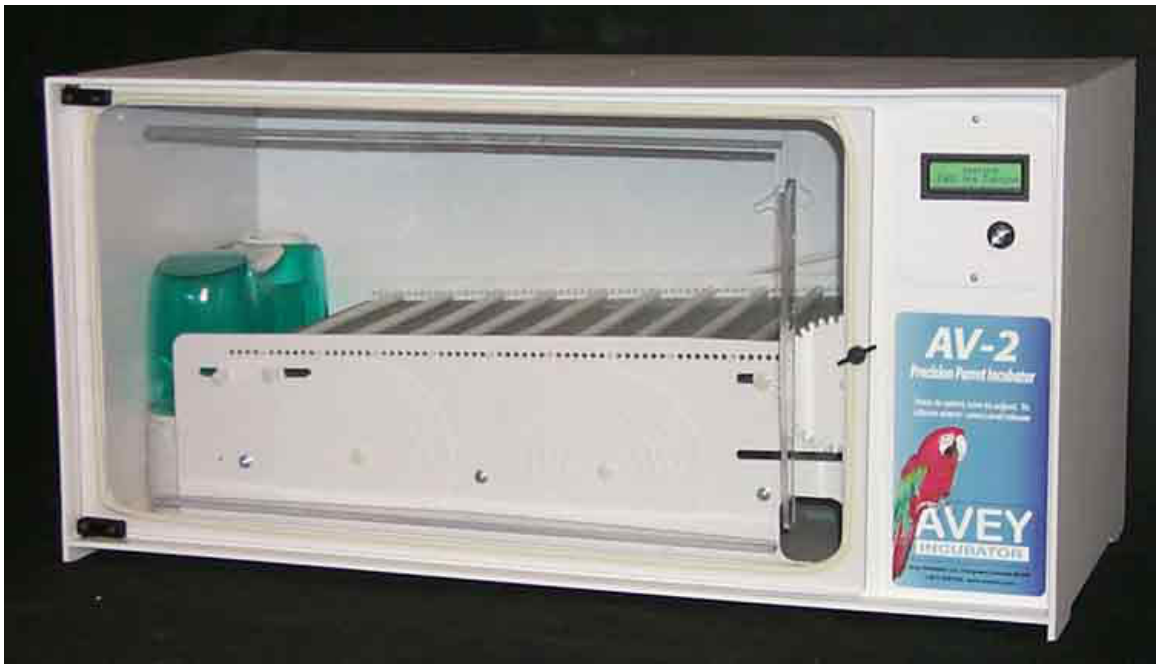
AV-2 Precision Parrot Incubator

Owners Manual



Avey Incubator, LLC
PO Box 279
Hugo CO 80821-0279
Customer Support www.precisionincubators.com/support.htm
Email: aveyincubator@gmail.com
voice (719)297-7010
fax (303)328-3897

AV-2 Incubator Owners Manual

Throughout the design process the goals have been:

1. Keep it simple.

2. Limit operator errors.

3. Provide the best for the egg/baby.

We share a common goal. Happy healthy baby birds to raise.

Why did we build the Avey Incubator?

The Avey Incubator a confidence builder. A trust builder. I have some problem birds. Do you? I have a pair macaws that lay eggs with very porous shells that dry out twice as fast as they should. And another pair of African Greys that bite off toes and wing tips on hatching.

Before the Avey Incubator was hatched I used to weigh my options. With my problem Greys I could leave the eggs in the nest and pull them just before they hatched.

With the macaws that wasn't an option. Their eggs never hatched. In either case the humidity is so low here in Denver that leaving the eggs in the nest just guaranteed a poor hatch rate.

