USER MANUAL

VERMONTER

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INTRODUCTION: THEORY OF OPERATION

A maple syrup evaporator works under the principal of a gradient. As the sap boils, it concentrates. As it concentrates, the volume is reduced and the solids (sugar concentration) increase. As the volume is reduced the liquid works to maintain the levels across the evaporator so less concentrated sap flows into areas where there is more concentrated sap. During the evaporation process the percent of sugar will change from the incoming (approximately 2%) to the draw off (approximately 66%).

FORMING THE GRADIENT

When the evaporator is first filled, the concentration of the sap is the same throughout. The gradient is formed as the water is evaporated from the sap in the syrup pan and the flue pan, and as the new sap enters the flue pan.

As the sap boils it loses moisture and becomes denser / more concentrated. As it is becoming concentrated it loses volume. As it loses volume additional sap will try to keep the levels constant and at the same concentration. This is occurring in both the flue pan and the syrup pan.

In the flue pan less concentrated sap enters through the float box into the first flue pan compartment and begins to concentrate. As it concentrates it moves toward the second compartment of the flue pan. Early in the boil the second compartment will become denser as the "fresh" sap entering the first compartment from the float box keeps pushing the denser sap around.

As the syrup pan boils, the sap continues to become denser. The flue pan sap is pushed into the syrup pan making sap in the first syrup pan compartment less dense. The sap from the first syrup pan compartment is pushed to the next compartment where the sap is denser and then to the densest compartment, the "syrup" compartment. The syrup is drawn off the evaporator from this compartment and more sap flows across all the compartments of the evaporator to replace the volume of syrup drawn off.

With a good gradient in place there will be a measurable difference in the liquid levels between one side of the syrup pan and the other. You may note a difference of ½".

PROPER OPERATIONS TO MAINTAIN GRADIENT:

- Firing
- Defoamer
- Minimize Reversal Effects

During operations you will be working to maintain a consistent gradient. This is done through firing level, control of foaming, and minimizing the effects of reversal.

Firing (if using a wood fired arch)

During firing you are seeking to maintain the same boil all the time. By doing so, the liquid "push" in the pan sections will remain consistent. If the boil reduces, liquid depths in both pan sections will start to equalize, losing the gradient. In order to maintain the boil the following should be of concern:

1. Wood to use
    a. Mix of hardwood (longer lasting, more BTUs) and softwood (quicker, intense heat).
    b. Avoid slabs as they do not allow heat to evenly reach the pan
    c. Split wood to the diameter and sized in length to match the length of the grates in use

Width of Evaporator	Diameter to Split Wood
24"	2" to 3"

2. Loading wood into the arch
    a. Wood should stay on the grates and a minimum of 2" to 5" inside from the door so wood fire does not heat the arch face
    b. Criss-cross the wood as best possible so oxygen can reach all wood efficiently
    c. Do not hit the flues when loading wood

3. When to fire
    a. Keep a consistent stack temperature with less than 150°F range
    b. Maintain the arch ½ to ⅔ full
    c. Fire consistently with small amounts of wood to maintain level of heat
    d. Use timer to stay on schedule with firings
    e. Adjust firing intervals as needed to maintain an even boil

Defoamer

The purpose of defoamer is to prevent foam build up in the pan sections. Foam build up will prevent proper evaporation of the water from the sap. It will give a false liquid level to the float not allowing the incoming sap to flow in a consistent manner. Inconsistent defoamer usage will create large volume adds of sap into the pan sections as the foam is reduced (when you do add defoamer) and the float seeks to replace the level with incoming sap. The following items should be of concern in the use of defoamer:

1. Use defoamer on a regular basis. It is suggested you add defoamer to the flue pan each time you fire the evaporator or every 5 to 10 minutes.
2. Add defoamer primarily to the flue pan. Modify this only under certain conditions.
3. The estimated usage is as follows: NOTE: This is based on the use of ATMOS 300 Defoamer

Pan Set Width (Inches)	Drops of Defoamer
24	3

If using sap that has been concentrated by an RO, use an additional drop for each foot of pan width

4. NEVER add defoamer to the center compartment of the syrup pan. Use one drop at a time in the syrup (draw-off) compartment only.

