



OWNER'S MANUAL

Version 2.1 | 03/08/2021

CDL HIGH PERFORMANCE SAP LIFTING SYSTEM

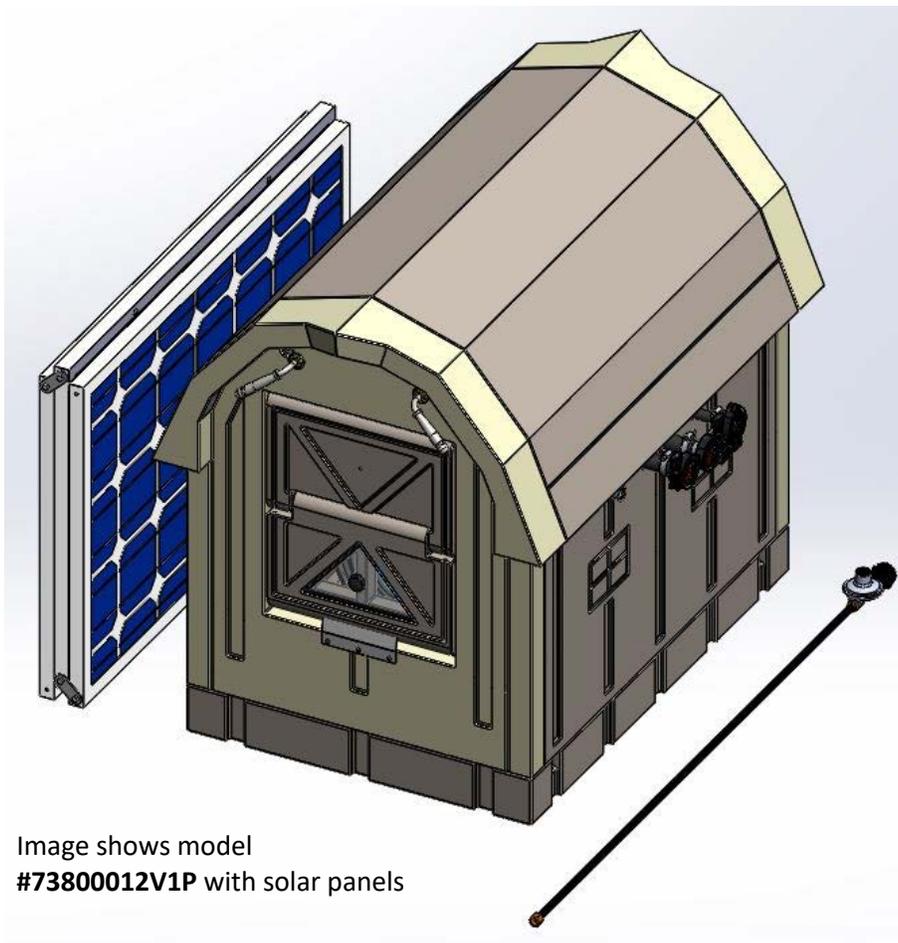


Image shows model
#73800012V1P with solar panels

Models : 73800012V1P | 7380002301P | 7380002302P | 7380002302P-HP

FINDING INFORMATION

Make a record for future use

Brand: _____

Purchase Date: _____

Model Number: _____

Serial Number: _____

Sales representative: _____

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INTRODUCTION

Thank you for choosing CDL's high vacuum sap lifter. Our years of experience serving maple syrup producers mean that we can guarantee effective, high-quality equipment. Before installing and using your equipment, make sure you have read and understood all of the instructions in this manual. If you have any problems upon receiving your equipment, please contact CDL or your local representative immediately.

WARNING

It is very important to understand that CDL's sap lifter was created as an alternative to conventional sap lifters on the market. **However, CDL's sap lifters must only be used to pump sap upwards (maximum 20-foot elevation change) along a line that uses gravity to pull the sap down a slope to a sap collection or pumping station. They are not designed for pumping water or transporting water over great distances.**

Note: When moving the solar models, always remove the batteries from the shelter to prevent damage and facilitate transport.

For 230 V models (**7380002301P, 7380002302P and 7380002302P-HP**), **it is very important to have the equipment wired by a qualified electrician.** Plan for 0.6–1 A of consumption for these models.

The 12 V model (73800012V1P) **must be moved without the batteries in the shelter. Further details can be found in the Installation section.**

For the heating system, **always use an appropriate, certified propane tank.**

PRODUCT SPECIFICATIONS

Power supply

Solar model (73800012V1P): **12 V** powered by a series of two 6 V batteries, which are charged by a series of three tri-fold 100 W solar panels.

Electric models (7380002301P, 7380002302P and 7380002302P-HP): **230 V**

Heating unit

Thermocouple protection against propane gas leakage if the pilot light goes out. The unit is fed by a 4-foot tube and comes with a regulator that fits on a standard propane tank.

Pump

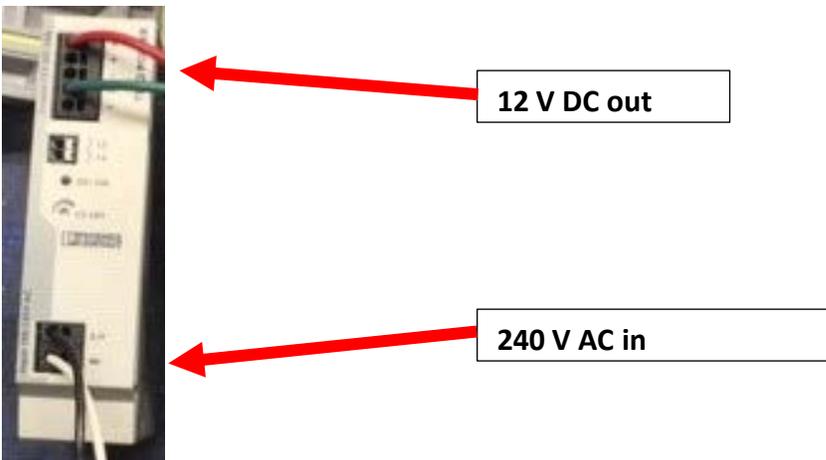
One or two 12 V submersible pumps, depending on the model.

Shelter

Fully insulated plastic shelter. Bottom drain with a screen and quick access door. The front panel can be completely removed using two handles. Comes with two small, triangular ventilation hatches. The back of the shelter can be removed by unscrewing two wing nuts. This allows easy access to the batteries for solar and propane-heated models.