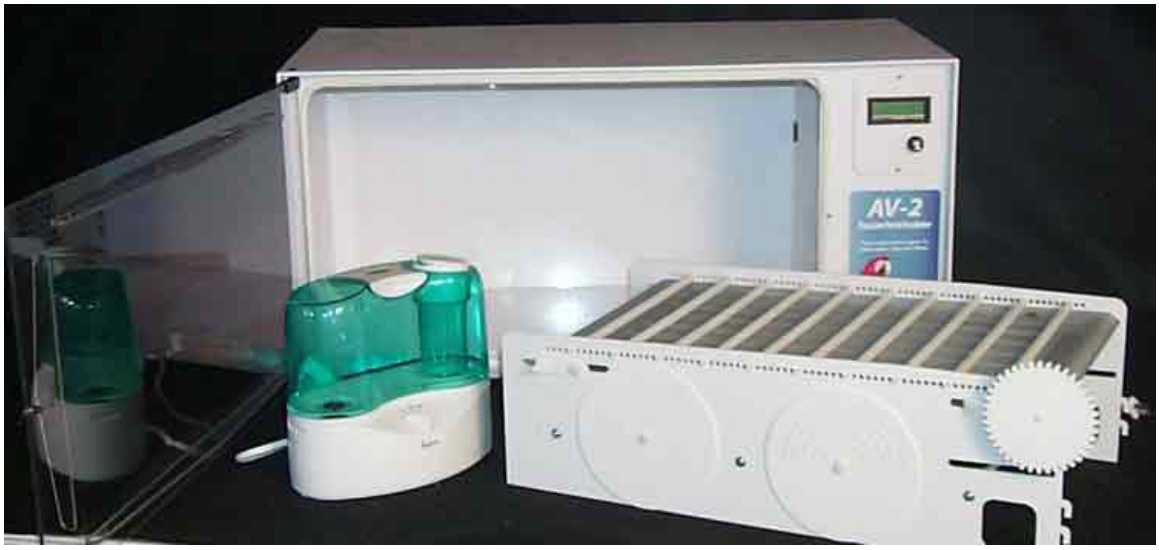
With my old hobby incubator, something would go wrong. I'd bump the temperature control, not get the top back on tight and allow air to leak or I'd have problems getting the humidity right. Sometimes I'd not even know what I did wrong except the eggs just didn't hatch. Only later I learned that because of the way the old hobby incubator was designed, bacteria could grow unchecked through the incubation period. It turned out it was a race - does the egg hatch before bacteria gets it?

When eggs don't hatch the problems usually falls into three broad categories. Incubator error, something basically wrong with the egg, and/or operator error. The Avey Incubator is a solution to these problems. If we limit the operator errors through incubator design, for example, equipping the incubator with hi and low temperature alarms, (the most common cause of low temp alarms is leaving the door open), and solving some basic

incubator problems such as ease of cleaning, proper humidity, and the right amount of egg turning then we have dealt with two of the three categories of egg failure. The third category, which is a bad egg, can be addressed through better flock management, -- healthy breeders lay healthy eggs. These are my ideas on keeping healthy birds and getting healthy eggs.

Using the Avey incubator is more than just putting eggs in an incubator. It's a system for hatching eggs. Our design philosophy deals with why we made the incubator the way we did, and a little about what we saw in other incubators that we both liked and didn't like. Ultimately the Avey Incubator was created in response to not finding all the features we wanted in the same incubator.

Thank you for choosing the Avey Incubator. We have designed this unit to be trouble free and easy to use. We want to hear you comments and concerns. You may always call 303-719-4253 for customer support or email at aveyincubator@gmail.com.



Setup:

Remove the packaging, place the egg trolley in the incubator, on top of the included rubberized shelf liner. Make sure the hooks on the right side fit into the corresponding slots in the fan panel. **The humidifier in the picture has been discontinued. The replacement for it won't fit inside. You must place the humidifier behind or along side the incubator. Use the supplied hose to pipe moisture from the humidifier into**

the incubator. The 1 3/8" hole on the back of the humidifer receives the hose. The hose end, along with the reducing white washer are pushed into the humidifier tank. Place the base of the humidifier in place on the right side of the incubator cabinet. Plug the humidifier plug into the outlet on the rear of the incubator (this is the same place the on/off switch is located). This special outlet controls the operation of the humidifier. It switches the power to the humidifier and regulates how often the humidifier runs. This outlet energizes when the incubator senses a demand for humidity and turns off when the humidity level is at or above the setpoint.

The Avey Incubator is designed to run in very dry climates to very humid ones. And the humidity needs in various parts of the country vary greatly. When you first set up your incubator, if the humidity level wants to stay above your setpoint then there are some additional steps to take. But first, set up the incubator and let it stabilize by running for at least 12 hours.

By design the Avey Incubator has a combination of passive and active humidity management. The passive side is the water in the humidifier that is exposed to air. The active side is the water vapor emitted by the humidifier to evaporate. The passive side gives you a basic level of humidity in the Avey Incubator. The active side continuously monitors and adjusts to the desired level.

If your humidity reading is 56% and you have it set to run at only 50% then what is happening is the moisture in the air is combining with the water exposed to air in the humidity tray to passively raise the relative humidity level. This problem is most evident in more humid areas.