Minimize Reversal Effects

Reversal occurs when the boil in the pan sections is reduced (when firing is inconsistent, end of day, change pan flow direction):

1. Maintain a consistent boil
2. After the last syrup draw of the day, draw "sweet" from the syrup pan into a clean container. This will be added to the boiling syrup pan at the beginning of the next boil and aid in setting up the gradient. The guideline for the amount of "sweet" to draw is as follows:

Pan Set Width (Inches)	Gallons of "Sweet"
24	1 to 1 ½

NOTE: "Sweet" is the liquid in the syrup pan compartments, closest to the draw off point, concentrated but has not reached syrup concentration.

EQUIPMENT DESCRIPTION

The LEADER EVAPORATOR VERMONTER pan has dual level controls allowing a deeper level in the flue section of the pan and a shallower level in the syrup section of the pan. The pan is constructed of 20 gauge stainless steel.

The flue pan section of the LEADER VERMONTER pan has 5-½" flues providing good surface area for fuel efficient performance with good evaporation rate.

NOTE: Pictures, sketches and drawings presented in this document are not to scale.

The VERMONTER pan is a right feed pan. A right feed pan is fed sap from the right side of the pan as you face the front of the pan.

INCLUDED PARTS:

The Leader VERMONTER Evaporator pan set consists of the following parts:

ITEM	LEADER ORDER #	DESCRIPTION / PHOTO
2' X 4' VERMONTER Pan	372404V	
Float (10-¾" X 5 ½" X 2")	59025	
¾" X 2 ½" Stainless Steel Nipple	72055	

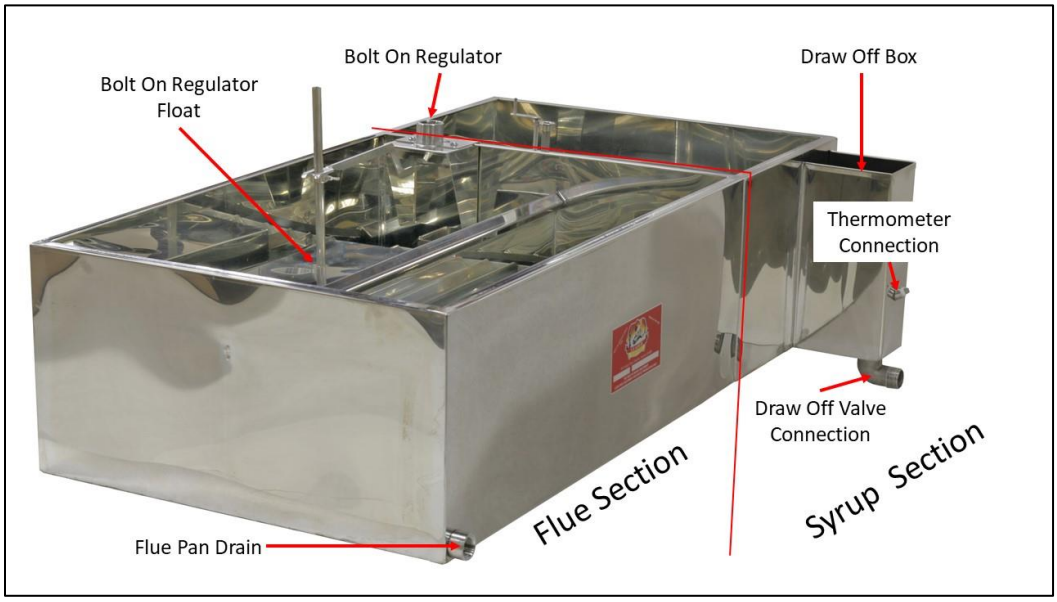
ITEM	LEADER ORDER #	DESCRIPTION / PHOTO
Bolt On Regulator	59029	
¾" Stainless Steel Ball Valve	60104	
1" Stainless Steel Ball Valve	60106	

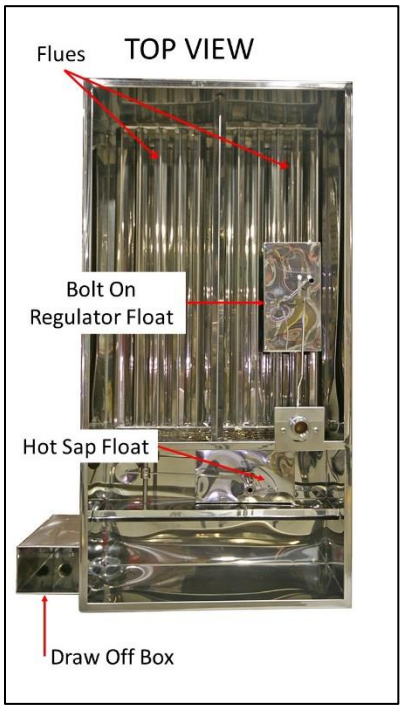
OPTIONAL SETUP ITEMS AND REPLACEMENT PARTS