Electrical box

For the solar model, the electrical box includes a button to manually operate the pump. For electric models, the electrical box includes a button to manually run the pump as well as a transformer, which converts **240 V AC** to **12 V DC**. **This is the transformer that the professional electrician will need to wire.**

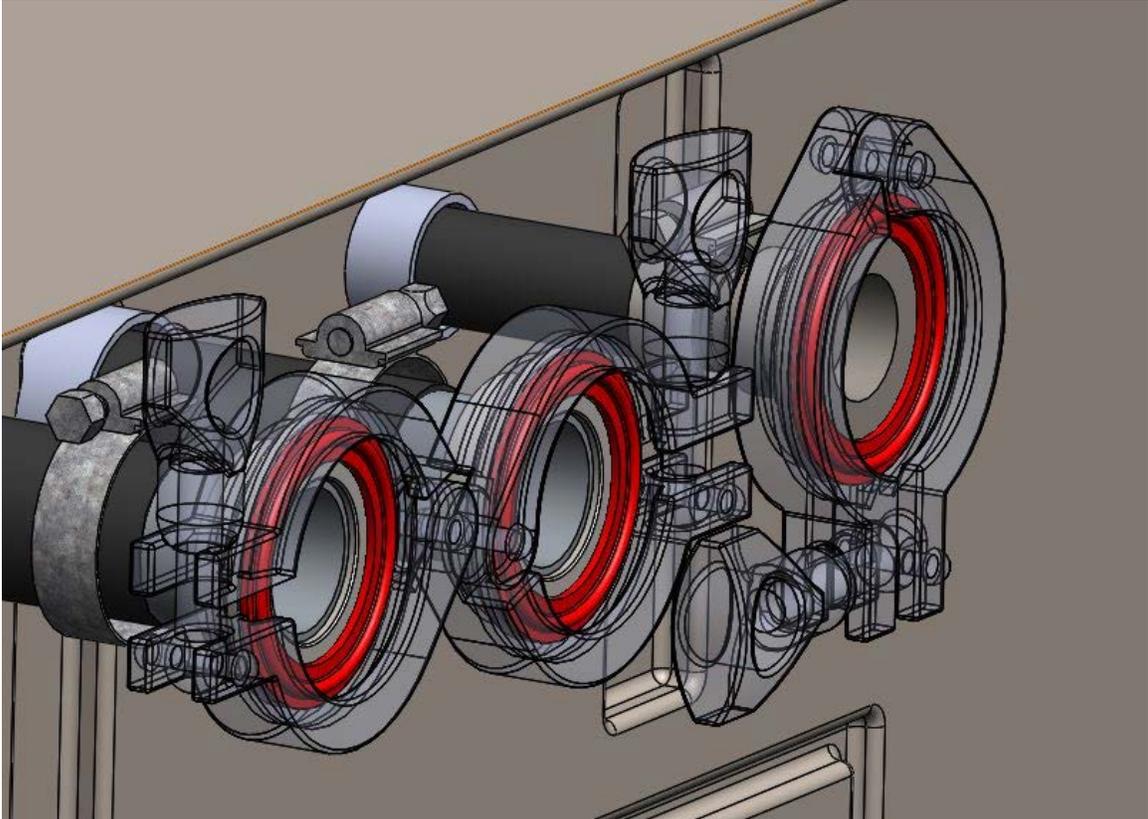


Tank

The tank is 12" in diameter and 18" long. It has two covers that can be removed by manually opening the latches.

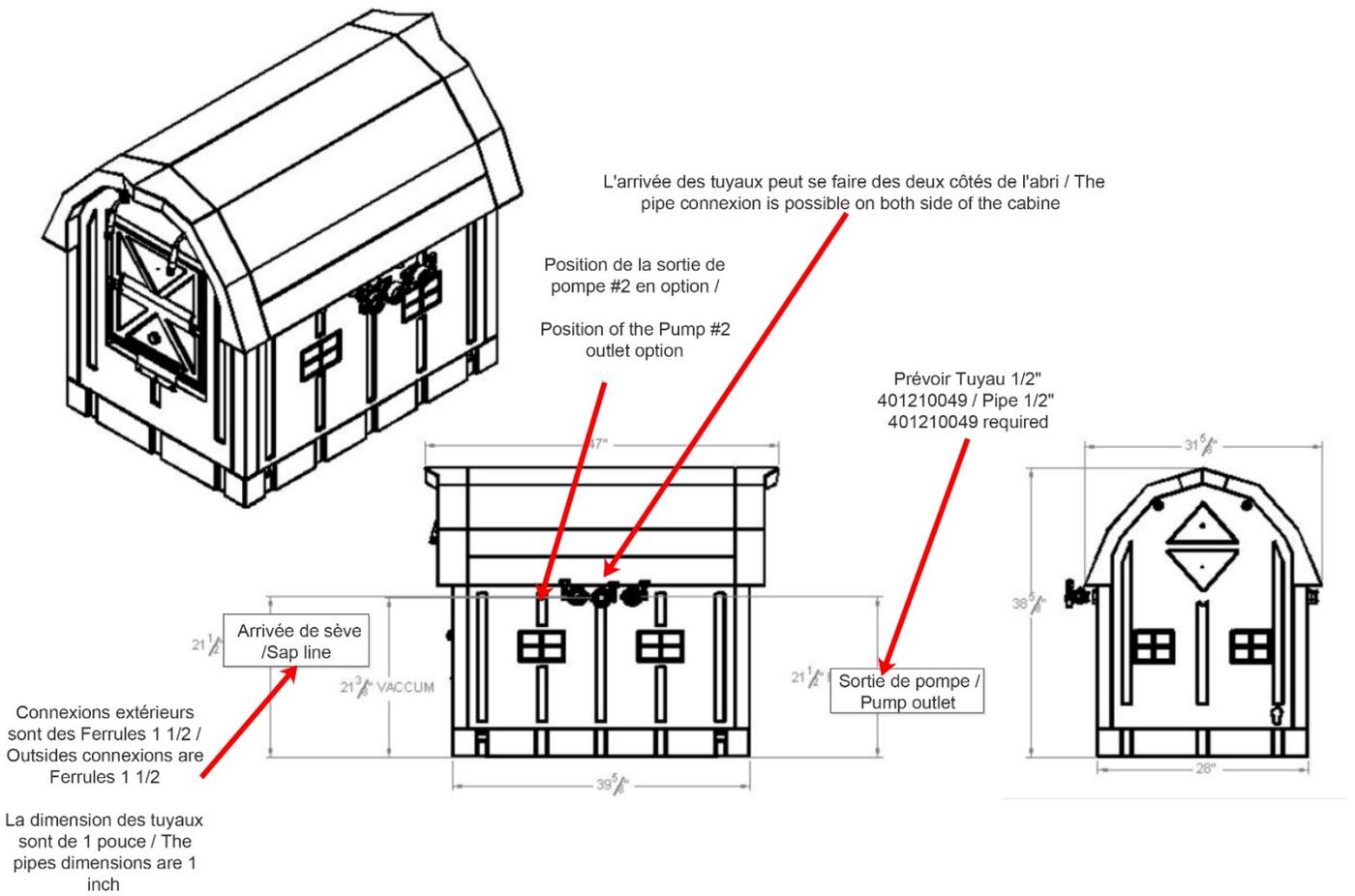
External connection

1.5 gauge ferrules (1.5 gauge adapters for connecting to your system's lines not included). Consult the installation diagram below to see what is included. The connections are reversible; they can be connected on either side of the shelter.



Dimensions :
See diagram below.

