration involved water/weight loss will not be significantly affected. High humidity is necessary to prevent membranes drying and hardening before the hatch fully emerges. Humidity will naturally increase as the first eggs begin to hatch and internal membranes begin to dry. This effect is in addition to the increased area of water evaporation from the water reservoirs.

- 6.5 During hatching the high humidity levels will fall dramatically when the incubator is opened and will take some time to build up. Resist the temptation to open frequently – leave for at least 6 hours between inspections.

7.0 Egg Setting

- 7.1 The Octagon 10 is designed to be as flexible as possible, accommodating eggs of different sizes up to (and including) goose eggs and in different orientations. Some experimentation may be necessary to maximize capacity. Keep egg-load balanced to prevent accidental tipping!
- 7.2 Before setting eggs ensure that the incubator has been run for several hours and has stabilised at the correct temperature.
- 7.3 Set the eggs in rows between the plastic dividers. The dividers must be positioned such that the eggs rest on the tray bottom and are not pressured by the bar. The dividers prevent the eggs rolling. Eggs may be set on end (or at an angle) provided the large end of the egg is upwards. Eggs rolling through a few degrees between the dividers as the incubator turns are not in danger.
- 7.4 Once the eggs have been set the temperature must not be adjusted for 24 hours to allow the eggs to warm. Check the water level every 3 days or so and temperature daily. Candle the eggs after 1/3rd of the incubation period has elapsed to reject clear, infertile eggs (see section 12).

8.0 Egg Turning

- 8.1 **Automatic turning:** The autoturn cradle (if supplied) will continuously turn the incubator and eggs on an hourly cycle (through 90° and back) while plugged into the mains supply. Some small intermittent movement due to play in the gears is normal and does not cause harm. Lubrication of the plastic linkage with WD40 helps to ensure smooth, silent movement
- 8.2 Ensure that nothing can impede the movement of the incubator on the cradle (such as a mains cable or having the incubator too close to a wall).

Warning: **NEVER MANUALLY TURN THE INCUBATOR WHILE IT IS ON THE CRADLE**, this will damage the turning mechanism and invalidate the guarantee.

- 8.3 **Manual turning:** Tip incubator from 45° one side to 45° the other side at each “turn”. Turn three times each day starting on the first day.

9.0 Hatching

- 9.1 Stop egg turning two days before the hatch is due. If turning the eggs manually, return the incubator to its upright position and remove the egg dividers. If turning the eggs automatically unplug the autoturn cradle, remove the incubator from the cradle, place on the work surface in the upright position and remove the egg dividers.
- 9.2 Eggs nearing hatch are slightly less sensitive to temperature variation and the hatching temperature can be reduced by up to 1°C (2°F) but this is not essential.
- 9.3 Hatching humidity levels need to be high (see section 6.0 above). Add water to both water reservoirs and block one vent if necessary. **Never block both vents.**
- 9.4 During hatching the high humidity levels will fall dramatically when the incubator is opened and will take some time to build up. Resist the temptation to open the incubator frequently – leave for at least 6 hours between inspections.

- 9.5 After hatching, the smallest chicks (e.g. quail) can be at risk from drowning in the water reservoirs. In the unlikely event of a small chick falling into a water reservoir it is advised that an object is placed before hatching, for example a small pebble or a marble, to reduce this risk.
- 9.6 When most eggs have hatched (12 to 48 hours) remove the hatchlings to a brooder. The Brinsea Cosylamp is ideal for poultry and waterfowl etc.

10.0 Cleaning Up

10.1 **IMPORTANT:**

DISCONNECT THE INCUBATOR AND CRADLE (IF SUPPLIED) FROM THE MAINS POWER SUPPLY DURING CLEANING.

ENSURE THAT ALL ELECTRICAL PARTS ARE KEPT DRY.

NEVER WASH THE TRAY OR CABINET PARTS IN LIQUIDS OVER 120°F (50°C).
DO NOT USE A DISHWASHER TO CLEAN THE TRAY OR CABINET.

- 10.2 Following each hatch in the Octagon 10 remove and wash the egg tray and dividers in Brinsea Incubation Disinfectant Solution. Wipe all other internal surfaces with a soft cloth soaked in the solution. Ensure that the instructions supplied with the liquid are followed.
- 10.3 The exterior of the incubator and autoturn cradle (if supplied) may be cleaned with a damp cloth. Avoid allowing any moisture to get inside mechanical housings
- 10.4 Always clean the incubator before storage and ensure that the unit is totally dry inside and out.