ITEM	LEADER ORDER #	DESCRIPTION / PHOTO
Float (10-¾" X 5 ½" X 2")	59025	
Thermometer 3" or 5" face, 12" stem	3" Face/12" Stem 5" Face/12" Stem	
1" Stainless Steel Close Nipple	72111	
1" PVC Plastic to Iron Adapter	47109	
1" Braided Hose (by the foot)	70285	

ITEM	LEADER ORDER #	DESCRIPTION / PHOTO
Replacement Float for Bolt On Regulator	590024	
Rail Gasket	65154 (1/2" X 2" X 25') 65157 (1" X 2" X 25') 65156 Woven ¼" X 1 ½" X 50'	
1" Stainless Steel Ball Valve	60106	
1" Stainless Steel Band Clamp	60043	

DIAGRAM OF THE VERMONTER EVAPORATOR PAN





SETUP OF THE VERMONTER EVAPORATOR PAN

NOTE: The following information pertaining to setup of an evaporator is to be considered one suggested method. Installations should meet all applicable governmental regulations and standards.

RECEIVING YOUR PAN:

Upon receipt of the pan, it is recommended the following tasks be performed:

1. Protect all incoming materials from damage and the environment. If possible, place the pan at the location where it will be setup (See section titled SUGAR HOUSE SETUP).

2. Unpack all materials and check the received materials against the Equipment Description list provided above.
3. Immediately notify Leader Evaporator or your local dealer if there are questions on the received equipment.

SUGAR HOUSE SETUP:

Prior to setup of the sugar house, it is suggested future needs be considered. If assistance is needed in determining possible future requirements please contact Leader Evaporator Sales or your local dealer.

The following are *minimum* clearances recommended around the evaporator. When determining the clearances, keep in mind any additional items/equipment (ex. packaging supplies, canner, table(s), chairs) and where they will be located in the sugar house:

1. Front of the arch: six (6) feet
   a. Allows room for firing and cleaning out of ashes
2. Back of the arch: three (3) feet
   a. Allows for cleaning and removal of the stack
3. Sides of the arch: four (4) feet
   a. Allows for draw off and movement

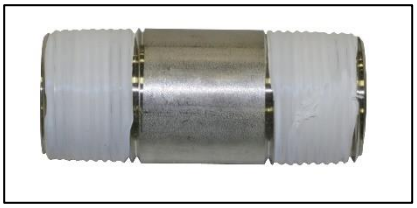
SETTING UP THE PAN:

NOTES:

- All arch and pan side directions are as if you were facing the fire door of the arch.
- Prior to setting up the pan, level the arch.
- Prior to setting up the pan, insulate the arch per the instructions provided for that arch.

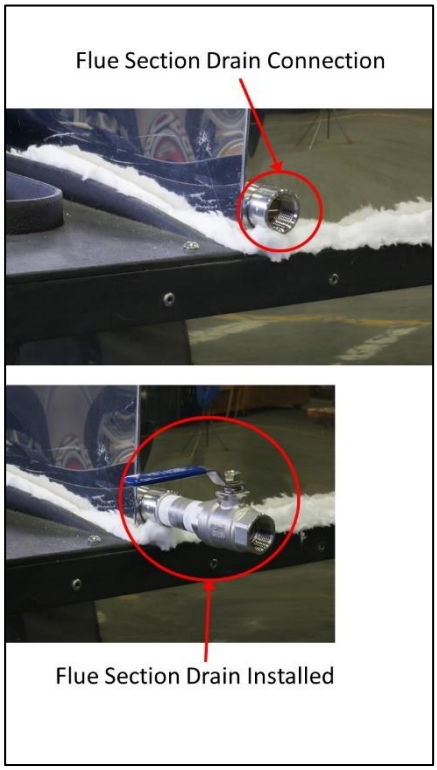
1. Prior to placing the pan on the arch, line the rails with ceramic rail gasket (not included). Use a utility knife to cut the gasket to make a square fit with no gaps.