Dimensions de l'élévateur de sève CDL haut vacuum / CDL High Vacuum Sap lifter dimensions



MODEL PERFORMANCE CHART

Performance chart CDL high vacuum sap lifter kit 12V with solar pannel (one pump only) (73800012V1P)															
GPM and elevation feet	Vacuum level														
	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
GPM 5 feet of elevation	1.5	2	2.7	3	3.2	3.4	3.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Maximum taps allowed	270	360	486	540	576	612	648	702	702	702	702	702	702	702	702
GPM 10 feet of elevation	1.3	1.9	2.2	2.5	2.7	3	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Maximum taps allowed	234	342	396	450	486	540	576	594	594	594	594	594	594	594	594
GPM 15 feet of elevation	1.3	1.5	1.9	2.1	2.4	2.4	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Maximum taps allowed	234	270	342	378	432	432	468	486	486	486	486	486	486	486	486
GPM 20 feet of elevation	1.1	1.4	1.7	1.8	2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Maximum taps allowed	198	252	306	324	360	378	378	378	378	378	378	378	378	378	378

Maximum elevation allowed is 20 feet

Performance chart CDL high vacuum sap lifter kit 230V (one pump option) (738000230V1P)															
GPM and elevation feet	Vacuum level														
	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
GPM 5 feet of elevation	2.1	2.9	3.9	4.3	4.6	4.9	5.1	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Maximum taps allowed	385	514	694	771	822	874	925	1002	1002	1002	1002	1002	1002	1002	1002
GPM 10 feet of elevation	1.9	2.7	3.1	3.6	3.9	4.3	4.6	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Maximum taps allowed	334	488	565	642	694	771	822	848	848	848	848	848	848	848	848
GPM 15 feet of elevation	1.9	2.1	2.7	3	3.4	3.4	3.7	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Maximum taps allowed	334	385	488	540	617	617	668	694	694	694	694	694	694	694	694
GPM 20 feet of elevation	1.6	2	2.4	2.6	2.9	3	3	3	3	3	3	3	3	3	3
Maximum taps allowed	282	360	437	462	514	540	540	540	540	540	540	540	540	540	540

Maximum elevation allowed is 20 feet

Performance chart CDL high vacuum sap lifter kit 230V (two pumps option) (738000230V2P)

GPM and elevation feet	Vacuum level														
	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
GPM 5 feet of elevation	4.2	5.8	7.8	8.6	9.2	9.8	10.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
Maximum taps allowed	770	1028	1338	1542	1644	1748	1850	2004	2004	2004	2004	2004	2004	2004	2004
GPM 10 feet of elevation	3.8	5.4	6.2	7.2	7.8	8.6	9.2	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Maximum taps allowed	668	976	1130	1284	1388	1542	1644	1696	1696	1696	1696	1696	1696	1696	1696
GPM 15 feet of elevation	3.8	4.2	5.4	6	6.8	6.8	7.4	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Maximum taps allowed	668	770	976	1080	1234	1234	1336	1388	1388	1388	1388	1388	1388	1388	1388
GPM 20 feet of elevation	3.2	4	4.8	5.2	5.8	6	6	6	6	6	6	6	6	6	6
Maximum taps allowed	564	720	874	924	1028	1080	1080	1080	1080	1080	1080	1080	1080	1080	1080

Maximum elevation allowed is 20 feet ***Warning : Each pump need is own pipe outlet (Cannot work together on the same pipe) See the installation instructions

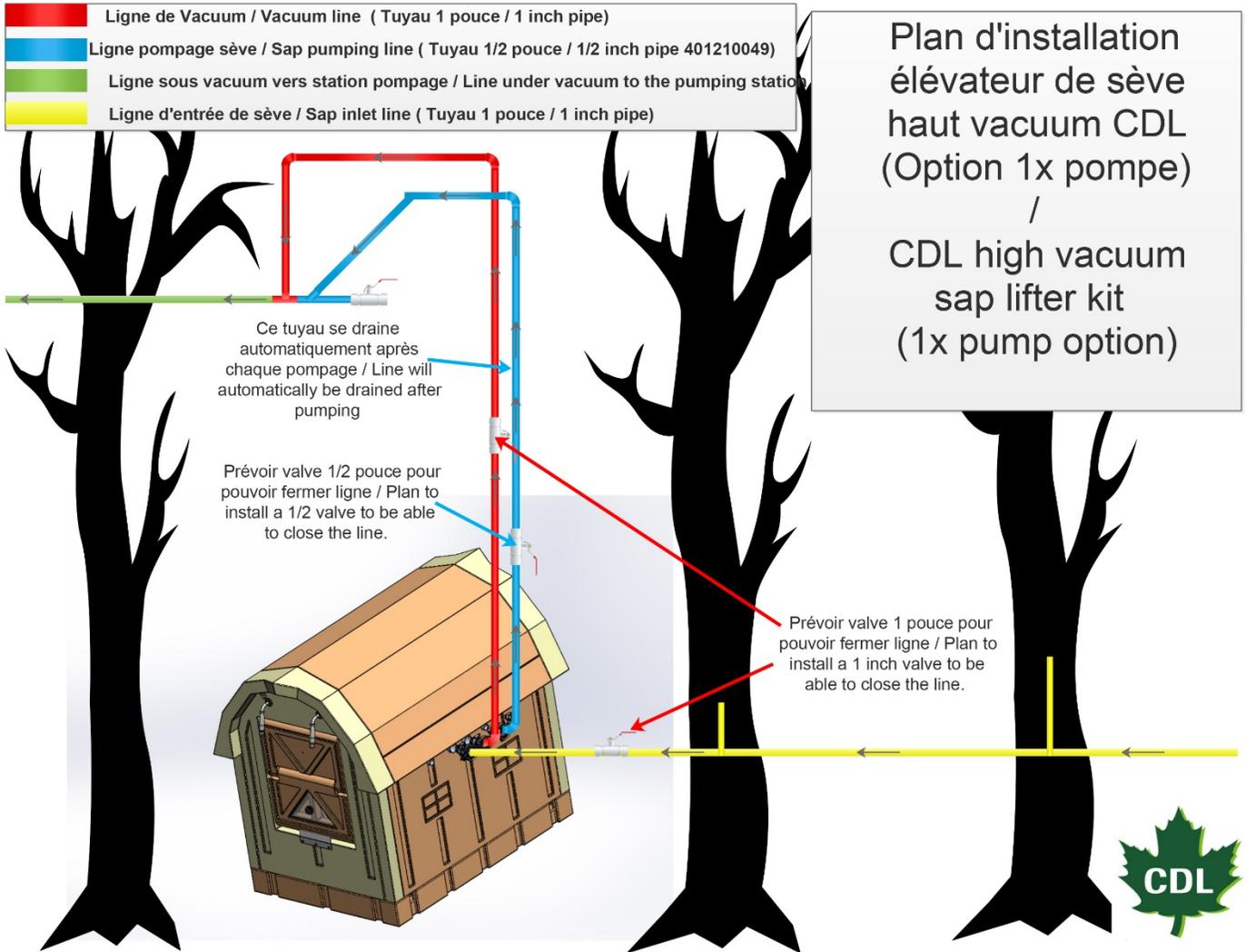
Performance chart CDL high vacuum sap lifter kit 230V (two pumps option in serie) (7380002302P-HP)