The solution is to allow more fresh air to enter the incubator. One way of doing this is to remove a small piece of weather stripping from the bottom of the door – about 1 inch. Then test and observe for a day or so any changes. These adjustments are subtle and you need to let the unit stabilize after making a change. If not enough then remove another inch. The balance you achieve today may change depending on the season and the relative humidity of the outside air you are mixing in with the incubator's air.

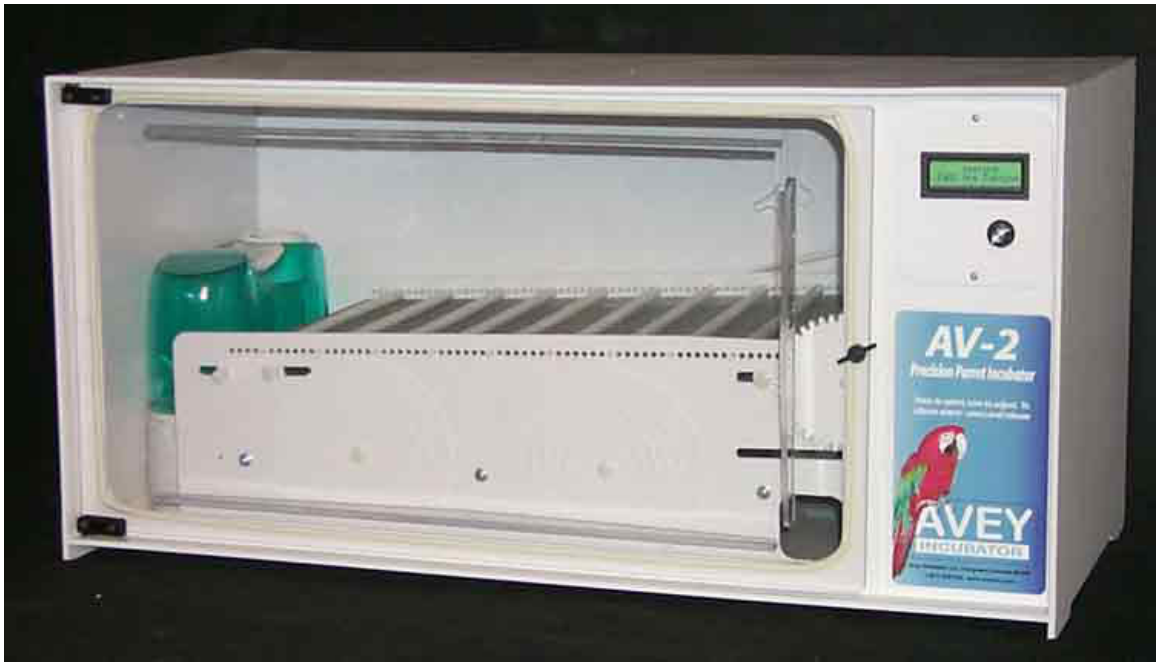
If too much weatherstripping is removed then the humidity system will work harder to keep enough moisture in the system and the humidity system will have to work too hard and run too often to maintain the humidity, plus you'll have to refill the water tank more often.

If you feel the humidity system is working too hard, running more than every 4 or 5 minutes, then the passive side of the humidity control isn't helping enough. The incubator is allowing too much outside air to mix. The solution is to "tighten up" the incubator. Check your weatherstripping around the door.

Turning off the Active Humidity

If you wish to not use the automatic humidity feature then humidity may be regulated by placing a pan of water in the incubator. The amount of surface area of the water exposed to air (so the water can evaporate) will determine the humidity level. The display will still read out the actual humidity level.

Egg Trolley



The egg trolley is designed to be removable without any tools. It simply lifts in and out with a carefully adjusted “press” fit. Clean the egg trolley by soaking in a 10 to 1 solution of water to Clorox Bleach for a period of ten minutes or use the cleaner/disinfectant you prefer. This will disinfect all the surfaces that come in contact with the eggs. After soaking, thoroughly rinse with water and air-dry the egg trolley. The big gear touches the drive motor inside the control box. The hooks on the right side of the egg trolley slip into slots on the control cabinet. The installation procedure is as follows: set the egg trolley in the incubator, the fit is relaxed and engineered so nothing will bind. The Egg trolley should be resting on the bottom of the incubator. Line up the hooks with the slots. When you do the big gear wheel will also fit into the slot on the control box. Lift the right rear side of the egg trolley about a quarter of an inch and slip the hooks into the slots. You’ll feel some resistance at this point. Then slip the hooks on the right front into their slots. When the hooks drop into the slots and bottom out the egg trolley is installed.