2. Place the pan onto the arch rails. Slide the pan tight to the back collar.



3. Teflon tape both threaded ends of the supplied ¾" X 2" stainless steel nipple.

4. Thread one end of the taped ¾” nipple into the supplied ¾” stainless steel ball valve.

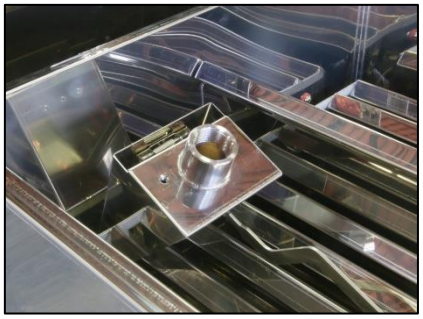


5. Thread the other end of the taped ¾” nipple into the flue pan drain connection. The flue section drain connection is located in the lower left corner at the rear of the flue section.

6. Teflon tape the threads of the 1” draw off fitting located on the underside of the draw off box. The draw off box is located at the front left side of the syrup section of the pan.

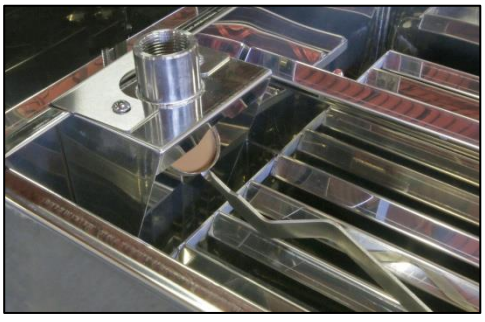
7. Thread the supplied 1” stainless steel ball valve onto the taped draw off fitting. Position the handle so as to allow ease of use.

8. Disassemble the bolt on regulator.

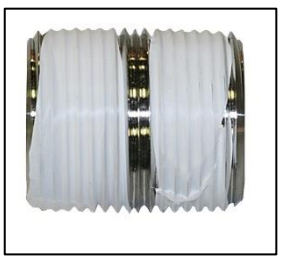


9. Position the section, with the float arm, of the bolt on regulator into the flue pan section of the pan. It should be positioned approximately in the center of the right hand compartment of the flue pan section against the wall dividing the flue and syrup sections of the pan.

10. The L shaped part of the bolt on assembly should be placed against the syrup side of the wall dividing the flue and syrup sections of the pan. The top of the L shape has cutouts for the incoming sap pipe fitting and the securing screws. These cutouts should be aligned with the flue section of the bolt on assembly and the screws threaded partially in place.



11. Align the bolt on regulator with the center of the right side flue compartment then tighten the screws.



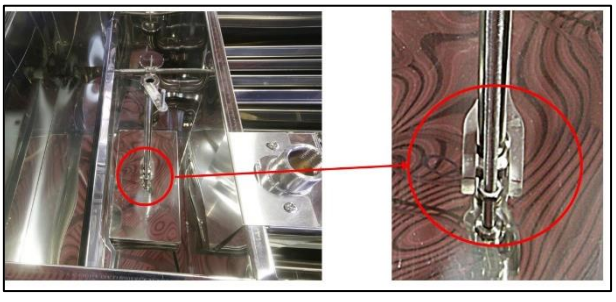
12. Teflon tape the threads on both sides of a 1” stainless steel close nipple (not included).

13. Thread the taped 1” stainless steel nipple (not included) into the fitting on the top of the bolt on regulator assembly.

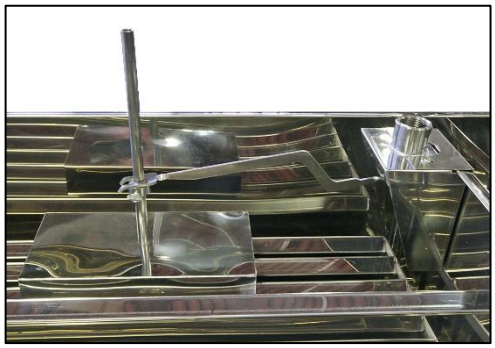
14. Thread a 1” stainless steel ball valve (not included) onto the end of the Teflon taped stainless steel nipple. Tighten so the ball valve can work properly.

15. Teflon tape and thread a 1” PVC adapter (not included) into the open end of the 1” stainless steel ball valve. Tighten.

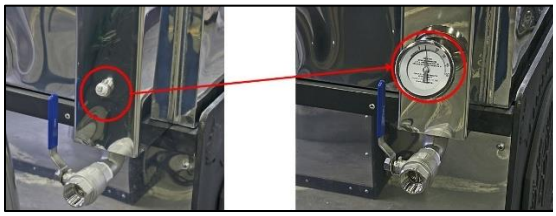
16. Place a length of 1” braided hose (not supplied) that will reach from the sap source to the PVC fitting, onto the PVC fitting. Secure the hose onto the fitting with a 1” stainless steel band clamp.