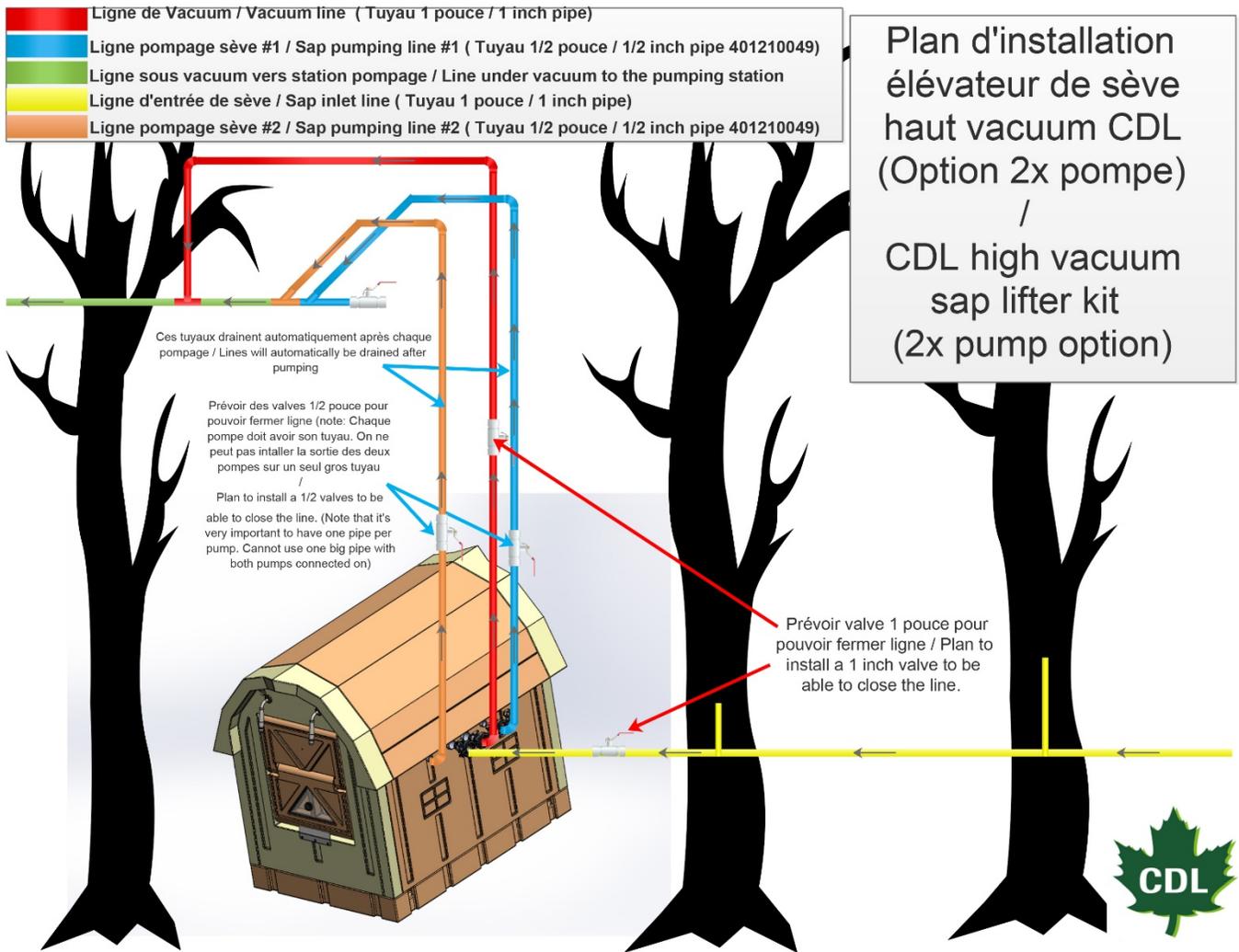
GPM and elevation feet	Vacuum level														
	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
GPM 5 feet of elevation	1.6	2	2.7	3.1	3.7	4	4.2	4.4	4.5	4.6	4.8	4.8	4.8	4.8	4.8
Maximum taps allowed	288	360	486	558	666	720	756	792	810	828	864	864	864	864	864
GPM 10 feet of elevation	1.6	2	2.7	3.1	3.7	4	4.2	4.4	4.5	4.3	4.5	4.5	4.5	4.5	4.5
Maximum taps allowed	288	360	486	558	666	720	756	792	810	774	810	810	810	810	810
GPM 15 feet of elevation	1.6	2	2.7	3.1	3.4	3.5	3.7	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9
Maximum taps allowed	288	360	486	558	612	630	666	666	666	684	702	702	702	702	702
GPM 20 feet of elevation	1.6	1.9	2.6	3	3	3.2	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.4
Maximum taps allowed	288	342	468	540	540	576	576	594	594	594	612	612	612	612	612
GPM 25 feet of elevation	1.6	1.9	2.5	2.8	3	3.1	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.4
Maximum taps allowed	288	342	450	504	540	558	576	594	594	594	612	612	612	612	612
GPM 30 feet of elevation	1.6	1.9	2.5	2.8	3	3.1	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.4
Maximum taps allowed	288	342	450	504	540	558	576	594	594	594	612	612	612	612	612
GPM 33 feet of elevation	1.5	1.8	2.4	2.7	2.9	3	3.1	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3
Maximum taps allowed	270	324	432	486	522	540	558	576	576	576	594	594	594	594	594

Maximum elevation allowed is 33 feet

INSTALLATION

Important: Refer to the appropriate installation diagram below.





Step 1:

Build a base in your stand. Choose a location that will allow you to install the solar panels as close to the shelter as possible. In order to simplify the construction of the shelter, please check its dimensions in the **Product Specifications** section. Pay attention to the height of your inlet lines.

Step 2:

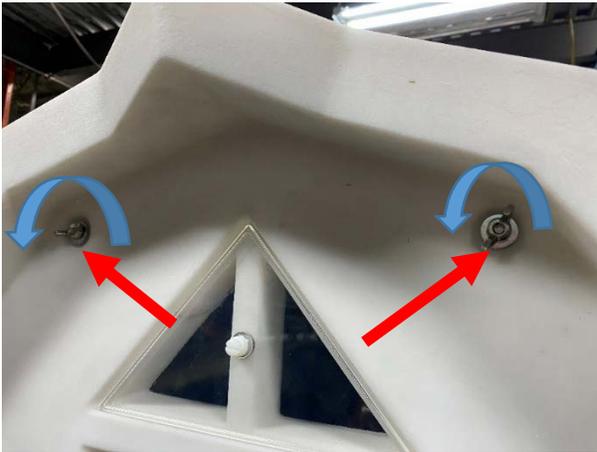
Place the shelter on the base, making sure that the lines are connected according to the diagrams below. **(Note: Do not install a non-return valve, as this will prevent the system from working properly. The line[s] must automatically drain back into the tank in the shelter to prevent freezing.)** Do exactly as the diagram indicates. The holes have been designed so that the lines can be connected on either side of the shelter.

Step 3:

If you have a solar model, install the solar panels vertically on a tree or similar so that they receive as much sunlight as possible and can connect to the system. Continue to step 4. **If you have an electric model, all you need to do is have a certified electrician connect a 230 V power supply and you will be finished installation.**

Step 4:

Unscrew the wing nuts in the upper rear part of the shelter.