Snap in Egg Dividers

The snap in egg dividers are adjustable by gently bending and fitting the ends into the appropriate holes on the egg trolley sides

Adding Water

Use only distilled water (reverse osmosis filtered water also works well) otherwise the minerals in the water will clog up the humidifier.

Power Up

The power on/off switch is located at the back of the cabinet. When power is on the Backlit LCD (Liquid Crystal Display) will come on. The unit will start to run using the settings that were last used. The display will read: “Testing Eggs are Turning”

The egg turner will move the turn distance stored in memory.

High Temperature Alarm

A. The high temperature alarm is pre-programmed for about 2 degrees C higher than the setpoint temperature.

B. The over high temperature scenario includes:

1. Sun shining through a window onto the Incubator

To silence the alarm sounder, push and release the control knob. The display will continue to indicate an alarm condition and will automatically reset when the temperature returns to normal.

Display

On power up the display will first test egg turning, moving the belt the distance last entered in the setup menu. The display will then show the current temperature in Celsius and Fahrenheit and the percentage of relative humidity. The approximate time remaining until egg turn is also displayed.

Selection Knob

The selection knob has 2 functions. Push it in to select and turn left and right to adjust, then push in the selection knob. The display changes to the first set up menu.

Adjusting the Avey Incubator

The selection knob (Rotary Encoder) has 2 operations. Push in (momentarily then let go) to start and push in to finish a selection and turn left or right to change the selection. (Push in and then release - some people try to hold the knob in and then turn the knob while it is held in - this won't work! Push in means push and release)

This is really a great control system – very powerful – yet only one knob and a display to operate. We were one of the very earliest manufacturers of digital products with "rotary encoder" technology. Now they are commonplace – Like the IPOD.

Passcode

a) Your passcode is **5** (Five)
b) Push in the selection knob.
c) When prompted dial in your passcode.
d) Push in selection knob (and then let it out)

(i) If you wait too long, the operation times out and the Incubator resumes normal operation.

(ii) If you dial in the wrong passcode the Incubator resumes normal operation

(iii) If you dial in the correct password the Incubator moves to the temperature selection screen .

Temperature Selection

a. Dial in the desired temperature.
b. Push in the selection knob to set.

Alpha Numeric Display

A. Displays the temperature in both Celsius and Fahrenheit.
B. Automatically uses the last settings even if the power has been off.

Turn the selection knob left or right to set the temperature you want. Then push in the selection knob to move on to the next menu, which is the humidity menu.

In the same manner turn the knob to the desired humidity, push in the knob to move to the next menu,

which the time between egg turns menu. In the same manner turn to adjust and push to select.

The next menu is the turn distance menu. This tells the Incubator how far to move the belt the eggs rest on. The Avey Incubator can adapt to a large range of egg sizes because of this feature. A typical African Grey or Macaw egg is a setting of about 50 on the scale.

To set up your egg turning value take an egg the size you want to turn. Place a line on the top side of the egg. Place the egg on the egg trolley with the line on the egg facing up.. On powering up, the egg turn belt moves the distance it was last set at. So by powering off, waiting about 5 seconds, and then powering on, you can see how far your egg will turn.

Managing eggs of different sizes.

If you wish to place eggs of differing sizes in the same incubator some additional planning is involved. If the eggs are nearly the same size you may choose a setting for the turn distance that is a little more than 1/2 a turn for the smaller egg and a little less than 1/2 a turn for the larger egg. For bigger egg size differences, the best approach is to take your normal turn interval (For example 4 hours between turns) and instead turn 1/4 the distance per turn and turn every hour. That way at the end of 4 hours you'll have a complete turn on one size egg and perhaps 1.25 turns on the smaller eggs.

Manual Turning of Eggs.

Some breeders prefer to manually turn the eggs. To turn automatic turning off set the time between turns to 0.

The next menu is labeled “calibration.” Here you can turn to choose additional menus, you can reset to the factory defaults. When ready to run the incubator select “Use Settings” and push selection knob to start Incubator..

Changing the default settings.
The factory default settings are 99.3 degrees Fahrenheit, 42% humidity, 5 hours between turns, and 25 on the egg turn distance, Hi alarm limit is preset at the factory to 2 degrees Fahrenheit above the setpoint and the low alarm limit is preset at the factory to 5 degrees Fahrenheit below the setpoint. The Incubator remembers the last settings even if the power has been off.