17. The hot sap float will be installed in the rear compartment of the syrup section of the pan. Using the adjustment screw, lower the float collar to the lowest level. Rotate the float under the regulator arm so the fork of the arm is over the float level adjuster with the screw adjustment on the outside of the fork opening.



18. The bolt on regulator float is installed under the fork of the arm of the bolt on regulator. Loosen the thumbscrew of the collar of the float and lower the adjuster to its lowest setting. Slide the float under the regulator fork so that the float adjuster is under the fork.



19. Install a thermometer with a 12" stem (not supplied) into the draw off box on the syrup pan section of the pan. Remove the plug ¼" from the fittings on the draw off box. Teflon tape the threads on the thermometer and thread into the fittings. Tighten the thermometer such that dial will be easy to read.

NEW PAN CLEAN

NOTES:

- Ensure after use no chemical residue remains on items such as rail gaskets or pan gaskets.

The first boil is done to remove any residual materials from the pan and to "season" the bricking and insulation (if a new arch is used).

NOTE: When using chemicals be sure to read and follow all precautions.

1. Fill the flue and syrup pan sections with a baking soda : water mix (1 pound:200 gallons) to a level of 2 to 3 inches.
2. Check all fittings for leakage. If there is no leakage, insulate around the flue drain with rail gasket material.
3. To season the bricking, start by building a small fire in the fire box and very gradually build to a normal fire.
4. Boil the solution for approximately 30 minutes. Watch the boil carefully and replenish the solution as needed to ensure the solution in the both sections of the pan remain at the 2 to 3 inch level using the float.
5. Check all equipment:
   a. No leaks at connections and valves
   b. Both sections of the pan are boiling evenly
   c. Valves work properly
   d. Draft is correct

Draft is correct when:

- The boil is the same in the syrup pan front-to-back and side-to-side
- The fire door is open the flame, sparks, etc. are drawn toward the rear of the arch.

6. Drain the solution after the evaporator has cooled. CAUTION – ensure the equipment is cool enough to be safely handled for draining.
7. Check the interior of the arch to ensure insulation and bricking are in place.
8. Refill the pan to the 2 to 3 inch level with clean unsoftened, non-chlorinated well or spring water.
9. Boil for 30 minutes during which time adjust the floats down to operating levels. NOTE: if may take 10 to 15 minutes for level adjustments to have full effect. After the evaporator has cooled, drain the pan sections. CAUTION – ensure the equipment is cool enough to be safely handled for draining.

OPERATING THE EVAPORATOR

NOTE: When operating the evaporator be cautious of hazards such as hot surfaces, hot liquids, sparks, and exposed flames.

NOTE: You must be aware at all times of the level of sap in all compartments of the pan sections. If the level drops too low, you can and will damage your pan. If there is too much foam you risk damaging your pan.

NOTE: If you have purchased a scoop or skimmer, do NOT use them to push sap through the evaporator. Doing so will change the gradient in the evaporator.

1. Check the evaporator
   a. Make sure all sap sources are flowing freely i.e. not frozen.
   b. Ensure defoamer is usable.
   c. Ensure all fittings are tight.
   d. Make sure all valves are working properly and the floats are properly positioned.
   e. Clean the flues with the flue brush every 8 to 12 hours of boiling.
   f. If using a wood fired arch, ensure the open area in the grates is clean and free of material. If necessary, remove ashes from below the grates.
   g. Open stack covers, cupolas and thimbles.
2. If this startup is for a new evaporator or for the first time of the season, go to the Section titled MAKING SYRUP.

MAKING SYRUP

NOTE: The front compartment of the pan is the draw off compartment.

1. Open the valve between the sap source and the add on regulator. Adjust the flue pan bolt on regulator and the syrup pan regulator floats to set the sap levels as follows:
   - Flue section of pan - ¾" over the top of the flues
   - Syrup section of pan – 1 ½"
2. Fire the evaporator.
3. As the flue pan starts to boil, add defoamer (based on ATMOS 300) into the flue section of the pan on the float side. The recommendation is to use 3 drops. Defoamer should be added close to the inlet by the bolt on regulator. During boiling, add defoamer every 5 to 10 minutes or each time the arch is fired. Adjust the time as necessary to control the foam.
4. If this is the first boil of the season or "sweet" was not saved from a previous boil, skip to the next section.