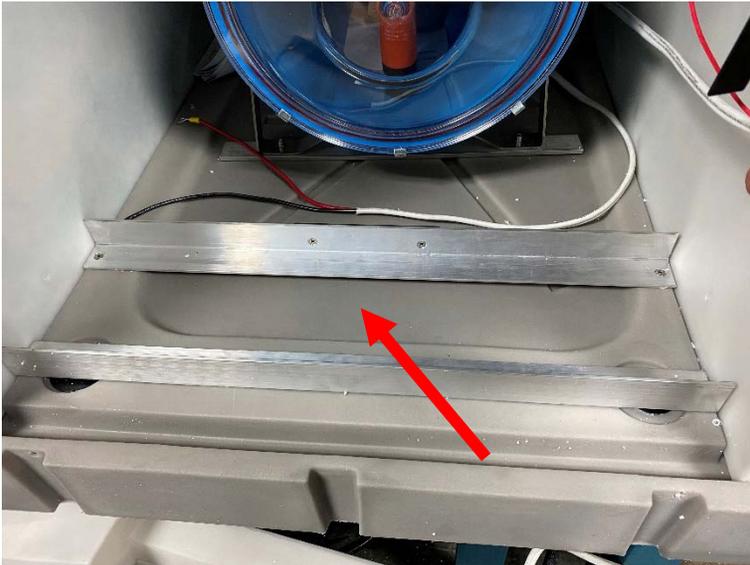
Step 5:

Remove the shelter's back panel.



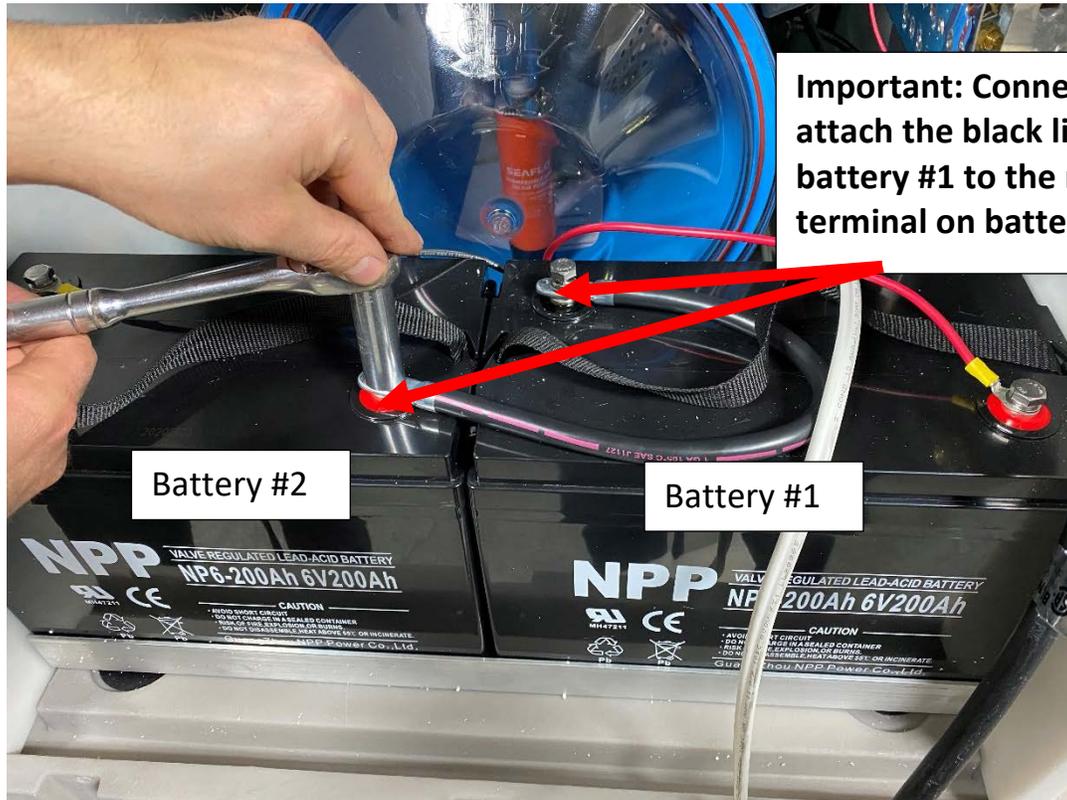
Step 6:

Place both batteries on their base.



Step 7:

Using the bolts, secure the wire that connects the two batteries.



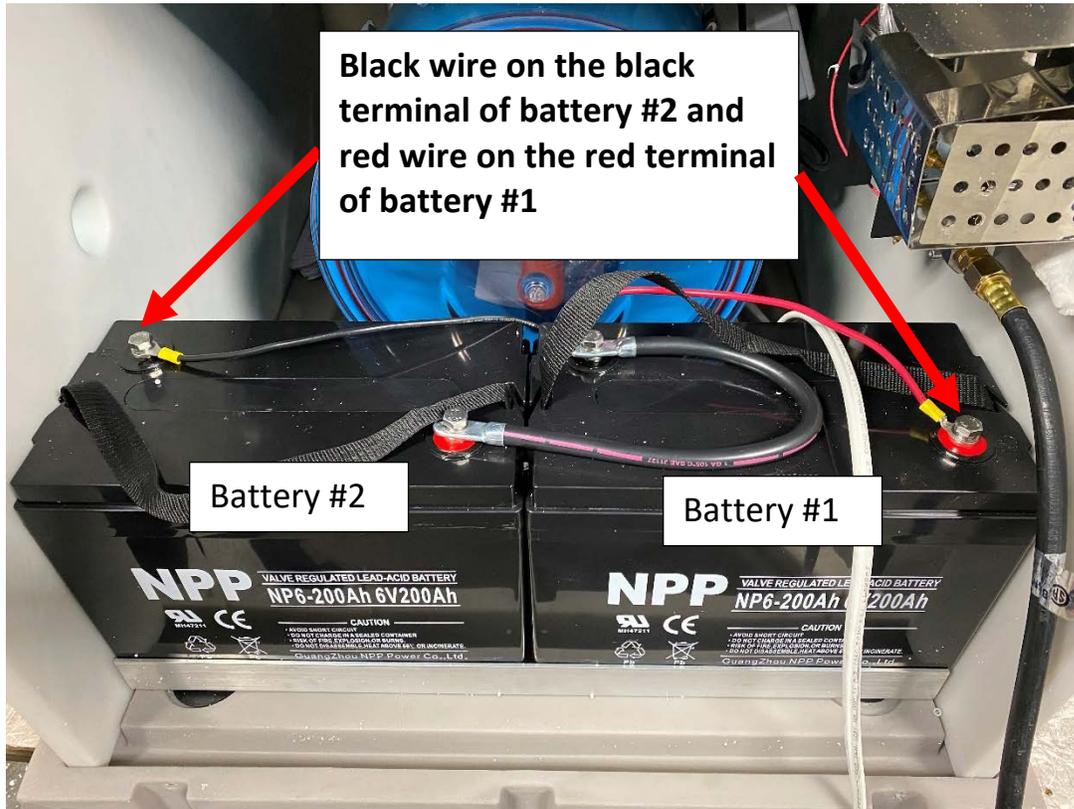
Important: Connect and attach the black line of battery #1 to the red terminal on battery #2.

Battery #2

Battery #1

Step 8:

Using the bolts, secure the wires to power the system.