Restoring Factory Defaults

You may restore the factory defaults at any time. Push the selection knob and step through the menus till you see “Calibration”. Turn the knob until “Reset to Factory” is displayed and push selection knob to set.

Cleaning your Incubator

Cleaning the incubator consists of removing the egg trolley from the incubator and soaking in a 10 to 1 solution of water to chlorine bleach. (Ten parts (actually nine parts water to be precise)) water to one part chlorine bleach. Soak for at least 10 minutes then rinse with clean water and allow to air dry. Lightly spray the interior surfaces of the incubator cabinet with Nolvosan solution and let sit for 10 minutes before wiping down with clean paper towels. (Do not use bleach as bleach vapors can affect the humidity sensor).

The incubator window can be lightly wiped with a cotton cloth with Windex on it. The outer cabinet surfaces can also be wiped with a Windex wetted cloth.

DO NOT IMMERSE OR SUBMERGE THE CONTROL BOX. There are delicate electronic parts that will be damaged. Lightly wipe the outer surfaces with Nolvosan to disinfect the control box.

Incubators and brooders carry a 1 year parts and labor warranty. Shipping to and from our facility is still your responsibility but we warrant the rest. It is that simple.

Warranty and Liability are limited to repairing or replacing the necessary components. Any risk or loss of eggs or babies is the buyer's responsibility. We cannot control how you use our products, or the viability of the eggs you place in our units.

Return Policy: Returns will be accepted for 15 days after shipping date on unused equipment returned in the original packaging. Once animals or eggs have been placed in our products they are considered used and are not resalable as new, therefore they are not refundable. Returned products must be in re-salable condition or adjustment will be made. You must call for return authorization or shipment will be refused. Shipping charges to and from our facility are your responsibility and not refundable. If a promotional, discount, or flat rate shipping charge was used in your order, the actual shipping charge will be used in calculating your refund. Please use FedEx or FedEx Ground. A restocking charge of 20% will be assessed to cover re-inspection, testing and re-packaging of the product. Packages must be insured. You need to call and notify us on the day you ship your return and be prepared to supply your tracking number in order to meet the terms of the return policy.

Troubleshooting

When the incubator is turned on, the egg turner belt will move the distance you last set it at. The display will light up and the power on light will come on. If all of these things fail

to happen then check the power to the incubator. If any one of these things fail to happen then it is possible that the microprocessor didn't initialize properly. So turn of the incubator, wait 5 seconds and turn back on. If the problem persists call factory service.

The ambient room temperature should be stable, out of drafts, direct sunshine, heater vents. A thermostat controlled room (air conditioned or heated) is ideal. Wide swings in ambient room temperature may adversely affect incubator performance. The incubator micro-manages the temperature in a small space. If the ambient temperature changes too much or too fast, those changes may affect the incubator.

Keep the incubator away from microwaves, computers, cordless phones and their base stations, 2 way radios, welders. And other sources of radio emissions. Don't put anything on top of the incubator.

Egg Turner

1. Check to be sure egg trolley is hooked into control box. Make sure hooks are seated. (All the way in and down)

2. Gently turn the drive gear. You should feel resistance. That means the wheel is in contact with the egg turner motor. If no resistance is felt then the motor isn't touching the drive wheel. The adjustment is simple – call factory support for details.

3. Look to see that the egg turn drive roller turns when the egg turn drive wheel turns. If the roller doesn't turn then the gear is not engaged and has come loose. Call factory support.

4. Is the belt slipping? If the drive gear and roller turn and the belt doesn't move then the belt is slipping. Call factory support.

Why Incubate?

Wouldn't it be great if all your pairs sat faithfully on their eggs, skillfully hatching them at the right time and then lovingly feed them around the clock so you didn't have to work so hard? Well, I guess it can happen some of the time but rarely happens all the time. Viable eggs are a must but even some borderline eggs will have a better chance in an incubator than they will if left with the breeding pair. I have a pair of macaws that lay fertile but very thin shelled eggs. When left in the nest the eggs get accidentally broken, and they dry out too fast. By precisely controlling the humidity I can keep them just right. I didn't get successful hatches until I pulled the eggs. At the other extreme I have a pair of African Greys that lay eggs with very hard shells. They faithfully sit on the eggs for the duration. But the eggs won't hatch on their own. Why – I don't know, they just don't. The parents will "assist" in the hatch if the eggs are left in the nest. Unfortunately the parents not only open the eggs, they eat the wing tips and toes and sometimes the whole

baby! When I incubate these eggs I can control what happens at hatch time. The eggs still won't hatch on their own. There is just something wrong. This is another example of what I mean by borderline viable eggs. Sure they are fertile but if they don't hatch what's the point? So even though the eggs are fertile when the time comes for hatching I have to "assist" the hatch and open up the egg and help the baby out. But I never got a live complete baby until I incubated. You'll get more babies, more fertile eggs, more successful hatches if you incubate your eggs from the first day. You incubator will earn its worth over and over again.