   As the syrup pan starts to boil, add the "sweet" to the draw-off (front) compartment of the syrup section of the pan.

5. As the syrup pan is boiling, watch for foam higher than the compartment dividers of the pan. If the foam is higher than the dividers, add 1 to 2 drops of defoamer to the front compartment of the syrup section of the pan right before the draw-off box. Begin adding an additional 1 to 2 drops to the flue section of the pan at the input from the bolt on regulator, if the foam persists. It will take 15 to 20 minutes before any change is noted. If these additions of defoamer do not control the foaming, add 1 to 2 drops of defoamer to the front compartment of the syrup pan. REMEMBER you are trying to stop the foaming not the boiling.
6. The sap in the syrup section of the pan, the front compartment, must be boiled until it reaches 7.0°F to 7.5°F above the boiling point of water (the draw off temperature). The boiling point of water is not a consistent point. Therefore, the following is the recommended method for determining the draw-off temperature.
    a. As the sap begins boiling in the syrup section of the pan, monitor the thermometer. The thermometer needle will need to go around completely once and come back to the "7" mark on the thermometer.
    b. When the "7" mark is reached, draw a sample of the liquid from the front compartment of the syrup section of the pan and then test with a hydrometer.
    c. Adjust the thermometer to "7" when the hydrometer indicates the sap in the pan has turned to syrup. To adjust the thermometer, place the Allen wrench, provided with the thermometer, into the screw and turn until the "7" aligns with the needle.
7. The draw off valve is located under the draw off box on the left side of the pan. When the hydrometer indicates you have syrup, <u>partially</u> open the draw-off valve and allow the syrup to flow slowly, maintaining the temperature at the "7" mark as long as possible. When the temperature starts to drop below the "7" mark, close the draw off valve.
8. Continually check your incoming sap at the flue pan regulator and the hot sap regulator to ensure it is flowing freely.

DAILY SHUTDOWN

1. There are two factors influencing the shutdown of the evaporator; time and sap volume.
    - It will require approximately 1 hour from the last firing to bring the fire down to embers (coals on the grates) in a wood fired arch.
    - It will require a volume of sap after the last firing to flood the pan sections - ensure there is adequate volume left.
2. After the last draw of syrup and last firing, draw-off 1 to 1 ½ gallons of "sweet" from the evaporator into a clean container. Set the container aside and cover it.
3. Continue to monitor the evaporator as it cools and the fire dies.
4. Shut down considerations:
    - <u>Wood fired evaporator</u> - when there is no more boil in either the flue or the syrup pan sections and the fire is down to coals on the grates, add sap until the pan sections are at a depth of 2". This is done by holding the float down or by adjusting the float handles and lowering it. If the sap remaining does not cover the pan sections to the 2" depth then add clean, unsoftened, non-chlorinated well or spring water until the depth is reached.

    NOTE: The extra sap depth is required as the insulation of the arch (ex. bricks) will hold heat and continue the evaporation process until the heat has been dissipated.

MAINTENANCE

NOTES:

- Only Leader Evaporator approved chemicals are to be used in operations and maintenance.
- Ensure after use no chemical residue remains on items such as rail gaskets or pan gaskets.

NOTE: When using chemicals be sure to read and follow all precautions.

DAILY – prior to performing maintenance make sure the surfaces have been cooled.

1. Remove spills and splashes from the pan by wiping with hot water.
2. If using a wood fired arch, clean out the ash chamber and the slots in the grates NOT the "V" grooves of the grates.
3. Check all fittings for leakage. Repair / replace as necessary.

PERIODIC

1. Inspect the rail gasket and pan gasket for areas where heat and smoke maybe escaping. Replace if necessary.
2. If excessive niter and sugar sand is coating the surfaces of the pan with scale, clean the pan with a pan cleaner such as LEADER Order #63006 (1 quart size). The directions are as follows:
   a. Add unsoftened, non-chlorinated well or spring water to the pan until the coating to be removed is covered with water.
   b. Add 1 quart of concentrated pan cleaner for each 40 gallons of water in the pan.
   c. Heat the solution to simmering and keep at that level for one hour and the scale is noted to dissolve.
   d. Wearing protective gloves, brush the loose scale.
   e. If scale is removed flush the pan with unsoftened, non-chlorinated well or spring water. If the scale is thick you may need to allow the solution to soak in the pan – no more than 24 hours.
   f. When the scale has been removed, drain off the solution, fill the pan with clean unsoftened, non-chlorinated well or spring water. Add 2 pounds of baking soda per 200 gallons of clean water. Heat to a light boil, brush the pan, and empty the water from the pan.
   g. Ensure all solution is rinsed from the pan using unsoftened, non-chlorinated well or spring water.