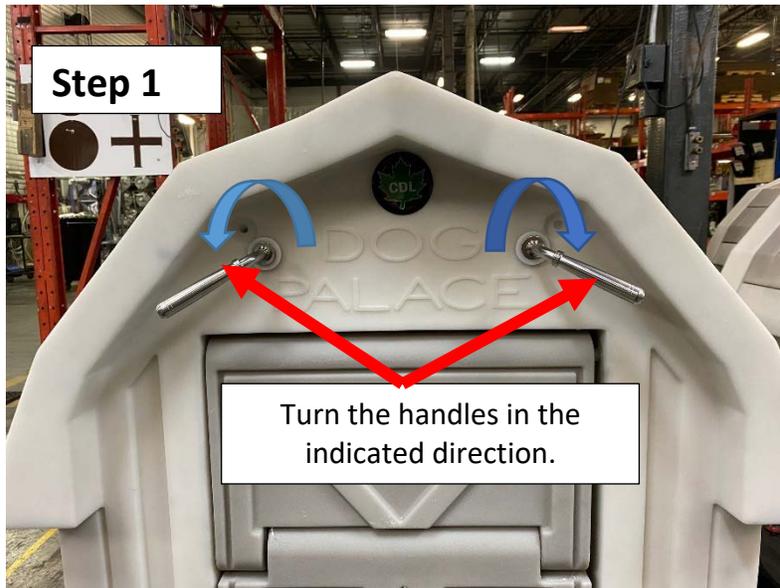
Step 9:

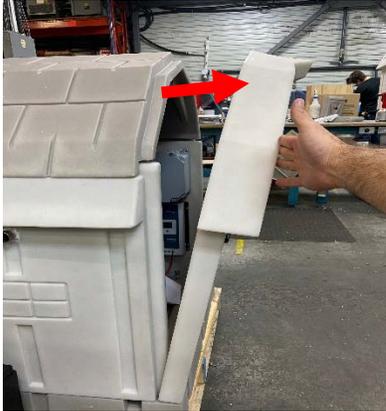
Replace the rear panel of the shelter.



USE AND OPERATION

Removing the front panel

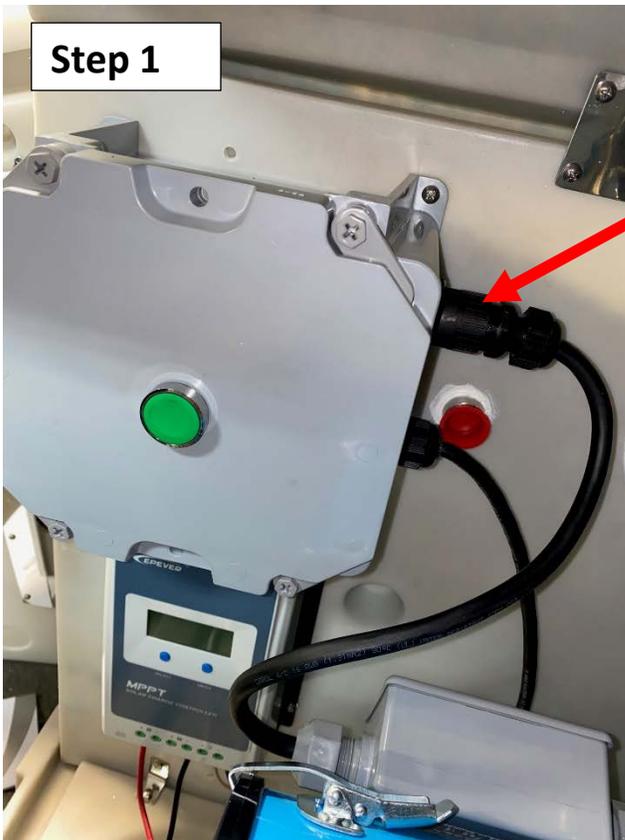




Step 3

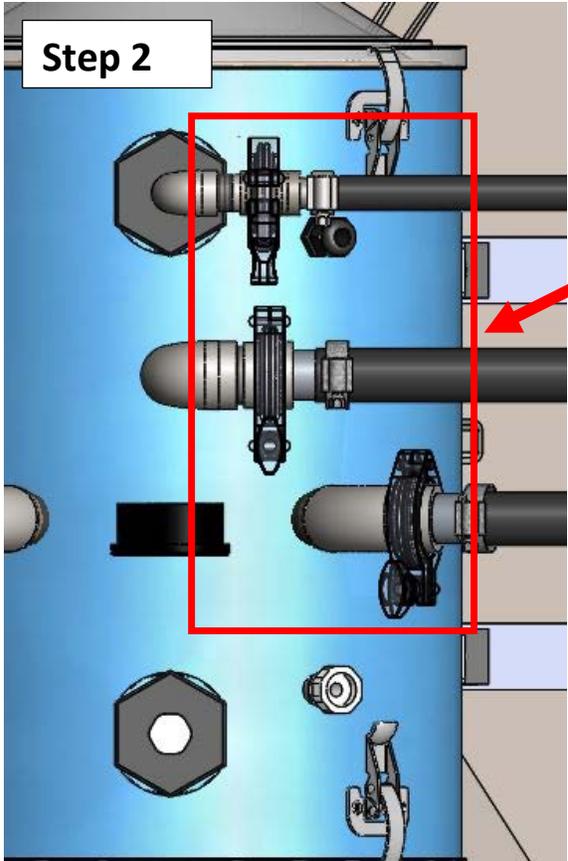
Pull the panel out as shown.

Removing the tank from the shelter



Step 1

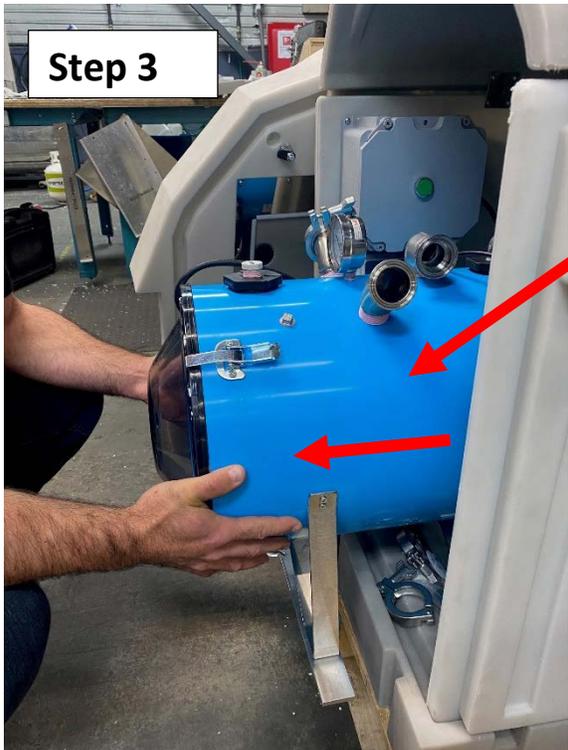
Turn the nut on the electrical connector counterclockwise, then pull it out of the socket.



Step 2

Unscrew and remove the quick-release fasteners, taking care not to lose the silicone gaskets.