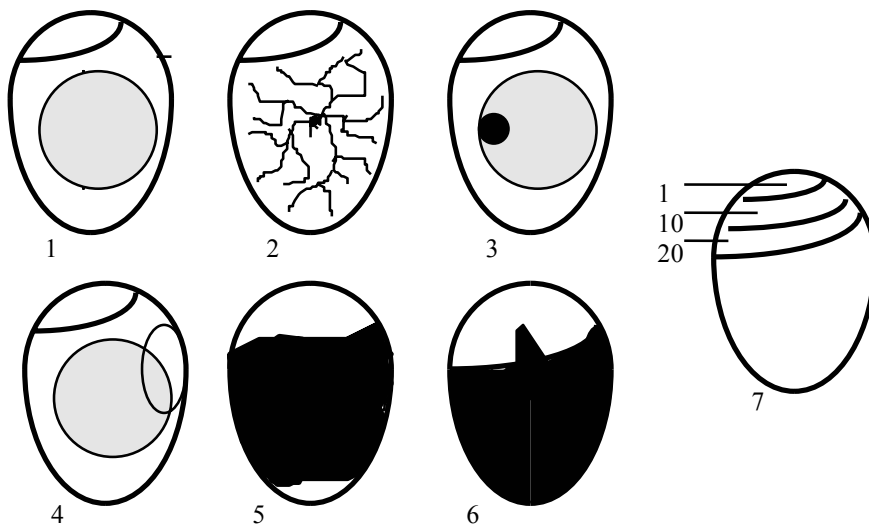
11.0 Servicing

IMPORTANT: THE HEATER IS AT MAINS VOLTAGE. NEVER DRILL INTO OR PUNCTURE THE CLEAR CABINET. RISK OF ELECTRIC SHOCK.

- 11.1 In case of failure first check that the mains power supply is working. If the problem persists contact your distributor or Brinsea Products Service Dept.
 The functional parts of the Octagon 10 and autoturn cradle are modular and parts are available and are readily exchanged by a suitably qualified person equipped with basic tools. Fitting instructions are supplied with replacement parts.
- 11.2 Please note that spirit thermometers (with red, blue or green liquid columns) sometimes suffer from evaporation and condensation of the liquid resulting in clear spirit forming at the top of the column corrupting the readings. Check periodically and if the problem occurs warm the thermometer gently in warm water to take the spirit to the top of the column, allowing any clear distillate to be re-incorporated, before using again.
- 11.3 No lubrication or further servicing is required beyond the instructions above.

12.0 Troubleshooting

- 12.1 Poor hatching results are frustrating and can be caused by a large number of factors. The most common are given below. Brinsea Products will not be held responsible for loss of eggs or chicks under any circumstances. However we will try to advise on incubation technique to improve results where necessary.
- 12.2 Gather as much information from the hatching results as possible to enable the problem to be analysed in detail. Record dates that eggs are set, incubator settings, dates of hatches, weight losses and the number and condition of hatchlings. Candle or break open unhatched eggs to estimate the extent of embryo development. The Brinsea Egg-Lume candling lamps are available from your dealer.



- 1) Clear when candled - probably infertile (or very early death) when candled at 8 days
- 2) Fertile with red blood vessels - after 8 days
- 3) Red or black staining - early death when candled at 8 days
- 4) Embryo with red blood 'ring' - early death when candled at 8 days
- 5) Dark outline with ill defined detail - late death (10-16 days)
- 6) Live embryo with bill in air sack - due to hatch in 24-48 hours
- 7) Normal development of the air pocket according to number of days

12.3 General guides:

Observation	Likely Cause(s)	Solution(s)
No chicks hatch	Infertility, infection, drastically incorrect incubation settings, parent ill health.	Check egg viability – are similar eggs hatching naturally. Disinfect the incubator. Check incubator settings and procedures – particularly temperature.
Chicks hatch earlier than expected, deformities.	Incubation temperature too high	Reduce incubation temperature slightly 0.5°C (1°F)
Chicks hatch later than expected	Incubation temperature too low	Increase incubation temperature slightly 0.5°C (1°F)
Hatch dates widely spread	Different rates of development due to different storage times, incubation temperature variation.	Limit egg storage times. Check for incubation temperature variation – sunlight, large room variation etc.
Late stage 'death in shell'	Incorrect humidity, probably too high.	Try reducing average humidity levels (but see section 6 above)
Generally poor results	Incorrect incubation settings, poor parent bird health, inadequate egg turning,	Improve parent bird health, check all incubation settings, analyse egg weight loss to confirm humidity correct, check turning working correctly.

13.0 Specification

OCTAGON 10 Maximum Setting Capacities:

<u>Egg size</u>	<u>Octagon 10 capacity</u>
Quail	24
Pheasant	12
Hen	10
Duck	8
Goose	3

Dimensions:	Octagon 10 incubator only (Including Autoturn Cradle)	35cm long x 15cm wide x 15cm high 40cm long x 16cm wide x 23cm high)
Weight:	Octagon 10 incubator only Optional Autoturn Cradle	1 Kg 1 Kg
Power Consumption:	Octagon 10 max. (typical average)	25 Watts 12 Watts
	Autoturn cradle	4 Watts
Electrical Supply:	230v 50Hz	

Brinsea Products Ltd, Station Road, Sandford, N. Somerset, BS25 5RA
 Tel: (01934) 823039 Fax: (01934) 820250
 e-mail: sales@brinsea.co.uk, website: www.Brinsea.co.uk