END OF SEASON

NOTES:

- Do **NOT** allow sap or acid solutions to soak in the pan for more than 24 hours.
- Use ONLY cleaners stated to be for maple syrup equipment.
- Never store or transport the flue pan upside down.

1. Drain the flue section of the pan by closing the sap source to the regulator box and opening the ball valve (for the drain) at the rear of the flue section of the pan.
2. Drain the syrup section of the pan by opening the draw-off valve.
3. Rinse the pan with unsoftened, non-chlorinated well or spring water and then drain.
4. Close the valves on the pan.
5. Clean the pan with a pan cleaner such as LEADER Order #63006 (1 quart size). The directions are as follows:
   a. Add unsoftened, non-chlorinated well or spring water to the pan until the coating to be removed is covered with water.
   b. Add 1 quart of concentrated pan cleaner for each 40 gallons of water in the pan.
   c. Heat the solution to simmering and keep at that level for one hour and the scale is noted to dissolve.
   d. Wearing protective gloves, brush the loose scale.
   e. If scale is removed flush the pan with unsoftened, non-chlorinated well or spring water. If the scale is thick you may need to continue simmering the solution in the pan.

f. When the scale has been removed, drain off the solution, fill the pan with clean unsoftened, non-chlorinated well or spring water. Add 2 pounds of baking soda per 200 gallons of clean water. Heat to a light boil, brush the pan sections, and empty the water from the pan.
g. Ensure all solution is rinsed from the pan using unsoftened, non-chlorinated well or spring water.
h. Refill the pan with unsoftened, non-chlorinated well or spring water and boil hard for 1 hour. Cool then drain the pan.

2. Inspect all connection hoses and seals.
3. Discard the rail gasket.
4. Set 2X4s across the rail of the arch and set the pan right side up on the 2 X 4s.
5. Cover the pan and arch with plastic or a tarp.

BEGINNING OF SEASON STARTUP

1. Remove the cover and take the pan and 2 X 4s off from the arch.
2. Install a new rail gasket.
3. Place the pan on the arch.
4. Wipe and/or rinse out the pan.
5. When filling the pan for the first time check all fittings for leakage and repair if necessary.

ATTACHMENT #1: HYDROMETERS

HYDROMETER FUNCTION

A hydrometer works based on the density of the maple syrup. There are two scales on the hydrometer; Brix and Baume. The Brix scale indicates the percentage of sugar in the maple syrup. The Baume scale is a measure of how dense the maple syrup is related to the density of water. The correct density for maple syrup is a minimum of 66% sugar (66°Brix/35.6°Baume). You will need to verify your state's rules and adjust your readings as necessary. The hydrometers supplied by LEADER EVAPORATOR have been calibrated at two temperatures; 60°F Cold Test (66.9°Brix/36°Baume) and 211°F Hot Test (59.1°Brix/32.1°Baume). The maple syrup is expected to be at the upper temperature when it is measured immediately after being drawn off the evaporator.

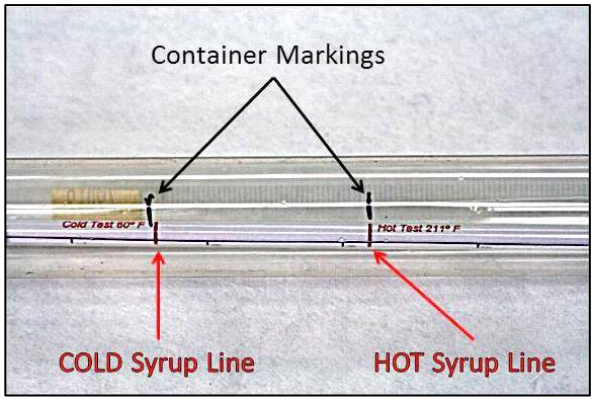
NOTE: Hydrometers from Leader Evaporator by law are calibrated by the State of Vermont. . The HOT and COLD test lines should be considered guidelines. Hydrometers should only be used by reading temperature and Brix/Baume readings.