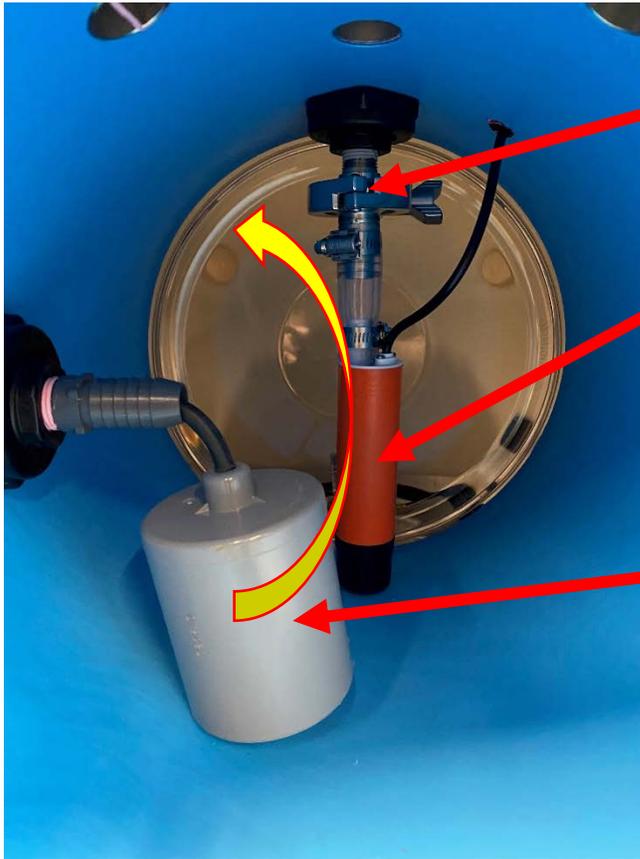
Important: You must replace the silicone gaskets when reconnecting.



Step 3

Remove the tank as shown.

How the submersible pump works



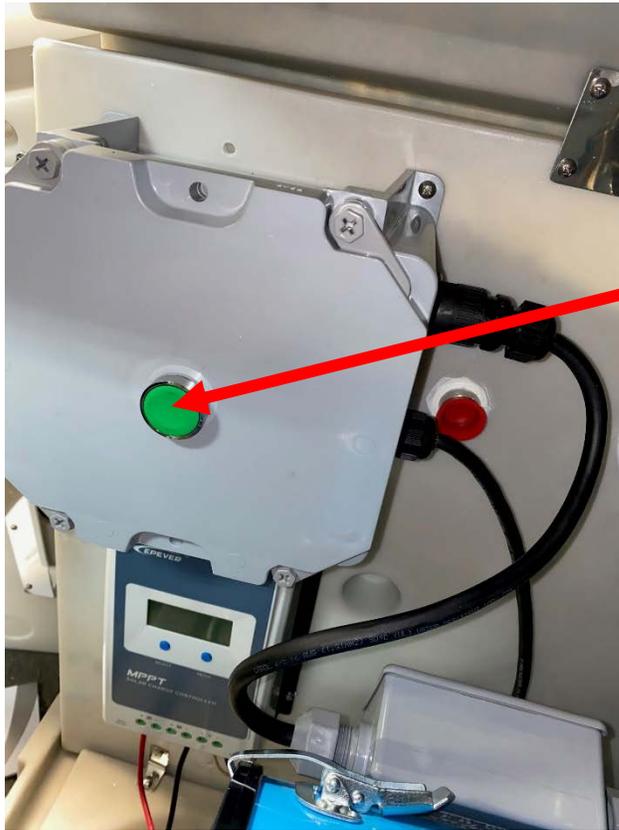
Pump quick-release fasteners

12 V submersible pump

When the float reaches the right level, it will automatically start the submersible pump.

At the beginning of the season, and periodically throughout the season, make sure the float and pump are working correctly by lifting the float with your hand.

Manually running the pump using electricity



Press and hold the button.

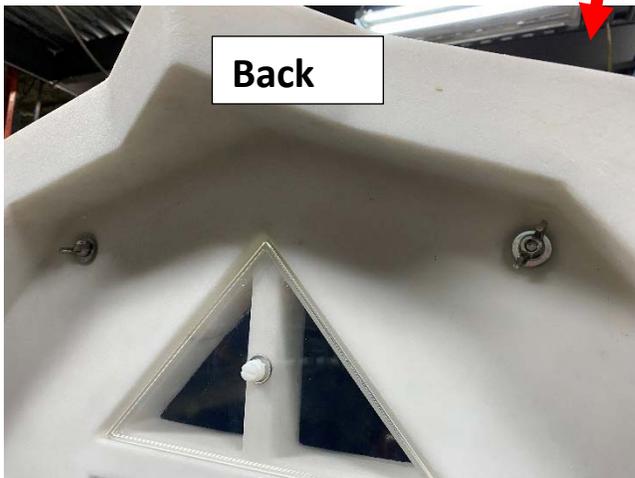
When you release the button, the pump will automatically shut off.

Shelter ventilation



The ventilation is preset at the factory. If you want to change the amount of ventilation, you will need to add or remove washers to increase or decrease the opening.

Good ventilation is very important for the propane heating system (pilot light)!



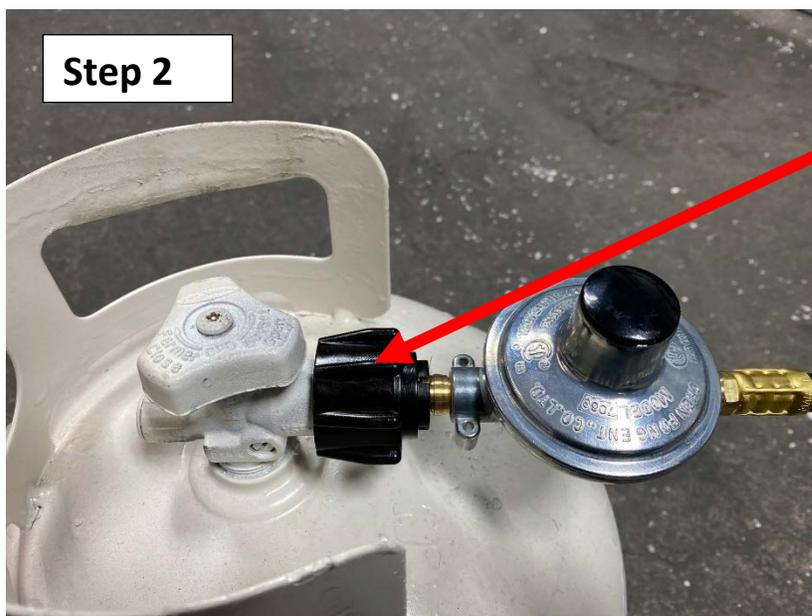
Connecting the propane tank

ATTENTION! Make sure your tank is compliant and safe.



Check for damage to the regulator and tubing.

The inside and outside of the regulator nut must be clean.



Screw the regulator into your propane tank.

Make sure it's tightened properly to prevent leaks.

Very important! Make sure that there are no gas leaks before lighting the pilot light.

Operating the propane heater (with pilot light):

1. **STOP!** Read the safety instructions.
2. Read all alerts and safety instructions in the manual.
3. Find the valve on the side of the unit, gently press the gas control knob (DO NOT FORCE IT), and turn it clockwise to the OFF position (see Figure 1).

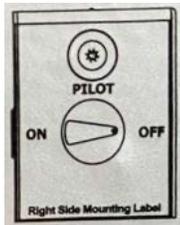


Figure 1

4. Wait 5 minutes to make sure all gas has been cleared. If you smell gas: **STOP!** Do not turn on the pilot light or activate any electrical equipment. If there is no smell, proceed to the next step.
5. Push the control knob lightly and turn it counter clockwise to the PILOT position (see Figure 2).