Weigh Your Eggs

This the ultimate test to determine what your humidity setting is. Most people with questions about their humidity settings gloss over this section. And when they call for help the first thing I ask them is "do you weigh your eggs?"

A normal egg is expected to lose about 20% (plus or minus say about 2%) of its weight over the course of incubation. A macaw egg weighing 20 grams will weigh about 16 grams at hatching.

The key here is the word normal. In humid environments there might not be enough weight loss, then the air sac isn't big enough and the chick "drown" in its own fluids on pipping. Here in Colorado we have very dry air. The problem here is the eggs dry out too fast. In my aviary, some of the birds know how to compensate (must be hardwired into their DNA) and get their feathers wet in the water bowl and then sit on the eggs to increase the humidity in the nestbox. But most of the time successful hatches are adversely affected by eggs that have lost too much weight. By incubating as soon as possible - the day the egg is laid if not sooner- :-) , the weight loss can be monitored and controlled.

Assuming that the weight loss should be in equal amounts every day a chart that projects what the egg should weigh can be made. I weigh once a week. So when the egg is 7 days old it should have lost 5% of its weight. Why 5%? Figure 28 days to hatch and assume a linear weight loss. Divide 28 days by 4 gives you 1/4 of total weight loss every 7 days. Projected total weight loss is 20%. 1/4 of 20 is 5, hence 5%. So at 7 days multiply original weight X .95 = projected weight loss at 14 days multiply original weight X .90 = projected weight loss at 21 days multiply original weight X .85 = projected weight loss

If the egg has lost too much weight, then increase the humidity in the incubator. If the egg has lost too little, then reduce the humidity. About 84 to 85 degrees on the wet bulb or 50% humidity is about right when an egg is on target. The eggs will tell you how much humidity you need to have.

You'll need a scale to weigh these eggs. A triple beam balance scale weighs down to 1/10 of a gram and that is close enough. I have a 4 beam scale that weighs to 1/100 of a gram.

So what happens when an egg has been in the nest for a week before you discover it? How do you know how much it weighed when laid? Well you make your best guess based on past performance. Good records - a daily diary of life in the aviary - will give you a hint. If your tendency is to have eggs that dry out too fast, then make a guess. I know in my aviary that eggs in the nest dry out almost exactly twice as fast as they should. In other words, after a week, the egg in the nest has lost 8% of its weight when it should have lost only 4%.

A less precise but effective way to manage an egg that has lost too much weight is to place the egg in a zip lock sandwich back alongside – but not touching – a warm wet tissue. The plastic bag will hold in the increased humidity. Place the egg back in the incubator. The other eggs in your incubator will continue to be humidified to your incubator's humidity setting while the one in the bag will be at 80% or so. You will need to manually turn this egg. Weigh it every couple of days until it's weight loss is back on schedule.

Now if you had more than one incubator you could really manage your eggs well. Set one incubator up at 42% relative humidity and 99.3 degrees.

Set up another incubator at 30% humidity at 99.3 degrees. Place your eggs that are too dry in this incubator until weight loss is close to target weight. When target weight is reached, move the egg to the "ideal" incubator. The third incubator could be used just for hatching babies, or for a backup, or just cleaned and ready for the next clutch to be laid.

Cleanliness is crucial -- no.... cleanliness is the key to successful hatches. I don't run an incubator for more than 35 days or so before a complete breakdown and cleaning of all parts. So where do you put your eggs when you're cleaning the incubator? I put mine in another clean incubator. Having an incubator just for hatching is a pretty good idea. Having a separate place for cracking open eggs just might keep a bad egg from contaminating the others. And the common thinking is babies that have pipped (broken through the air sac in the egg and made the first hole in the shell) should be held at a slightly lower temperature - about 98 degrees and at a elevated humidity - about 65-70%.