USE OF A HYDROMETER

NOTE: Hydrometers are very fragile. Two most susceptible points of damage during use are the bottom and where the stem meets the body. Take extreme care when handling a hydrometer.

As hydrometers are susceptible to damage it is recommended the sugar house have a spare.

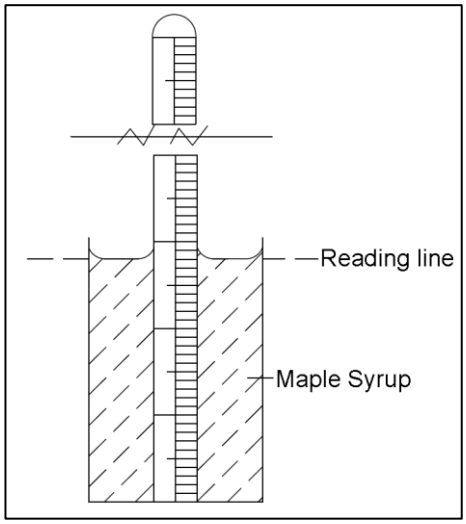
PREPARING A NEW HYDROMETER FOR USE:



1. Unpack the hydrometer from its tube or box.
2. Carefully inspect the hydrometer for any breakage. If you suspect any cracks, fill your test cup with hot water and immerse the hydrometer. If it leaks then it is damaged and can't be used.
3. Place the hydrometer in its original container seated in the packaging and mark the container where the bottom of the hydrometer aligns.
4. Mark the container at the same lines as the HOT and COLD test lines in the hydrometer. When using the hydrometer in the future these lines are a check to ensure the scale inside the hydrometer has not moved.

USING THE HYDROMETER

1. Prior to using the hydrometer for the day, place it into its original container and check the hydrometer lines against the lines you marked on the container. If they do not match then replace the hydrometer.
2. Ensure the hydrometer is clean prior to every use. Accumulated material on the hydrometer will cause the hydrometer readings to be incorrect as it will have extra weight and not float as easily.
3. Hold the test cup upright. Fill the test cup up to ½" to ¾" from the top with the syrup to be tested or from the syrup compartment of the syrup pan. DO NOT HAVE THE HYDROMETER IN THE CUP.
4. Do not allow the syrup to cool. Place the cup on a level surface. Immerse a thermometer into the test cup. Slowly immerse the hydrometer into the syrup in the test cup until it reaches the "HOT" test mark then carefully release it. NEVER DROP THE HYDROMETER INTO THE TEST CUP.
5. Read the temperature from the thermometer.
6. Read the Brix or Baume number from the hydrometer.



NOTE: To correctly determine the Brix/Baume, you need to read from the line of the syrup.

LEADER EVAPORATOR Hydrometers: Hydrometers from LEADER EVAPORATOR are calibrated by the State of Vermont at two temperatures; 60°F Cold Test (66.9°Brix/36°Baume) and 211°F Hot Test (59.1°Brix/32.1°Baume). After numerous measurements it was determined 211°F is the average temperature of syrup when measured immediately after draw-off from the evaporator. When checking syrup at 211°F, the syrup is at the proper concentration when the reading line is at the Hot Test line. If the Hot Test Line is below the reading line of the liquid, continue to boil as the syrup is "light". If the Hot Test Line is above the reading line of the liquid, the syrup is "heavy" and will need to be diluted with sap.

TEMPERATURE °F	Degrees Baume	Degrees Brix
209	32.0	59.0
202	32.25	59.6
193	32.5	60.0
185	32.75	60.4
176	33.0	60.9
167	33.25	61.4
158	33.5	61.8
149	33.75	62.3
140	34.0	62.8
130	34.25	63.3
120	34.5	63.8
110	34.75	64.3
100	35.0	64.8
90	35.25	65.4
80	35.5	65.9
70	35.75	66.4
60	36.0	66.9
50	36.25	67.4

7. Refer to the chart to determine if your syrup is "light" or "heavy". If the reading is higher than the number on the table your syrup is "heavy" and will need to be diluted. If the number is lower than the number in the table, the syrup is "light" and will need to be boiled more.

8. After reading the hydrometer, remove it from the test cup and rinse it with either hot water or hot sap to ensure it is clean. Dump the contents of the test cup into the syrup compartment of the syrup pan or back into it's storage container. Rinse the test cup with hot sap or hot water.
9. During the boiling period, store the hydrometer in a container of clean hot water or hot sap.