Figure 2

- You can see the pilot light behind the burner on the valve side (see Figure 3).



Figure 3

Flame

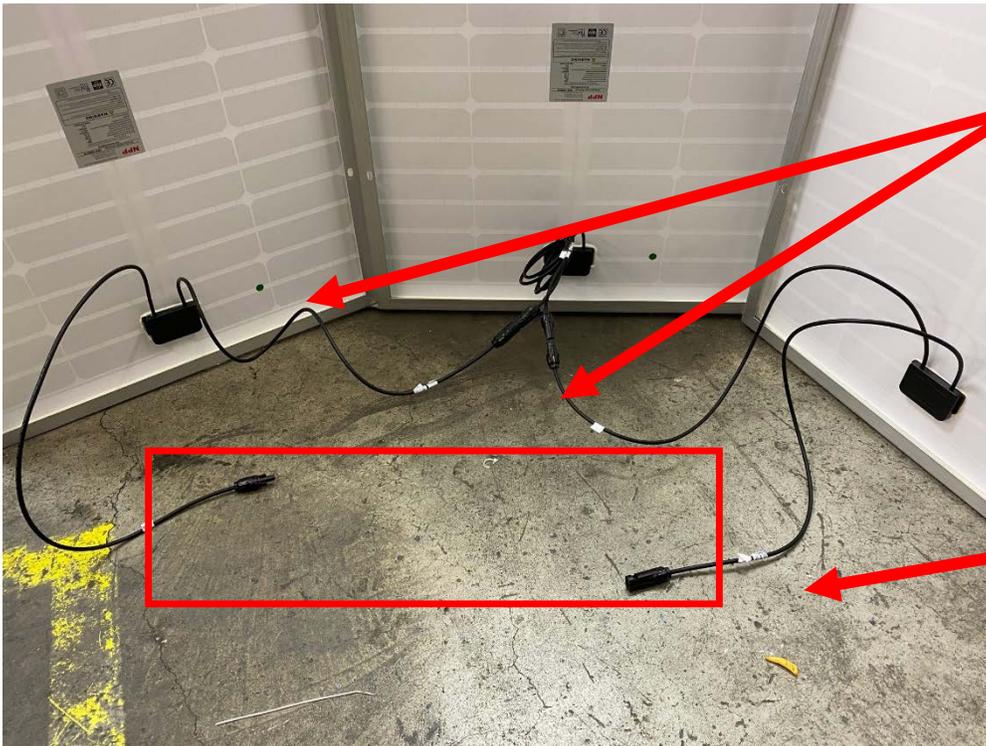
Do not attempt to light the pilot light manually.

6. Press and hold the control knob firmly.
7. With the control knob held down, repeatedly press the ignition button until the pilot light starts.
8. Keep the control knob pressed for 30 seconds after the pilot light has been ignited.

Then release the control knob.

- If the knob does not come up after you release it, stop and call a certified technician immediately.
- If the pilot light does not stay on after several attempts, turn the control knob to the OFF position and call a certified technician.

Connecting the solar panels



The panels must be connected together (in series) like this.

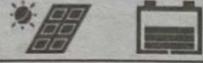
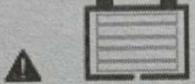
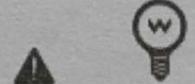
These connectors must be connected to the designated connectors in the shelter.



Two shelter connectors for the solar panels

Note: Install the solar panels vertically and facing a direction that lets them receive as much light as possible during the day (usually South). Do not place them beneath a tree or in a shaded corner.

Controller information (solar model only)

Icon		 Day mode
	 Night mode	
	 Not charging. Charging is done automatically by the controller.	
	 Charging. Charging is done automatically by the controller.	
PV	 Solar panel voltage and temperature	
	 Battery level	
BATT.	 Battery voltage and temperature	
BATT. TYPE	 Battery type	
	 Not used	
	 Not used	
LOAD	 Energy consumption	
Icon		
	 Warning: Battery completely drained	
	 Warning: Battery voltage too high	
	 Warning: Battery temperature too high	
	 Not used	

MAINTENANCE

- Clean the tank and pump regularly throughout the season.
- Regularly check the propane gas connections for leaks.
- Make sure your propane tank is kept full.
- Clean the solar panels if they become dirty.
- Regularly check that the system is working properly by watching it run or using the manual start button.
- The system can remain electrically powered all year; however, for the solar model, it is strongly recommended to unplug the batteries in the off-season and connect them to a charger that can maintain their charge.
- For electrical models, turn off the power in the off-season.
- Make sure the lines, including the line down to the pumping station, have a good slope for drainage.
- Make sure that the drain screen is in place to prevent small rodents from getting in.
- During the off-season, disconnect the propane tank and protect the regulator from water, dirt, and the sun as much as possible.
- Frequently verify that the propane network is leak free.
- In the off season, make sure all the pumps are drained and cleaned to prevent freezing in the winter.
- In the off season, shutdown the 230V power source.
- In the off season, make sure the solar charging system remains active to maintain the charge in the batteries.

WARRANTY AND EXCLUSIONS

Your sap lifter is covered by a one-year limited warranty. For one year from the date of original purchase, CDL Maple Sugaring Equipment Inc. (CDL) will repair or replace parts of this system that are defective in material or workmanship provided that it is installed, operated, and maintained according to the instructions provided.

Exclusions

This warranty does not cover the following:

1. Products whose original serial number has been removed or modified or is not easily readable.
2. Equipment that has changed ownership or is located outside of North America.
3. Breakage caused by below-freezing temperatures inside the shelter.
4. Failure to follow CDL's maintenance procedure.
5. Systems that have been started dry (no liquid inside).
6. Production losses caused by problems with the sap lifter.
7. Loss of income caused by the quality of the syrup.
8. Service calls that do not involve malfunctions, manufacturing or material defects, or products that were not used according to the provided instructions.
9. Service calls to check installation or receive instruction on using the sap lifter.
10. Service calls after one year.
11. Damage caused by: repairs made by unauthorized technicians; use of parts other than original CDL parts or parts that were not obtained from an authorized technician; or external causes like abuse, misuse, accidents, fires, or natural disasters.
12. Damage caused by misuse, negligence, modifications made by the customer, or electrical problems.
13. Damage caused by the use of products not intended for use in the sap lifter or misuse of cleaning products.

Disclaimer of implied warranties; Limitation of remedies

The customer's sole remedy under this limited warranty is the repair or replacement of the product as described above. Claims based on implied warranties, including implied warranties of merchantability or fitness for a particular purpose, are limited to one year or the shortest period permitted by law, which shall not be less than one year. CDL Maple Sugaring Equipment Inc. shall not be held responsible for incidental or indirect damages or for material and implicit damages. Some states and provinces do not allow limitations or exemptions on incidental or indirect damages or limitations on implied warranties. In this case, these restrictions or exemptions may not apply. This written warranty gives you specific legal rights. Depending on the state or province, you may have other rights.

If you need to call the repair service

Keep your receipt, delivery note, or other valid proof of payment to establish the warranty period in case you need to call for repairs. If a repair is made, it is in your best interest to obtain and keep all receipts. The service to which you are entitled under this warranty must be obtained by contacting CDL at the address or telephone number below. Your high vacuum sap lifter will be serviced by CDL in Canada. Any features and specifications described or illustrated are subject to change without notice.

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